



COMPREHENSIVE MARKET CHARTS & DATA




[Download Now >](#)

Dow Jones Reprints: This copy is for your personal, non-commercial use only. To order presentation-ready copies for distribution to your colleagues, clients or customers, use the Order Reprints tool at the bottom of any article or visit www.djreprints.com

[See a sample reprint in PDF format.](#)

[Order a reprint of this article now](#)

THE WALL STREET JOURNAL.

WSJ.com

BUSINESS | OCTOBER 31, 2008

Behind AIG's Fall, Risk Models Failed to Pass Real-World Test

By CARRICK MOLLENKAMP, SERENA NG, LIAM PLEVEN and RANDALL SMITH

Gary Gorton, a 57-year-old finance professor and jazz buff, is emerging as an unlikely central figure in the near-collapse of [American International Group Inc.](#)



GARY GORTON

Mr. Gorton, who teaches at Yale School of Management, is best known for his influential academic papers, which have been cited in speeches by Federal Reserve Chairman Ben Bernanke. But he also has a lucrative part-time gig: devising computer models used by the giant insurer to gauge risk in more than \$400 billion of devilishly complicated deals called credit-default swaps.

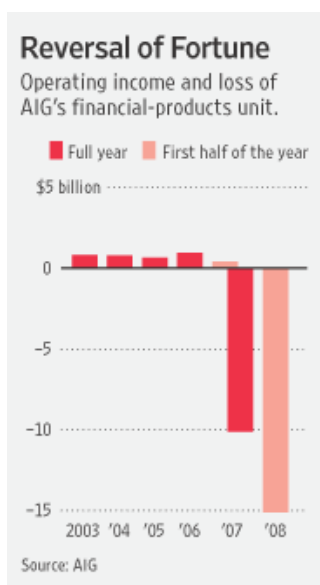
AIG relied on those models to help figure out which swap deals were safe. But AIG didn't anticipate how market forces and contract terms not weighed by the models would turn the swaps, over the short term, into huge financial liabilities. AIG didn't assign Mr. Gorton to assess those threats, and knew that his models didn't consider them. Those risks have cost AIG tens of billions of dollars and pushed the federal government to rescue the company in September.

The global financial crisis is studded with tales of venerable financial firms failing to protect themselves against the unexpected. In the case of AIG, as with many other firms, the financial horrors were hidden in the enormous market for credit-default swaps, which are a form of insurance against defaults on all sorts of debts.

A close look at AIG's risk-management operations, and the rapid-fire chain of events that crippled the firm, raises questions about the run-up to the financial crisis: Did firms like AIG plunge into lucrative but perilous new markets without thoroughly understanding the pitfalls? Had the sheer complexity of the financial products made it all but impossible to fully calculate the risk? And did firms put too much faith in computer models to assess dangers?

The turmoil at AIG is likely to fan skepticism about the complicated, computer-driven modeling systems that many financial giants rely on to minimize risk. As chief executive of [Berkshire Hathaway Inc.](#), which owns insurance companies, Warren Buffett has been sounding the alarm about the issue for years. Recently, he told PBS interviewer Charlie Rose: "All I can say is, beware of geeks...bearing formulas."

Last December, at a meeting with investors, Martin Sullivan, then AIG's chief executive officer, told investors concerned about exposure to credit-default swaps that models helped give AIG "a very high level of comfort." Mr. Gorton explained at the meeting that "no transaction is approved" by the chief of AIG's financial-products unit "if it's not based on a model that we built."



Now, a federal criminal probe in Washington is examining whether AIG executives misled investors at that meeting, and whether any of its executives misled its outside auditor last fall. AIG itself has been forced to post about \$50 billion in collateral to its trading partners, largely to offset sharp drops in the value of securities it insured with the credit-default swaps. These payments have continued to balloon after the bailout -- raising the specter that the government will eventually have to lend more taxpayer money to AIG.

This account of AIG's risk-management blunders is based on more than two dozen interviews with current and former AIG executives, AIG's trading partners and others with direct knowledge of the firm, as well as internal AIG documents, regulatory filings and congressional testimony. Mr. Gorton, who continues to be a paid AIG consultant, referred questions about his role to AIG. Mr. Sullivan declined to comment.

AIG's credit-default-swaps operation was run out of its AIG Financial Products Corp. unit, which had offices in London and Wilton, Conn. In essence, AIG sold insurance on billions of dollars of debt securities backed by everything from corporate loans to subprime mortgages to auto loans to credit-card receivables. It promised buyers of the swaps that if the debt securities defaulted, AIG would make good on them. AIG executives, not Mr. Gorton, decided which swaps to sell and how to price them.

The swaps expose AIG to three types of financial pain. If the debt securities default, AIG has to pay up. But there are two other financial risks as well. The buyers of the swaps -- AIG's "counterparties" or trading partners on the deals -- typically have the right to demand collateral from AIG if the securities being insured by the swaps decline in value, or if AIG's own corporate-debt rating is cut. In addition, AIG is obliged to account for the contracts on its own books based on their market values. If those values fall, AIG has to take write-downs.

Mr. Gorton's models harnessed mounds of historical data to focus on the likelihood of default, and his work may indeed prove accurate on that front. But as AIG was aware, his models didn't attempt to measure the risk of future collateral calls or write-downs, which have devastated AIG's finances.

The problem for AIG is that it didn't apply effective models for valuing the swaps and for collateral risk until the second half of 2007, long after the swaps were sold, AIG documents and investor presentations indicate. The firm left itself exposed to potentially large collateral calls because it had agreed to insure so much debt without protecting itself adequately through hedging.

The credit crisis hammered the markets for debt securities, sparking tough negotiations between AIG and its trading partners over how much more collateral AIG should have to post. [Goldman Sachs Group Inc.](#), for instance, has pried from AIG \$8 billion to \$9 billion, covering virtually all its exposure to AIG -- most of it before the U.S. stepped in.

Such payments continued after the government bailout. AIG already has borrowed \$83.5 billion from the Federal Reserve, a little more than two-thirds of the \$123 billion in taxpayer loans made available to AIG so far. In addition, AIG affiliates recently obtained from the government as much as \$21 billion in short-term loans called commercial paper. Much of the \$83.5 billion has been used to meet the financial obligations of the financial-products unit. If turmoil in the markets causes prices of many assets to fall further, the government might have to cough up more money to help keep AIG afloat. Cutting it off would risk renewing the market upheaval the policy makers have struggled to tame.

Mr. Gorton, the son of a Phoenix psychiatrist, took a circuitous route to academia. He studied Mandarin, considered becoming an actor and briefly drove a cab in Cleveland, where he carried a gun for protection, he later told acquaintances. Eventually, he collected multiple degrees, including a Ph.D. in economics, and joined the faculty of the Wharton School of the University of Pennsylvania.

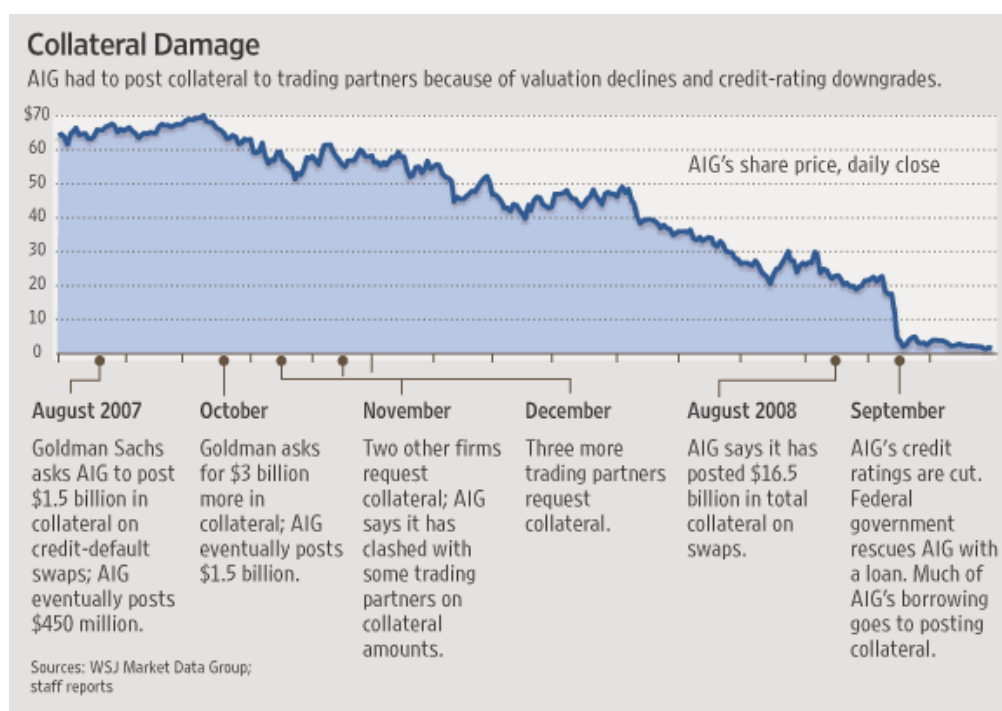
He drove an old Volkswagen Beetle, lived in a gritty North Philadelphia row house and accumulated a vast trove of jazz records, which he would cue up at night on two turntables to keep the music coming, recalls his wife at the time, Rachel Bliss.

He was passionate about mathematics, engaging in late-night conversations with fellow teachers, says Ms. Bliss. One of his academic interests was how banks could unload risk and sell loans to investors.

In 1987, AIG launched its financial-products unit with Howard Sosin, a math expert and former Drexel Burnham Lambert executive. Among his hires were Joseph Cassano, a former Drexel colleague. After Mr. Sosin left, Mr. Gorton joined as a consultant in the late 1990s. Mr. Cassano later took over the unit.

Early on, Mr. Gorton billed AIG about \$250 an hour, which likely would have netted him about \$200,000 a year, says a former senior executive at the unit. Eventually, his pay was far greater; another former colleague estimates it at \$1 million a year.

Mr. Gorton collected vast amounts of data and built models to forecast losses on pools of assets such as home loans and corporate bonds. Speaking to investors last December, Mr. Cassano credited Mr. Gorton with "developing the intuition" that he and another top executive had "relied on in a great deal of the modeling that we've done and the business that we've created."



AIG began selling credit-default swaps around 1998. Mr. Gorton's work "helped convince Cassano that these things were only gold, that if anybody paid you to take on these risks, it was free money" because AIG would never have to make payments to cover actual

defaults, according to the former senior executive at the unit. However, Mr. Gorton's work didn't address the potential write-downs or collateral payments to trading partners.

AIG became one of the largest sellers of credit-default-swap protection, according to a Moody's Investors Service report last week. For years, the business was extremely lucrative. In a 2006 SEC filing, AIG said none of the swap deals now causing it pain had ever experienced high enough defaults to consider the likelihood of making a payout more than "remote, even in severe recessionary market scenarios."

AIG charged its trading partners a fraction of a penny a year for every dollar of credit protection. The company realized, of course, that it might have to post collateral if the market values of the underlying securities declined. But AIG executives believed that such price moves were unlikely to occur, according to people familiar with AIG's operation.

As the debt securities created by Wall Street became more complicated, so did the swaps AIG offered. Around 2004, it began selling swaps designed to provide insurance on securities called collateralized-debt obligations, or CDOs, that were backed by securities such as mortgage bonds. [Merrill Lynch & Co.](#), then a major seller of the CDOs, was a big client.

So-called multisector CDOs, in particular, were exceptionally complex, involving more than 100 securities, each backed by multiple mortgages, auto loans or credit-card receivables. Their performance depended on tens of thousands of disparate loans whose value was hard to determine and performance difficult to systematically predict. In assessing their risk, Mr. Gorton constructed worst-case scenarios that factored in the probability of defaults on the underlying securities.

In late 2005, senior executives at the unit grew worried about loosening lending standards in the subprime-mortgage market. AIG decided to stop selling credit protection on multisector CDOs, partly due to "concerns that the model was not going to be able to handle declining underwriting standards," Mr. Gorton told investors last December. But by the time it stopped, in early 2006, its exposure to multisector CDOs had ballooned to \$80 billion.

By mid-2007, as the housing slump took hold, the subprime mortgage market was weakening and many mortgage bonds were sinking in value. Ratings agencies began downgrading many mortgage securities, a departure from the historical pattern, Mr. Gorton later explained to investors. Concern began mounting about AIG's credit-default swaps, even though AIG didn't have large exposures to subprime-mortgage bonds issued in the worst years of 2006 and 2007.

AIG's trading partners were worried. Goldman Sachs held swaps from AIG that insured about \$20 billion of securities. In August 2007, Goldman demanded \$1.5 billion in collateral, arguing that the assets backing the securities were falling in value. AIG argued that the demand was excessive, and the two firms eventually agreed that AIG would post \$450 million to Goldman, this person says.

Late last October, Goldman asked for even more collateral, \$3 billion. Again, AIG disagreed, and it ultimately posted \$1.5 billion. Goldman hedged its exposure by making a bearish bet on AIG, buying credit-default swaps on AIG's own debt, according to one person knowledgeable about this move.

When AIG's outside auditor, PricewaterhouseCoopers LLP, learned about Goldman's demands, it reviewed the value of the swaps, according to a Pricewaterhouse official cited in minutes of a meeting of the audit committee of AIG's board. Last November, when AIG reported third-quarter results, it took its first major write-down on the swaps, lowering their value by \$352 million.

That same month, collateral calls came in from Merrill and Société Générale SA, says the person familiar with AIG's finances. It's not clear how much those two banks asked for, or how much they got.

AIG decided to talk to investors last Dec. 5 about the financial-product unit's exposure to the mortgage market. A Pricewaterhouse official said his firm told AIG's then-CEO, Mr. Sullivan, and a deputy six days before the event that AIG might have a "material weakness" in its risk management, according to minutes of a Jan. 15 meeting of AIG's audit committee. Pricewaterhouse declined to comment.

In his presentation to investors, held at New York's Metropolitan Club, Mr. Sullivan praised the unit's models as "very reliable" in analyzing many mortgages, saying they had helped give AIG "a very high level of comfort."

Mr. Gorton was introduced. "The models are all extremely simple," he said. "They're highly data intensive." He said he didn't rely on the default-risk predictions of credit-rating services, and instead came up with his own estimates of what was safe enough for AIG to insure.

Mr. Cassano, the unit's head, told investors: "We believe this is a money-good portfolio....As Gary said, the models we use are simple, they're specific and they're highly conservative."

But the collateral calls kept coming. By the end of 2007, at least four other banks that had purchased swaps from AIG -- [UBS AG](#), [Barclays PLC](#), [Credit Agricole SA's Calyon](#) investment-banking unit and [Royal Bank of Scotland](#)

Group PLC -- had asked for money, according to people familiar with collateral calls. **Deutsche Bank** and Canadian banks CIBC and **Bank of Montreal** also have demanded collateral at various points, a person familiar with AIG's finances says.

In February, AIG disclosed that Pricewaterhouse had found a "material weakness" in its accounting controls. Late that month, AIG announced a \$5.3 billion fourth-quarter loss, its largest ever, driven largely by write-downs on the swaps. It also said it was "possible" that actual losses on the swaps could be material.

Mr. Sullivan told investors that Mr. Cassano, the unit's head, was retiring. He remained a consultant, receiving, until recently, \$1 million a month, according to a document later released by Congress.

In May, AIG announced another record quarterly loss, of \$7.8 billion, largely driven by write-downs of the value of the swaps. That same month, Yale's School of Management announced it had hired Mr. Gorton away from Wharton.

Mr. Sullivan was ousted in June. As of July 31, AIG had handed over \$16.5 billion in collateral on its swaps, according to a regulatory filing.

By August, AIG had increased its estimates for what it might ultimately lose on the swaps in the case of defaults to as high as \$8.5 billion. (The estimates are distinct from potential losses on write-downs and collateral calls.) That same month, Mr. Gorton attended the Federal Reserve Bank of Kansas City's annual gathering in Jackson Hole, Wyo. He presented a 92-page paper, "The Panic of 2007," which explained how the financial markets came unglued after a series of unexpected events, such as when clients of financial firms suddenly sought to reclaim assets put up as collateral. "It is difficult to convey," he wrote, "the ferocity of the fights over collateral."

Credit markets worsened in late August and September, and AIG's trading partners demanded additional collateral. When Lehman Brothers Holdings Inc. filed for bankruptcy protection on Sept. 15, bond markets essentially froze. That same day, rating agencies slashed AIG's credit ratings. Company executives figured the downgrade would require AIG to post more than \$18 billion in additional collateral to its trading partners, according to a person familiar with the matter. Worried that a bankruptcy filing could roil markets world-wide, the government stepped in with a bailout.

The rescue didn't stop the collateral calls, which have eaten up much of the government's initial \$85 billion loan commitment, which on Oct. 8 it boosted to \$123 billion.

On a rainy morning last week, Mr. Gorton briefly discussed with his Yale students how perplexing the struggles of the financial world have become. About 30 graduate students listened as Mr. Gorton lamented how problems in one sector caused investors to question value all across the board. Said Mr. Gorton: "There doesn't seem to be a fundamental reason why."

Write to Carrick Mollenkamp at carrick.mollenkamp@wsj.com, Serena Ng at serena.ng@wsj.com, Liam Plevin at liam.plevin@wsj.com and Randall Smith at randall.smith@wsj.com

Printed in The Wall Street Journal, page A1

Copyright 2009 Dow Jones & Company, Inc. All Rights Reserved

This copy is for your personal, non-commercial use only. Distribution and use of this material are governed by our [Subscriber Agreement](#) and by copyright law. For non-personal use or to order multiple copies, please contact Dow Jones Reprints at 1-800-843-0008 or visit www.djreprints.com