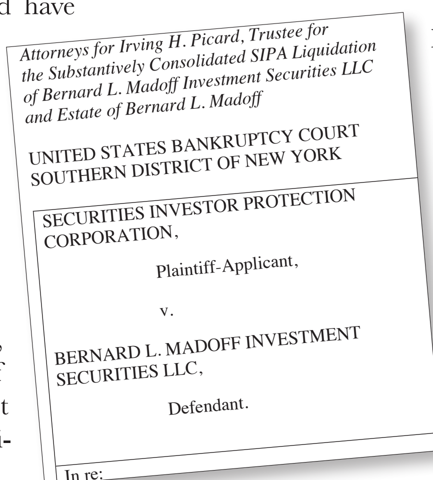
If Only They Had Listened

Could the worst crisis since the Great Depression have been averted if executives at some of the fallen financial firms paid attention to early warnings from their risk management departments? Evidence is mounting that many such signals were overlooked.

By Michael Shari

Ever since a credit crunch in 2007 set the scene for the market collapse of 2008, financial industry executives and their risk managers have been haunted by "might have beens." What would have happened, for example, if loan underwriters had slammed the brakes on risky mortgages, or if regulators had reined in derivatives markets, or if the most globally powerful, interdependently connected banks had awakened to their counterparty exposures and took timely steps to mitigate them?

Most consequentially, in the hopeful context of not wanting to repeat past mistakes, would there have been a better outcome if those responsible for the risk management function had had a greater say in the way financial institutions were run? James Wiener, leader of the North American finance and risk management practice of consulting firm Oliver Wyman Group, believes "the answer is a somewhat qualified yes."



Attorneys for Irving H. Picard, Trustee for the Substantively Consolidated SIPA Liquidation of Bernard L. Madoff Investment Securities LLC and Estate of Bernard L. Madoff

UNITED STATES BANKRUPTCY COURT
SOUTHERN DISTRICT OF NEW YORK

SECURITIES INVESTOR PROTECTION CORPORATION,

Plaintiff-Applicant,

v.

BERNARD L. MADOFF INVESTMENT SECURITIES LLC,

Defendant.

In re:

Madoff bankruptcy claim: a window on wrongdoing.

Indeed, until recently, any answer to such hypothetical questions could hardly have been precise and verifiable. But documents that had previously been private or confidential – from long post-mortem analyses to bullet-pointed presentations to e-mail correspondences – have entered the public domain by way of private and government investigations and court proceedings. They provide stark insights not only into the failures or near-collapses of firms such as Bear Stearns Companies,

Illustration by Michael Morgenstern

Missing Madoff

By Michael Shari

The few global banks that avoided the real estate derivatives that laid low Bear Stearns, Lehman Brothers and AIG still missed valuable opportunities to stem other extreme losses. A case in point is HSBC, whose proprietary trading desk invested in funds managed by Bernard L. Madoff Investment Securities. Clients of the bank's custodial service also invested in those funds.

In two reports to HSBC, dated February 16, 2006, and September 8, 2008, the accounting and consulting organization KPMG raised red flags about fraud risk and operational risk at the Madoff firm. Yet the bank's 2008 results included a $984 million charge against trading income, which contributed to a 62% decline in pretax profits, according to HSBC's annual report for that year.

It is unclear who at the bank commissioned the reports or how they may have influenced trading decisions, if at all. But they are described in detail in a lawsuit against HSBC filed by Irving Picard, the court-appointed trustee for the liquidation of Madoff Securities, on December 6, 2010 in U.S. Bankruptcy Court for the Southern District of New York. Alleging that HSBC "perverted" the KPMG reports and used them as "marketing" material that "encouraged" its custodial clients to invest in Madoff funds, the suit sought on behalf of investors $6.6 billion in damages and $2.4 billion for fraudulent transfers and fees.

In the first of the two KPMG reports, the warnings were said to be encapsulated in a list of 19 issues that included the "falsification" of client mandates and trading commissions, as well as "embezzlement of client funds" and "diversion of client funds for Madoff's personal gain." The second report, issued three months before Bernard Madoff's arrest for running a multibillion-dollar Ponzi scheme, warned that HSBC clients' investments accounted for 33% of Madoff Securities' assets under management.

The risk management failings of Bear Stearns and Lehman look almost tame in comparison. "One important difference is that [the] Madoff warnings were about fraud, while [those at] Lehman were about folly," says New York University finance professor and Nobel laureate Robert Engle.

The Madoff fraud could continue to incur costs for other banks that, like HSBC, are regarded as having survived the crash of 2008 relatively unscathed. On December 3, Picard filed charges against JPMorgan Chase & Co. alleging complicity in the fraud and claiming damages of $5.4 billion plus nearly $1 billion in supposed profits and fees. While the suit was under seal in the bankruptcy court, Picard's lawyer, David Sheehan, said in a statement that JPMorgan was "willfully blind to the fraud."

Asked for comment on the accusations, spokespeople for HSBC in London and JPMorgan in New York said that they were groundless and that the banks would vigorously defend themselves.

Lehman Brothers Holdings, American International Group and UBS, but also specific examples of how their managements had received clear warnings of impending catastrophes and failed to heed them for at least a couple of years before the crisis became full-blown in 2008.

None of these institutions, the records show, paid enough attention to risk management until it was too late, and the rest of Wall Street, the international financial services industry and the economy at large are still paying a heavy price.

These hard facts and tantalizing what-ifs tempt yet another question: Would history have unfolded differently if these major investment banks had paid attention and reacted to those warning signs? The answer is not a simple one.

First of all, these firms would have had to have started listening to their risk managers in 2005 or 2006, when, Wiener recalls, he and other advisers started telling bankers and regulators that "a lot less" subprime and option ARM, or adjustable-rate mortgage, debt should be underwritten. They were also recommending that risk managers be given "appropriate stature" within firms.

At the same time, much more powerful forces were at work that would have precipitated at least a muted recession or market slowdown whether or not these firms had imploded. Such was the impact of, for example, a 30%-plus fall in housing prices, notes Wiener.

What is clear from the documentation is that these firms missed one opportunity after another to identify risks that later turned out to be critical, and thus never initiated the drastic course correction that would have been required to avert disaster. The revelations boldly and specifically underscore what the Senior Supervisors Group, consisting of officials from seven U.S. and European regulatory agencies, observed as early as March 2008: that bank managements "did not probe or challenge" risk measures based on outdated or inflexible assumptions "that proved to be wrong."

In a follow-up report a year and a half later, the Senior Supervisors Group cited "a key weakness in governance stem[ming] from what several senior managers admitted was a disparity between the risks that their firms took and those that their boards of directors perceived the firms to be taking."

Academic observers and other risk management experts retrospectively derive from these documents a litany of timeless lessons – not just about what went wrong, but also about potential solutions to prevent the next crash.

As Adair Turner, chairman of the U.K. Financial Services Authority, summed up at that agency's July 2009 annual meeting, high leverage, massive trading volumes and complex innovations caused the financial system to "blow up spectacularly. And some of the intellectual foundations on which it was based – the reliance on the self-correcting nature of financial markets and on the effectiveness of market discipline in controlling risk-taking – have turned out to be profoundly mistaken. We need to learn the lessons and build a sounder system for the future."

Unprepared Bear

One of the most striking pieces of evidence emerged from the investigatory efforts of the Financial Crisis Inquiry Commission, which was impaneled by the U.S. Fraud Enforcement and Recovery Act of 2009 and is scheduled to close its doors in February. This 16-page presentation, "Management Committee: Risk Governance Diagnostic Recommendations and Case for Economic Capital Development," by Andrew Kuritzkes, then head of the North American public policy practice at New York-based Oliver Wyman, was marked "confidential" and e-mailed to a slew of Bear Stearns managers including Sam Molinaro, then chief financial officer and chief operating officer, one day before a February 5, 2008 management committee meeting.

Andrew Kuritzkes, then an Oliver Wyman consultant to Bear Stearns, made an eleventh-hour pitch to top executives of a long-term plan for corrective action.

Even as Bear was on the brink of collapse – CEO James Cayne had just resigned after announcing $1.9 billion of losses on investments in asset-backed securities that were exposed to subprime mortgages – Kuritzkes made one last attempt to persuade the senior team to do "things that we had been advising our clients on coming out of the last recession in 2003," Wiener recalls.

Kuritzkes, who joined State Street Corp. as chief risk officer in August (see the October 2010 *Risk Professional*), declined to comment for this article. But his report could hardly have stated more bluntly that Bear suffered from so many "gaps in risk management" that it was flying blind.

Kuritzkes pointed to inconsistencies in the application of risk measurement tools. Even regarding the common, widely accepted value-at-risk approach, Kuritzkes found and warned of "cultural resistance" in some quarters at Bear. He therefore concluded that "no single metric for financial risks" existed at the firm, so there was "no way to compare and aggregate different kinds of risk on an apples-to-apples basis." Kuritzkes determined that Bear needed a "well-embedded VaR framework plus stress testing," which he said he had observed at Bear's peers.

The VaR deficiency was only an indication of wider faults. Robert Engle, Michael Armellino professor of finance and director of the Center for Financial Econometrics at New York University's Stern School of Business, contends that any application of VaR at Bear Stearns could only have led it to underestimate its exposure to subprime mortgage risks. "VaR is a measure of short-run risk – what could happen in the next day or the next week – whereas mortgages are characteristic of long-run risk," explains Engle, winner of the 2003 Nobel Prize in economics. "If you are taking on a lot of leverage in a low-volatility environment, you are just getting your risk up to some sort of reasonable level. So if you can double your position by borrowing money, then your value at risk would double. But volatility being low meant that that was the sensible thing to do. As soon as volatility went up, all these positions became extremely risky."

Common Missteps

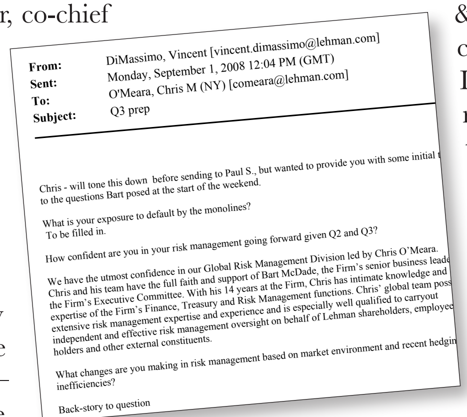
This problem was not unique to Bear. A 68-page "Shareholder Report on UBS's Write-Downs" was issued by the Zurich-based banking giant on April 22, 2008 at the behest of Switzerland's FINMA (Financial Market Supervisory Authority) to detail how UBS had lost $18.7 billion from its exposure to subprime-mortgage-backed securities in 2007. The bank attributed the losses partly to an "overreliance on VaR." The report went on to say that UBS's market risk control group "relied on VaR and stress numbers, even though delinquency rates were increasing and origination standards were falling in the U.S. mortgage market. It continued to do so throughout the build-up of significant positions in subprime assets that were only partially hedged."

Further, members of the market risk control group did not provide in presentations to senior managers "adequate granularity of subprime positions" in their various businesses. "No warnings were given to group senior management about

the limitations of the presented numbers or the need to look at the broader contextual framework, and the findings were not challenged with perseverance," said the 2008 report.

At Bear Stearns, in addition to the VaR issue, Kuritzkes listed other problems in risk-related processes and organization: "no formal framework for risk appetite," "no clear process for approval of major trades," a "lack of coherent limit structure with consistent enforcement," "underdeveloped processes for strategic risk assessment," a "lack of mandate for the risk policy committee," and a "lack of institutional stature for [the] risk management group."

Kuritzkes also found that a "clear process for the approval of major trades" was lacking. He attributed this to the departure of Warren Spector, co-chief operating officer and president, in August 2007, just as the subprime mortgage market was collapsing. The consultant determined that Bear's risk management group was "not effectively positioned to challenge front-office decisions" – which were, of course, the decisions that had led to piling risks on top of risks.



From: DiMassimo, Vincent [vincent.dimassimo@lehman.com]
Sent: Monday, September 1, 2008 12:04 PM (GMT)
To: O'Meara, Chris M (NY) [comeara@lehman.com]
Subject: Q3 prep

Chris - will tone this down before sending to Paul S., but wanted to provide you with some initial t[illegible] to the questions Bart posed at the start of the weekend.

What is your exposure to default by the monolines?
To be filled in.

How confident are you in your risk management going forward given Q2 and Q3?

We have the utmost confidence in our Global Risk Management Division led by Chris O'Meara. Chris and his team have the full faith and support of Bart McDade, the Firm's senior business leade[illegible] the Firm's Executive Committee. With his 14 years at the Firm, Chris has intimate knowledge and expertise of the Firm's Finance, Treasury and Risk Management functions. Chris' global team poss[illegible] extensive risk management expertise and experience and is especially well qualified to carryout independent and effective risk management oversight on behalf of Lehman shareholders, employee[illegible] holders and other external constituents.

What changes are you making in risk management based on market environment and recent hedgin[illegible] inefficiencies?

Back-story to question

Lehman e-mail raised risk questions late in the game.

Similar conclusions can be drawn from internal e-mails that were subpoenaed in the Lehman Brothers bankruptcy. "Risk appetite measures were not effective in establishing clear enough warning signals that the firm was taking on too much risk relative to capital," Vincent DiMassio, Lehman's global head of quantitative risk management, said in a September 1, 2008, message to Chris O'Meara, then the firm's chief risk officer. "The [risk management] function lacked sufficient authority within the firm. Decision-making was dominated by the business. In addition, the executive committee lacked sufficient counterweight to challenge the business' aggressive and optimistic views and analysis," DiMassio added.

Nine days later, Lehman reported a $3.9 billion loss for its fiscal third quarter, and on September 14, Lehman filed for bankruptcy.

Risk limits were ignored at Lehman, according to Anton Valukas, the court-appointed examiner in the bankruptcy proceedings. In a 2,200-page report dated March 11, 2010, Valukas, a former U.S. attorney for the Northern District of Illinois who now practices law at Jenner & Block in Chicago, relates how Lehman raised its risk appetite three times between December 2006 and December 2007, from $2.3 billion to $4 billion.

But the firm omitted its largest risk, a $2.3 billion bridge equity position in the Archstone-Smith Real Estate Investment Trust, which owned interests in more than 400 apartment communities in the U.S. and Europe, from its "risk usage calculation," the report said.

"Lehman management decided to disregard the guidance provided by Lehman's risk management systems. Rather than adjust business decisions to adapt to risk-limit excesses, management decided to adjust the risk limits to adapt to business goals. We found that the Securities and Exchange Commission was aware of these excesses and simply acquiesced," Valukas testified on April 20 before the House Financial Services Committee.

Voices Raised

It's not as if risk professionals had not tried to point these troubled firms in the right direction. Revealing the depth of Kuritzkes' protracted consultations at Bear, by the time his February 2008 report was camera-ready, he offered a detailed, three-phase plan to bolster the risk management practices and bring them into line with those of peers over two and a half years.

First, Bear was to have formed a risk policy committee within one month "to govern all credit and market (financial) risks." Kuritzkes envisioned the committee focusing on risk appetite, setting risk limits and concentrating on strategic risk assessment. He recommended creating, under the risk policy committee, a five-member trading risk committee "with authority to review and approve large transactions above agreed business line limits."

He also called for an expanded role for the firm's existing risk management group, which would maintain a dialogue with different parts of the company. Within the first phase, which would have lasted six months, Kuritzkes called for Bear's chief risk officer to hire additional personnel, including a new analytical team, and the firm would have taken time to identify high-level systems requirements. Then, a one-year rollout phase would have involved risk-profile monitoring, risk reporting, capital adequacy and operating risk-scenario analysis, economic-capital-based limits, integrated stress testing and capital forecasting.

The final, "embedded use" phase, which would have run from July 2009 until late 2010, would have focused on the economic-capital-based risk appetite framework and "risk decisioning."

Levels of Resistance

The plan outlined by Kuritzkes, according to several experts who have perused it, represented state-of-the-art risk management and a credible attempt to transfer the actual power to manage risk from the front office to a centrally coordinated body.

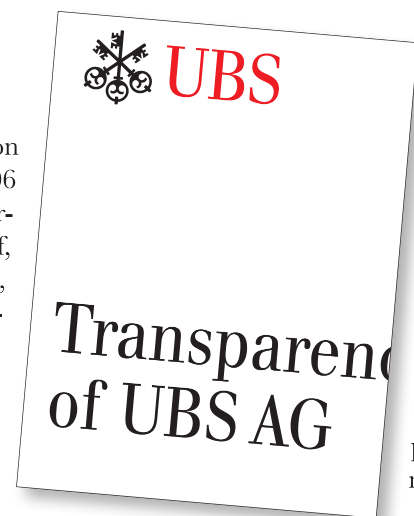
"Risk managers had no power in the company," says NYU's Engle. He characterizes the attitude of the front office as: "I hear noise in the background. Who is making this noise?" Engle adds, "It's easy to humiliate a risk manager like that, because dollars are coming in now, but the risks are in the future."

At times, the indignities suffered by risk managers were worse than just being shunned or shunted aside. "There are a lot of examples in almost every one of these cases of shooting the messenger, which obviously does not engender a healthy risk management culture," says Richard Herring, a finance professor at the University of Pennsylvania's Wharton School and co-director of its Financial Institutions Center.

Valukas' report delves into a decision by Lehman Brothers CEO Richard Fuld to remove Michael Gelband as acting global head of the fixed income division. Gelband had "decided to leave the firm to pursue other interests," the firm announced on May 1, 2007.

In reality, the report says, "Gelband was removed from the position for several reasons, including that he was not aggressive enough in growing the business in accordance with Fuld's long-term revenue targets."

Valukas wrote that the firm "vastly exceeded its risk-appetite limits for the high-yield business" on numerous loans in 2006 and 2007. From an interview with Roger Nagioff, who succeeded Gelband, Valukas traced the Fuld-Gelband rift to a deal with Houston-based natural gas company Eagle Energy Partners. Lehman had acquired a third of Eagle's equity in 2006, then added the remaining two thirds in a complicated May 2008 transaction that left Eagle owing Lehman $663.9 million. Valukas quoted Nagioff as saying that "Gelband's opposition to the Eagle Energy deal was the last straw." That latter deal's announcement came on May 9, eight days after that of Gelband's departure.



UBS faced up to its failures in lengthy reports.

There are also indications that risk management jobs were not designed with enough authority to attract strong leadership. A case in point: Kentaro Umezaki was head of fixed income strategy at Lehman when, according to sources familiar with the matter, he was asked to consider taking the position of chief risk officer. (The job was at that point held by Chris O'Meara, and previously by Madelyn Antoncic. Coincidentally, one of their predecessors, Maureen Miskovic, later became CRO of State Street Corp., where a new CEO, Jay Hooley, hired Kuritzkes from Oliver Wyman to succeed her. Miskovic became UBS's CRO in January.)

While apparently considering the offer, Umezaki said in a September 10, 2008, e-mail to Herbert "Bart" McDade, nearly three months after McDade had been named president of the firm and just before it went under, "Key issue for me: does the role have real authority? 'Teeth' if you will? Please clarify. It's a key aspect of my interest, and ultimate success of the role. Having thought about it more, if no teeth, then it's really not different than past roles, and I'm not interested."

Technology Fell Short

Another issue that has come to light is a failure to employ information technology effectively. A 60-page report on the AIG case, released by the congressional TARP (Troubled Asset Relief Program) Oversight Panel on June 10, described the securities lending business of AIG's life insurance subsidiaries as "a blatant risk management failure" and identified "shortfalls in its technological infrastructure" as a contributor to the insurer's financial troubles.

"While the systems within the individual businesses may have been adequate," the report said, "discussions with several market observers point to systemic technology issues that may have prevented AIG from adequately measuring its aggregate risk exposures and interconnections. In this context, it may have been difficult for management and regulators to see the whole picture across AIG's vast, interconnected business operations."

According to Herring at the Wharton School, AIG had squandered an opportunity to build a single, unified IT structure that would have addressed the issue identified in the oversight report. Having expanded through multiple acquisitions, AIG had a "hodgepodge" of legacy systems, he says, that made accurate, timely, fully integrated assessments

RETROSPECTIVE

RETROSPECTIVE

of the company and its exposures next to impossible.

"They had no idea how much money they needed," asserts Herring. As a result, after the U.S. Treasury took control of AIG in November 2008, the rescue costs kept mounting – from an initial $85 billion credit line from the Federal Reserve Bank of New York in September 2008 to $182.3 billion by January 2010.

Yet other firms lacked the necessary metrics without pointing fingers at IT. A second report by UBS, a 73-page opus on October 14, 2010, billed as a "Transparency Report" to shareholders, admitted to "internal factors, primarily organizational shortcomings and the lack of adequate controls inside the bank" as causes of its subprime woes.

UBS investment bank's management had "no overall assessment of risk positions" and "was not aware of the extent of its default risk exposure until the end of July 2007." The reason? A "false sense of security despite warning signs" long before the financial crisis erupted. "Toward the end of 2006, that is, approximately one year prior to the outbreak of the financial crisis, it became apparent that the growth of the U.S. real estate market might be turning into a speculative bubble. These concerns were not shared by UBS," the report said.

Concurrently, it added, the Swiss bank's wealth management operations had suffered "in part from the insufficient enforcement and the lack of adequate control of internal regulations, and in part from a corporate culture that did not address violations of regulations by individual employees vigorously enough."

Slow Reactions

One reason that glaring risk management weaknesses were left to fester well into the crisis period, says Herring, is that executives of these firms followed the fateful pattern of waiting "until a frantic weekend when nobody had had any sleep" before addressing them. Only after the crisis was full-blown in 2008 did Bear and Lehman call eleventh-hour crisis meetings and entertain desperate measures to stay in business.

Only after JPMorgan agreed to acquire Bear Stearns on March 16, 2008, for $2 a share, less than a tenth of Bear's market price two days earlier, did Lehman reexamine the assumptions used in its own stress tests. Internal Lehman documents now show that management had revised the firm's risk profile in the wake of Bear's collapse and, as a result, management was confident that Lehman would not suffer its defunct rival's fate.

In a 24-page presentation dated July 2008, marked confidential but later released under the Freedom of Information Act, Lehman said that "the speed at which the crisis evolved ($17 billion liquidity loss at Bear Stearns in 48 hours) made us refine our liquidity stress scenario." Lehman's "revised liquidity stress scenario is significantly more conservative than what we experienced during the week of March 17," the presentation said.

That message, however, may have been more of a sales pitch than a frank risk update. "At that point, it was not so much the application of risk analysis as it was an attempt to either get a partner or sell the business, which was the focus of what they were doing," Valukas tells *Risk Professional* in an interview. "They were stuck with what they were stuck with."

These document trails are far more than just static historical records. They chronicle mistakes and missteps that publicly listed financial services companies can and should avoid in the future. For starters, says Engle, VaR should be done away with as an industry-standard metric. "There are alternative measures that are better," he argues. "The same definition [of risk] is being used for much longer horizons to see what the worst-case outcome with some probability looks like. These long-term VaRs incorporate the risk that the risk will change."

Robert Engle of New York University's Stern School of Business observed a culture in which "risk managers had no power" and their pronouncements were dismissed as background noise.

Compensation and Transparency

According to Herring, management should have incentives not to wait until the last minute to confront urgent risk issues, which is exactly what Bear Stearns' management committee was doing in its meeting with Kuritzkes just three weeks before JPMorgan acquired the firm. Herring maintains that because managers are also shareholders, they are reluctant to take steps that would dilute or devalue their equity holdings. He believes measures such as issuing new shares or selling off business lines, if initiated a year earlier, could have saved Bear.

"Unfortunately, management is not inclined to pay much attention to risk management until they see it facing them in the eyes," says Herring. "If you own a good percentage of equity, you are really averse to dilution, and the incentives get sort of screwed up."

Instead of restricted stock, Herring suggests, incentive-based compensation should be in the form of convertible bonds that automatically convert into equity if the share price falls below a certain level. If this policy were enshrined in law, he says, all banks would adopt it, and it would not become a competitive issue.

Advocating another change in business practice, Engle at NYU's Stern School says banks should be required to issue more transparent reports like those of UBS in the wake of its subprime losses. That would make it "easier for investors to understand the risks that these companies are taking," says Engle, who considers investment banks' aggressive moves into subprime mortgage-backed assets to have been a simple reaction to shareholder pressure to increase profits and raise stock prices.

Further, Herring says that every large, systemically important bank should have to have a well-defined resolution plan that would allow it to wind down its operations with minimal impact on the markets.

On the question of whether the stories would have unfolded differently if the most troubled, systemically significant firms had addressed their risk management issues earlier and successfully, Oliver Wyman's Wiener says, "It is possible that in 2005, 2006, the industry could have charted a different course."

Looking ahead, Herring articulates a hard lesson that risk managers and their bosses have had to learn, and that will have to be proven in the face of the next crisis: "If you don't have a good risk culture in place in good times, it's too late once bad times come."

Catalogue of Folly

By Katherine Heires

A late 2010 book release, "All the Devils Are Here: The Hidden History of the Financial Crisis" (Portfolio Hardcover), by journalists Bethany McLean of *Vanity Fair* and Joe Nocera of the *New York Times*, could just as easily have been called "All the Warnings Were There: The History Was Not-So-Hidden But Was Largely Ignored."

More than a few individuals whom the book chronicles – among them government officials, housing analysts and consumer advocates – perceived problems in the subprime market early on, foreshadowed foreclosure woes and derivatives hazards and tried, unsuccessfully, to sound alarms.

Among those in this category was Brooksley Born, chairman of the Commodity Futures Trading Commission from 1996 to 1999, who pushed to regulate over-the-counter derivatives but was blocked at every turn by Federal Reserve Board chairman Alan Greenspan and Clinton administration brain-trusters Robert Rubin and Lawrence Summers.

Another was James Bothwell, who in 1994, as director of financial institutions and markets of the congressional agency then known as the General Accounting Office, surveyed derivatives dealers, was astounded by their lack of regulatory oversight and concluded that they posed potentially significant systemic risks. He, too, got no support from above.

In an interview with *Risk Professional*, Nocera pointed to the late Edward Gramlich, who as a Fed governor from 1997 to 2005 was an early and persistent critic of subprime mortgages. Gramlich described that market as having "no cops on the beat" but was unable to persuade Greenspan to approve a more aggressive regulatory stance.

Nocera, who also wrote "Risk Mismanagement," the *New York Times Magazine* cover story of January 9, 2009, said the would-be whistleblowers were frustrated by the fact that "most people didn't really make the connection between what was going on in subprime land and what was happening on Wall Street," as in the now notorious collateralized debt obligations, synthetic CDOs and CDOs of CDOs.

The "Devils" co-author also pointed out that most people working on Wall Street, until the crisis loomed, "thought that their risk models were invulnerable and that a triple A [rating] really was a triple A, but that started to change by the spring of 2007 when the smart people, like Goldman Sachs, started to reposition their portfolios."

Indeed, even some on Wall Street began to speak out. Nocera mentioned Greg Lippmann, a head of CDO and asset-backed trading at Deutsche Bank, who became – as the book describes it – "Wall Street's most enthusiastic salesman for shorting subprime mortgages." He handed out t-shirts that read, "I'm short your house."

Steven Eisman, whose short positions in mortgage securities made huge profits for Morgan Stanley-owned hedge fund Front-Point Partners and made him a star in Michael Lewis' 2010 best-seller "The Big Short" (W.W. Norton & Co.), took Standard & Poor's to task during a July 2007 conference call, asking why it had taken so long to downgrade mortgage-backeds after "your ratings have been called into question for many, many months."

Nocera lavished compliments on Goldman Sachs, which, despite taking a public relations beating, came through the crisis with a strong bottom line. "Whatever you think about Goldman Sachs," said Nocera, "they offer the appropriate model for risk management, with a risk committee that can override any trade at any time with no argument. When the crisis came, the firm had far less exposure than their competition."