STERN FACULTY RUSH TO RESPOND WITH A PLAN—AND WASHINGTON LISTENS

by Jill Hamburg Coplan

CRISIS TIMELINE

2007

01.07 - 03.07 More than 25 U.S. subprime mortgage lenders go **BANKRUPT.**

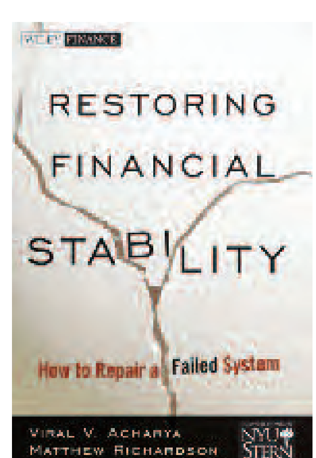
04.07 **NEW CENTURY FINANCIAL CORP.**, the nation's second-largest subprime mortgage lender, **FAILS.** Most believe it is just an isolated incident.

ECONOMY:

On Friday, September 12, Viral V. Acharya sat beside boxes of belongings in his new Manhattan apartment. The finance professor had just moved from London to take a position at the Leonard N. Stern School of Business, but he couldn't even think about unpacking. Instead, he sat glued to CNN and CNBC as a fast-moving global financial emergency unfolded. At the center was Lehman Brothers, the storied, 158-year-old investment house, teetering on the verge of collapse.

For two years, Acharya, a bank regulation specialist and former academic adviser to the Bank of England, had followed the simmering credit crisis, created when risky mortgages, made to borrowers with poor credit histories, went into default, taking dozens of so-called "subprime" lenders down with them. But this was drama of a different order: If Lehman failed, with nearly $650 billion in assets, it would be the biggest bankruptcy in American history. "I had the instinct that evening: This is really going to be a disaster," Acharya says. "It was like a movie, like something you read about in books."

He was right. By Monday, September 15, Lehman had not only failed but a nearly insolvent Merrill Lynch had sold itself to Bank of America, and the giants Morgan Stanley and Goldman Sachs were floundering near collapse (and would soon convert from high-flying investment banks into bank holding companies)—all because their enormous stashes of complex, mortgage-backed derivatives now appeared to be practically worthless. The next day, the money-market system underpinning global commerce seized up for the same reason, and the Federal Reserve mounted an emergency rescue of the world's largest insurance company, AIG. A few days later, Washington Mutual was seized by the FDIC.



At Stern, the conversation in faculty meetings, in the halls, and on blogs went into overdrive. Dean Thomas F. Cooley called for an emergency brainstorming session. The school's Board of Overseers had asked him for a response to the meltdown—something big, in writing. "At a moment like this, at a business school, with the wealth of knowledge we have gathered, one puts it all in perspective," Cooley says. The question he posed to his faculty was simple: "What do we really need to do?"

06.07

Two highly leveraged **BEAR STEARNS HEDGE FUNDS** invested in subprime asset-backed securities **plunge in value, then shut.**

MERRILL LYNCH, a creditor, ***can't find buyers*** for the funds' assets, revealing their worthlessness. ***THE CRISIS BEGINS TO SPREAD…***

08.07

HEDGE FUNDS experience **MASSIVE MELTDOWNS** in one week.

French bank **BNP PARIBAS** ***freezes*** the short-term lending market as popular investment vehicles are revealed to be supported by toxic subprime assets, erroneously rated triple-A.

CRISIS GOES GLOBAL: France, China, and others report subprime-related losses.

09.07

THE FEDERAL RESERVE starts ***cutting rates.*** Banks start hoarding, lending interbank only overnight, rather than the conventional three months.

10.07

Banks begin writing down **BILLIONS OF DOLLARS in mortgage-backed derivatives.**

The new book describes the growth, and implosion, not only of megabanks but of the risky shadow banking system they parked outside the reach of regulators.

CODE RED

Wiley recently published their answers in the new book *Restoring Financial Stability: How to Repair a Failed System*. Edited by Acharya and financial economics professor Matthew Richardson, and compiling 18 white papers authored by 33 scholars, the book describes the growth, and implosion, not only of megabanks but of the risky shadow banking system they parked outside the reach of regulators. It documents how investment banks, insurers, hedge funds, and others invested long-term, while funding their holdings short-term—a prescription for runs and instability. Ultimately, the book lays out a new style of "systemic" financial regulation, designed to monitor and defuse emerging dangers in today's rapidly shifting, deeply interconnected global economy.

In February, the book was in the hands of President Obama's economic team—Treasury Secretary Timothy F. Geithner and Lawrence H. Summers, who heads the White House's National Economic Council. Dean Cooley notes that Stern also sent galleys to "the people we know at the Fed," the Bank of England, and the most powerful policymakers on Capitol Hill. The House Oversight Committee on the bailout requested 10 copies. At press time, when Geithner revealed new plans for the biggest overhaul of financial regulation since the Great Depression, the book's recommendations were much in evidence. "We have had a role, for sure, in shaping the debate," Cooley says.

The book, like the crisis, was significant for another reason: Academics, accustomed to spending years on major projects, had to deliver it to the publisher in just six weeks. To get it rolling, professor Ingo Walter, vice dean of faculty, drew up a blueprint, created a faculty e-mail list called CrisisFac, and blasted an announcement soliciting contributions: "This is probably the most important event of our lifetime." Three dozen economists signed on that day. Richardson, a capital markets expert who runs Stern's Salomon Center for the Study of Financial Institutions, managed the process.

Contributors gravitated to areas where they'd done research and in many cases advised government. Some had worked on securities and derivatives exchanges, others with central banks and public agencies, such as the Federal Home Loan Bank. They'd testified before Congress on the Savings & Loan crisis, rating agencies, and the 1999 repeal of the Glass-Steagall Act, the milestone that tore down the wall among banks, brokerages, and investment managers—creating the megabank model that, the economists would write in the book, had proven a failure.

Throughout the month that they prepared the book, the Stern economists circulated ideas in hundreds of e-mails. In the home stretch period of comments and revisions,

2008

U.S. STOCKS FALL 8% amid the largest drop in U.S. home sales in 25 years.

After a run on **BEAR STEARNS**, the government arranges **JPMORGAN CHASE'S PURCHASE OF THE INVESTMENT BANK** ^ *for $2/share, down from $172 /share only months earlier* by guaranteeing $29 billion in toxic securities.

FDIC SEIZES INDYMAC, in one of the largest bank **FAILURES** in U.S. history.

"This is probably the most important event of our lifetime."

VICE DEAN INGO WALTER

FANNIE MAE AND FREDDIE MAC experience huge losses in their **$5.2 TRILLION DEBT PORTFOLIOS,** creating a systemic risk. The government puts them into conservatorship and replaces their leaders.

158-year-old **LEHMAN BROTHERS,** with $639 billion in assets, files for the **LARGEST BANKRUPTCY in U.S. history**

a single economic question posed on the listserv generated 60 e-mails in 45 minutes, and these online debates, Acharya and Richardson say, sometimes flourished at 4 AM. Just before the deadline—while the crisis continued and the United States doubled the funds committed to failing insurer AIG and spent $125 billion on equity stakes in major U.S. banks—the authors presented papers at nine back-to-back roundtables. Then Acharya and Richardson pulled six all-nighters to finalize the manuscript.

The book's recommendations would end up representing a collaborative agreement, reached through weeks of aggressive debate. The most vociferous disagreements were over whether bankers' pay should be regulated and what role monetary policy should play during a bubble. While they differed on these points, they did agree that financial institutions that pose systemic risk should be forced to buy insurance against catastrophic losses.

The book narrates the years leading up to the financial crisis, when easy availability of credit fueled a housing bubble and a boom in lending during which loan standards plummeted. Banks packaged or "securitized" high-risk mortgages into trillions of dollars of exotic, little-traded instruments, which were bought and sold in an unregulated, over-the-counter market. Unlike with simpler derivatives, such as futures and options, there was no central clearinghouse where everyone could see who's trading what. Now, thanks in part to the new book, that's set to change.

As the underlying risky loans' interest rates ballooned, homeowners defaulted, and the widely held, complex securities made from those loans started weighing down Wall Street. The mortgage-related derivatives, it turned out, were now toxic and a gigantic problem for any bank that held them. Banking and housing's declines left Americans feeling poorer, so that even fewer bought homes, which sank related industries—from home electronics to the building trades. Stocks followed suit, creating a dangerous recessionary spiral. The Fed cut interest rates several times but couldn't rev the economy.

Part of the problem was that rather than greasing the wheels of commerce by turning deposits into loans, the banks had acted like supersized, risky hedge funds. They ignored their own business models, Richardson says. They were supposed to transfer risk by off-loading the complex mortgage securities onto investors. Instead, the banks kept them in-house, like time bombs ticking in the basement. Regulators were too weak to stop them and seemed unable to meet the challenge once the crisis hit. "You got the feeling the regulators didn't have it all in control—that they were caught without sufficient forewarning, were maybe even in a state of panic," Acharya says. "Some very natural responses policymakers

WHITE PAPER BRIEFS

HERE'S A PEEK AT A FEW KEY RECOMMENDATIONS:

- **Regulating individual banks is no longer enough to ensure the safety and soundness of today's globally interlinked system of behemoth financial institutions. Authors argue that it's time for what they call a special, dedicated regulator, under the auspices of the Federal Reserve, to constantly monitor the soundness of these behemoths. That new regulator should be able to continually measure risk systemwide and should not only gauge it with the single, most commonly used ratio of capital to risk-weighted assets, but a far more well-rounded approach that takes into account an institution's loans to deposits, insured deposits to assets, liquid bonds to assets, etc.**

- **Now that U.S. taxpayers are out $7 trillion in guarantees to financial firms, the public will demand that banks stop rewarding irresponsible behavior and short-term thinking with outsized salaries and bonuses. The book suggests long-term compensation contracts (rather than a salary cap, as President Obama announced in February) and other financial incentives to reward long-term thinking.**

- **About one in 10 U.S. mortgages are delinquent or in foreclosure. To prevent this statistic from ballooning even further, the authors call for modifying more mortgages, but in a new and improved way—before foreclosure and bankruptcy sets in. The snag here is that about 80 percent of troubled home loans have been sliced and diced thanks to securitization. To untangle them, the laws that protect lenders from modification must be repealed. And lenders need better incentives to modify loans, such as in exchange for restructuring loan terms, they would receive a share of any future appreciation in the property's value.**

- **Another concern is the $50-trillion-plus over-the-counter derivatives market, where no one knows precisely what the exposure is, where the danger is concentrated, or the values of the contracts. For the most widely traded derivatives, the authors advocate a centralized clearinghouse—as there is now for futures and options—to impose volume and pricing transparency.**

- **The United States has long guaranteed, implicitly, that it would rescue failing government-sponsored enterprises, such as Fannie Mae and Freddie Mac, as well as troubled banks. But these guarantees actually became part of the problem. The comfort level they created led to a low cost of borrowing and little "market discipline" to punish these institutions when they took on increasing risk. In the future, the authors oppose such "ill-designed and mispriced guarantees" for both private and quasi-public banking institutions.**

For a complete list of the authors and to read from the white papers, go to http://whitepapers.stern.nyu.edu/home

MERRILL LYNCH SELLS ITSELF TO BANK OF AMERICA, amid fears that it's insolvent.

Prices of **MORGAN STANLEY** and **GOLDMAN SACHS** stock and derivative securities reflect belief they are **NEAR FAILURE;** their creditors demand more collateral.

RESERVE PRIMARY FUND, ONE OF THE LARGEST MONEY-MARKET MUTUAL FUNDS, SEIZES UP as its ***$785 million of Lehman Brothers short-term paper*** becomes nearly **WORTHLESS**.

MASSIVE UNCERTAINTY CAUSES a run on the money-market system, the primary source of short-term funding. In the most serious event of the crisis, the Fed steps in to guarantee all money-market funds.

09.16.08

09.17.08

Similar collateral calls on AIG prompt the Fed ***to inject $85 billion into the giant insurer, fearing failure would be catastrophic.*** Federal Reserve Chairman BEN BERNANKE and Treasury Secretary HENRY PAULSON call for a

MASSIVE BANK BAILOUT.

Rather than greasing the wheels of commerce by turning deposits into loans, the banks acted like supersized, risky hedge funds. They ignored their own business models.

09.19.08

THE $700 BILLION **Troubled Asset Relief Program (TARP) is unveiled.**

09.21.08

GOLDMAN SACHS and **MORGAN STANLEY** convert to bank holding companies, **ENDING THE ERA OF THE INVESTMENT BANK.**

09.25.08

WASHINGTON MUTUAL is seized by FDIC, then **SOLD TO JPMORGAN CHASE.**

09.29.08

WACHOVIA enters crisis takeover talks with Citigroup and is then **BOUGHT BY WELLS FARGO** after the **IRS** sweetens the deal with a tax subsidy.

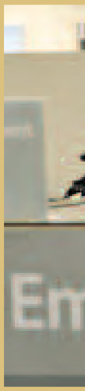
would have considered, if they'd been researching these issues for a long time, weren't being considered. That lack of preparedness surprised me."

By contrast, the Stern economists had spent their careers studying these very matters. The book's prescriptions for remedying the catastrophe share an approach the editors call "regulation light"—using incentives, such as taxes and fees, yet relying finally on the power of markets (see a roundup of recommendations on page 37). The fixes also proceed from the recognition that "free markets" aren't actually free: Government guarantees and subsidies, as the ongoing bailout makes clear, are inevitable features of modern finance. "Once you accept that," Acharya says, "you can focus on getting the incentives right." One key challenge is solving the problem of "moral hazard," the danger that a safety net becomes an invitation to misbehave,

10.03.08 **CONGRESS PASSES AN AMENDED BAILOUT BILL.**

10.08.08 Global powers coordinate an interest-rate cut as **THE CRISIS DEEPENS.**

10.10.08 **U.S. STOCKS POST WORST WEEK IN A CENTURY** as **DOW drops by almost one-quarter** amid concern about government missteps on the crisis. **THE FED ANNOUNCES AN ADDITIONAL $900 BILLION IS AVAILABLE TO BANKS.**



WHAT WERE THEY THINKING?

Two scientific subdisciplines may offer future clues to the financial collapse

by Jill Hamburg Coplan

Brightly colored blobs of swishing, glowing matter: This is your brain on economics.

Or, more accurately, this is the view of your brain that interests researchers in the controversial, infant science of neuroeconomics. It is a field evolving at the intersection of psychology, neuroscience, biology and economics—a melding that was little imagined even five years ago, before the advent of sophisticated brain-scanning technology. And, along with behavioral economics, which considers irrational behaviors that classical economic theory can't explain, its practitioners are pursuing novel lines of research that might one day unravel the decision-making that informs investing, saving, insuring, and the way government regulation works.

MAPPING OUR FINANCIAL DECISIONS

Neuroeconomics, in a nutshell, is the study of different brain regions that kick into gear when people make economic decisions, which are now observable with functional magnetic resonance imaging (fMRI). Blood flow is visibly greater in one area when we learn under stress, for example, and in another when we weigh risk, and in yet another when we assign value to something. Along with the California Institute of Technology, NYU is the global center of this research, and recent studies here have found differences in brain response when a decision involved novelty, ambiguity, or deep emotion.

Neuroeconomics, of course, has its detractors. At conferences and in scholarly journals and books, critics have questioned—sometimes heatedly—the compatibility of the disciplines, holding that neural science and economics have different goals, ask unrelated questions, and explore different types of evidence. In fairness, it's still not clear exactly how much we can extrapolate from images of blood flow. But while economics departments are yet to grant degrees in the field, a leader in the discipline, Paul W. Glimcher, principle investigator at the Center for Neural Science at NYU (whose 2008 book, *Neuroeconomics: Decision Making and the Brain*, was the field's first), suggests that this research will one day be as useful to economists as biologists now find chemistry and physics.

A step in this process is to understand the role of emotions in decision-making. Elizabeth A. Phelps, a professor at the Center for Neuroeconomics at NYU, is currently investigating the relationship among arousal, fear, and economic choices. Phelps won't generalize about how her lab's findings speak to the current crisis—"We aren't even close to mirroring the situation in the markets," she cautions—but it seems neuroeconomics may one day help explain the underlying emotions that recently drove euphoric speculators, risky borrowers, aggressive lenders, or timid regulators. The economy's implosion has already sparked fresh interest from academics in joining the center's cross-disciplinary collaboration, Phelps notes. People realize that they need to understand bubbles, she says, and to learn how policymakers' emotions "might mediate changes in decision-making that we see in crisis times."

These heated emotions are also the issue of the moment for another NYU neuroeconomist, Andrew Caplin, an economics professor in the Faculty of Arts and Science and co-director of the Center for Experimental Social Science. Bridging traditional and experimental economics, he co-authored a chapter on mortgages in the Stern School's book and, on the neuroecon front, he's working on improving the new discipline's methods.

Caplin believes getting to the bottom of the neurological basis of economic decision-making matters because, just to cite one application, currently much of America's rapidly aging population isn't taking the necessary financial planning steps to ensure their security in old age. He also says that there are ways the science could be useful to policymakers in Washington, to help them better understand the biological roots and impact of stress: "We need nonemotional analytic clarity to prevent another [crisis] event. Policymakers, as human beings, undergo naturally dangerous responses to stress. Right now they are overwhelmed and their decision-making facilities are extremely impaired."

(CONTINUED ON PAGE 40)

11.07.08 The U.S. announces its **HEAVIEST JOB LOSSES** in 14 years.

11.10.08 **GOVERNMENT DOUBLES FUNDS COMMITTED TO AIG.**

11.24.08 The Treasury gives Citigroup **$20 BILLION IN TARP FUNDS** and guarantees $306 billion of assets in exchange for warrants and preferred stock.

2009

01.09 **JPMORGAN CHASE** announces fourth quarter 2008 **PROFITS FELL 75%.** A Congressional Oversight Panel questions the way TARP has spent its billions. The Treasury purchases about $7 billion in stock from troubled U.S. banks.

02.09 Congress passes a **$787 BILLION STIMULUS PACKAGE,** mostly along party lines. Treasury Secretary Timothy F. Geithner unveils a rescue plan.

03.09 **DOW** drops below 7,000 for first time since 1997.

Anger swells after **AIG** reveals that it paid **$165 MILLION IN BONUSES** to the very employees responsible for its troubles, some of whom no longer work for the insurance giant.

The Fed announces plan to buy up treasury bonds and other securities, effectively pumping $1 trillion into the economy. **GEITHNER ANNOUNCES PLAN TO DRASTICALLY TIGHTEN FINANCIAL INDUSTRY REGULATIONS.**

(CONTINUED FROM PAGE 39)

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because you know you'll be rescued. To meet that, the economists say, the Fed's lender-of-last-resort role must stop being ad hoc and unconditional. Instead, emergency help should come with conditions: Banks must hew to limits on leverage and stiffer capital requirements. They should also pay a tax into a guarantee fund, commensurate with the risk they're adding to the system.

Back at the business school last winter, while students rushed around the elevator banks, Cooley headed to lunch with former Fed Chairman Paul Volcker, now running Obama's Economic Recovery Advisory Board, to discuss the book. The volume and its authors, Cooley says, "changed the focus from the present to talking about the way the world should be. It was the ultimate teachable moment for a business school."

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