ONE

Why Citibank, Iceland's Banks, and the Ice Banks of Antarctica All Melted Down at the Same Time

On June 15, 2005, as the global economy was booming, the satirical newspaper *The Onion* carried the following story about Chinese workers and all the stuff they make for Americans. Though a fake story, like many in *The Onion* it actually spoke some essential truths:

> *FENGHUA, CHINA—Chen Hsien, an employee of Fenghua Ningbo Plastic Works Ltd., a plastics factory that manufactures lightweight household items for Western markets, expressed his disbelief Monday over the "sheer amount of [crap] Americans will buy."*
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> *"Often, when we're assigned a new order for, say, 'salad shooters,' I will say to myself, 'There's no way that anyone will ever buy these,'" Chen said during his lunch break in an open-air courtyard. "One month later, we will receive an order for the same product, but three times the quantity. How can anyone have a need for such useless [crap]?"*
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> *Chen, 23, who has worked as an injection-mold operator at the factory since it opened in 1996, said he frequently asks himself these questions during his workweek, which exceeds 60 hours and earns him the equivalent of $21.*
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> *"I hear that Americans can buy anything they want, and I believe it, judging from the things I've made for them," Chen said. "And I also hear that, when they no longer want an item, they simply throw it away. So wasteful and contemptible."*

> *Among the items that Chen has helped create are plastic-bag dispensers, microwave omelet cookers, glow-in-the-dark page magnifiers, Christmas-themed file baskets, animal-shaped contact-lens cases, and adhesive-backed wall hooks.*
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> *"Sometimes, an item the factory produces resembles nothing I've ever seen," Chen said. "One time, we made something that looked like a ladle, but it had holes in its cup and a handle that bent down 90 degrees. The foreman told us that it was a soda-can holder for an automobile. If you are lucky enough to own a car, sit back and enjoy the journey. Save the soda beverage for later."*
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> *Chen added: "A cup holder is not a necessary thing to own."*
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> *Chen expressed similar confusion over the tens of thousands of pineapple corers, plastic eyeshades, toothpick dispensers, and dog pull-toys that he has helped manufacture.*
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> *"Why the demand for so many kitchen gadgets?" Chen said. "I can understand having a good wok, a rice cooker, a tea kettle, a hot plate, some utensils, good china, a teapot with a strainer, and maybe a thermos. But all these extra things—where do the Americans put them? How many times will you use a taco-shell holder? . . ." Chen added that many of the items break after only a few uses.*
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> *"None are built to last very long," Chen said. "That is probably so the Americans can return to buy more . . ."*

The Onion's satire captured in caricature form the most important engine pulling up living standards across the planet for the last three decades—the intimate relationship between American consumers and Chinese savers and producers. At its core, the China-America growth engine worked like this: We in America built more and more stores, to sell more and more stuff, made in more and more Chinese factories, powered by more and more coal, and all those sales produced more dollars, which China used to buy more and more U.S. Treasury Bills, which allowed the Federal Reserve to extend more and more easy credit to more and more banks, consumers, and businesses so that more and more Americans could purchase more and more homes, and all those sales drove home prices higher and higher, which made more and more Americans feel like they had more and more money to buy more and more stuff made in more and more Chinese factories powered by more and more

coal, which earned China more and more dollars to buy more and more T-bills to be recirculated back to America to create more and more credit so more and more people could build more and more stores and buy more and more homes . . .

This relationship, so critical in inflating the post–Cold War credit bubble, was so intimate that when Americans suddenly stopped buying and building in the fall of 2008, thousands of Chinese factories went dark and whole Chinese villages found themselves unemployed. Consider the Chinese artist colony Dafen, north of Hong Kong. Dafen's roughly nine thousand art academy graduates have made the colony the world's center for mass-produced artwork and knockoffs of masterpieces—the oil paintings that hang in motel rooms and starter homes across America. Some 60 percent of the world's cheap oil paintings are produced within Dafen's four square kilometers. "A reasonably skillful copy of Van Gogh's 'Sunflowers' sells for $51," *Spiegel Online* reported (August 23, 2006). "Buy 100 and the price goes down to $33 . . . The 100 paintings, guaranteed to have been produced by art academy graduates, ship within three weeks." Not surprisingly, Dafen was devastated by the bursting of the U.S. credit bubble. "American property owners and hotels were usually the biggest consumers of Dafen's works," Zhou Xiaohong, deputy head of the Art Industry Association of Dafen, told Hong Kong's *Sunday Morning Post* (December 14, 2008). "The more houses built in the United States, the more walls that needed our paintings." And we in America sure did create a lot of new walls for a lot of Chinese watercolors. Overconsuming, overbuilding, overborrowing, and overlending all became the new normal during our post–Cold War credit bubble.

One of my favorite examples comes from my own hometown of Minneapolis. I was visiting there in the spring of 2009 and talking about the problem of runaway consumption with my childhood friend Ken Greer when he said to me, "There is something I have to show you." We drove out to a small strip mall off Shady Oak Road and the Crosstown Highway. "OK, look at this," Ken said as we turned in to the entrance. This "something" was hard to miss. On both sides of the entrance were Caribou Coffee shops, the Minnesota version of Starbucks.

How could one small strip mall need two Caribou Coffees?

We went into the one to the right of the entrance. I ordered my skim latte and asked the barista: "Explain something to me. You're Caribou Coffee and there's another one right over there. I can see it from here.

Why are there two Caribou Coffees here less than a hundred yards apart?" Well, she explained, it was very simple. "There were long lines here every morning, so we needed another one."

"I see," I said to myself. Because people had to wait in line a little longer at rush hour in the morning, the Caribou Coffee folks couldn't just add another coffee machine and a couple more baristas. They had to build a whole carbon copy coffee shop on the other side of the mall entrance. Hey, why not? Money was cheap, resources were available. Why not have two of the same coffee shop in the same strip mall . . .

With all due respect to Dafen and Caribou Coffee, I hope that we never return to the days of Americans just borrowing more and more money to buy more and more stuff with more and more credit fueling more and more Chinese factories or more and more coffee shops powered by more and more coal. Of course, I am not against global trade and economic growth, but our growth needs to be more balanced—economically and ecologically. We cannot just be the consumer and China the producer, and neither of us can allow the goods produced and consumed to be made or used in ways that harm the environment on the scale that we have been. This way of growing standards of living is simply unsustainable—economically unsustainable and ecologically unsustainable.

And that is why the Great Recession that began in 2008 was not your grandmother's standard recession. This was not just a deep economic slowdown that we can recover from and then blithely go back to our old ways—with just a little less leverage, a little less risk, and a little more regulation. No, this Great Recession was something much more important. It was our warning heart attack.

Fortunately, it was not fatal. But we must not ignore what it told us: that we have been growing in a way that is not healthy for either our markets or our planet, for either our banks or our forests, for either our retailers or our rivers. The Great Recession was the moment when the Market and Mother Nature got together and said to the world's major economies, starting with the United States and China: "This cannot continue. Enough is enough."

Indeed. The way we were creating wealth had built up so many toxic assets in both the financial world and the natural world that by 2008/9 it shook the very foundations of our markets and ecosystems. That's right, while they might not appear on the surface to have been related, the

destabilization of both the Market and Mother Nature had the same root causes. That is why Bear Stearns and the polar bears both faced extinction at the same time. That is why Citibank, Iceland's banks, and the ice banks of Antarctica all melted down at the same time. The same recklessness undermined all of them. I am talking about a broad breakdown in individual and institutional responsibility by key actors in both the natural world and the financial world—on top of a broad descent into dishonest accounting, which allowed individuals, banks, and investment firms to systematically conceal or underprice risks, privatize gains, and socialize losses without the general public grasping what was going on.

Of course, not all growth in America or elsewhere was fraudulent in these ways—far from it. We did improve productivity and create new companies, like Amazon.com and Google; new products, like the iPod and the iPhone; and new services, like online advertising and open source software, which collectively made people's lives better, easier, more enjoyable, and more productive. But, in America at least, too much of our economic growth was borrowed from our children's piggy banks and from Mother Nature's reserves, not invented. Therefore, we as a society wound up living beyond our collective means.

It all lasted—until it didn't. Or as my friend Rob Watson, the environmental consultant who founded EcoTech International, likes to say: "You know, if you jump off the top floor of an eighty-story building, you can actually feel like you're flying for seventy-nine stories. It's the sudden stop at the end that gets you."

The Great Recession was our sudden stop. The question is: Can we learn from it? As the Stanford economist Paul Romer has said: "A crisis is a terrible thing to waste." I believe we can learn from this crisis and we must learn from this crisis, and the purpose of this book is to provide one pathway for doing so.

This is a revised edition. The hardcover version of this book was first published in September 2008. In it, I argued that America had a problem and the world had a problem. America, I insisted, had "lost its groove" after the end of the Cold War and particularly after 9/11. We had turned inward and begun to export our fears more than our hopes, and we seemed intent on postponing dealing with every big problem weakening our society—from education to Social Security to health care to the deficit to immigration to energy. I argued that we needed to get back to nation-building at home—and I believe it was that sentiment,

shared by a majority of Americans, that propelled Barack Obama to the presidency.

But the world also had a problem, I argued. It was getting hot (global warming), flat (the rise of high-consuming middle classes all over the world), and crowded (on track to adding roughly a billion people every thirteen years.) My thesis then, which remains my thesis here, is that America could get its groove back by taking the lead in developing the technologies and policy solutions to address the world's biggest problems—the energy and environmental stresses growing out of a planet getting hot, flat, and crowded.

What has changed? The first thing that has changed is that America's problems and the planet's problems have become more acute. As noted above, the system of growth we have fallen into has destabilized both the Market and Mother Nature to a degree that can no longer be finessed or ignored. The collision of acute financial and ecological distress that made the Great Recession "great" enabled me to see something that was hiding in plain sight—that the problems destabilizing the Market and Mother Nature were rooted in the exact same kind of dishonest accounting, mispricing of risk, privatizing of gains, and socializing of losses.

So I have revised the opening three chapters to explain how and why the Market and Mother Nature hit a wall at the same time. After that, I pick up the narrative of the original book. The remainder of the first half looks at the impact that our reckless behavior has had on the planet, at a time when it is already becoming hot, flat, and crowded. The second half explains how we can use this crisis to reinvigorate and retool America, whose leadership—technological, financial, ethical, and ecological—will be vitally necessary for the whole planet to meet the unique challenges of this moment.

If I had to sum up what this challenging moment means to us, I would put it like this: Our parents were the Greatest Generation, building for us in America a world of freedom, abundance, and opportunity to a degree that no generation in history had ever enjoyed. My generation (I was born in 1953), the baby boomers, turned out to be the "Grasshopper Generation," a term inspired by the writer Kurt Andersen, who in a *Time* essay devoted to our recent age of excess (March 26, 2009) argued that Americans in the past thirty years let out our inner "grasshopper" and gorged on the savings and natural world that had been be-

queathed to us—leaving our children huge financial and ecological deficits. We cannot afford to be grasshoppers any longer. And therefore we and our children are going to have to be the "Re-Generation," and summon the will, energy, focus, and innovative prowess to regenerate, renew, and reinvent America in a way that will show the world a new model for growing standards of living and interacting with nature that is truly sustainable, renewable, healthy, safe, fair, and creative of more opportunities for more people in more places than ever before.

The green revolution is not about the whales anymore. And it is not about "our children's children," a generation so distant it is really hard to get energized about it. This is about us. This is about the world we and our children will inhabit for the rest of our lives and whether we can find a way to create wealth—because everyone wants to live better—without creating toxic assets in the financial world or the natural world that overwhelm us. This is an urgent project, because the way of life we lapsed into in recent years cannot be passed on to another generation without catastrophic consequences. It is a tall order, a great challenge—one that our children did nothing to deserve but now can do nothing to escape.

As I said, the Market and Mother Nature hit the wall at the same time for basically the same core reasons, which we need to understand if we are going to avoid a repeat. I am going to focus on three: the systematic obscuring and underpricing of the true costs and risks of what we were doing; the pervasive application of the worst sort of business and ecological values, embodied by the catchphrase IBG/YBG—do whatever you like now, because "I'll be gone" or "You'll be gone" when the bill comes due; and the privatizing of gains and the socializing of losses.

Underpricing Risk

The meltdown that occurred in the market was triggered by subprime mortgages, which allowed people with low incomes and tarnished or no credit histories to buy homes. At the height of the subprime craze, one Los Angeles mortgage broker told me, mortgages were being handed out by banks and mortgage providers to anyone who could "fog up a knife." People with incomes of $15,000 to $20,000, with no credit ratings, or in some cases without even a steady job or citizenship papers were granted mortgages to buy $300,000 and $400,000 homes—with

nothing down. What is staggering is precisely how much we and others binged on these "subprime" mortgages, as though they were U.S. savings bonds, not hugely risky financial instruments. How did this happen?

According to Peter J. Wallison, an expert in financial policy and co-director of the American Enterprise Institute's project on financial policy, as of September 2008, there were roughly twenty-five million subprime and other nonprime mortgages outstanding, with an unpaid principal balance of over $4.5 trillion. Subprime mortgages, Wallison explained, are mortgages made to people with blemished credit and low scores on the standard measures used to estimate credit quality. Other nonprime mortgages—also known as Alt-A loans—"are mortgages that have adjustable rates, no or low down payments, and were made to people who did not have to state their income or their income was not verified," he added. These were often referred to as "liar loans," because you could cover up your financial weaknesses, still get a loan for little or nothing down and little to pay at first, and then the big payments would only kick in—or "reset"—later, in a year or two. In other words, the term "subprime loans" referred to the quality of the borrower—people known to be at risk of default from day one. "Alt-A loans" referred to the quality of the loan itself: the borrower may have a good or bad credit record, but these loans themselves were inherently risky because they were extended with little or nothing down, or with little or no credit history, or would reset at a much higher rate in the future, so there was always a good chance the buyer would not be able to meet the mortgage payments as a result of one or more of these conditions. As long as housing prices were going up, though, those holding Alt-A loans could just flip the house when the rate reset, as many speculators riding the boom did, and earn more than the original mortgage value. And brokers were not above telling people: "No worries: Buy now and if you can't meet your mortgage payments, just sell the house. Prices will only go up. It will be worth more tomorrow than it is today—for sure." When housing prices started to go backward, though, and the Alt-A or subprime payments really kicked in, many people holding them were crushed by debt. Their mortgages went up and their home values went down, so they could not escape.

It is stunning how many people got caught up in this. According to Wallison, the twenty-five million subprime and Alt-A loans amounted to almost 45 percent of all single-family mortgages in the United States in 2009.

Not so long ago, this was the norm: Your parents saved long and hard

to make a 10 or 20 percent down payment on their home and took out a thirty-year mortgage for the balance from a bank or a credit union, and that institution held the mortgage for its life. You were tethered together. There was a sense of mutual accountability. The new system introduced a new norm: These subprime mortgages were extended by banks and mortgage brokers and then immediately sold to bigger financial firms, like Citibank, Merrill Lynch, or Fannie Mae and Freddie Mac—the government-sponsored institutions set up to work with primary mortgage bankers and brokers to help ensure they had funds to lend to home buyers at affordable rates. These investment banks and securities firms earned big fees by bundling thousands of these mortgages together into bonds—known as mortgage-backed securities—and then selling them to buyers all over the world. It seemed to make sense to take a bunch of home mortgages that had a predictable cash flow and package them together into a single bond offering that collected all the monthly mortgage payments and then used that cash flow to pay the interest and principle on the bond to the person who bought it. Presto—you have just created an asset-backed security. Fund managers all over the world bought these bonds. Why not? They were paying interest rates better than your average T-bill, and this fattened the balance sheets of those banks or funds that held them, and they seemed as secure as any AAA corporate bond. After all, the rating agencies gave them good marks and Americans—at least our parents' generation—had a long track record of paying off their mortgages.

"This was certainly true when almost all mortgages were prime—made to people with jobs and down payments and at fixed interest rates for thirty years," said Wallison. "Even in the worst downturns, foreclosure rates rarely reached 4 percent." The boom in subprime mortgages was something entirely new, though, he added. Subprimes had always existed, but were traditionally a small part of the total mortgage pool. There was good reason for this—they are very risky. Some projections of total foreclosure rates in the current downturn are 30 percent, he said. Then why did we go on such a binge? A key factor, said Wallison, was a deliberate United States government policy to foster homeownership and to encourage quasi-government entities that had access to endless cheap capital, particularly home-lending entities like Fannie Mae and Freddie Mac, to make mortgages available to more and more people through "flexible underwriting standards."

"Fannie and Freddie were the enablers," said Wallison. They first stimulated the development of a subprime and Alt-A market on Wall

Street by buying huge amounts of AAA tranches of subprime mortgages from different investment banks, and holding the bonds. Then, in late 2004, they began to buy these primary junk loans in large amounts and bundled them into bonds themselves, competing for product with Wall Street. "The fight between Wall Street and Fannie and Freddie," said Wallison, "drove down the price of junk mortgages, drove up the housing bubble, and filled it with unprecedentedly low quality mortgages . . . This is a story about how a well-intended government policy caused a substantial decline in the quality of U.S. mortgages and ultimately the financial crisis we are living with today."

By the way, what are AAA tranches? This is important. Imagine that you had a pile of dishes in your sink and each of those dishes represented a group of mortgages of different qualities that were all being packaged into one bond offering. The worst BBB and CCC dishes were at the bottom of the sink and paid the highest interest because they were the riskiest. The best, with the most secure borrowers—AAA—were at the top. Then you started to fill the sink with water—the Great Recession of 2008/9. The riskiest tranches of mortgage-backed securities quickly went under water. The best, the AAA tranche, would normally remain above water. Usually, those tranches of mortgage-backed securities never got wet. But this Great Recession was not usual and today many of those AAA tranches are also under water and worth either nothing or only a fraction of their original value.

This subprime frenzy, though, was abetted by more than just a U.S. government desire to promote homeownership and construction. It was also abetted by a broader easing of credit and low interest rates—too low for too long—under the Federal Reserve leadership of Alan Greenspan in the early 2000s. This easing of credit by the Fed, in turn, was enabled by the massive amount of dollars sloshing around the global economy from all the high-saving countries, particularly the Asian Tigers, Middle East oil exporters, and China. Many economists now believe that it was this huge pool of Asian savings and Middle Eastern petrodollars—managed by sovereign wealth funds in all these different countries and reinvested back in America—that depressed interest rates on U.S. Treasury securities and spurred investment bankers and financial wizards to come up with "innovations" that would produce higher yields. This led them to offer more and more subprime mortgages and more and abstruse and exotic derivatives and insurance products surrounding them.

I like the way Sherle R. Schwenninger, director of the Economic Growth Program at the New America Foundation, summarized the situation. Writing in *The Nation* (December 23, 2008), he noted: "The root cause of this unbalanced world economy was the enormous pool of excess savings generated by China, Japan and, more recently, the petrodollar states of the Persian Gulf. This global savings glut, as Federal Reserve chairman Ben Bernanke called it, helped fuel a succession of asset bubbles in the United States, culminating in the expansion of easy credit and the rapid run-up of housing prices following the collapse of the tech-stock bubble," notes Schwenninger. "These housing and credit bubbles in turn helped inflate consumption by enabling households to take on more debt; household debt as a percentage of disposable income rose from 90 percent in the late 1990s to 133 percent in 2007."

To put it in simple terms, the banks and sovereign wealth funds holding Mrs. Tanaka's savings in Japan, Mr. Zhou's savings in China, and Mr. Abdullah's savings in Kuwait shipped them to Wall Street, where some of America's best rocket scientists designed financial products to get them a higher rate of return—without greater risks, or so they were told. With all that money chasing all that yield, it was inevitable that the financial houses managing all that money would lobby Washington to give them more and more "flexibility" to design investment instruments that could produce higher and higher yields. And Washington accommodated. With the end of the Cold War and the intensification of globalization, market-friendly presidents (Ronald Reagan, George H. W. Bush, Bill Clinton, and George W. Bush), along with congressmen and senators whose palms had been greased by Wall Street through campaign donations, rolled back banking regulations that had limited risk-taking. Some of these regulations had been on the books since the Great Depression.

So more and more money flowed into a less and less regulated financial system, and the banks took greater and greater risks with it—not just on subprimes but on all kinds of instruments—in more and more places using more and more exotic instruments and greater and greater leverage, making transactions that fewer and fewer people understood and were less and less transparent.

Consider one example—derivatives. In December 2000, the U.S. Congress passed, and then President Clinton signed, legislation spurred by the financial services industry that exempted derivatives from most

oversight. Derivatives are financial instruments that "derive" their value from the price of some real stock, bond, service, or good. "Typically, the seller receives money in exchange for an agreement to purchase or sell some good or service at some specified future date," according to Wisegeek.com. So a bank or insurance company could earn money selling derivatives that insured mortgage-backed securities against default. These are called credit-default swaps. The poster child for this sort of innovation turned out to be the American International Group, the insurance giant.

Gretchen Morgenson and Don Van Natta Jr. described AIG's misadventures into risky global finance in *The New York Times* (May 31, 2009): "After the 2000 legislation was passed, derivatives trading exploded, helping the biggest traders earn immense profits. The market now represents transactions with a face value of $600 trillion, up from $88 trillion a decade ago. JPMorgan, the largest dealer of over-the-counter derivatives, earned $5 billion trading them in 2008, according to Reuters, making them one of its most profitable businesses. Among the companies that expanded rapidly was A.I.G. Straying from its main business of providing property and life insurance, A.I.G. wrote a type of contract known as credit-default swaps that protected holders of mortgage securities against defaults. When millions of subprime borrowers stopped paying their mortgages, A.I.G. had to provide cash collateral that it did not have to clients that had bought its insurance."

AIG completely underpriced, and in some ways hid, the risks it was taking. AIG owned a savings and loan operation, so its banking business was regulated at the federal level. It also sold insurance, so its insurance business was regulated by insurance commissioners in every state. But its derivatives business was run out of a hedge fund it created in its London office—AIG Financial Products, or AIGFP, which was part of the vast forest of *unregulated* hedge funds and private equity groups that had grown up in the last two decades and today accounts for about 50 percent of global credit, dwarfing the traditional banking sector. No one global institution regulates this sector. Even though AIGFP accounted for only 1 percent of the insurance behemoth's total revenues, the risks it took on literally brought the house down when they went bad. And because this universe is very nontransparent and unregulated, few people inside AIG or outside were aware of how big the dice it had rolled were.

"Before the crisis," noted Morgenson and Van Natta, "few market participants knew the size of A.I.G.'s exposure. Some derivatives transac-

tions occur on exchanges, where the value and nature of the contracts are disclosed, but many do not. Credit-default swaps trade privately. This kept risk in these trades under wraps, leaving regulators unaware of how dangerously stretched and poorly managed the market was."

How could sophisticated global finance firms get so crazy and take on so much risk? I'd point to two reasons. First, their math wizards came up with models that told them it was not that risky. In a special report about some of those financial nerds, known as "quants," who built these mathematical models underlying all these mortgage-backed securities, *Newsweek* (June 8, 2009) recalled Warren Buffett's dictum: "Beware of geeks bearing formulas." The magazine then went on to tell the story of über-geek David X. Li, "who, while working at JPMorgan, created the Gaussian copula function, a formula for determining the correlation between the default rates of different securities." In theory, if one mortgage-backed security defaulted, the model gave bankers an estimate of how many others would default as well. "The apparent genius of the Gaussian copula is its abstraction," said *Newsweek*. "Rather than relying on the immense amount of data used to figure the odds that a [subprime bundle of mortgages and collateralized debt obligations] might default, Li appeared to have discovered a law of correlation. That is, you didn't need the data; the correlation was just there. Armed with it, quants could price these much faster, and traders could buy and sell them at record speeds. Gaussian was rocket fuel for the CDO market. The global volume of CDO deals went from $157 billion in 2004 to $520 billion in 2006. As more banks got in on the game, the once-large profit margins started to shrink. In order for banks to make the same kind of returns, they had to pack more and more loans into a CDO, essentially making bigger bombs." Needless to say, Li's benign predictions about the correlation between defaults quickly proved wrong in the subprime crisis, when subprime mortgages and their bonds toppled together like dominoes. As *Newsweek* put it: "Li was on his way to a Nobel Prize when the world blew up."

The second reason they so underpriced the risk was simpler. It is something that happens in every bubble: people who are apparently smart turn out to be really dumb—in large numbers. They buy into a notion that nothing can go wrong. In this case the notion was that housing prices in America would never go down again. As Michael Lewis pointed out in a piece on AIGFP in *Vanity Fair* (August 2009), the AIG unit was originally used by Wall Street investment banks to insure piles of loans to

IBM and GE. Then, in the early 2000s, AIGFP started insuring "messier piles": securities backed by credit card debt, student loans, auto loans, and prime mortgages—anything that generated a cash flow. As Lewis noted, these loans were of such a diverse nature and to so many different parties that the usual risk logic applied: they couldn't all go bust at once. Originally, there were very few subprime mortgages in these piles. But that changed toward the end of 2004. "From June 2004 until June 2007," wrote Lewis, "Wall Street underwrote $1.6 trillion of new subprime-mortgage loans and another $1.2 trillion of so-called Alt-A loans." This expansion was made possible, in part, because AIGFP was ready to insure many of these piles of loans—and made billions of dollars doing it.

Why not? These different piles of loans all seemed so diversified that nothing really big could go wrong. And so AIG gorged on them, but without noticing that these piles of consumer loans it was insuring were changing, said Lewis. After 2005, subprime mortgages went from 2 percent to 95 percent of the consumer loan packages that AIGFP was guaranteeing, without maintaining anywhere near the capital required to cover them if there were widespread defaults. No problem. AIGFP officials were confident that housing prices, even if they fell, could never fall everywhere at once and thereby trigger massive defaults requiring the insurance giant to fork over cash to all the holders of subprime bonds at once. Lewis quotes Joe Cassano, who headed AIGFP at the time, on an investor conference call in the summer of 2007, as the subprime crisis was just starting to unfold: "It is hard for us, without being flippant, to even see a scenario within any kind of realm of reason that would see us losing $1 on any of those transactions."

A few months later, housing prices across the land started falling like dominoes and AIGFP's bets were on their way to bankrupting the entire company. That, ladies and gentlemen, is what you call massively underpricing risk.

IBG/YBG

It is a lot easier to underprice risk when you can take your percentage quickly and then pass off the bad loan to someone else. All that global capital that flowed into Wall Street in search of higher returns in the early 2000s arrived not only at a time of a loosening of credit and a loosening of traditional regulatory constraints in America, but also at a time

of a loosening of ethics. Actually, it was worse than that. The Great Recession was caused in part by a broad-based breakdown in ethics by key players—bankers, rating agencies, investment houses, mortgage brokers, and consumers. You can have all the regulations in the world, but when greed tempts large numbers of people to lose sight of any kind of long-term thinking and sense of accountability, regulations won't help you. It was not the illicit behavior that caused the Great Recession. It was all the stuff going on in plain sight by people who should have known better but suspended their beliefs and values and norms and skepticism to get in on the party. Yes, they had "principles." Unfortunately, the whole credit bubble that destabilized the global economy was built on the "principles" known in the banking world as IBG/YBG—"I'll be gone" or "You'll be gone" when things go bad.

Here's how it worked. The mortgage broker who first sold a family a mortgage and then passed it off to a bigger financial institution, like Fannie Mae or Citibank, knew that he would be "gone" if and when the family holding the mortgage defaulted: He would no longer own the mortgage—Fannie or Freddie or some investment bank would. So there was no risk for him personally in the high-risk deal. And he told the family that the same was true for them. There would be no problem if it turned out they couldn't make the payments because "you'll be gone"—because housing prices would always go up, they could just flip the house for more than they paid for it, or just walk away. The rating agencies, whose fees and revenues depended on how many of these bonds of subprime mortgages they got to rate, had a great incentive to give them high ratings so they would sell more easily and therefore more investment houses and banks would want to use their rating services. And if those bonds blew up, well, said the raters, IBG—"I'll be gone." The investment banks had a great incentive to bundle more and more mortgages into bonds and sell them around the world, because the fees were huge, and as long as they didn't hold too many on their own balance sheets, if they blew up, who cared? IBG—"I'll be gone."

To put it another way, the whole system depended upon people who originated the risk profiting from that origination, then transferring that risk to someone else and never having to be responsible for it afterward. So people who never should have been taking out mortgages took them out, people who never should have granted them granted them, people who never should have bundled them bundled them, people who never should have rated them AAA rated them AAA, people who never should

have sold them to pension funds and other financial institutions worldwide sold them. And companies that never should have been insuring them, like AIG, insured them, without setting aside sufficient assets to cover a massive default. Everyone just assumed they could profit personally in the short term and never have to worry what happened in the long term after they passed the bond along.

President Obama, in unveiling his own plan to regulate markets after the 2008 crash, put it well when he pointed out that Wall Street developed a "culture of irresponsibility," which involved one person passing on risk to another until a risky financial product was finally bought by someone who didn't understand either the risk or even how the bond or derivative actually worked. "Meanwhile," said the president, "executive compensation—unmoored from long-term performance or even reality—rewarded recklessness rather than responsibility."

Privatizing Gains and Socializing Losses

If the true risks involved in these subprime mortgages or default insurance had been priced into these products, they never would have been rated the way they were. Investors would have been much more wary and demanded much higher yields before buying them, which would have forced the mortgage brokers to be more careful in deciding to whom to give these mortgages and the banks to be much more careful in choosing which ones to bundle. But the money was just too good, the temptation to underprice the risk and privatize the gains just too tempting for everyone involved. And rare was the banker who could resist joining the party. As the former Citigroup CEO Charles Prince told the *Financial Times* on July 9, 2007, just weeks before the credit markets started nosediving: "as long as the music is playing, you've got to get up and dance." Shareholders, board members, and market analysts were all saying to these financial houses and bosses: Why are you not as aggressive as the other guy? Why are you not bundling mortgages and CDOs? Why are you not bringing in these big returns? All the incentives for CEOs pushed them to take more risk. And boy, were there incentives. In December 2007, with the credit markets already badly shaken, Goldman Sachs Group Inc.'s chief executive officer, Lloyd Blankfein, was granted a $67.9 million bonus, the biggest ever awarded to the CEO of a Wall Street firm.

And if things later went bad for a CEO's firm? No problem. Typically

the CEOs' contracts, written in the seven fat years, ensured that the worst they would get were golden parachutes. On November 1, 2007, Merrill Lynch CEO Stan O'Neal quit and received a golden parachute worth $161.5 million, despite the fact that his firm's subprime investments would eventually result in over $2 billion of losses.

Some of our biggest financial firms got away from their original purpose—to fund innovation and to finance the process of "creative destruction," whereby new technologies that improve people's lives replace old ones, said the Columbia University economist Jagdish Bhagwati. Instead, he added, too many banks got involved in exotic and incomprehensible financial innovations that ended up as "destructive creation."

Only when the whole edifice cracked in September 2008 with the collapse of Lehman Brothers, which forced Congress to establish a $700 billion emergency fund for the Treasury to prevent the financial system from melting down, did people grasp what had happened: TWG— "They were gone"—the bankers who piled up these risks and privatized the gains, but WWSH—"We were still here." We had allowed Wall Street investors and executives to underprice risks and privatize their gains, but then force taxpayers to bail them out when the losses threatened a systemic breakdown.

Why were We the People left holding the bag? Because the economy depended on it. Key financial services companies had become too big to fail, and had we let them go down, we all would have gone down with them. You and I would have gone to our ATMs to withdraw money from our banks and nothing would have come out. That actually happened for a while to depositors in America's oldest money market, Reserve Primary. The $64.8 billion fund held $785 million in short-term commercial paper, issued by Lehman Brothers. When Lehman filed for bankruptcy in September 2008, Reserve Primary couldn't pay back its customers in full—$1 for every $1 they had on deposit—and had to close its doors for a period. "When the balance sheet of a company does not capture the true costs and risks of its business activities, and when that company is too big to fail, you end up with them privatizing their gains and socializing their losses," Nandan Nilekani, a founder of the Indian technology company Infosys, said to me. That is exactly what played out. Thanks to its huge losses in the derivatives market, AIG alone required more than $170 billion in taxpayer support of one kind or another to stay afloat, as of summer 2009.

Alas, though, we Americans were not alone in thinking that we could fly. Other countries quickly copied us. It was inevitable. In a flat world, where connectivity is getting tighter and faster every day, and where the electronic herd of capital is moving around everywhere and anywhere looking for higher and higher returns, lots of people wanted in on this game. And it did not matter how small you were; anyone could open a global casino in their garage. Just ask Iceland.

Iceland's Banks and Melting Ice

Iceland turned itself into a hedge fund with glaciers. The government, together with the country's biggest banks, in which it had a large stake, saw the phenomenal returns to be gained from investment banking and decided to get a piece of the action by radically deregulating its economy in order to attract huge sums of foreign capital. For a short time, Iceland, with its 300,000 people and its traditional economy, became one big wild offshore bank. Michael Lewis vividly described what happened in *Vanity Fair* (April 2009):

> An entire nation without immediate experience or even distant memory of high finance had gazed upon the example of Wall Street and said, "We can do that." For a brief moment it appeared that they could. In 2003, Iceland's three biggest banks had assets of only a few billion dollars, about 100 percent of its gross domestic product. Over the next three and a half years they grew to over $140 billion and were so much greater than Iceland's G.D.P. that it made no sense to calculate the percentage of it they accounted for. It was, as one economist put it to me, "the most rapid expansion of a banking system in the history of mankind . . . From 2003 to 2007, while the U.S. stock market was doubling, the Icelandic stock market multiplied by nine times. Reykjavík real-estate prices tripled. By 2006 the average Icelandic family was three times as wealthy as it had been in 2003, and virtually all of this new wealth was one way or another tied to the new investment-banking industry."

The country's entire economy got warped. Students fled from traditional careers in fishing or engineering for the economics of making money

from money. When the laws of gravity finally kicked in, and Iceland's three brand-new global-size banks collapsed in October 2008, said Lewis, "Iceland's 300,000 citizens found that they bore some kind of responsibility for $100 billion of banking losses—which works out to roughly $330,000 for every Icelandic man, woman, and child."

How did little Iceland get in so deep? Basically a small group of people in key financial positions drank the same Kool-Aid that bankers in London and on Wall Street drank. They adopted the same model of excessive leverage and nothing-can-go-wrong risk-taking and grafted it onto their little country. You know the old saying: When you are in a poker game and you don't know who the sucker is, it's probably you. It was probably Iceland. Or as Lewis put it, citing an analysis by the Danske Bank, Iceland both spawned and was driven by "this incredible web of cronyism: bankers buying stuff from one another at inflated prices, borrowing tens of billions of dollars and re-lending it to the members of their little Icelandic tribe, who then used it to buy up a messy pile of foreign assets. 'Like any new kid on the block,' says Theo Phanos of Trafalgar Funds in London, 'they were picked off by various people who sold them the lowest-quality assets—second-tier airlines, sub-scale retailers. They were in all the worst [leveraged buyouts].'"

But along the way, naive little Iceland took in and took down a lot of other naive people as well. One way Icelandic banks imported so much capital was by creating online savings accounts, the most popular of which was called Icesave.com, which attracted savers from all over the world because of the high rates of interest they offered—including some 300,000 savers from Great Britain alone. And it wasn't just individuals who got taken in. Indeed, when Iceland's banks collapsed, London's *Daily Telegraph* reported (October 14, 2008) that, according to an official government analysis, more than a hundred British municipal governments, as well as universities, hospitals, and charities, had deposits totaling well over $1.1 billion stranded in blocked Icelandic bank accounts. This included, the *Telegraph* said, "more than a quarter—116—of the 411 local councils in England and Wales [who had] at least £858 million in Icelandic banks. They include some of the largest authorities in the country, among them Kent County Council with £50 million, Nottingham City Council, at £42 million, and Norfolk County Council with £32.5 million." Cambridge University alone had about $20 million deposited there, while fifteen British police forces—

from places like Kent, Surrey, Sussex, and Lancashire—had roughly $170 million frozen in Iceland. Yes, even the bobbies were banking in Iceland! So was the bus company. Transport for London, which runs London's famous bus and tube services, reportedly had some $60 million on deposit with Kaupthing Singer & Friedlander, a UK subsidiary of Iceland's bankrupt Kaupthing bank.

Iceland's story ended the same way as America's—and for the same reasons: the bankers in charge failed to understand what could go wrong and how much they could lose if the markets turned against them. After dramatically underpricing the risks of what they were doing, and then privatizing the gains, Iceland's biggest banks socialized the losses. Iceland's taxpayers and government had to nationalize the country's three biggest banks. And, to keep them operating after massive losses that threatened to bring down the country's entire financial system, Iceland's government secured a $2.1 billion loan from the International Monetary Fund and a $2.5 billion loan from a consortium of Nordic countries. According to CNN.com (November 20, 2008), "The IMF move marks the first time the international lender has had to funnel money to a Western European country in 25 years." Iceland's taxpayers will be paying this off for a long, long time.

What is striking, though, is how the same fraudulent accounting that brought down Iceland's banks also brought down one of the biggest banks of ice in Antarctica—in the same year. Just as the Icelandic economy was melting down, the Wilkins Ice Shelf in the western Antarctic Peninsula, a huge bank of ice that had been stable for most of the last century, began to crumble. According to Reuters (January 19, 2009), the Wilkins—"a flat-topped shelf of ice jutting 65 feet out of the sea off the Antarctic Peninsula"—once covered six thousand square miles, but in the last decade and a half had lost a third of its area under the pressure of global warming. "Researchers believe it was held in place by an ice bridge linking Charcot Island to the Antarctic mainland. But that 127-square-mile bridge lost two large chunks in 2008 and then shattered completely on April 5, 2009," Reuters added in a later report (April 30, 2009). This sent the Wilkins Ice Shelf collapsing into the sea. The report continued:

> Icebergs the shape and size of shopping malls already dot the sea around the shelf as it disintegrates. Nine other shelves have re-

> ceded or collapsed around the Antarctic peninsula in the past 50 years, often abruptly like the Larsen A in 1995 or the Larsen B in 2002. The trend is widely blamed on climate change caused by heat-trapping gases from burning fossil fuels. "This ice shelf and the nine other shelves that we have seen with a similar trajectory are a consequence of warming," said David Vaughan from the British Antarctic Survey. In total about 25,000 sq km of ice shelves have been lost, changing maps of Antarctica. Ocean sediments indicate that some shelves had been in place for at least 10,000 years . . . Temperatures on the Antarctic Peninsula have warmed by about 3 degrees Celsius (5.4 Fahrenheit) since 1950, the fastest rise in the southern hemisphere.

Same meltdown, same risky business. Just as Citibankers and Icelandic bankers got to engage in wild financial practices that did not reflect the real risks of massive defaults or losses, developers, oil companies, coal companies, auto companies, and electric utilities sold energy, mobility, lighting, heating, and cooling based on hydrocarbons at prices that did not reflect the real costs to the planet from all the climate-changing carbon dioxide molecules we were building up in the atmosphere. And every one of us who enjoyed using these underpriced carbon-emitting energy sources got to privatize the gains as well. The losses, however—the long-term impact of all this carbon building up in the atmosphere—we have socialized. We charged all of this on our children's Visa cards to be paid by them and their children's children far into the future, because that carbon will remain in the atmosphere affecting the earth's climate for several thousand years. Maybe we'll be gone, but our children and their children will be here. This is the only home we have and, as environmentalists are fond of saying, Mother Nature doesn't do bailouts. So we better find a better way to grow.

"We have created a way of raising standards of living that we could not possibly pass on to our children," said Joseph Romm, the physicist and climate expert who writes the blog Climateprogress.org. "We have been getting rich by depleting all our natural stocks—water, hydrocarbons, forests, rivers, fish, and arable land—and not by generating renewable flows. You can get this burst of wealth that we have created from this rapacious behavior. But it has to collapse, unless adults stand up and say, 'This is a Ponzi scheme. We have not generated real wealth, and we are

destroying a livable climate . . .' Real wealth is something you can pass on in a way that others can enjoy."

Mother Nature's Dow

The sudden loss of an ice shelf that has been around for thousands of years should get our attention. But many other less dramatic warning signs are indicating that our risky business is ravaging the natural world as much as the financial one. We know very well how to measure the costs of reckless economic behavior. When the market hits a wall, it shows up in red numbers on the Dow Jones Industrial Average, which fell sharply during the Great Recession. But no one has devised a Dow that with one simple number tells us how Mother Nature is doing. If we did, though, it would be safe to say that in recent years Mother Nature's Dow hit new scientific lows.

If you just sample the climate and biodiversity research in 2008 and 2009, what is striking is how insistently some of the world's best scientists have been warning that climate change and biodiversity loss are happening faster with bigger impacts than they anticipated just a few years ago. Many of the key estimates about the speed and breadth of climate change offered by the UN's Intergovernmental Panel on Climate Change, which were made as recently as 2007, are now considered woefully out of date. I will discuss this in more detail later, but just a couple of examples:

Consider MIT's Joint Program on the Science and Policy of Global Change. In 2009 the program quietly updated its Integrated Global System Model, which tracks and predicts climate change from 1861 to 2100. Its revised projection indicates that if we stick with business as usual, in terms of carbon dioxide emissions, average surface temperatures on earth by 2100 will hit levels far beyond anything humans have ever experienced.

Or consider the Millennium Ecosystem Assessment, first produced by the United Nations in 2005. This comprehensive, peer-reviewed scientific analysis by 1,300 experts "assessed the consequences of ecosystem change for human well-being." The report concluded that the ability of the earth's ecosystem to absorb our impacts is rapidly diminishing: "At the heart of this assessment is a stark warning. Human activity is putting such strain on the natural functions of Earth that the ability of the

planet's ecosystems to sustain future generations can no longer be taken for granted." The MEA spelled out the many "services," or benefits, that human beings derive from nature—from forests that maintain watersheds, prevent silting, and provide timber for building and filtration for the air we breathe, to oceans that provide habitats for fish that we depend upon for food, to coral reefs that keep those oceans and their inhabitants healthy. The National Oceanic and Atmospheric Administration estimates that there may be millions of undiscovered species of organisms living in and around reefs. According to the report, "Many drugs are now being developed from coral reef animals and plants as possible cures for cancer, arthritis, human bacterial infections, viruses, and other diseases." Yet because most nations do not put a price on these services, they too are "underpriced" and therefore easily overexploited—with the profits privatized and the losses socialized. This has been particularly true in the last fifty years. The MEA report noted that 60 percent of the world's ecosystems have now been degraded; more land was converted to agriculture since 1945 than in the eighteenth and nineteenth centuries combined; between 10 and 30 percent of the mammal, bird, and amphibian species on earth are currently threatened with extinction. More than a billion people today already suffer from water scarcity; deforestation in the tropics alone destroys an area the size of Greece every year—more than twenty-five million acres; more than half the world's fisheries are overfished or fished at their limit.

No wonder the World Wildlife Fund's Living Planet 2008 Report concluded that we are already operating 25 percent above the planet's biological capacity to support life. And that is before we add another billion people by the early 2020s. "The world is currently struggling with the consequences of over-valuing its financial assets, but a more fundamental crisis looms ahead—an ecological credit crunch caused by undervaluing the environmental assets that are the basis of all life and prosperity," said WWF International Director-General James Leape, in the foreword to the report. "Most of us are propping up our current lifestyles, and our economic growth, by drawing—and increasingly overdrawing—on the ecological capital of other parts of the world."

Indeed, when you look at them side by side, the parallels between what has been happening in the Market and what is happening in Mother Nature are eerie. In both realms, what used to be once-in-a-century events—unusually powerful storms, heat waves, or global financial crises—are now happening with greater and greater frequency, with

greater and greater virulence, and the costs of the cleanups are going higher and higher. In both realms industries that benefited from the underpricing of risks—whether they are credit-default swaps or carbon emissions—quietly lobbied the political authorities to keep loosening regulations so they could continue to reap large private gains at the expense of the greater public good. In both realms, companies and lobbyists funded and diffused "research" that muddied the waters and confused the public about the real dangers that were building up as a result of this widespread underpricing of risks. Eventually, even the terminology merged: We began to speak about "predatory lending" and "financial tsunamis" and "financial perfect storms" and "market meltdowns." Finally, just as a few farsighted financial experts warned us that the market could experience an extreme meltdown—one much worse than the models predicted—if we continued inflating the credit bubble, so a few farsighted scientists have been warning us about the same thing happening to the natural world if we continue inflating the carbon bubble.

"AIG and other companies like them failed because they discounted to zero the very small, remote risk of simultaneous defaults in their investment or insurance portfolios," noted Reid Detchon, the vice president for energy and climate, at the United Nations Foundation. "The risk in fact was probably less than 1 percent, perhaps a great deal less—but it happened nonetheless. We are acting like AIG in our approach to climate change. We are weighing the risks and benefits of action on the assumption that climate change will unfold predictably as temperatures rise. In doing so, we are discounting to zero two risks—the risk of a much greater increase in temperature than we now anticipate and the risk of a non-linear response by the climate system at some point along the way." A nonlinear response means radical change—a sudden drying up of the Amazon, for instance, due to a chain of unpredicted and unpredictable developments in the climate system. "Yet these risks—unlike the AIG case—are not small and remote," added Detchon. "The risk of a catastrophic increase in temperature is more like 50 percent than 5 percent if we follow a business-as-usual course. The risk of a non-linear response is simply unknowable—but we do know that the planet has experienced sudden shifts in the past."

It is for all these reasons that we absolutely must take our planet's warning heart attack seriously. There is no longer a "normal" for us to go back to. That "normal" high-energy and high-nature-consuming diet is what got us here. Mother Nature and the Market hit the wall because our normal became excessive and unsustainable.

The Australian Paul Gilding, a former head of Greenpeace who is now a leading environmental business expert, put it this way: We have been taking "a system operating past its capacity and driving it faster and harder," he observed. "No matter how wonderful the system is, the laws of physics and biology still apply." And those laws are telling us that we, as a species, cannot continue on the growth path we are on. We need a new normal—one that is much more sustainable and healthy for the Market and Mother Nature. The problem, he argues, is that it is very difficult to get human beings to appreciate and undertake the scale of change and innovation we now need without an even bigger crisis than the one we are experiencing. "History indicates that we don't accept large-scale change easily, especially when this change challenges our accepted beliefs," noted Gilding. "It generally takes a crisis to overcome our resistance. The challenge of sustainability, particularly climate change, has characteristics that make our normal resistance to change both deeper and longer lasting. It is an enormous system-wide challenge that affects every person and every country. It requires sweeping change in every aspect of our lives and our society. It also questions many fundamental beliefs about growth and the market economy and threatens some very powerful interests. All this deepens our resistance. Unfortunately this means the crisis will have to be very large and completely undeniable before we respond. This problem is also unusual in that the impacts lag the causes. Current global warming, for example, is caused by CO_2 emissions from decades ago. So when the crisis is big enough to force change, it will also have great and unstoppable momentum. As a result it will be far more damaging, because the impacts will continue to worsen long after we act on the causes."

That is why it is doubly urgent for our leaders and We the People to heed our warning heart attack and develop a more sustainable way of creating wealth in harmony with our natural world—and to begin doing it now, while we have a chance to do it in a reasonably orderly way. If we wait for a climate Pearl Harbor, to make the scale of the problem obvious to all, it will be too late. The impacts and disruptions by then will likely be unmanageable. "This is no longer just an environmental issue," argues Gilding. "How we respond now will decide the future of human civilization. We are the people we've been waiting for. There is no one else. There is no other time. It's us and it is now."