

Markets Magazine

# Meet the 80-Year-Old Whiz Kid Reinventing the Corporate Bond

Is he solving a big problem or creating an even larger one?

By [Edward Robinson](#)

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McQuown's Sonoma property displays his eclectic tastes, mixing the old and the new. *Joe Pugliese/Bloomberg Markets*

John “Mac” McQuown yanks on a chain and hoists open a metal roll-up door with a clang. In a flowery aloha shirt, shorts and sandals, he looks like a retiree with little more on his mind than sipping a mai tai by the pool. But McQuown is actually one of the architects of the modern investing system, and he’s far from retiring, *Bloomberg Markets* magazine will report in its March issue.

“Come here, I want to show you something,” he says on a sunny afternoon in California’s Sonoma Valley.



This story appears in the March 2015 issue of Bloomberg Markets magazine.

He steps inside a workshop filled with band saws and other woodworking tools. A gnarled tree trunk the size of a sofa has been cut down the middle lengthwise, revealing ribbons of grain beneath its bark.

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“I’m going to make a table out of that,” says McQuown, 80, in the down-home cadence of his Midwestern roots.

A mechanical engineer, McQuown likes to make things at Stone Edge Farm, his 16-acre (6.5-hectare) estate nestled between two mountain ranges north of San Francisco.

In his metal shop, he machines parts for the natural gas-fired microturbine he’s installed in the compound. Rows of cabernet sauvignon vines hang heavy with ripening purple fruit destined for his winery. He even keeps hundreds of thousands of bees to make his own honey.

Yet what McQuown truly loves to create is something that can’t be seen, heard or tasted. He’s a financial engineer, a maker of methods and instruments that enable investors to exploit what he likes to call “distortions” in the capital markets.

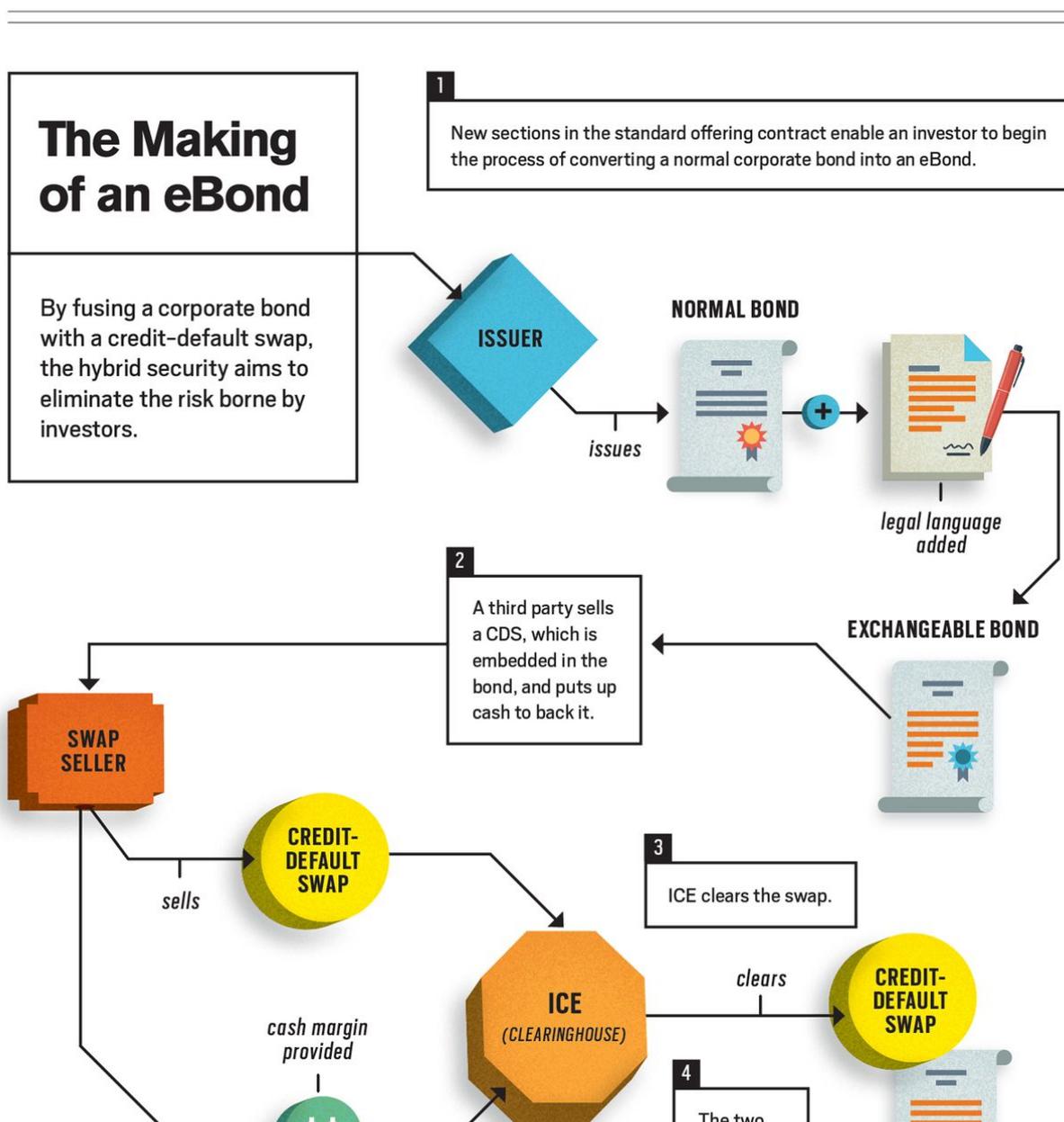
His latest handiwork is a hybrid security that embeds a credit-default swap, the derivative that helped push the global financial system to the edge of ruin in 2008, in a corporate bond.

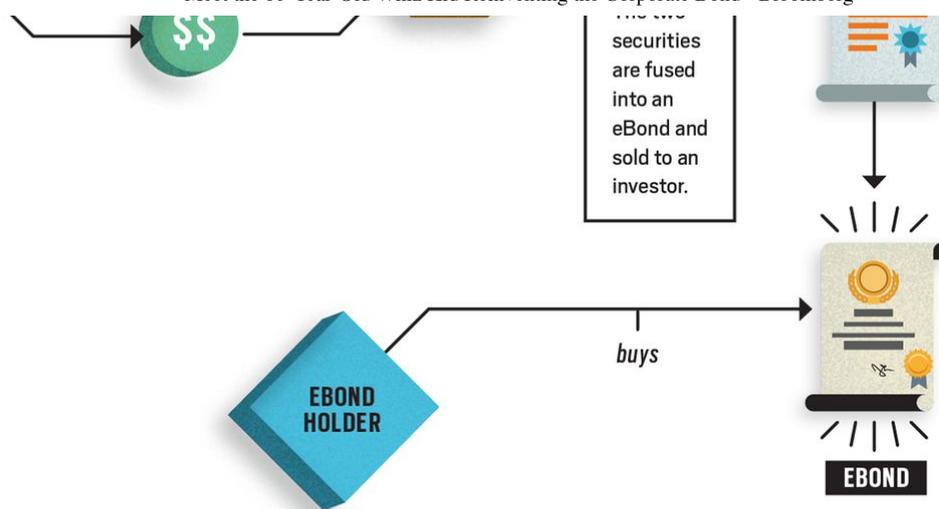
By joining the two securities into an instrument called an “exchangeable bond,” or eBond for short, McQuown says companies will be able to transform junk-graded debt into the equivalent of AAA-rated notes.

And he's hoping it will help him take advantage of possibly the biggest imbalance he's seen in a career that stretches back to the dawn of quantitative investing -- a looming liquidity crunch in the \$8 trillion U.S. corporate bond market. McQuown says reinventing the corporate bond to make it less risky should make it easier to trade.

"The market is bumping into its own boundaries," McQuown says, "and this has created a necessity for solutions."

McQuown is bringing out his "synthetic" instrument as years of near-zero interest rates have thrown the debt market into flux. Since January 2009, corporations have issued \$7.2 trillion in U.S. dollar-denominated bonds, a 39 percent jump over the prior six years.





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Meanwhile, new U.S. and international capital requirements have forced JPMorgan Chase & Co., Bank of America Corp. and other banks to reduce the risks on their books. Wall Street's primary dealers used to stockpile bonds so they could instantly match buyers and sellers.

Now, they've whacked their supplies of fixed-income securities by 76 percent, to \$55 billion as of Jan. 5 from about \$250 billion in 2007.

The result: an unprecedented gap between outstanding bonds and available liquidity in the world's No. 1 source of capital for corporations.

"That's dangerous," says Daniel Gallagher, a commissioner with the U.S. Securities and Exchange Commission. "We've had this long bull run in the bond market, but what happens when interest rates rise and there's more pressure to sell than to buy? Liquidity could dry up, and that could make it harder and more expensive for companies to issue new bonds, and that could impact the broader economy."

The eBond joins a wave of exotic new securities that are hitting the capital markets seven years after the crash.

Intercontinental Exchange, or ICE, in Atlanta, for example, has introduced futures based on CDS indexes. And Amundi SA, a Paris-based asset management firm, is one of many companies plying investors with automated "smart beta" exchange-traded funds designed to beat the market with little or no increase in fees.

“There’s a lot of action, a lot of experimentation, in the market now,” says Josh Galper, the managing principal of Finadium LLC, a finance research firm based in Concord, Massachusetts. “But innovation does not always reduce risk -- it just moves it around.”

McQuown says his eBond will enable investors to jettison their credit risk because the swap, which is essentially a form of insurance, will cover their losses should the debtor fail. To garner such protection now, an investor must purchase a swap separately to cover a bond.

“We’ve finally figured out a way to make a bond default-free,” says McQuown, a partner at eBond Advisors LLC, a New York-based firm that’s producing the new security.

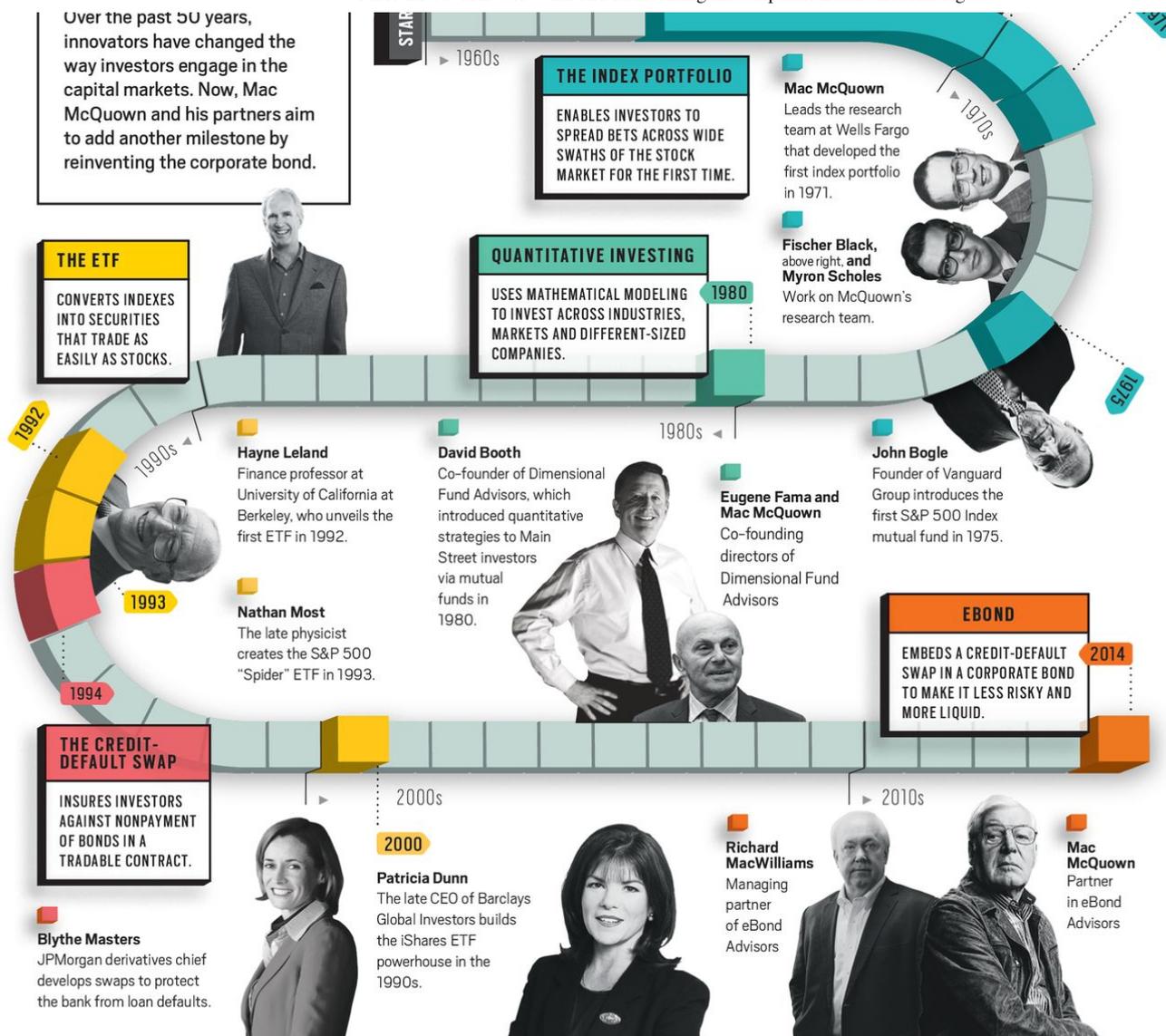
The newfangled instrument, which McQuown developed with fixed-income entrepreneur Richard MacWilliams, has won the support of influential figures in finance.

Nobel Memorial Prize-winning economist Robert Merton and former BlackRock Inc. Vice Chairman Blake Grossman are among the investors in eBond Advisors. And John Reed, the one-time chairman of Citigroup Inc. and the board of trustees at the Massachusetts Institute of Technology, is an adviser to the firm.

“It’s an important idea that deserves to get off the ground,” says David Booth, co-founder and co-CEO of Dimensional Fund Advisors, an Austin, Texas-based investment firm with \$381 billion in assets and another backer of the venture. “The way bonds trade now is abysmal, and if we can make the bond market as liquid and transparent as the stock market, that’s a socially desirable outcome.”

The eBond evokes a long line of inventions that were supposed to tame the markets but instead wrought havoc. In 1998, hedge fund Long-Term Capital Management needed a \$3.6 billion bailout from 14 global banks after its mathematical models for government bond arbitrage blew up following Russia’s default. Ten years later, a raft of mortgage-backed securities meant to neutralize risk crashed much of the world’s economy.





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John Bogle, the founder of index mutual fund pioneer Vanguard Group Inc. and a champion of no-nonsense investing, has crossed paths with many financial engineers, including McQuown. He's as skeptical as ever that their work yields lasting benefits for investors.

"I liked McQuown, and he's probably a genius -- I have no problem saying that," Bogle, 85, says. "But geniuses pursue complexity. Any innovation in the financial field is likely to fail. Most are designed to enrich the sellers and impoverish the buyers."

Yet McQuown isn't an alchemist who made his name cooking up toxic securities. He actually shares Bogle's passion for open, cost-efficient markets.

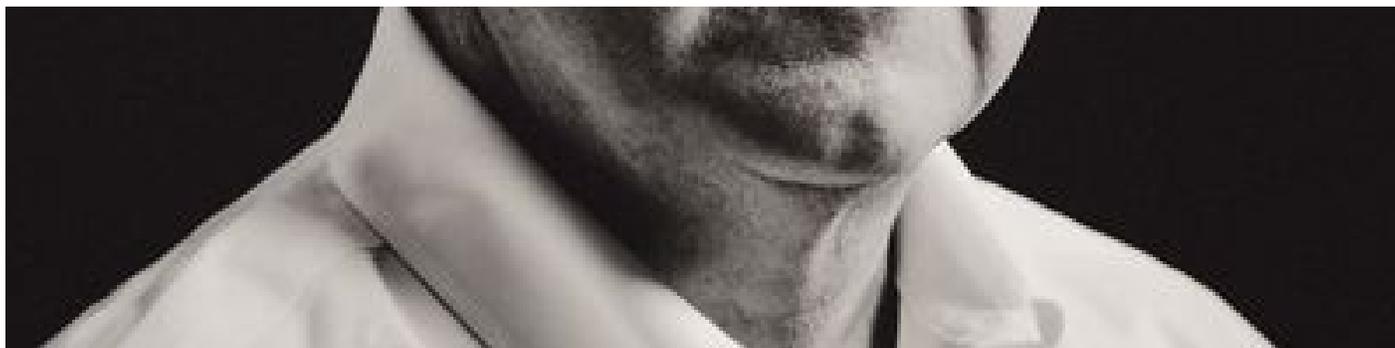
Forty-four years ago, McQuown applied the theories of economists William Sharpe, Eugene Fama, Fischer Black and Myron Scholes to invent the first equities index portfolio.

The breakthrough helped usher in the era of passive investment in an array of stocks across the market, now the linchpin in many a 401(k) fund. Sharpe, Fama and Scholes were eventually awarded Nobel Memorial Prizes for their work; Black died before he could be honored.

In the 1990s, McQuown and two partners devised a way to use a company's stock price to predict how likely it was to default on its debts. The analytical tool, which the trio sold to Moody's Corp. in 2002 for \$220 million, is a fixture on trading floors worldwide. Today, McQuown is a partner in DCI, a \$5 billion fixed-income hedge fund in San Francisco.

"Mac's one of those guys who's been very influential behind the scenes," says Booth, a billionaire who donated \$300 million to what became the University of Chicago Booth School of Business in 2008. "To bring about fundamental change, you need great thinkers and researchers, but you also need implementers. People like Mac don't win Nobel Prizes; they implement the ideas of the guys who do. He's a catalyst." Now McQuown and MacWilliams, eBond Advisors' managing partner, are betting they can move a market that has proved impervious to change.





Richard MacWilliams is on McQuown's eBond Advisors team. *Adam Krause/Bloomberg Markets*

For the past 25 years, the two men have watched as equities trading has become as easy and accessible as online shopping.

When it comes to bonds, little has changed since the days when Michael Lewis played liar's poker with his pals at Salomon Brothers in the 1980s.

Eight out of 10 deals are still executed by two traders on the phone, according to Greenwich Associates, a research firm in Stamford, Connecticut. Wall Street's top 10 banks still control 90 percent of trading in corporate bonds. And the market is still fragmented into tens of thousands of bond issues because a single company can sell scores of unique notes with varying maturities and interest rates.

"We've had a transparent equity market since it began, but we still don't have a transparent debt market," McQuown says. "Instead, we have all these bilateral arrangements with highly levered and highly volatile dealers. There's no reason in the world why corporate bonds shouldn't trade like equities."

For entrepreneurs and market stalwarts alike, such structural flaws aren't a worry; they're an opportunity.

BlackRock, the No. 1 global investment firm, with \$4.3 trillion in assets, has formed a strategic alliance with MarketAxess Holdings Inc. to offer investors an alternative to what it calls a "broken market."

New York-based Electronifie Inc. is one of several startups coming online to help investors bypass banks and find liquidity in "dark pools," which are private exchanges used to trade stocks.

Banks, too, are joining the push. Late last year, Goldman Sachs Group Inc., Credit Suisse Group AG and 10 of their rivals allied with more than a dozen investment firms to form a global trading

network dubbed Project Neptune. (Bloomberg LP, the parent of Bloomberg News, also operates an electronic trading platform for fixed-income securities.)

“Investors have been building larger and larger positions of credit exposure in their portfolios, and they’re going to need alternative ways to exit them,” says Richard McVey, chief executive officer of MarketAxess, the No. 1 digital hub for corporate bonds in the U.S. “This is a massive capital markets problem, and it needs to be solved.” McQuown, still spry, with a mop of snowy hair, a California tan and a kung-fu grip of a handshake, isn’t interested in starting an electronic trading platform. He and MacWilliams have set out to reinvent the bond itself.

Peter Aherne, head of North America capital markets, syndicate and new products at Citigroup, agrees that the eBond could be a breakthrough.

“By linking credit protection and a bond in a single security, I would expect there to be portfolio benefits in terms of risk management and trading opportunities,” Aherne says. “More buyers for these securities should enhance the liquidity of the bonds.”

**“There’s a lot of experimentation in the market. Innovation does not always reduce risk.”**

But as McQuown and MacWilliams introduce their new product, they may find fund managers underwhelmed by the idea of a riskless corporate bond.

“The way we make money for our clients is by assessing risk and generating risk-adjusted returns, and if you have a security that hedges that risk premium away, then why is it compelling? I would just buy Treasuries,” says Bonnie Baha, the head of global developed credit at DoubleLine Capital, a Los Angeles firm that manages about \$64 billion in fixed-income assets. “This product sounds like a great idea in theory, but in practice it may be a solution in search of a problem.”

And, of course, fusing a security as straightforward as a bond with the notorious credit-default swap does ring a lot of alarms, says Phil Angelides, former chairman of the Financial Crisis Inquiry Commission, a blue-ribbon panel appointed by President Barack Obama in 2009 to conduct a postmortem on the causes of the subprime mortgage disaster. In September 2008,

American International Group Inc. didn't have the money to back the swaps it had sold guaranteeing billions of dollars' worth of mortgage-backed securities. To prevent AIG's failure from cascading through the global financial system, the U.S. Federal Reserve and the U.S. Treasury Department executed a \$182 billion bailout of the insurer.

"When you look at this corporate eBond, it's strikingly similar to what was done with mortgages," says Angelides, a Democrat who was California state treasurer from 1999 to 2007. "Credit-default swaps were embedded in mortgage-backed securities with the idea that they'd be made safe. But the risk wasn't insured; it was just shifted somewhere else."

McQuown and MacWilliams counter that soon CDSs will not pose the systemic threat they did in 2008. Back then, they were traded between two parties in an unregulated and unaccountable system.

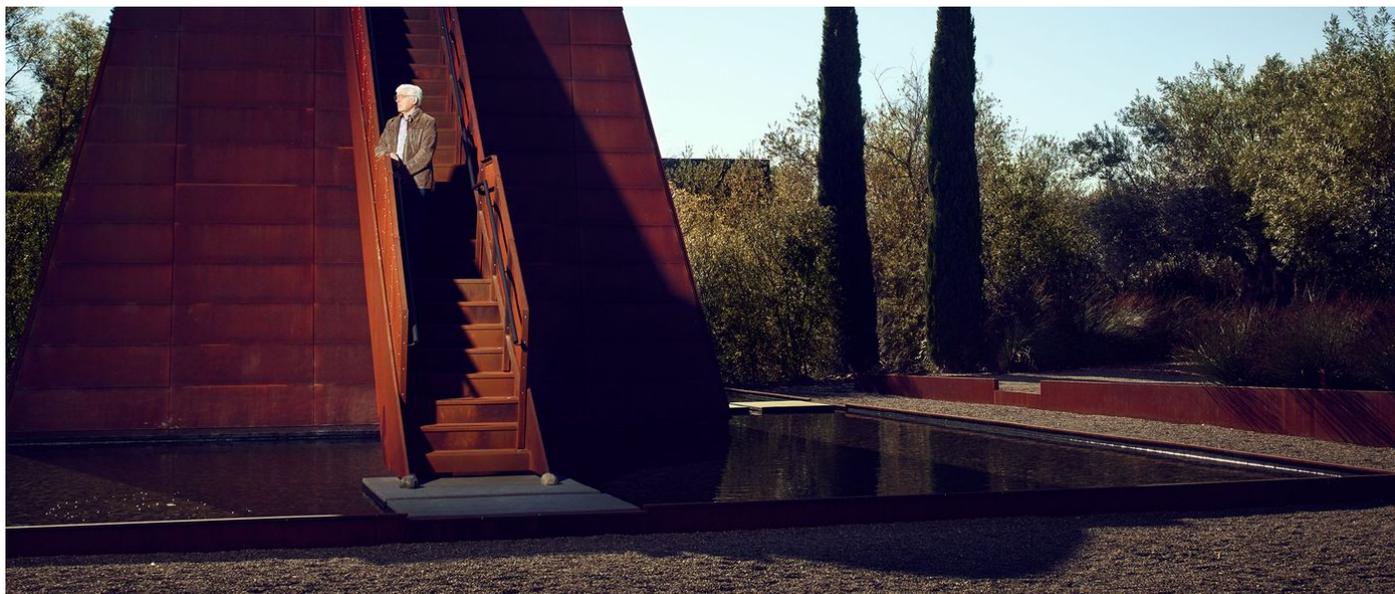
To bring the \$19 trillion CDS market out of the shadows, the Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 mandated that most of these securities be traded through exchanges and processed by clearinghouses that guarantee settlement and record every transaction in a database open to regulators. The SEC is writing rules to implement the measure. (Bloomberg LP operates a swap execution facility for trading these derivatives.)

The two men are betting these new safeguards will ease worries about swaps. ICE, the No. 1 global clearinghouse for credit derivatives, will process the swaps used to create eBonds.

ICE requires sellers of swaps to backstop their contracts with various margin accounts. If the seller fails to pay off, then ICE can tap a "waterfall" of margin funds to make the investor whole. In the event of a market crash, it can call on clearing members such as Citigroup and Goldman Sachs to pool their resources and fulfill swap contracts.

There's still a danger that the banks themselves may be unable to muster cash in a crisis. But this shared responsibility marks a sea change from the bad old days when investors gambled their counterparties would make good on their contracts.





Fascinated by astronomy, McQuown built an observatory on his farm. *Joe Pugliese/Bloomberg Markets*

**It's late afternoon at Stone Edge Farm,** and McQuown is meeting with MacWilliams and eBond Advisors CEO Bryan Jennings in his billiards room as shadows stretch across the swimming pool outside. The three men are discussing the restructuring of the derivatives market since the crash.

“We could never have developed eBonds without Dodd-Frank and centralized clearing,” says MacWilliams, 62, an easygoing man who rides in the Krewe of Hermes parade in his hometown of New Orleans every Mardi Gras.

“In 2008, it wasn't the swap that was broken -- it was trust and faith in the system,” adds Jennings, 48, who headed fixed-income capital markets and derivatives at Morgan Stanley from 2003 to 2012.





Bryan Jennings is on McQuown's eBond Advisors team. *Adam Krause/Bloomberg Markets*

“It’s absolutely stupid to have a derivatives market based on bilateral trading,” McQuown chimes in. “And to load up dealers with an inventory of credit-default swaps is the second-dumbest thing imaginable. Centralized clearing is one of the benefits of ‘08, and I think it’ll change the debt markets.”

As he strolls the grounds, it’s quickly evident that the proprietor of Stone Edge Farm is a man of eclectic tastes.

Vegetable beds teem with squash and tomatoes and 40 125-year-old olive trees have been replanted with geometric precision in parallel rows. McQuown, who grew up in a farming family in northern Illinois, employs his own arborist to tend to the live oaks and California bay trees on his estate.

He’s inclined to go overboard when he delves into new projects. Years ago, his wife, Leslie, bought him a backyard telescope only to see it go untouched. When McQuown finally decided he needed “to know” astronomy, he purchased a “deep-sky” telescope with a 20-inch mirror and housed it in a three-story-high observatory clad in rust-colored steel that resembles a Mayan pyramid.

“He hasn’t changed that much since I first met him more than 50 years ago,” says Fama, 76, a finance professor at Chicago Booth. “He has a basic curiosity about everything.”

After earning a degree in mechanical engineering from Northwestern University and then an MBA from Harvard in 1961, McQuown embraced an emerging discipline called computer science.

As a young analyst in Smith Barney's corporate finance unit in Manhattan, he spent his weekends renting time on an IBM 7090, a room-sized mainframe installed in the basement of the Time-Life Building.

McQuown wanted to see if he could predict how stocks would perform, so he built a database and then slept next to the whirring machine as it ran his programs. He says with a laugh that he failed in his quest.

By 1970, McQuown was leading the management sciences research division at Wells Fargo & Co. in San Francisco.

He was blown away by Fama's theory that equity prices reflect all available information, so it's virtually hopeless to beat the market over time.

McQuown also studied Sharpe's work. Sharpe had developed formulas, including one that came to be known as the Sharpe ratio, to quantify the relationship between risk and return and concluded, as did McQuown, that a wise way to make money in the stock market was essentially to invest in all of it.

This particular stream of thought arrived at a time when investors typically put their faith in star stock pickers.

"It was an exciting time because finance and investing were in a pre-scientific era," recalls Sharpe, 80. "Mac was a guy who said, 'Surely we can bring economics and mathematics to bear in this area and optimize a portfolio.' That required algorithms and serious computing power."

**“Geniuses pursue complexity. Any innovation in the financial field is likely to fail.”**

In July 1971, McQuown's team of brains unveiled a \$6 million portfolio that tracked 1,500 equities trading on the New York Stock Exchange for the pension fund at luggage-maker Samsonite.

It would take Bogle, who developed his Standard & Poor's 500 Index mutual fund in 1975 separately from McQuown, to bring low-cost index investing to the masses through Vanguard.

More than four decades later, index-based mutual funds and exchange-traded funds hold \$10 trillion in assets, according to Statista Inc., a New York-based research group.

The project left McQuown with an unshakable belief that financial engineering could make investing more efficient and less risky.

It could also prove quite lucrative, as he found when he shifted into credit analysis in the 1990s and formed a firm in San Francisco called KMV with Stephen Kealhofer, a University of California at Berkeley finance professor, and Oldrich Vasicek, a Czech mathematician.

The trio recognized that credit ratings often don't accurately reflect a company's likelihood of defaulting on its liabilities. So they developed complex mathematical formulas based on a company's stock option pricing to calculate this probability with greater depth than can be found in conventional credit reports.

As an entrepreneur, McQuown savored exploiting such inefficiencies. In 2004, at the age of 70, he co-founded DCI with Kealhofer to profit by predicting and managing the default risk in corporate bonds and CDSs.

Yet McQuown was also driven by an engineer's desire to replace a flawed machine with a better one. For years, McQuown and MacWilliams had kvetched about how antiquated the bond market seemed compared with stocks, futures and other securities.

MacWilliams had gotten to know McQuown in the early 1990s, when he headed EJV Partners LP, a bond data provider that did business with KMV. In the aftermath of the 2008 crash, the two men rapped by phone daily about how to take advantage of the restructuring of Wall Street.

"There is a clear thread from Wells Fargo to the eBonds concept," says David Coulter, the vice chairman of Warburg Pincus LLC, the New York-based private-equity firm, and an adviser to eBond Advisors. "Once again, Mac's asking 'How do markets function? Are they efficient? And if not, what can we do about it?'"

When President Obama signed Dodd-Frank in July 2010, McQuown and MacWilliams found their opening in Title VII of the 848-page law. Credit-default swaps, developed in 1994 by Blythe Masters, an economist then working on JPMorgan's derivatives desk, were originally designed to help banks cover losses in the event their borrowers failed. Within 14 years, the instrument's purpose had become warped as banks and insurers sold unsecured swaps supposedly to guarantee subprime mortgage-backed bonds.

Now, McQuown and MacWilliams are wagering that this maligned derivative will ultimately justify its usefulness. They point out that the junk bond, another innovation that was once viewed as a financial weapon of mass destruction, has become an uncontroversial tool. With investors required to trade and clear swaps in an open and accountable marketplace, “We can return credit-default swaps to their original purpose--to transfer risk,” MacWilliams says.

To create the new instrument, eBond Advisors’ lawyers added three sections to the standard contract that bond issuers provide to bond buyers.

Even so, McQuown and his partners may have difficulty finding investors willing to sell the swaps to embed in the eBond because the market has yet to fully recover from the crash. In the second week of January, investors traded \$86 billion worth of contracts, a 37 percent drop from the same week in 2011.

Moreover, Jennings is having a hard time persuading chief financial officers to take a chance on using eBonds amid the fixed-income boom.

“No one has a problem raising capital right now,” Jennings says. “The biggest challenge, without a doubt, is overcoming the question of, ‘Has anyone else done it?’”

There’s a bigger problem with the eBond -- and, for that matter, with financial engineering in general -- says Wallace Turbeville, a senior fellow at Demos, a New York-based think tank.

The bond is a simple instrument with a debtor and creditor that’s proven its utility for centuries. The eBond inserts a third party into the transaction -- the seller of the swap embedded in the security who now bears its credit risk.

Such machinations may be designed with good intentions, but they just further convolute the marketplace, says Turbeville, a former investment banker at Goldman Sachs.

“Why are we doing this? Is our society better off as a result of this innovation?” he asks. “You can’t destroy risk; you just move it around. I would argue that we have to reduce complexity and face the fact that it’s actually good for institutions to experience risks.”





McQuown, shown in his woodworking shop at Stone Edge Farm, is an inventor at heart. *Joe Pugliese/Bloomberg Markets*

**Back at Stone Edge Farm**, it's a balmy evening and McQuown has invited MacWilliams and Jennings to join him and Leslie for dinner at an outdoor table.

The couple's chef serves a deconstructed eggplant Parmesan salad with heirloom cherry tomatoes and rocket from the farm's organic garden, and glasses are filled with the 2006 vintage of McQuown's cabernet sauvignon, which sells in the secondary fine-wine market for \$110 a bottle.

As the conversation turns to "complexity theory," an interdisciplinary approach developed by physicists at the Santa Fe Institute to analyze systems such as the oceans or the brain, McQuown is in his element. For him, the capital markets are an ever-changing machine to be tuned and re-engineered indefinitely.

McQuown's breakthroughs with index funds and credit-default analysis worked to the benefit of investors. The question now is, will his tinkering do the same as the bond market heads into a crucial transition?

"There's going to be a lot of experiments, and more power to those that are trying to figure out solutions," McQuown says on the phone a few weeks later. "Otherwise, we'll end up with

financial dysfunction, and there's really no reason for that.”

He's about to describe an idea for a new type of mutual fund when he has to hop off the call. Someone calls from the gate. It's a group of researchers from the Institute for the Future, a Palo Alto, California-based group that forecasts social and technological trends. They're not interested in bonds or CDSs.

No problem. The engineer is happy to show them how his microturbine and solar array will soon shift his entire compound off the grid.

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