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# Do we really need more regulation of financial derivatives?

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Along with Franco Modigliani of M.I.T., Miller developed the much cited "M&M Theorems" on capital structure and dividend policy that are the foundations of modern corporate finance. For these contributions Miller received the 1990 Nobel Memorial Prize In Economic Sciences. His research in finance is widely acknowledged to have changed the way the subject is taught at universities throughout the world.

The author of scores of economic articles and papers, Miller has written six books, including *The Theory of Finance* with Eugene F. Fama, Robert R. McCormick Distinguished Service Professor of Finance at the University of Chicago Graduate School of Business) and, most recently, *Financial Innovations and Market Volatility*.

Miller chaired a special panel appointed by the Chicago Mercantile Exchange to examine the role of futures markets in the stock market crash of October 1987. He is currently a public governor of the Chicago Mercantile Exchange, a fellow of the American Academy of Arts and Sciences, and a distinguished fellow of the American Economic Association.

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# Do we really need more regulation of financial derivatives?

What are financial derivatives, and why do we have them?

Financial derivatives, for those who may have been too preoccupied with their own concerns to notice, come these days in basically three different flavors, like the quarks in nuclear physics. First, historically, were exchange-traded futures and options, which burst on the scene in their modern form in the early 1970s in Chicago, naturally (though their ancestry traces back to Holland in the 17th century and, surprisingly, to Japan at about the same time). Next in time came so-called swaps—contracts in which, as the name suggests, two counterparties exchange payment streams, typically a floating interest rate stream for a fixed interest rate stream or a stream in dollars for a stream in marks or yen. And finally, and most recently, has come an explosive revival in so-called structured notes that might, to take one wild example, let a Brazilian firm, say, borrow at 5 percent in U.S. dollars plus the amount by which the return on the Brazilian stock market exceeds that on the Mexican market. These customized structured deals admittedly may sometimes strike outsiders as a bit bizarre, but the fact remains that the use of derivatives of all three flavors has grown rapidly over the last 20 years. And why is that? Their use has grown, I insist, because they have satisfied an important business need; they have allowed firms and banks, at long

last, to manage effectively and at low cost business and financial risks that have plagued them for decades, if not for centuries.

But despite what I and most other economists, at least of the Chicago variety, see as the social benefits of these financial derivatives, they have, let us face it, also been getting a very bad press recently. Everyone by now surely has read about Procter & Gamble, that sweet little old Ivory Soap company that dropped \$150 million or so on derivatives; and about the big German conglomerate, Metallgesellschaft, that supposedly dropped ten times that amount, or close to a billion and a half, on oil futures. These and other horror stories have created the impression that derivatives have brought us close to a financial Chernobyl that threatens to bring the whole economy down around our ears unless derivatives are brought under strict government control and supervision.

The real threat: derivatives or central banks?

So, before going any further let me emphasize that no serious danger of a derivatives-induced financial collapse really exists. Note, however, how I have carefully phrased that: no *derivatives-induced* financial collapse. Firms will continue to lose money on bad judgment and bad derivatives deals, just as they always have in deals involving ordinary assets like stocks and real estate. And a major crack in one of the world's financial markets is always possible. But crashes in financial markets are not exogenous calamities like earthquakes. They are *policy* disasters, tracing not to transactions between *private-sector* parties but to the deliberately deflationary actions of a central bank somewhere, usually one overreacting to its previous policy errors in the other direction.

A classic example, of course, has been the turmoil in the U.S. bond market since the spring of 1994 after our Federal Reserve System suddenly nudged up short-term interest rates. And why did the Fed feel it had to nudge them up? Because the Fed had previously driven short rates far too low, hoping that lower short rates would lead to lower long rates, which in turn, the Fed hoped, would pull the U.S. economy more rapidly out of its recession. That announced policy of driving interest rates down gave the banks, the hedge funds, and the big institutional investors generally what seemed a sure-fire, money-coining strategy: borrow short and lend long. The low short rates kept their cost of borrowing small, and the Fed's fears of throttling the then still-weak economic expansion would keep rates low. Prices of long-term bonds, then, could go only one way: up. For more than a year, those leveraged bets on falling long-term interest rates paid off handsomely.

But the Fed eventually discovered, or should I say rediscovered, that the short-term rate could be held below its warranted level only by rapidly expanding the money supply and risking a resurgence of price inflation. The Fed thereupon suddenly stepped on the monetary brakes by raising short-term interest rates, hoping that its anti-inflation rhetoric would keep the more inflation-sensitive long-term rates from rising. But the Fed guessed wrong. Long-term rates rose right along with short-term rates, and blood began to flow on Wall Street (and in Orange County). So far, the fallout on the U.S. real economy from the Fed's monetary tightening has been small. But more tightening is on the way, and we must not become complacent. We need only look to the mismanagement by the Federal Reserve System in the early 1930s to see how much permanent damage a central bank can inflict on an economy.

## The current state of derivatives regulation

For what further comfort it may offer to those worried about the dangers from unregulated derivatives, let me also assure them that derivatives already are very extensively regulated. The futures exchanges, for example, are regulated, and very heavy-handedly so, by the Commodity Futures Trading Commission (the CFTC), one of the largest producers of bureaucratic red tape this side of Japan. The securities broker/dealer firms like Goldman, Sachs or Salomon Brothers are regulated by the SEC, an agency with a world-recognized reputation as a tough cop.

On that score, however, some critics, including our U.S. General Accounting Office, have complained recently that while the SEC may regulate the dealer firms and their capital requirements, the agency has no special or specific requirements for their derivatives operations. But if you know how the derivatives business is structured on Wall Street these days, that line of argument by our GAO makes no real sense. The name of the game in the derivatives business is *credit quality*. Nobody will deal swaps with you if you can't convince them that you have adequate capital or unless you post substantial collateral if you don't. To further reassure the particularly credit-sensitive sector of the market, moreover, some of the big brokerage firms have even split parts of their derivatives business off into separate subsidiaries, with dedicated capital of their own. The subs have received triple-A credit ratings from the private credit rating agencies like Moody's and Standard and Poors—agencies that do a more stringent capital and credit analysis, incidentally, than the SEC ever has or ever could. And far from suggesting any looming capital inadequacy, the ratings of the subs, in fact, are actually higher than that of the

banks that do most of the derivatives business.

Those banks, moreover, which currently account for about 70 percent of the derivatives business, are themselves heavily regulated indeed, to say the least. The derivatives activities of every bank dealer are regulated by at least one and sometimes by as many as three separate regulators. Bank officers often find themselves saying good-bye to one group of examiners going out the back door, just as another group is being ushered in at the front door.

The savings and loan crisis and the supposed dangers of inadequate regulation

But if derivatives, as I insist, are already adequately (or more than adequately) regulated, how do I answer people who say, “We’ve heard that same talk about overregulation back in the early 1980s when the savings and loan industry was insisting that *its* regulation was adequate. And look what happened!”

But are the two cases really parallel? Very definitely not! The so-called deregulation of the S&Ls in the early 1980s was less a matter of allowing free market magic to do its work than an attempt by Congress to prolong the life of an industry that a truly free market would have ended years before. The industry was not allowed to die a natural death because residential housing and everything connected with it had become a sacred cow of American politics. Congress in the 1930s—and even more so in the years after World War II—was encouraging American citizens to buy homes and finance them with 30-year, fixed-rate mortgages from deposit-funded local savings and loan associations. By the mid 1960s however, as inflation and hence interest rates began to rise in the U.S., the S&Ls found themselves having to pay 6

percent or more to keep from losing their deposits, while the fixed-rate, 30-year mortgages on their books had been made years before at 4 to 5 percent. By the late 1970s, in fact, as inflation accelerated, most of the industry had become technically insolvent on a mark-to-market basis.

At that point, rather than face up to closing down the politically potent local S&L industry and bailing out their federally insured depositors with tax money, Congress gave the S&Ls one last chance to stay alive by allowing them to invest in more than just the mortgages on single family homes, which had been their traditional market niche. They could now invest in commercial real estate, luxury condos, and resort properties, a form of diversification which, by itself, might not have been so troublesome. But the S&Ls were allowed to support commercial property developments of that kind without having to face the normal market tests for funding such risky ventures. Congress, in the dark of night, literally, i.e., without holding hearings or any public debate, had raised the limit on government-guaranteed deposit accounts of S&Ls from \$10,000 to \$100,000 per *account*—not per individual or per family. That would be equivalent, in today's prices, to close to \$200,000 per account—a non-trivial sum. S&Ls could thus raise virtually unlimited funds for speculative property development merely by offering to pay 50 or 75 basis points above the going deposit rate. Deposit brokers would then funnel the S&Ls money from all over the country. The depositors didn't ask any questions about how the S&Ls hoped to earn those extra 50 or 75 basis points. Why should they care? The U.S. government was guaranteeing their deposits.

To cite the S&L bailouts as grounds for regulating derivatives is thus not only to miss the point of that government-spawned disaster but is doubly ironic. Financial derivatives, if they had only been

more readily available in the early 1980s, could have kept the S&L industry viable as a residential housing lender without massive life support from subsidized deposits. If maturity mismatch between floating-rate deposits and fixed-rate mortgages is your problem, then interest-rate swaps, futures, and options can be your solution. Indeed, that is precisely the direction in which what's left of the S&L industry is going at the moment. The industry has also been helped, of course, by the development of variable-rate mortgages and even more by its ability to securitize its locally raised mortgages by bundling them into mortgage pools. Those pools, in turn, serve as inputs to still another class of derivatives securities—the so-called CMOs or collateralized mortgage obligations—that support many new strategies for controlling interest-rate risks, though alas, also some new ways for the unskilled or the unlucky to lose big chunks of money.

## Derivatives and the safety of the banking system

Not only are the S&Ls much safer institutions today, thanks to derivatives, than they were in the past, but so too are the commercial banks. Despite all the hullabaloo in the press and all the bad publicity surrounding derivatives, banks are safer today, not riskier, and for several reasons.

For one thing, the customers in the banks' derivatives book are now much better credit risks, on the whole, than those in their regular loan portfolio. Top-rated, blue-chip clients had been leaving the banks steadily for many years in favor of public-market funding, especially commercial paper. Swaps and options have brought them back. And even for some of the banks' so-so, intermediate customers, swaps strengthen a bank's hand on long-term fixed-rate credits. They let a

bank pull the plug on a firm when its condition is just beginning to deteriorate, without having to wait for an actual default.

The swaps and options book, moreover, is typically highly diversified, whereas banks' commercial portfolios are often heavily concentrated by region or by industry (like Continental Bank and its oil credits) or by foreign country (like Citibank and its Latin American credits). And, of course, as noted earlier for the S&Ls, a bank's swaps and derivatives book can be managed to control interest-rate risk. If more of a bank's customers want to take the floating-rate side than want the fixed-rate side of interest-rate swaps, the bank simply lays off the excess directly with other dealers who happen to have the reverse position. Or, I am happy to say, the bank can make an offsetting transaction using exchange-traded financial futures, like the Eurodollar futures of the CME.

But if swaps and derivatives have really made the financial system safer, not riskier, as I have claimed, why are we hearing so many calls these days for more regulation? Part of the answer, I suspect, comes from misunderstanding by the public and the financial press about how serious the risks really are. A telltale sign of how deep those misunderstandings go is the almost universal practice of citing the nominal size of swaps outstanding and treating that number as if it were the amount at risk. Last year the conventional number was \$8 trillion; this year it's \$12 trillion. But 8 or 12, it's a huge amount, and if that really did measure the risk exposure, it would be hard to blame people for being worried.

Those multitrillion dollar numbers, however, are just bookkeeping entries, or better, scorekeeping entries, not transaction amounts. Whenever I hear those trillions being tossed around, I am always reminded of the two bored floor traders on a quiet day at the exchange, keeping their trading skills

honed by offering to trade two million-dollar cats for one \$2 million dog. And similarly for interest-rate swaps. What gets swapped is *not* the trillions of principal amount but only the *interest* on the principal, which is an order of magnitude smaller. And even that is an overstatement, because only the *difference* between the fixed and the floating rates is exchanged, which cuts it in half again. So we're talking not about \$12 trillion at risk but something like 1 or 2 percent of that amount, which is certainly not trivial, but it's not terribly frightening, either, given the elaborate risk-control programs installed by all the major banks and dealers.

## Derivatives regulation from a University of Chicago perspective

While these and related misunderstandings about derivatives have certainly contributed to the public's sense of uneasiness about derivatives, automatically blaming the public's ignorance for any demand for new government regulation can be a mistake. When it comes to appraising regulation and other government interventions in economic life, the Chicago School of free market economics has two quite different streams. One stream, basically associated with Milton Friedman, attributes the interventions to mistakes in reasoning by the public. Some people sincerely believe that the country could be made better off, say, by imposing tariffs or quotas on Japanese automobiles, and it is the task of a country's economists to expose the fallacies in that line of thought. The other Chicago stream, typified by the late George Stigler, is much more cynical. The regulations we see, says Stigler, are put there not by ignorance but by design. Whatever may be the rhetorical arguments invoked in their favor, their real purpose is usually to benefit their sponsors at the

expense of their competitors, domestic as well as foreign.

The field of financial regulation has a multitude of examples supporting the cynical Stigler position, as I have been showing in a variety of papers and speeches over the last few years. My favorite, of course, is the campaign waged after the Crash of 1987 by the New York Stock Exchange, the SEC, and parts of the New York brokerage industry for tighter regulation of the Chicago futures exchanges (Miller 1993). The New York attackers were claiming that index arbitrage was causing market crashes and raising market volatility, which was false. What they *really* meant, of course, was that the new Chicago index futures products were taking commission and fee income away from the New York firms, which was certainly true. Such are the conventions of America politics, however, that the brokerage industry and the SEC couldn't come right out and say that. They had to frame their case in higher, public-interest terms by demanding tighter regulation of the interlopers. As it turned out, the threat of crippling regulation of stock index futures was eventually beaten back in that case, not, I am sorry to say, because we economists, acting in the Friedman tradition, had successfully disabused the New York firms of the errors in their reasoning but because the New York firms became index futures players in a big way themselves. Or, as I like to say, the competitive problem between the two groups was solved by intermarriage.

With the stock index futures case and so many similar ones in mind, the natural place to look for where the calls for regulating derivatives must be coming from is to the competitive structure of the derivatives industry. Surprisingly, however, this time the calls for

more regulation are *not* coming from the more highly regulated sectors demanding a levelling of the regulatory playing field. Alan Greenspan, in fact, the chairman of the Federal Reserve Board and the main regulator of the banks, has on numerous recent occasions pointedly refused to endorse calls for further regulation of the banks' broker/dealer competitors. Nor are we seeing attempts by regulatory commissions to expand their jurisdiction—turf wars, as we call them.

The failure of the regulators and their congressional overseers to call for more restrictions on those industry's competitors cannot be traced to congressional indifference to the business success of the industry they supervise. If nothing else, campaign contributions can be counted on to keep the interests of the congressional overseers aligned with those industries. And while congressmen don't usually participate directly in the industry profits—that would be considered “corruption” in the U.S.—they do so indirectly when they retire or are defeated and then capitalize on their contacts and influence.

In Japan, this post-retirement link between the regulators and their industry has been institutionalized in a form known, sarcastically, as *amakudari*, literally “the descent from heaven.” Every hardworking Japanese bureaucrat in the Ministry of Finance who has served his regulatory clients well can look forward on retirement to a well-paying sinecure on the board or on the top management of some Japanese bank, or insurance company, or brokerage firm. And while the Japanese, admittedly, have raised this and similar forms of industry “capture” to an art form, comparable, if perhaps less blatant, industry/regulator links exist in the U.S. and most Western countries. The major difference is the two-way nature of the flow of top regulators and top executives in most countries other than

Japan. The current chairman of our SEC, for example, is the former chairman of the American Stock Exchange. In Japan, by contrast, all senior regulatory posts are filled by long-term bureaucrats who entered the Ministry of Finance in a junior capacity many years earlier, usually fresh from the University of Tokyo Law School.

## Prospects for congressional action on derivatives

But while congressmen in the U.S. have deep and enduring ties to the industries they oversee, they have other constituencies as well, and it is perhaps these constituencies that are fueling the calls for regulation. Congressmen know they will be blamed by those constituents if a disaster occurs on their watch—and often even if it's not really a disaster.

The reaction of Congress to news sometimes reminds me of my undergraduate college, whose rule for governing our behavior was “There are *no* rules governing off-campus behavior, as long as you don't get the university's name in the papers.” If newspaper stories did appear, of course, the college would have to do something. And our Congress, too, has been wondering whether to do something in response to what seem like horror stories about derivatives in the newspapers recently. Barring a catastrophe, however, and it's hard to imagine one, I don't see them doing anything of great consequence. We may well see more calls for disclosure, which has long been a magic word in Washington. It's not clear, of course, as a matter of purely scientific evidence, whether the SEC's disclosure rules really ever *have* saved anybody from a bad investment or even that an SEC prospectus is readable by anyone other than a plaintiff's lawyer looking to levy some extortion on a luck-

less corporation willing to settle rather than fight. But it's hard for anyone, except perhaps a cynical academic, to argue against the proposed therapeutic value of disclosure.

As for who will be asked to disclose the details of their derivatives holdings, one group will surely be the mutual funds, and especially the money market funds. Some of those supposedly no-risk funds were trying to steal a march on their competitors by using exotic options of one kind or another to raise their advertised yields. The stakes in playing the yield-enhancement game can be enormous, not in terms of the investment returns themselves but thanks to the presence of firms that specialize in ranking fund performance. An edge of even a few basis points can sometimes move a money market fund well up in the rankings, leading to a big surge to the fund in deposits (and fees to the managers). But when interest rates rose in early 1994, some of the more aggressive no-risk funds that had been enhancing their reported yields with derivatives took big hits and had to be bailed out by their parent brokerage firms, or in one case, actually liquidated.

Although money market funds will almost surely be reined in by the disclosure route (or possibly by outright prohibitions on derivatives), I don't see detailed disclosures on derivative usage being applied either to the corporate customer end users of derivatives or to the dealers who peddle them. Nobody has yet figured out what it makes sense to disclose! A derivative is not like a piece of real estate you put on your books and appraise from time to time. The dealer's book and risk exposure changes from minute to minute. And estimates of "value at risk" often can be quite sensitive to the particular risk model being used. Model errors are *always* a problem, of course, but for these errors of mandated disclosure you could wind up as a defendant in a class action lawsuit.

Even if Congress is tempted to win publicity points by imposing disclosure requirements, on dealers, the threat of foreign competition will quickly cool congressional ardor. The European banks may have been somewhat slow at getting into the derivatives game, but they are in it now in a big way. These late-comer European banks are much larger than the American banks that pioneered the derivatives business; and they have much better credit ratings, always the key in this field. Tough disclosure requirements for U.S. dealers make it harder and riskier for them to do business. I don't see any American Congress cheerfully conceding this industry to Europe.

If Congress feels it must do *something* to allay the public's concerns over derivatives, it may try imposing so-called suitability requirements, that is, giving dealers the affirmative obligation of assuring that the risks in the derivatives peddled to their customers are both carefully explained and appropriate to the customers' circumstances. If not and the derivatives later go bad, the dealer can be sued. This is a uniquely American approach to regulation, replacing the doctrine of *caveat emptor* with that of *caveat venditor*. And pushed to an extreme (for example by applying securities law rather than common law to swaps), that approach could effectively kill the U.S. swaps industry (or at least move it to subsidiaries abroad). Remember that one party loses on *every* derivatives deal.

A closer look at some recent derivatives horror stories

The public's concerns over derivatives also may be allayed, we can hope, by further academic research into the reality behind some of the recent conspicuous horror stories about derivatives disasters. Just as a child's fears that something is lurking under the bed can be made to vanish by

shining a light down there, so perhaps will the public's fears diminish when the true facts of the seeming horror stories become known.

To understand what really happened, the key first question must always be *how* the derivatives were being used. Were the derivatives used to take a position on which way particular market prices, interest rates, or exchange rates were likely to move; or were they used to *avoid* having to take a position on market movements? Comparing Procter & Gamble, Orange County, and Metallgesellschaft, currently the three leading horror tales on that score, the differences are striking.

The treasurers of Procter & Gamble and of Orange County were making bets—and highly leveraged bets at that—that the general level of interest rates would fall (or, at least, not rise). Let there be no misunderstanding, however, about the term “betting” in this context. Corporate treasurers and corporate officials generally are paid, after all, to “take intelligent risks.” A disclaimer might perhaps have to be entered on that score for the Orange County treasurer, who might be construed as having had “fiduciary” obligations to the local communities whose funds he was investing and who therefore shouldn't have been gambling at all. But the fault to be laid on the treasurer of P&G—a large, profit-making corporation, after all, whose stockholders can be presumed adequately diversified—is not that of gambling but of gambling on matters in which he had no special expertise. Loathe as they may be to admit it, the belief by many corporate treasurers that they can forecast interest rates rests on nothing but *hubris*.

In the P&G case, the *hubris* was even worse than usual. The treasurer was not only betting that interest rates would not rise but making that bet in the riskiest possible way, that is by *selling* what amounted to naked put options on long-term bond prices. *Buying* put options can be a conserva-

tive, loss-limited strategy, but *selling* naked put options exposes the seller to virtually limitless losses if the price of the underlying asset falls (as long-term bond prices did in early 1994). That is not to suggest, of course, that selling put options is never defensible. Selling an option, like selling any commodity, *could* make perfect sense if the seller had reason to believe the option was substantially overpriced. But why should corporate treasurers, with their limited expertise in option pricing, imagine they could sell an overpriced lemon of an option to the seasoned professionals who make their living dealing in options? That's really *hubris*.

## The MG case

The Metallgesellschaft case, by contrast, did not involve the use of derivatives as part of a *treasury* function. MG Refining and Marketing (MGRM for short) was a U.S. subsidiary of the giant German conglomerate corporation Metallgesellschaft AG and was concerned, as its name suggests, with the marketing, refining, and delivery of heating oil, gasoline, and other petroleum products on a long term, fixed-price basis to a variety of large and small customers in the eastern and south central United States. MGRM as a business operation was betting, as it were, primarily on its ability to manage efficiently the seasonal and longer-term variations in the cost of storing oil products for future delivery. The company used derivatives in its storage management program precisely so that it could concentrate on its marketing and storage activities *without* having to place big bets on which way oil prices were likely to move in the months and years ahead. Unlike the treasurers described earlier, the MGRM team did not suffer from *hubris*. Recognizing that they had no comparative advantage in forecasting oil prices,

they chose to hedge their long-term fixed-price delivery commitments with futures and futures equivalents.

They hedged by rolling over successively a “stack” of highly liquid, short-maturity (one- to three-month) futures contracts. Hedging long term deliveries with short-term futures seems to suggest the kind of borrowing short/lending long mismatch that did in the S&Ls in the 1980s. But the cases are not really parallel. Christopher Culp and I (Culp and Miller 1994, 1995), after taking a close look at MGRM’s hedging strategy—or at least as close a look as available to any outsiders forced to rely only on the limited information actually published, have concluded that maturity mismatch was not the real culprit. We show that hedged storage/delivery programs like MGRM’s are not fatally flawed provided—and a very critical proviso it is indeed—that top management understands the program and the long-term funding commitments needed to make the program successful. Neither of those key conditions, alas, appear to have obtained in the MG case.

We believe that the top management of the parent corporation was surprised by the large temporary cash drains needed to meet variation margin calls on the stacked futures hedge when oil prices fell for several months running in the fall of 1993. Rather than continuing to supply the financing on which the marketing staff had been relying, the supervisory board sold off the futures hedge in mid-December 1993, a decision that proved unfortunate on several counts. The decision turned paper losses on the futures hedge into realized losses; sent a distress signal to MGRM’s swap counterparties; and left the company’s profit margins on its fixed-price delivery contracts subject to erosion when oil prices later rebounded in the spring of 1994.

## The real lesson of the horror stories

Although the MG case was a painful episode indeed for all concerned, it may serve at least to bring a better sense of perspective to the current agitation over derivatives. The real problems at MG, and at Orange County and P&G as well, trace not to the derivatives as such but ultimately to top management's failure to ask their technicians the right questions *before* the programs were set under way. Top managers do that routinely with most other big-money commitments, but derivatives are just too new and unfamiliar to set managements' standard control reflexes into motion, and understandably so.

The derivatives revolution, after all, is barely 20 years old, and some parts of it are much more recent than that. The top managers of most U.S. or German corporations and banks are too old to have studied derivatives during their college or M.B.A. days. Derivatives hadn't been invented yet! And the tools themselves, though far less complicated, when properly taught, than the "rocket science" image they have acquired, do require some diligent study and homework—something for which busy CEOs cannot always and perhaps should not be expected to find the time. So we will just have to live with travails like the MG case or the P&G case for another decade or so until a whole new generation of corporate leaders who have grown up with derivatives and computers finally takes over.

Many present-day executives, wrestling with the problems and the opportunities posed by the derivatives revolution, may envy their younger, soon-to-be successors, with all their glib talk of megabytes and modems and knock-out options. But the current group of business leaders shouldn't really be envious. Today's young Turks, they should remember, will eventually become

old fogies themselves. The next generation of business leaders will have to face technical revolutions of their own—revolutions whose outlines today can still only dimly be perceived. That's the way it has always been in vibrant and progressive societies. And who really would want it any different?

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