



FINANCIAL INNOVATION: ACHIEVEMENTS AND PROSPECTS

by Merton H. Miller,
*University of Chicago**

The wonderment of Rip Van Winkle, awakening after his sleep of 20 years to a changed world, would pale in comparison to that felt by one of his descendants in the banking or financial services industry falling asleep (presumably at his desk) in 1970 and waking two decades later. So rapid has been the pace of innovation in financial instruments and institutions over the last 20 years that nothing could have prepared him to understand such now commonplace notions as swaps and swaptions, index futures, program trading, butterfly spreads, puttable bonds, Eurobonds, collateralized-mortgage bonds, zero-coupon bonds, portfolio insurance, or synthetic cash—to name just a few of the more exotic ones. No 20-year period has witnessed such a burst of innovative activity.

What could have produced this explosive growth? Has all this innovation really been worthwhile from society's point of view? Have we seen the end of the wave of innovations, or must we brace for more to come? These are the issues I now address.

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WHY THE GREAT BURST OF FINANCIAL INNOVATIONS OVER THE LAST TWENTY YEARS?

Several explanations have been offered for the sudden burst of financial innovations starting some 20 years ago.¹

The Move to Floating Exchange Rates

A popular one locates the initiating impulse in the collapse of the Bretton Woods, fixed-exchange rate regime. In the early 1970s, the U.S. government, with strong prodding from academic economists, notably Milton Friedman, finally abandoned the tie of gold to the dollar. The wide fluctuations in exchange rates following soon after added major new uncertainty to all international transactions. One response to that uncertainty was the development of exchange-traded foreign-exchange futures contracts by the Chicago Mercantile Exchange—an innovation that spawned in turn a host of subsequent products as the turbulence spread from exchange rates to interest rates.

But cutting the tie to gold cannot be the whole story because financial futures, influential as they proved to be, were not the only major breakthrough of the early 1970s. Another product introduced only a few months later, and almost equally important to subsequent developments, was not so directly traceable to the monetary events of that period. The reference, of course, is to the exchange-traded options on common stock of the CME's cross-town rival, the Chicago Board of Trade. That the CBOT's options did not precede the CME's financial futures was mainly luck of the bureaucratic draw. Both exchanges started the process of development at about the same time, impelled to diversify by the same stagnation in their traditional agricultural markets. Both needed the cooperation, or at least the toleration, of the appropriate regulators to break out in such novel directions.

The CME was the more fortunate in having to contend only with the U.S. Treasury and the Federal Reserve System—at a time, moreover, when both those agencies were strongly committed to the Nixon administration's push for floating exchange rates.² The CBOT, alas, faced the U.S. Securities and Exchange Commission, a New Deal reform agency always hypersensitive to anything smacking of speculative activity.³ By the time the SEC had finished its detailed review of option trading, the CME had already won the race.

Computers and Information Technology

Another explanation for the sudden burst of financial innovation after 1970 finds the key in the information revolution and, especially, in the electronic computer. Computers in one form or another had been available since the 1950s. But only in the late 1960s, with the perfection of transistorized circuitry, did computers become cheap and reliable enough to design new products⁴ and strategies such as stock index arbitrage and collateralized mortgage obligations. And certainly the immense volume of transactions we now see regularly could not have been handled without the data-processing capacities of the computer.

But the basic and most influential innovations, financial futures and exchange-traded options, did not require computers to make them commercially feasible. Options on commodities in fact had been traded regularly on the CBOT until the U.S. Congress, in one of its periodic bouts of post-crash, anti-speculative zeal, ended the practice in 1934. That this long prior history of option trading is not better known may trace to the arcane CBOT terminology under which options were known as "privileges." But traded instruments designated with the modern terms puts and calls go back much further than that, to the Amsterdam Stock Exchange of the late 17th century.⁴ Routine exchange trading of futures contracts has a history almost as long.

1. See, for example, my article, "Financial Innovation: The Last Twenty Years and the Next," *Journal of Financial and Quantitative Analysis* 21 (December 1986), 459-71; and James C. Van Horne, "Of Financial Innovations and Excesses," *Journal of Finance* 40 (July 1985), 621-36.

2. The then Secretary of the Treasury was George P. Shultz, a former colleague and long-time friend of Milton Friedman. The Chairman of the Federal Reserve Board was Arthur Burns, another old friend. With Milton Friedman's blessing, both gave a cordial audience to Leo Melamed of the CME and at least a *nihil obstat* to his proposal for an International Monetary Exchange. (See Leo Melamed, "The

International Monetary Market," in *The Merits of Flexible Exchange Rates*, ed. Leo Melamed, George Mason University Press, Fairfax, Virginia, 1988, 417-29.)

3. Under the SEC's original dispensation, only calls could be traded because puts were regarded as potentially destabilizing. Word of the put-call parity theorem had apparently not yet reached the SEC staff.

4. Joseph de la Vega, *Confusion de Confusiones*, Amsterdam, 1688, translated by Hermann Kellenbenz, 1957, reprinted by Baker Library, Harvard Business School, 1988.

Innovation and World Economic Growth

Still another possibility,⁵ and the one I find most persuasive, is that the seeming burst of innovation in the 1970s was merely a delayed return to the long-run growth path of financial improvement. The burst seems striking only in contrast to the dearth of major innovations during the long period of economic stagnation that began in the early 1930s and that for most of the world continued well into the 1950s.

The shrinkage in the world economy after 1929 was on a scale that few not actually experiencing it can readily imagine. The prolonged depression undermined any demand pull for developing new financial instruments and markets, and the increased regulatory role of the state throttled any impulses to innovate from the supply side. Much of this new regulation, particularly in the U.S., was in fact a reaction to the supposed evils—notably the Crash of 1929—flowing from the development of exchange-traded, and hence relatively liquid, common stock as a major investment and financing vehicle in the 1920s. Prior to the 1920s, U.S. companies had relied almost exclusively on bonds and preferred stock for raising outside capital.

Even in the depressed '30s, of course, financial innovation, though muted relative to the 1920s, did not come to a halt. But the major novelties tended to be government sponsored, rather than market induced. Examples are the special housing-related instruments such as the amortizing mortgage and the Federal Home Administration loan guarantees. Another government initiative of the '30s was the support direct and indirect of what later came to be called, rather unprophetically we now know, "thrift institutions." New U.S. Treasury instruments were developed, or at least used on a vastly expanded scale, notably Series E savings bonds for small savers and, at the other extreme, U.S. Treasury bills. Indeed, T-bills quickly became the leading short-term liquid asset for banks and corporate treasurers, displacing the commercial paper and call money instruments that had previously served that function.

Financial innovation by the private sector might perhaps have revived by the 1940s had not the War intervened. The War not only drained manpower

and energy from normal market-oriented activity, but led to new regulatory restrictions on financial transactions, particularly international transactions.

Regulation and Deregulation as Stimuli to Financial Innovation

By a curious irony, the vast structure of financial regulation erected throughout the world during the 1930s and 1940s, though intended to and usually successful in throttling some kinds of financial innovation, actually served to stimulate the process along other dimensions. Substantial rewards were offered, in effect, to those successfully inventing around the government-erected obstacles. Many of these dodges, or "fiddles" as the British call them, turned out to have market potential far beyond anything dreamed of by their inventors; and the innovations thrived even after the regulation that gave rise to them was modified or abandoned.

The most striking example of such a regulation-propelled innovation may well be the swap in which one corporation exchanges its fixed-rate borrowing obligation for another's floating-rate obligation; or exchanges its yen-denominated obligations for another's mark-denominated obligations; and so on in an almost unimaginable number of permutations and combinations. Some swaps are arranged by brokers who bring the two counterparties directly together; others by banks who take the counterparty side to a customer order and then either hedge the position with forwards and futures or with an offsetting position with another customer.

The notional amount of such swaps, interest and currency, currently outstanding is in the trillions of dollars and rising rapidly. Yet, according to legend at least,⁶ the arrangement arose modestly enough as vacation-home swapping by British overseas travelers, who were long severely limited in the amount of currency they could take abroad. Two weeks free occupancy of a London flat could compensate a French tourist for a corresponding stay in a Paris apartment or compensate an American for the use of a condominium at Aspen. If the ingenious British innovator happened to work for one of the merchant banks in the City, as is likely, the extension of the

⁵ See Miller (1986), cited in note 1.

⁶ The first currency swap appears to have been arranged by Continental Illinois' London merchant bank in 1976. The precise dates and places remain problematic because the originators sought secrecy in a vain attempt to maintain

their competitive advantage. See Henry T. C. Hu, "Swaps, the Modern Process of Financial Innovation and the Vulnerability of a Regulatory Paradigm," *University of Pennsylvania Law Review* 128 (December 1989), pp. 333-435 (see especially note 73, p. 363).

notion to corporate currency swaps was a natural one. The rest, as they say, is history.

The list of similar, regulation-induced or tax-induced innovations is long, and includes the Euro-dollar market, the Eurobond market, and zero-coupon bonds, to name just some of the more far-reaching loopholes opened in the restrictive regulatory structure of the 1930s and 1940s.⁷ Whether the private sector processes that produced the seemingly great wave of innovations after 1970 will continue to produce innovations if left unchecked is a topic to be taken up later. First let's consider some of the arguments currently being advanced for not leaving them unchecked.

HAS THE WAVE OF FINANCIAL INNOVATIONS MADE US BETTER OR WORSE OFF?

Free market economists have a simple standard for judging whether a new product has increased social welfare: are people willing to pay their hard-earned money for it? By this standard, of course, the new products of the 1970s and '80s have proved their worth many times over. But why have they been so successful? Whence comes their real "value added?" The answer, in large part, is that they have substantially lowered the cost of carrying out many kinds of financial transactions.

Consider, for example, a pension fund or an insurance company with, say, \$200 million currently in a well-diversified portfolio of common stocks. Suppose that, for some good reason, the sponsors of the fund believe that the interests of their beneficiaries would be better served at the moment by shifting funds from common stocks to Treasury bills. The direct way would be first to sell the stock portfolio company by company, incurring commissions, fees, and "market impact" on each transaction. The cash proceeds, when collected, could then be put in Treasury bills, again incurring transaction costs. A second and much cheaper alternative, however, is simply to sell about 1,000 (at present price levels) S&P 500 index futures contracts. Thanks to the way the futures contracts must be priced to maintain intermarket equilibrium, that one transaction has the same consequences as the two transactions along the direct route. And at a fifth or even less of the cost in fees, commissions, and market impact!

Or, to take other kinds of financial costs, consider a bank maintaining an inventory of government bonds for resale. The availability of that inventory, like the goods on the shelf in a supermarket, means better and faster service for the bank's customers when they come to shop. But it also means considerable risk for the bank. Bond prices can fall, sometimes very substantially, even in the course of a single day.

To protect against such losses, the bank can hedge its inventory by selling Treasury bond futures. Should the price of the bonds fall during the life of the futures contract, the gain on that contract will offset the loss on the underlying inventory. Without this opportunity to shift the risk via futures, the bank must seek other and more costly ways of controlling its inventory exposure. Some banks might find no better solution than to shrink their inventory and, hence, the quality and immediacy of the services they offer. Others might well abandon the activity altogether.

Insurance and Risk Management

A bank's use of futures to hedge its own inventory does not, of course, eliminate the price risk of the underlying bonds. It merely transfers that risk to someone else who *does* want to bear the risk, either because he or she has stronger nerves, or more likely, because another firm or investor somewhere wants to hedge against a *rise* in bond prices. The futures and options exchanges have greatly reduced the time (and hence cost) that each risk-shifter might otherwise have spent searching for a counterparty with the opposite risk exposure.

The combined set of futures and options contracts and the markets, formal and informal, in which they are transferred has thus been likened to a gigantic insurance company—and rightly so. Efficient risk-sharing is what much of the futures and options revolution has been all about. And that is why the term "risk management" has come increasingly to be applied to the whole panoply of instruments and institutions that have followed in the wake of the introduction of foreign exchange futures in CME's International Money Market in 1972. Honesty requires one to acknowledge, however, that this essentially benign view of the recent great innova-

⁷ For a fuller account of tax- and regulation-induced innovations, see Miller (1986), cited in note 1.

tive wave is not universally shared by the general public or even by academic economists.

The Case Against the Innovations

Some of the complaints about the harmful social consequences of the financial innovations appear to be little more than updated versions of a once-popular 18th-century economic doctrine known as Physiocracy, which located the ultimate source of national wealth in the production of physical commodities, especially agricultural commodities. Occupations other than commodity production were nonproductive. Modern-day Physiocrats, disdaining consumer sovereignty, automatically and enthusiastically consign to that nonproductive class all the many thousands on Wall Street and LaSalle Street now using the new instruments.

A related complaint is that the new instruments, by lowering transactions costs, have led to too much short-term trading—trading that not only wastes resources, but which has unduly shortened the planning horizons of both firms and investors. That the volume of trading has in fact skyrocketed in recent years there can be no doubt. But the key stimulus to the surge in trading in the underlying stocks appears to have been less the introduction of index futures and options than the ending of the regime of high fixed commissions in 1974. For Treasury bonds, the spur was the huge expansion of Federal government debt beginning in 1981.

But the critics are surely right in believing that lower trading costs will induce more trading. More trading, however, need not mean more waste from society's point of view. Trading is part of the process by which economic information, scattered as it necessarily is in isolated bits and pieces throughout the whole economy, is brought together, aggregated, and ultimately revealed to all. The prospect of trading profits is the bribe, so to speak, that society uses to motivate the collection, and ultimately the revelation, of the dispersed information about supply and demand.

Index Futures and Stock Market Volatility. Although many of the complaints against the new financial investments are merely standard visceral reactions against middlemen and speculators, some are specific enough to be tested against the available

data. Notable here is the widespread view, expressed almost daily in the financial press, that stock market volatility has been rising in recent years and that stock-index futures and options are responsible. The evidence, however, fails to support this widespread public perception of surging volatility.

Volatility, measured as the standard deviation of rates of return (whether computed over monthly, weekly or even daily intervals), is only modestly higher now than during the more placid 1950s and 1960s, and is substantially below levels reached in the 1930s and 1940s.⁸ Even the 1950s and 1960s had brief, transitory bursts of unusually high volatility, with a somewhat longer-lasting major burst occurring in the mid-1970s. The number of large, one-day moves (that is, moves of 3% or more in either direction) has indeed been higher in the 1980s than in any decade since the 1930s, but almost entirely due to the several days of violent movements in the market during and immediately following the crash of October 1987. Such increased volatility seems to accompany every major crash (as the Japanese stock market showed through much of 1990).

In fact, the tendency of volatility to rise after crashes and fall during booms is one of the few, well-documented facts researchers have been able to establish about the time-series properties of the volatility series. These bursts of post-crash volatility typically die out within a few months, and that has been basically the case as well for the crash of 1987. Indeed, what makes the 1930s so different from more recent experience is that the high levels of post-1929-crash volatility persisted so long into the next decade.

Index Products and the Crash of 1987. The failure to find a rising trend in volatility in the statistical record suggests that the public may be using the word volatility in a different and less technical sense. They may simply be taking the fact of the crash of 1987 itself (and the later so-called mini-crash of October 13, 1989) as their definition of market volatility. And without doubt, the 20% decline during the crash of 1987 was the largest one-day shock ever recorded. (The mini-crash of October 13, 1989, at about 6%, was high, but far from record-breaking.) If the crash of 1987 is the source of the public perception of increased volatility, the task of checking for connections between the inno-

⁸ See G. William Schwert, "Why Does Stock Market Volatility Change over Time?", *Journal of Finance* 44 (December 1989), 1115-53.

vative instruments and volatility becomes the relatively straightforward one of establishing whether index futures and options really were responsible either for the occurrence or the size of the crash. On this score, signs of a consensus are emerging, at least within academia, with respect to the role of two of the most frequently criticized strategies involving futures and options, portfolio insurance and index arbitrage.

For portfolio insurance, the academic verdict is essentially "not guilty of causing the crash," but possibly guilty of the lesser charge of "contributing to the delinquency of the market." Portfolio insurance, after all, was strictly a U.S. phenomenon in 1987, and the crash seems to have gotten under way in the Far East, well before trading opened in New York or Chicago. The extent of the fall in the various markets around the world, moreover, bore no relation to whether a country had index futures and options exchanges.⁹ Even in the U.S., nonportfolio insurance sales on the 19th, including sales by mutual funds induced by the cash redemptions of retail investors, were four to five times those of the portfolio insurers.

Still, portfolio insurance using futures, like some older, positive-feedback strategies such as stop-loss orders or margin pyramiding, can be shown, as a matter of theory, to be potentially destabilizing.¹⁰ The qualification "using futures" is important here, however, because the potentially destabilizing impact of portfolio insurance is much reduced when carried out with index options (that is, essentially, by buying traded puts rather than attempting to replicate the puts synthetically with futures via craftily-timed hedges). With exchange-traded puts, the bearishness in portfolio insurance would make its presence known immediately in the market prices and implicit volatility of the puts. With futures, by contrast, or with unhedged, over-the-counter puts, the bearishness may be lurking in the weeds, only to spring out on a less-than-perfectly forewarned public.¹¹

Index Arbitrage: The New Villain. Whatever may or may not have been its role in the crash of 1987, portfolio insurance using futures rather than

options has almost entirely vanished. Certainly it played no role in the mini-crash of October 13, 1989. Its place in the rogues' gallery of the financial press has been taken over by computerized "program trading" in general and by index arbitrage program trading in particular.

Why index arbitrage should have acquired such an unsavory public reputation is far from clear, however. Unlike portfolio insurance, which can be destabilizing when its presence as an information-less trade in the market is not fully understood, intermarket index arbitrage is essentially neutral in its market impact. The downward pressure of the selling leg in one market is always balanced by the equal and opposite buying pressure in the other. Only in rather special circumstances could these offsetting transactions affect either the level or the volatility of the combined market as a whole.

Index arbitrage might, possibly, increase market volatility if an initial breakout of the arbitrage bounds somehow triggered sales in the less-liquid cash market so massive that the computed index fell by more than needed to bring the two markets back into line. A new wave of arbitrage selling might then be set off in the other direction.

Despite the concerns about such "whipsawing" often expressed by the SEC, however, no documented cases of it have yet been found.¹² Careful studies find the market's behavior after program trades entirely consistent with the view that prices are being driven by "news," not mere speculative "noise" coming from the futures markets as the critics of index futures have so often charged.

Nor should these findings be considered in any way remarkable. The low cost of trading index futures makes the futures market the natural entry port for new information about the macro economy. The news, if important enough to push prices through the arbitrage bounds, is then carried from the futures market to the cash market by the program trades of the arbitrageurs. Thanks to the electronic order routing systems of the NYSE, the delivery is fast. But arbitrage is still merely the medium, not the message.

9. See Richard Roll, "The International Crash of October 1987," *Financial Analysts Journal* 22 (September 1988), 19-35.

10. See Michael J. Brennan and Eduardo S. Schwartz, "Portfolio Insurance and Financial Market Equilibrium," *Journal of Business* 62 (October 1989), pp. 455-72. Particularly interesting in their demonstration, however, is how small the destabilization potential really is, provided the rest of the investing public understands what is going on.

11. See Sanford J. Grossman, "An Analysis of the Implications for Stock and Futures Price Volatility of Program Trading and Dynamic Hedging Strategies," *Journal of Business* 61 (July 1988), 275-98.

12. See, for example, the very thorough searches described in Gregory Duffie, Paul Kupiec, and Patricia White, "A Primer on Program Trading and Stock Price Volatility: A Survey of the Issues and Evidence," Working Paper, Board of Governors, Federal Reserve System, Washington, D.C., 1990.

That so much recent criticism has been directed against the messenger rather than the message may reflect only the inevitably slow reaction by the public to the vast changes that have transformed our capital markets and financial services institutions over the last 20 years. Index futures, after all, came of age less than 10 years ago. The shift from a predominantly retail stock market to one dominated by institutional investors began, in a big way, less than 15 years ago. In time, with more experience, the public's understanding of the new environment will catch up. Unless, of course, new waves of innovation are about to sweep in and leave the public's perceptions even further behind.

FINANCIAL INNOVATIONS: ANOTHER WAVE ON THE WAY?

Will the next 20 years see a continuation, or perhaps even an acceleration, in the flow of innovations that have so vastly altered the financial landscape over the last 20 years? I think not. Changes will still take place, of course. The new instruments and institutions will spread to every country in the developed world (and possibly even to the newly liberalized economies of Eastern Europe). Futures and options contracts will be written on an ever-widening set of underlying commodities and securities. But the process will be normal, slow, evolutionary change, rather than the "punctuated equilibrium" of the recent past.¹³

Long-range predictions of this kind are rightly greeted with derision. Who can forget the U.S. Patent Office Commissioner who recommended in the early 1900s that his agency be closed down because all patentable discoveries had by then been made? We know also that regulation and taxes, those two longstanding spurs to innovation, are still very much with us despite the substantial progress, at least until recently, in deregulation and in tax rate reduction. But something important has changed. In the *avant garde* academic literature of economics and finance today, few signs can be seen of new ideas and concepts like those that bubbled up in the '60s and '70s and came to fruition later in specific innovations.

The extent to which academic thinking and criticism prefigured the great wave of financial

innovations of the 1970s and 1980s is still too little appreciated. Calls for the creation of a foreign exchange futures market and analysis of the economic benefits that would flow from such an institution were common in the 1950s and 1960s, as noted earlier, in the writings of the academic supporters of floating exchange rates, especially Milton Friedman. On the common-stock front, major academic breakthroughs in the 1950s and 1960s were the Mean-Variance Portfolio selection model of Harry Markowitz and, building on it, the so-called Capital Asset Pricing Model of William Sharpe and John Lintner in which the concept of the "market portfolio" played a central role.

The notion of the market portfolio ultimately became a reality by the early 1970s when the first, passively-managed index funds were brought on line. That the world would move from there to the trading of broad market portfolios, either as baskets or as index futures and options, was widely anticipated. The fundamental Black-Scholes and Robert Merton papers on rational option pricing were published in the early 1970s, though manuscript versions of them had been circulating informally among academics well before then. These and other exciting prospects abounded in the academic literature 20 years ago. At the moment, however, that cupboard seems bare of new concepts and ideas waiting for the day of practical implementation.

Such hints of future developments as the current literature does have relate more to the structure of the exchanges themselves than to the products they trade. For academics, accustomed to spending their workdays staring at the screens of their PCs, the near-term transition of the markets from floor trading to electronic trading is taken for granted. Frequent references can be found in the many articles on the crash of 1987 to the presumed failings of the current exchange trading systems during that hectic period. Those systems are typically characterized pejoratively as "archaic" and "obsolete," in contrast to the screen-based trading systems in such non-exchange markets as government bonds or inter-bank foreign exchange.

That screen-based trading will someday supplant floor trading seems more than likely, but whether that transition will occur even by the end of

13. Evolution also involves "extinctions." Some of the recent innovations will inevitably fail in the competitive struggle. Others may be killed by heavy-handed regulation.

this century is far from clear. The case of the steamship is instructive. The new steam technology was clearly superior to sail-power in its ability to go up river and against winds and tides. Steam quickly took over inland river traffic but not, at first, ocean traffic. There steam was better, but vastly more expensive. Steam thus found its niche in military applications and in the high-unit-value fast passenger trade. Only as fuel costs dropped did steam take over more and more of the low-unit-value bulk trade in ocean freight. For some bulk commodities such as lumber, in fact, sail was often the lower-cost alternative up until the start of the first World War, more than 100 years after the first practical steamboat.

The same laws of comparative advantage apply to electronic trading systems. The open-outcry trading pits of the major futures exchanges may seem hopelessly chaotic and old-fashioned; but they are, for all that, a remarkably cheap way of handling transactions in large volume at great speed and frequency in a setting of high price volatility. Until recently, at least, electronic trading could not have come close to being cost-competitive in this arena. Screen trading found its niche elsewhere. And electronic computer systems found their niche in futures in tasks such as order routing, data processing and some kinds of surveillance rather than on the trading floor.

But screen-trading technology, like that of computing technology generally, continues to advance and a possibly crucial watershed for the

trading systems in futures may soon be crossed. By mid-1992 the Chicago exchanges hope finally to bring on line the long-delayed Globex electronic network for after-hours trading of futures contracts. Unlike some past experiments with screen trading of futures, the test this time will be a valid one. The contracts to be traded, Eurodollars and foreign exchange rates, have long proven viable; the underlying spot markets are themselves screen traded; and substantial potential trading demand for the contracts might well exist outside the U.S. and after U.S. trading hours.

Even a successful Globex, however, need not doom the exchanges to disappear as functioning business entities. The transactions facilities the exchanges provide through their trading floors are currently the major and certainly the most glamorous, but by no means the only, services they offer. The exchanges also provide such humdrum but critical functions as clearing and settlement, guarantees of contract performance, record-keeping and audit trails, and the collection and dissemination of price information. The market for these services in supporting financial transactions not currently carried out via exchanges is potentially huge. The futures exchanges, by virtue of their expertise and their substantial existing capital investments, are well positioned to enter and to capture a significant share of these new markets, just as they were 20 years ago when the shrinkage in their agricultural business propelled them into financial futures and options.