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NEW SEARCH

A Survey of Corporate Risk Management: Too hot to handle? - A brief history of derivatives (part 2 of 9)

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"It is not the idea that is new, it is the volume"

MATTHEW BISHOP SO WHAT are these derivatives that are causing so much fuss, and why have they suddenly become so important? The technical definition is 'a financial contract the value of which is derived from the value of another (underlying) asset, such as an equity, bond or commodity.' But that alone is not much help, because the term means different things to different people. When big losses are making headlines, it is often used (wrongly) as a catch-all description of virtually any financial instrument that is not an equity or bond, whether or not its value is derived from some other asset. The word evokes complexity and mystery, even though many of the financial products behind it are actually simple and straightforward. That air of mystery has been heightened by the esoteric language of derivative-speak (see box), and the publicity given to some of the more curiously named contracts, such as swaptions, caps and collars.

Derivatives have been around for a long time, though without stirring much controversy. Forward contracts were used by Flemish traders in the 12th century. Contracts resembling today's futures and options were widely used in the 17th century in Amsterdam, when it was the financial capital of the western world, and at about the same time in Osaka's rice market. Organised commodity-futures exchanges were set up in Chicago and New York in the middle of the 19th century. 'Complex' financial instruments are nothing new either. In 1694 the British government launched the 'Million Adventure', in which contributors to a • 1m fund received interest of 10% a year on their money for 16 years, and were entered in a lottery for the same period to win a slice of an annual • 40,000 prize - though they did not get their principal back*. Moreover, people often forget that one of the earliest derivatives was money, which for many centuries derived its value from the gold into which it could be converted. Nobody regards that as scarily high-tech or excessively complex.

What is new about derivatives in recent years is the volume of trade, the wide choice of products, the growing number and variety of users, and the range of purposes for which they are being used. In a quarter of a century the global financial marketplace has undergone a transformation equivalent to replacing a village shop with a shopping mall. In 1986 the total outstanding value of derivatives markets was just over \$ 1 trillion; in 1994 it was \$ 20 trillion (see chart 1). True, these numbers reflect the face value of contracts, not necessarily the amounts at risk, so may exaggerate the size of these markets. But clearly their growth has been rapid. Why?

Put simply, derivatives have flourished because a series of recent developments have transformed

them into a cheap and efficient way of moving risk about within the economic system. After the collapse of the Bretton Woods fixed-exchange-rate regime in the early 1970s, floating exchange rates fuelled demand for ways to cope with the resulting currency risk. This led to the development of exchange-traded foreign-exchange futures in Chicago, a successful innovation that was to spawn many more. The availability of large, low-cost computing capacity was also vital, as pricing some derivatives involves complex number-crunching.

Ready for take-off

But theoretical advances were equally important, including the development of the capital-asset pricing model (based on the idea that diversification reduces risk) and options-pricing theory, which brought a new rigour to an activity which had previously relied on rules of thumb. Moreover, according to Merton Miller* at the University of Chicago, the increasingly heavy regulation of financial markets over the past half-century presented enormous opportunities for financial innovators to exploit ('arbitrage') international differences in regulation. This burst of innovation has made it possible to put an accurate price on financial contracts that specify ever more precisely the circumstances in which they will and will not pay off, and how much they will pay, enabling users to fine-tune the risks to which they are exposed.

There are two main suppliers of derivatives: the various futures and options exchanges such as the Chicago Board of Trade, the Chicago Mercantile Exchange and the London International Financial Futures and Options Exchange, and a group of (mostly American) banks (see table). In 1994, exchanges accounted for just under half of outstanding derivatives contracts.

Although the derivatives market as a whole has grown spectacularly, big gaps remain. It is impossible to buy long-term currency contracts in more than a handful of major currencies, or to buy futures on commodity prices more than a few years ahead. Unlike financial institutions, which often have easily measured, very long-term financial exposures, non-financial firms rarely have much idea about their risk-exposures more than, say, three to five years hence, so they may not be too bothered about their inability to take long-term positions. And if they are, investment banks can often come up with some sort of customised derivative, although this is unlikely to be cheap.

In a fascinating book**, Robert Shiller, an economist at Yale, points out that at present there are no markets that allow the direct hedging of macroeconomic variables such as inflation or growth in GDP, which on the face of it would seem to make attractive subjects. Whether such markets will ever be developed is uncertain. No satisfactory theory exists for why some markets take off and others do not. An attempt by the Chicago Board of Trade to set up an inflation futures market in 1985 flopped miserably, to widespread surprise. One problem in setting up markets appears to be the task of attracting the interest of speculators willing to increase their exposure to risks, such as recession or inflation, that most firms and individuals would like to shed.

Stephen Thieke, who runs JP Morgan's in-house risk management, reckons that over the next few years the pace of innovation will depend on whether the current stable, low-inflation environment proves durable. If it does, innovation may slow down. But if in a couple of years inflation accelerates and the stock and bond markets tumble, demand for new sorts of derivatives may soar. Assuming inflation remains low, Mr Thieke expects innovation to concentrate on bringing emerging-market derivatives up to the level of developed-market ones, finding ways to reduce counterparty risk (the danger that the institution a company is dealing with may get into

financial trouble), and replacing traditional insurance policies with financial derivatives.

Some kinds of insurance - such as cover against catastrophic events - are both expensive and in short supply. Modest attempts have already been made to use derivatives to boost capacity and lower the price of insurance. The Chicago Board of Trade sells 'hurricane futures', which pay out an amount tied to hurricane-related claims in specified periods and places. After a sluggish beginning, trade in these is now picking up. Also, Wall Street firms are developing 'Act-of-God Bonds', traditional debt but with a built-in forgiveness clause that releases the firm from some of its obligations in the event of a natural disaster. According to Neil Doherty, an economist at the Wharton School, these are currently aimed at insurers that provide catastrophe cover. But they might do better as an alternative to traditional insurance for, say, firms operating in earthquake belts. There is scope for similar products to help shift other unorthodox risks.

Safe as houses?

The \$ 64-trillion question, of course, is whether derivatives are safe. That comes down to three separate issues: how well the buyer understands what the derivative does; what the derivative is being used for; and what risks are inherent in the derivative itself. The first two questions are really about the qualities of the buyer rather than of the product. Many so-called derivatives disasters are in fact speculative disasters that might just as easily have happened if the investor had been punting in shares or equity.

Of the risks associated with derivatives themselves, the one that gets the most headlines is systemic risk: the possibility that losses on a derivative contract might cause a bank to go bust, producing knock-on effects throughout the global financial system. This has given nightmares to financial regulators around the world. To improve the quality of their sleep, they have already demanded fuller disclosure of banks' derivative activities and required them to put aside capital to cover potential losses. Further controls are in the pipeline.

Derivatives, however, are by no means the only source of systemic risk. Fears of systemic collapse have also been raised recently by the third-world debt crisis and by the collapse of the developed world's commercial-property market. Moreover, although some critics have blamed derivatives for increasing volatility in financial markets (and, among other things, causing the 1987 stockmarket crash), most investigations into such claims have exonerated them. Indeed, it now looks more likely that it was the volatility in financial markets that boosted demand for derivatives, and that by reducing that volatility they actually lessened systemic risk.

Non-financial firms need to watch out for three main risks when using derivatives. One is market risk: the possibility that the value of the derivative will change. This is essentially no different from the risk involved in buying an equity or bond, or holding a currency - except that the market risk may be magnified many times if the derivative is leveraged; indeed some of the most famous disasters, including Procter & Gamble's losses, were associated with leveraged products. The other difference compared with equities, bonds and so on is that the value of an option changes increasingly quickly as it becomes more likely to be exercised.

The second concern is basis risk: the derivative used may not be a perfect match with whatever it is intended to hedge, so that when the value of the underlying asset falls, the value of the derivative may not rise by the expected amount. Lastly, there is credit or 'counterparty' risk: that the institution concerned will get into trouble and be unable to pay up. Bear in mind, however,

that the credit risk on buying a derivative is less than that on, say, making a loan, as the cost of replacing a derivative contract is only the amount to which the market has moved against the buyer since the original contract was drawn up, whereas for the loan it is the entire amount lent. Derivatives bought from banks are exposed to bigger credit risks than those bought from exchanges. This is because exchanges guarantee contracts, and, unlike banks, ensure they can cover them by requiring traders to stump up cash ('post-margin') to cover potential losses in advance. However, this increases the possibility that a firm might face liquidity problems.

If there is any doubt about the financial strength of the firm selling a derivative, the best advice is to leave well alone. Derivatives have brought a neat twist to the relationship between firms and their banks. Increasingly companies, used to having their quality as clients investigated by their banks, are instead sitting in judgment over their banks.

* 'Financial Innovation and Risk Sharing'. By Franklin Allen and Douglas Gale. MIT press; 1994

**** 'Macro Markets'. By Robert Shiller. OUP; 1993**

BEST SELLERS

Quality of banks' derivatives

provision as ranked by user

Rank 1995 (1994)

-
- 1 * SBC Warburg
 - 2 (1) JP Morgan
 - 3 (3) CSFP
 - 4 (2) Citibank
 - 5 (4) Bankers Trust
 - 6 (7) NatWest Markets
 - 7 - Union Bank of Switzerland
 - 8 - General Re
 - 9 - Morgan Stanley
 - 10 (8) Goldman Sachs
-

Source: Euromoney

* SBC was 5th

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