New forms of finance such as derivatives offer company bosses powerful new tools to manage their firm's risks. But such tools also pose new and sometimes heavy risks themselves. Matthew bishop weighs them up

MATTHEW BISHOP

NOT so long ago, top company managers would lie awake at night worrying about opening new factories, launching new products or fighting off attacks from competitors. But over the past few years a new terror has crept into boardrooms and executive suites around the corporate world: the prospect of losing a fortune through derivatives - financial instruments such as swaps, futures and options - which few people understand but demand for which has nonetheless soared.

Edwin Artzt, the chairman of Procter & Gamble, an American maker of consumer products, had a torrid time in early 1994, when his firm announced losses of more than $100m on interest-rate derivatives. Also in 1994, Gibson Greetings, a greetings-card firm, admitted losses of $20m on derivatives, and was later rebuked by America's Securities and Exchange Commission for inadequate disclosure of the performance of its derivatives. In recent years, numerous firms have revealed derivatives-related losses of millions of dollars (see table on the next page), and many more may have kept quiet about theirs. Most strikingly of all, in late 1993 Metallgesellschaft, a German industrial and chemicals firm, tottered on the brink of bankruptcy after its oil-derivatives trading strategy came a cropper.

All this, together with the high-profile disasters (in which derivatives played at least a part) that a year ago brought down Barings, Britain's oldest merchant bank, and bust Orange County in California in late 1994, have led many company managers to ask nervously: what precisely are these derivatives, and why are we using them? This survey will focus on the use of derivatives, as well as other ways of spreading risk, in non-financial companies. Unlike banks, which make their living in the financial markets and will therefore always be at some risk from rogue traders or misplaced bets, companies could just stick to their widgets and leave derivatives well alone.

The case for abstinence

This survey will argue that, for many firms, shunning derivatives would be a serious mistake, potentially exposing them to unnecessary risk or causing them to miss big opportunities. Even so, the idea of abstinence cannot be dismissed lightly. That is not because derivatives are too risky,
as many managers believe. Rather, it is because using derivatives will not actually increase the value of many companies: opportunities for their effective use are a lot rarer than is widely believed, and even when they arise in principle they can be hard to exploit in practice.

Certainly, there are plenty of people who believe that derivatives are the financial instruments of the devil. One American senator has described the booming markets in them as ‘an electronic Ponzi • pyramid selling) scheme’. And in the aftermath of recent losses, accusations have been flying that aggressive sellers have taken advantage of ignorant buyers to off-load dud products. Procter & Gamble responded to its 1994 losses by suing Bankers Trust, the investment bank which sold it the ill-fated derivatives, accusing it of 'racketeering'. According to evidence submitted in the case, an executive of the bank boasted that 'what a bank can do • for its clients) is get in the middle and rip them off. Other firms have also sued their bankers following losses on derivatives.

The investment banks, accountants, big corporate users, financial economists and others who earn their crust by working with derivatives all argue that mis-selling is rare. Disasters have typically been caused by fraud, or by a derivative being misused or misunderstood, not by its failure to do what it was supposed to do. Moreover, in some of the best-known fiascos - including Orange County and, arguably, Barings - derivatives actually played a relatively small part, yet (in the popular press, at least) got much of the blame.

Although derivatives can sometimes be complex, and can require mathematics doctorates to design and price, what they do is actually quite simple: they provide a low-cost and precise method of transferring risk from those that are exposed to it but would rather not be to those that are not but would like to be. Over the past 25 years their cost has plunged, and thus their appeal increased, thanks to advances in computer technology and financial theory and to rising demand. Thus, in principle, a firm using them wisely can cost-effectively reduce unwanted risk, giving it a potentially crucial advantage over rivals that do not use derivatives and will therefore be exposed to more unwanted risk. Indeed, argues David Creed, treasurer of Tate & Lyle, a sugar company, how firms manage the financial risks associated with global production and distribution may eventually become the key source of competitive advantage. However, derivatives can also be used to take on additional risks, either deliberately or by default. Though Procter & Gamble may have believed that it was reducing its risk with its derivatives strategy, in fact it was doing the opposite by betting heavily on a change in the direction of American interest rates.

The apologists who argue that 'it is not derivatives that are the problem, it is how they are used' are technically correct, just like America's pro-gun lobby with its slogan 'guns don't kill people, people do'. However, they do not tell the whole story. On balance, the overall impact of derivatives on economic activity is likely to be positive. But progress may not necessarily be smooth, says Robert Merton, an economist at Harvard Business School who has played a vital part in the theoretical advances that have contributed to the growth in derivatives markets. In a prescient article* a few years ago he wrote:'The imbalance between product innovation and infrastructure • the ability to use it) could at times become great enough to jeopardise the functioning of the • financial) system.' This is echoed by Bill Sharpe, an economist at Stanford University who received a Nobel prize for his contributions to financial-economic theory: 'Everyone selling derivatives is so enamoured of the technology that they tend to rush beyond the prior question: what is it for'?
So far, most of the debate about derivatives has concentrated on the banking industry, because that is where they have been most heavily used and, crucially, because financial regulators fear that a derivatives disaster in a bank might have knock-on effects throughout the financial system (known as 'systemic risk'). An endless stream of reports over the past few years from bodies such as the Group of Thirty and the Bank for International Settlements has essentially given derivatives the all-clear but urged banks to improve their internal risk-control systems and disclose their derivatives exposures more fully.

**Considering the options**

As for non-financial companies, there is general agreement that their use of derivatives poses few systemic risks - although that may not be true of the handful of firms, such as General Electric, which have financial operations on the scale of a decent-sized bank. Beyond that, however, the debate remains in its infancy, with big differences of both opinion and practice. For instance, a survey** last year by the Wharton School and Chase Manhattan bank found that of the 530 big American non-financial corporations that responded, 35% made some use of derivatives. The figure rose to 65% for the biggest firms (with a market value above $ 250m), and fell to 13% for the smallest (below $ 50m). The survey also found that firms used derivatives for a wide variety of purposes.

The most common use is for 'hedging', or reducing the firm's exposure to specific kinds of risk, such as changes in exchange rates, interest rates or commodity prices. Hedging involves deliberately taking on a new risk that offsets an existing one in some part of the underlying business. However, there is little consensus among firms about what part of the underlying business hedging should seek to stabilise: the balance sheet? overall cash flows? expected income from specific projects or deals? Also, what some firms describe as hedging is in fact taking a position on the prospects for a particular financial or commodity market, which may increase the firm's exposure to risk rather than reduce it. Hedging is by definition a not-for-profit activity, yet some firms are quite candid about using derivatives speculatively to make a profit.

This lack of consensus in practice is echoed in the theoretical debate. Some theorists argue that hedging by firms, though it may seem to be the essence of prudent management, is often wrong. One reason is that shareholders may be able to lay off these risks more cheaply themselves by holding a diversified portfolio of shares in a variety of companies. Some conclude that firms should not hedge at all; others that they should hedge only where it is not possible for shareholders to do so instead - if it would lower a firm's tax bill, say, or reduce the risk of bankruptcy. Still others say that firms should hedge whatever risks they have no comparative advantage in bearing, so that they can concentrate their efforts on those risks where they do have such an advantage: in the language of management, their core competence.

Yet even if a firm is clear about the hedging, or indeed speculative, strategy it should pursue - and as this survey will show, there is no single blueprint for all companies - it will still face big practical problems in implementing it. For a start, it will have to ensure that controls are in place to protect it against misuse and fraud. Moreover, despite all the recent innovation, no derivatives exist for hedging directly some important sources of business risk, including inflation and recession. So firms have to juggle other forms of risk-management, such as altering the shape of their underlying business, or using traditional financial instruments, eg, equity, bonds and cash.

Most important of all, top managers often fail to understand properly the firm's sensitivities to
different sorts of risk. This is partly because the technology for identifying risk exposures in non-financial firms is as yet fairly primitive, but more fundamentally because managers and boards too often regard risk-management as a matter for financial experts in the corporate treasury department rather than as an integral part of corporate strategy. They should reflect on the comment in early 1994 of Thomas Riley, one of the supervisors of Robert Citron, the treasurer of Orange County whose speculations ultimately bankrupted it: 'This is a person who has gotten us all millions of dollars. I don't know how the hell he does it, but it makes us all look good.' And how does Mr Riley look now?

This survey begins by explaining what derivatives do and why they have become so widely used. Next, it assesses when hedging makes sense and, perhaps more importantly, when it does not. It identifies the practical obstacles to hedging successfully, including the temptation for managers to speculate under the guise of hedging. Lastly, it points to the critical importance of monitoring a firm's use of derivatives. In particular, company boards should agree on an explicit policy for the use of derivatives, and spell this out clearly to shareholders. At present, shareholders often find it impossible to discover what use, if any, a firm is making of derivatives. The accounts tell you practically nothing. Securing full disclosure of the firm's practices may require fierce lobbying.

This is not to support the growing calls by politicians for tougher regulation of derivatives by the state or other watchdogs. However, since the inappropriate use (or non-use) of derivatives could impose huge costs on a firm's employees, customers, suppliers, creditors and shareholders, action is needed by those who own and run firms to ensure good corporate governance. The alternative is many more sleepless nights for shareholders and company bosses.


** 'A Survey of Derivatives Usage by US Non-Financial Firms'. The Wharton School; March 1995

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THE DOWNSIDE RISK

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Derivatives losses

<table>
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<tr>
<th>Organisation</th>
<th>Event</th>
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<tbody>
<tr>
<td>Hammersmith &amp; Fulham</td>
<td>Ran up losses of over pounds 500m (dollars 900m) on sterling interest-rate swaps; in 1991 the House of Lords ruled that local...</td>
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authorities did not have the power
to enter into swap contracts

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Mar 1991       Allied Lyons           Lost pounds 150m (dollars 265m)
in foreign-exchange options

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Feb 1993       Showa Shell Sekiyu     Yen 165bn (dollars 1.4bn)
write-off for foreign-exchange
forward contracts

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Dec 1993       Metallgesellschaft     Oil futures trading resulted in
losses of up to DM2.3bn (dollars
1.3bn); the banks wound up the
contracts

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Jan 1994       Codelco                Lost dollars 207m in a copper
futures deal

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Apr 1994       Kashima Oil           $ 1.5bn losses on dollar
derivatives

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Apr 1994       Procter & Gamble      Caught short with highly leveraged
interest-rate swaps, designed by
Bankers Trust, when interest rates
went the 'wrong' way, losing
pounds 102m

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May 1994       Air Products and       Lost dollars 60m on interest-rate
Chemicals      derivatives

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May 1994 Sandoz Lost dollars 78.5m in derivatives transactions arranged by Bankers Trust

1st half 1994 Gibson Greetings Lost dollars 19.7m on interest-rate derivatives transactions; sued Bankers Trust for damages of dollars 23m, settled out of court

Jul 1994 Glaxo Provisions of pounds 115m (dollars 180m) and pounds 16m for losses on derivatives and asset-backed bonds

Dec 1994 Orange County Lost dollars 1.7bn in leveraged interest-rate products

Feb 1995 Barings • 900m (dollars 1.4bn) losses accrued on Nikkei-index contracts on the Singapore and Osaka derivatives exchanges, leading to the bank's bankruptcy

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