Are derivatives financial weapons of mass destruction for operations departments?

by Jonathan Dolby, UBS AG

In 2003 Warren Buffet, proclaimed derivatives as "financial weapons of mass destruction" (WMD). Shortly thereafter, Alan Greenspan, Chairman of the Federal Reserve System, publicly defended derivatives as "indispensable risk management tools". What is remarkable about this volley of outbursts is not so much the high profile of those involved, but more the fact that derivatives still spark such controversy even though the growth in the derivatives market has been exceptional for the last 10 years (increasing by a factor of 15 over that period). Perhaps this controversy stems from the perceived opacity of the derivative world. So what exactly are derivatives? And are they really financial WMDs? What specific operational risks do they pose?

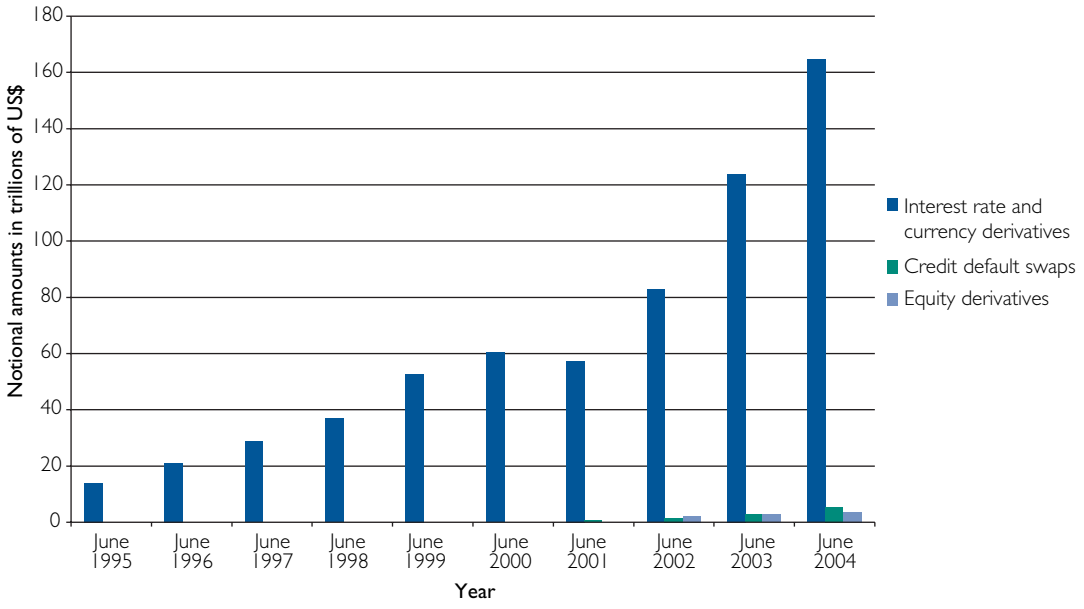
What are derivatives? Are they a cause for concern?

Essentially, derivatives consist of options and forwards (while a swap can be considered nothing more than a series of forwards, each beginning where the previous one ends). Both options and forwards have existed for some time, hailing from the 17th century, for example with tulip options in Amsterdam and forwards on rice prices in Japan.

Derivatives are traded in two different types of markets: exchange-traded derivatives, where the same standardised contract is traded by all and the exchange house removes the credit risk by requiring all counterparts to post/maintain a margin account at the exchange; and over-the-counter (OTC) derivatives, where firms trade directly with each other and contracts are only partly standardised. The general concern over derivatives has been fuelled by some spectacular losses (e.g. Barings Bank) which received extensive coverage in the media. However, this is perhaps an unfair view considering that later high-profile cases proved the value of derivatives (e.g. the largely problem-free settlement of credit derivative swaps written on Enron).

While some debate still exists over interpretation, for example whether restructuring a loan should also be considered a credit event for a credit default swap, the old joke about the lawyer being the busiest person on the credit derivatives desk no longer resonates. In addition, if one views derivatives as simply an efficient

Figure 1: Notional amounts outstanding



source ISDA Market Survey

way to deal the underlying instrument, then it is possible to argue that those 'failures' were actually the result of deeper problems (e.g. poor risk management, treasury department viewed as a profit centre).

Of greater concern should be the impact of the growing volumes of certain OTC derivatives that are currently greatly outstripping the ability of industry participants to provide efficient and effective operational processing of these products. This is dangerous because the absence of an efficient process makes it difficult to fully manage the risk inherent in these OTC derivative products. This sub-set of derivatives therefore requires closer examination.

How are they used?

The underlying instrument for an OTC derivative can be anything where there is a risk and two market participants are happy to trade that risk. Not so far removed from wishful punters betting on a white Christmas in the UK, weather derivatives exist, for example, to help ski resorts hedge the risk of lower than expected snowfall ruining their key economic season. However, usually derivatives are based on an equity, interest rate, credit or currency instrument.

Essentially, companies use derivatives to manage the risk of potential changes in the price of commodities/currencies adversely impacting their business. For example, fund managers may need to protect against a decline in the value of their equity portfolios (and so might sell stock-index futures to offset any loss on the price of individual shares within their portfolios).

Another classic example is a manufacturing/service company that relies on exports and is concerned its own currency will appreciate, thus making its products/services less competitively priced in their export markets. Derivatives are also used to facilitate borrowing at the lowest price. However, by far the strongest driver pushing up the volumes is the speculative inter-dealer market, with hedge funds being particularly partial to OTC derivatives trading.

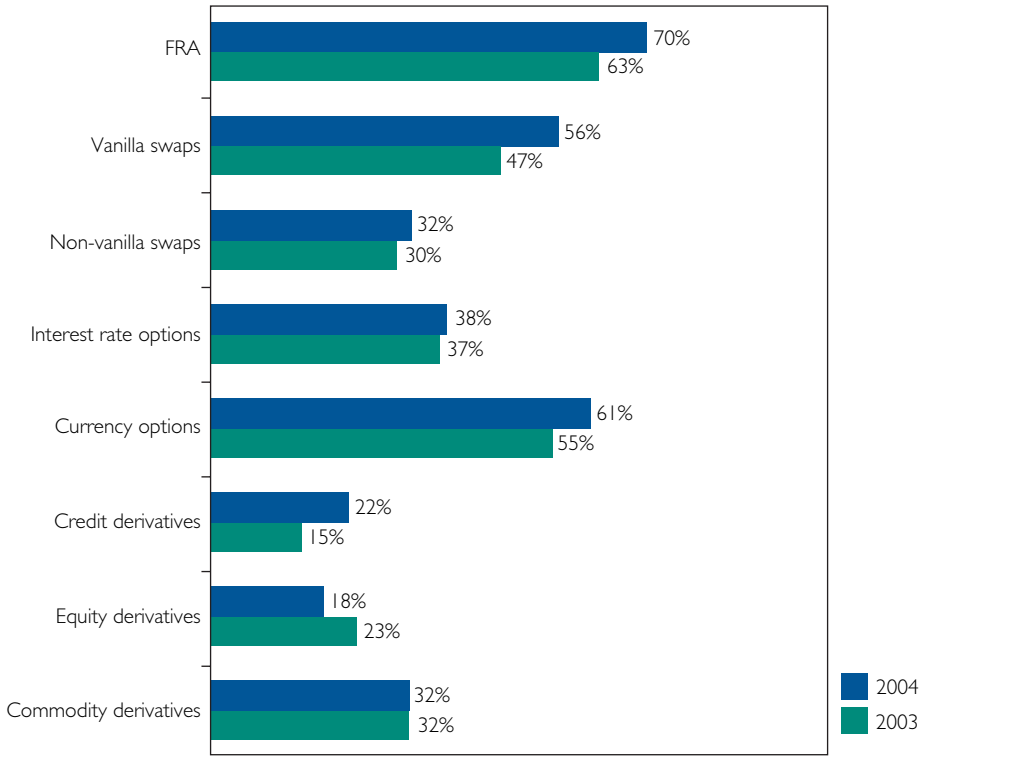
Critics of derivatives often claim that they are "the tail wagging the dog", i.e. that derivatives have the power to affect the underlying instruments on which they are based. However, it should be remembered that derivatives are basically an efficient way to deal in the underlying instrument and are therefore really part of the same market as the underlying asset.

All derivatives do is enable the transfer of risk from those who do not want it, to those who do.

Growth statistics

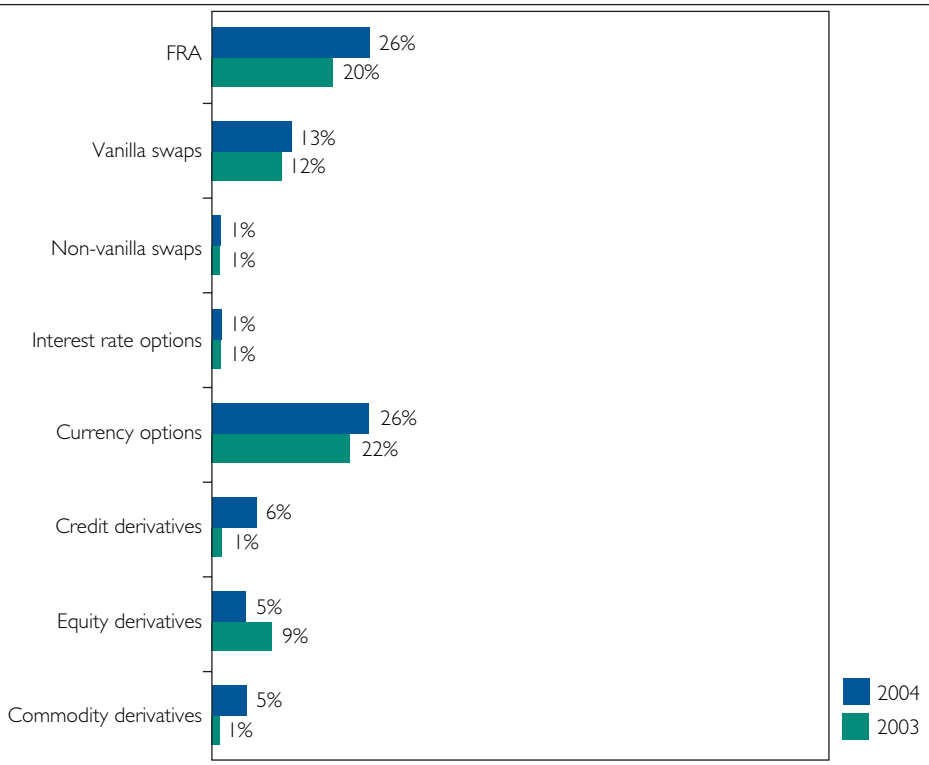
The latest figures available from ISDA (International Swaps & Derivatives Association) show that the notional amounts outstanding for the following products are:

Figure 2: **Percentage of confirmations sent automatically**



Source: table 3.1d from ISDA Operations Benchmarking Survey 2004

Figure 3: **Percentage of confirmations matched automatically**



Source: table 3.1g from ISDA Operations Benchmarking Survey 2004

- total interest rate and currency derivatives - US$164.5 trillion
- total credit default swaps -US$5.4 trillion
- total equity derivatives -US$3.8 trillion

Looking at Figure 1, it is interesting to note that the volume of notional amounts outstanding for the total market grew since 1995 by a factor of 15 (from US$11.3 trillion at the start of 1995 to US$174 trillion by mid-2004).

While it is clear that total interest rate and currency derivatives still comprise the majority (almost 95%) of the market, credit derivatives, and in particular credit default swaps (CDS) have grown at the fastest rate since 2001. At the end of 2001 the market notional volumes of CDS were US$1 trillion, by mid-2004 this figure was close to US$6 trillion, and estimates are that by the end of 2006 there will be close to US$9 trillion notional volume of CDS in the market (source: British Bankers' Association 2003/2004 report). This fast growing demand for credit default swaps is largely due to a trend for banks, particularly retail and commercial banks, to grow without holding any extra risk. They are becoming adept at selling the financial products (e.g. mortgages, credit cards, etc.) and then transferring the credit risk to insurance companies, other banks, or other investors.

Challenges for operations

Of itself, this growth is encouraging. However when compared to the information in Figures 2 and 3 (source: tables 3.1d and 3.1g from ISDA Operations Benchmarking Survey 2004), the scale of the challenge for operations departments becomes clear. With already high volumes, the figures on automation of confirmation dispatch (Figure 2) start to reveal where there is work to be done. With an average of 41% automation, FRAs are relatively STP with the highest automation rate of 70%, whereas equity and credit derivatives struggle at around 20% automation of confirmation generation and dispatch. Hence derivatives with the fastest growth rates require the most manual processing.

So far the above figures relate to parts of the process where STP primarily reduces manual input risk, but when one examines auto-matching of confirmation details (Figure 3), the main risk is economic (i.e. the details are not matched correctly or in a timely manner, thus exposing the participants to both market and settlement risk). The average rate of automation for matching is 10%, again with FRAs and currency options having the highest rate at 26%. Credit derivatives, however, have a rate of just 6% auto-matching. Hopefully this low automation rate will soon be a thing of the past, and widespread uptake of services such as DTCC's Deriv/SERV(addressed further on) which were introduced in late 2003 should facilitate this.

Another factor that challenges OTC operations managers is the high level of staff turnover in this area. The ISDA 2004 Operations Benchmarking Survey showed that in 2004 the average derivatives

operations staff turnover was 20%, and this turnover rate has been increasing over the last two years.

The growth in volumes is currently outstripping the rate at which additional capacity is provided by system enhancements and industry-level automation. Therefore, given the extensive user intervention required in most derivatives processing today, and given the relative complexity of the work, it is a constant challenge to retain sufficient numbers of staff that have the specialised processing knowledge required.

How has the market responded to these challenges?

On an industry level the most significant response has been the development of the International Swaps & Derivatives Association (ISDA) (originally known as the International Swap Dealers Association Inc). Formed in 1985 by a group of 18 swap dealers, it has today more than 600 members and has become the leading international industry association for the global derivatives OTC market. Its global reach is manifested by the existence of its user guides and advisory reports available in Mandarin, Japanese and Spanish. ISDA provides a forum for market participants to develop the OTC derivatives market standards. The stated vision from ISDA is to ensure that by the end of 2006 it is possible to 'electronically match and electronically affirm all inter-dealer transactions as soon as possible on or after trade date'.

As Figure 4 shows, various market utilities and vendors exist, all providing some automated services for a specific product range. The problem with these solutions is that they are largely aligned to product silos. However, the progress made by DTCC and SwapsWire is worthy of recognition.

Created in the 1970s, the Depository Trust and Clearing Corporation (DTCC) is mutually owned by its member banks and handles the clearing and settlement of almost all American security trades. It acts as the central counterparty (CCP) for all shares traded on NYSE and Nasdaq, and - specifically in the derivatives realm - it has a dominant service offering for automating the confirmation and matching process of certain derivatives (most notably, credit default swaps).

SwapsWire was formed in 2002 by a consortium of 22 leading inter-dealer derivatives brokers. Its central service offering is for interest rate derivatives.

It is interesting to note from the above table that some overlap exists between which vendor covers which product. Speculation persists over whether some consolidation of these organisations will take place over the next two years.

It should also be noted that certain derivatives exchanges have sought to capture some of the growth seen in the OTC derivatives market by creating standardised exchange-traded contracts which mimic the most common OTC products. For example, the London Clearing House did this by creating SwapClear in late 1999, which provides multilateral clearing for interest-rate swap contracts.

UBS OTC Post-Trade Services

UBS takes a proactive role in improving the Operational arena of derivatives products. UBS is represented on ISDA Operations Working Groups, is involved at board level in DTCC and SwapsWire, and works closely together with clients and vendors to help clients manage the risk of derivatives while enabling them to increase their trading volumes. Final solutions can include UBS or a market utility service in order to best serve the needs of clients.

The role of individual market participants

For individual market participants trading OTC derivatives, the approach is clear. The market needs further standardisation in order to fully leverage the benefits of further automation. Much has been achieved. At the industry level, ISDA started its Financial Products Markup Language (FpML) initiative in 2002 to create a standard industry protocol for the execution and documentation of complex financial products. Unfortunately at the start of 2004, 69% of firms surveyed in the ISDA 2004 Ops Benchmarking Survey were not using FpML at all (although 45% of respondents planned to implement FpML during 2004).

Figure 4: Overview of automated vendor services

Product	Vendor services	Main products (current)
Interest rates	SwapsWire	Interest rates swaps, FRAs, OIS
Derivatives	SWIFT accord	Interest rate and cross-currency swaps, FRAs
FX	SWIFT accord	FX options, FX spots and forwards
	CMS	FX options, FX spots and forwards
Credit derivatives	DTCC	Credit default swaps
	SwapsWire	Credit default swaps
Commodities	ICEeC	Energy swaps options and IRGs

Source: ISDA "Moving Forward: An Implementation plan", section 2.3.1.

Other standardisation initiatives from ISDA include the settlement matrix and attempts to create a uniform novation agreement. But whereas the standardisation takes place on industry level and is a prerequisite for automation, the automation of the operational processes themselves is largely the domain of individual firms. Therefore it is vital that individual market participants make a concerted effort to support the ISDA Operations Working Group and to adhere as strictly as possible to the recommended ISDA timelines for achieving best practices and automation levels.

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