Single stock future's
the ultimate derivative

By
David Lascelles
The Centre for the Study of Financial Innovation is a non-profit think-tank established in the end of 1992, to look at future developments in the international financial field - particularly from the point of view of practitioners. Its goals include identifying new areas of business, flagging areas of danger and provoking a debate about key financial issues. The Centre has no ideological brief, beyond a belief in open and efficient markets.

**CSFI:** Chairman of the Trustees, Minos Zombanakis; Chairman of the Governing Council, Sir Brian Pearse; Chairman of the Advisory Council, John Plender; Director, Andrew Hilton; Co-director, David Lascelles.
Foreword

Although this paper has been written with the support of Liffe (which makes it unusual among CSFI publications, though not unprecedented), it falls firmly within our mandate to look at new developments and to promote innovation. The Universal Stock Futures that Liffe launched in January 2001 elevate single stock futures from a marginal position in second-tier markets to a much more important role on a major mainstream market. With US exchanges also launching their own SSFs, now that regulatory prohibitions are being removed, this is a financial product about which one is clearly going to hear a good deal.

But has their time come? What do SSFs really offer? Is there really a market for a derivative product that is specifically focussed, not on a class of assets, but on a single security?

This paper, by my colleague David Lascelles, is broadly optimistic. He believes that SSFs will appeal both to (private and professional) investors and to speculators – enabling them to play off one stock against another, and to restructure portfolios without actually buying or selling underlying stocks. And to do it significantly more cheaply than by buying options, effectively by treating them as substitutes for the cash market. That said, as he puts it, SSFs “will have to overcome the hurdles of understanding and risk, which are not inconsiderable”.

David is also optimistic about the impact of SSFs on the cash markets; he believes that they will enhance liquidity in the underlying stocks. But, he wonders, where will the business go? Liffe is clearly well-placed: it is the first major exchange to launch cross-border SSFs; it has a strong menu of stocks and a good trading platform. It also has a useful joint venture with Nasdaq. But what no one can know is what impact the arrival of the CBOE, the Merc and the CBOT will have on the market. Will they (plus the Amex) overhaul Liffe? Or will Liffe’s initial lead enable it to consolidate its competitive position? And, of course, there is the continuing threat from European exchanges.

Whatever, David’s conclusion is upbeat about SSFs themselves. Whoever wins or loses the business, he believes they do serve a useful purpose for a wide range of investors and speculators and that they are likely to establish themselves as a successful financial product that, in his words, “could radically alter the dynamics of equity investing”.

Andrew Hilton
Director, CSFI

This report was prepared with support from Liffe. Editorial control, however, was in the hands of the author and the CSFI who remain responsible for its contents.
Executive summary

Single stock futures (SSFs) represent one of the most interesting developments in the field of financial derivatives for some years. This is both because of their trading potential, which is very large, and the fact that they have only recently become legal in the US.

SSFs are exchange-traded futures contracts on individual stocks which allow traders to take large exposures in those stocks at low cost thanks to the leverage possibilities. They can therefore be used for a number of purposes:

- as a straight substitute for the cash market when investing or speculating,
- as a leveraging instrument for hedging or speculative purposes, and
- as a tool for price discovery.

For investors, they offer a cheaper way of investing in the equity markets and should, therefore, have considerable appeal to the retail end of the investment business. For the professional market, they offer a cheap and flexible way of gaining equity market exposure for a wide range of purposes: hedging, speculation, financial engineering, indexing etc.. Where exchanges trade an international menu of SSFs, investors can also gain cross-border exposure without the expense of going through foreign clearing systems.

However, SSFs do have their downside: they are not for the unsophisticated, their leverage can exaggerate losses as well as gains, they do not confer shareholder rights, and they do not pay dividends (though dividend expectations should be reflected in SSF prices).

SSFs have been traded for more than ten years in smaller regional markets such as Sweden, South Africa and Hong Kong. However they recently came of age because of two developments. The first was the launch in January 2001 by the London International Financial Futures and Options Exchange (Liffe) of a major programme of 95 SSFs covering a wide range of international stocks. The second was the lifting in the latter part of 2001 of the US ban on SSFs, which had been imposed partly because regulators could not agree how to regulate them, partly out of concern for price manipulation. With the recent boost, 15 exchanges now trade SSFs, and this number will grow during 2002 as more US exchanges come on board.

Being relatively new, SSF trading volumes are still low compared to other financial derivatives, though localised pockets of trading can show high levels of activity (eg the Telefonica contract on Spain’s Mef). Liffe’s programme is much the most ambitious so far announced, and offers the widest menu of stocks for the blue chip and international equity investor/speculator.

As it becomes more widely established, some consolidation of SSF trading is likely around markets offering the most attractive contracts and the greatest liquidity. Further out, SSFs could profoundly affect the structure of equity markets by providing new techniques for equity investing, and overcoming many of the barriers to cross-border trading.
Single stock futures, the ultimate derivative

Introduction

The single stock future (SSF) has been described as the ultimate financial derivative: an instrument which can hedge just one of the thousands of equity securities that are traded in world markets. How much more refined can you get?

The answer is not much. But its very ability to fine tune an investment position this far has also made the single stock future controversial. SSFs were illegal in the US until mid-2001 because regulators worried that they could be used to manipulate stock prices. And even in markets that did permit them, volumes tended to be small because traders and investors were unsure about their behaviour.

However, all this is now changing dramatically. In January 2001, the London International Financial Futures and Options Exchange (Liffe) launched Universal Stock Futures - a range of SSFs based on several dozen world-class stocks (the current list is in Appendix I). This move by one of the world’s leading derivative exchanges lifted SSFs out of obscurity and placed them firmly on the international investment menu. A few months later, the US reversed its ban on SSFs, opening the way for the large US derivative exchanges to enter the field as well - which they are wasting no time in doing.

In a matter of months, the landscape for SSFs has been totally transformed, and a large number of dealers and investors suddenly had a lot of learning to do. What are these newfangled instruments, how can they be used, what are the risks, why did the US ban them for so long, where will trading be concentrated? Are SSFs set to join interest rate, currency and equity index derivatives as the financial world’s big hedging and speculative instruments?

This paper aims to supply some answers to these questions. It also suggests ways that SSFs might even transform trading in the equity markets in the longer term.

What are single stock futures?

Single stock futures are derivatives based on individual equity stocks which allow investors and speculators to deal in those stocks more cheaply. Their pedigree goes back a long way (see Box 1), though their recent history dates only from the 1970s and the start of financial futures trading.

The first equity derivatives were based on stock market indices such as the Financial Times All-Share Index and the Standard & Poor’s 500. These were broad indices, reflecting demand for highly visible indicators of market movement which enabled investors to hedge their entire equity exposure. But, over time, demand increased for more specialised indices which identified individual sectors or regions, or even particular groups of stocks. Eventually, this process of fragmentation whittled equity derivatives down to instruments based on single stocks.
Futures: a quick guide

Box 1

Futures have been in existence since ancient times, mainly as a way for farmers to lock in sale prices for their commodities at the beginning of the growing season. A future is a contract to buy or sell a specific amount of a commodity at an agreed price at some date in the future. The key point about a future is that the contract itself has a value, and can be traded. Thus, a contract could contain an obligation on a farmer to sell a tonne of wheat for $100 on December 31. If the daily price of wheat rises above $100 in the meantime, the contract will acquire value because it entitles the buyer to buy his wheat at less than the market price. So the buyer might sell the contract to make his profit, and take a chance on the price falling again by the time he needs to buy the wheat. Conversely, if the price falls below $100, the contract has a value for the farmer because he gets to sell his wheat at more than the market price. These fluctuations are the stock in trade of commodity speculators who are in business to profit from changing prices. But for the farmer, who wants price certainty, the future provides a hedge against price changes. A future is different from an option. Where a future creates the obligation to buy or sell, an option only confers the right. Thus the holder of an option has the choice whether to trade or not when the time comes, whereas the holder of a future must buy or sell - or cancel his position by doing an opposite trade.

Financial futures

The first financial futures were based on interest rates: contracts to buy or sell given quantities of government bonds or treasury bills whose price varied with the level of interest. These were followed by currency products, such as contracts on the dollar or the DM. By the 1980s, these markets were turning over vast quantities of interest rate and currency contracts, and had in some areas become more important than the "real", or cash, markets. The early 1980s also saw the first tentative moves in the direction of equity derivatives: futures and options based on share indices, and more specifically options on individual shares. However progress was slow because of a number of difficulties, particularly in the US where regulators couldn’t agree how to regulate them, and where some states even treated financial futures as gambling.

The role of exchanges

Over time, futures and options trading became formalised through exchanges on standard contracts and terms. The exchanges offer two useful features. One is a clearing house which acts as the counterparty to trades and removes any uncertainty over the ability of the other party to perform. The other is a margin system which requires traders to put up only a part of the value of the underlying commodities covered by the contract (usually between 10% and 20%), rather than their full value. The margin system allows traders to control very large amounts of commodity for a relatively small outlay. In turn, this leverage attracts speculators into the market, which generates liquidity.

Having said that, though, the proportion of global derivative trading that goes through organised exchanges like Liffe is only a fraction - maybe as little as an eighth - of the derivative trading done by traders and investment banks on a one-to-one basis in the over-the-counter (OTC) market.
What are SSFs for?

As with most derivatives, single stock futures can serve three purposes, all in a finely targeted way:

- to provide investors and traders with a way of hedging their market exposure;
- to give traders a way of speculating in the financial markets with high leverage; and
- to provide a tool for price discovery.

In all these cases, futures allow investors/traders to achieve their objectives relatively cheaply (see examples in Box 2). Under the margin system, investors only have to put up a fraction of the value of the securities covered by the contract, compared to 100 per cent when they buy shares in the underlying markets, and even 50 per cent in the US, where margin buying of shares is common. Where an exchange lists contracts based on foreign stocks, like Liffe, futures also allow investors to gain an exposure to those stocks without incurring cross-border transaction costs or getting involved with foreign settlement systems. In the UK, there is the added plus that investors do not have to pay the 1/2 per cent stamp duty because futures contracts do not count as securities for tax purposes.

Futures also offer other advantages, such as the ability to short stocks relatively easily. This can be done simply by selling a contract, whereas in the cash market the short seller would have to borrow the stock first, and might only be able to make the trade in certain conditions, e.g. after an uptick in the share price.

The fineness of the single stock future also gives the investor the means to accomplish very specific objectives, such as:

- playing one stock off against another (pairs or relative performance trading), for example two stocks in the telecoms sector;
- rejigging an investment portfolio without actually buying or selling any stock (an investor is often faced with the dilemma of wanting to switch one stock into another, while being prevented from doing so by considerations such as cost or tax); or
- trading them as substitutes for the cash market.

SSFs are therefore of potential interest to both private and professional investors, and to speculators. In Hong Kong, where the Exchange has traded SSFs since March 1995, a market survey in 1999/2000 showed that 70 per cent of the trades were for speculative purposes, and 30 per cent for hedging. The Johannesburg market, Safex, estimates the breakdown to be only 10 per cent for speculation, 20 per cent for arbitrage and 70 per cent for deal structuring and hedging.
The downside

Of course, it is not quite as simple as the examples in Box 2 suggest. An adverse price move can just as easily create losses. And there are other things to consider.

**Unlimited losses:** An investor on the wrong side of a deal faces the risk of unlimited losses, as when he sells an SSF and the price of the underlying stock begins to move strongly upward.

### Two examples of single stock futures trading

**From LIFFE**

Stock A is currently priced at $10.00, and the December future is priced at $10.20. To buy the stock, the full $10 must be paid to the seller. To buy the future, $1.10 must be deposited with the clearing house. A few days later, the stock price has risen to $11.00 and the future has risen to $11.20. The returns on stock and futures are:

<table>
<thead>
<tr>
<th></th>
<th>Stock</th>
<th>Future</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opening price</td>
<td>$10.00</td>
<td>$10.20</td>
</tr>
<tr>
<td>Closing price</td>
<td>$11.00</td>
<td>$11.20</td>
</tr>
<tr>
<td>Net gain</td>
<td>$1.00</td>
<td>$1.00</td>
</tr>
</tbody>
</table>

Initial investment: $10.00 (paid for shares) and $1.10 (margin deposit).

Return on investment: 10.0% for the stock and 90.9% for the future.

There is a greater return on the investment in futures, as only a fraction of the value of the shares is required up-front.

**From SAFEX**

You hold 1,000 De Beers (DBR) shares which are currently trading at R167 per share, and you anticipate they will fall in value over the next three months. The December future for De Beers (DBRQ) is trading at R169,900 (equivalent to a price of R169).

You sell 10 contracts (each contract is 100 shares) to hedge against the anticipated drop in the market. A day before the contract expires in December, you buy the futures back at R15,550 (equivalent to a price of R155.50), cancelling out your short futures position.

The result looks as follows:

<table>
<thead>
<tr>
<th></th>
<th>1000 DBR</th>
<th>10 DBRQ</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current value</td>
<td>R167,000</td>
<td>R169,000</td>
</tr>
<tr>
<td>Value in December</td>
<td>R155,500</td>
<td>R155,500</td>
</tr>
<tr>
<td>Profit or (loss)</td>
<td>(R11,500)</td>
<td>R13,500</td>
</tr>
</tbody>
</table>

The loss on the De Beers shares is offset by the profit made on the futures trade.
However this risk is similar to that incurred by a dealer who shorts a stock in the cash market, except that any use of leverage in a futures contract magnifies the losses.

**Variation margin:** Although the investor only has to put up a portion of the total value of the contract, the value of the contract is marked to market each day, and price changes have to be made up either by additional payments from the investor or by refunds from the clearing house. So a sharp adverse move can place heavy financial demands on the investor, and if he fails to pay up the position will be closed out by the clearing house at a loss.

**Liquidity:** All trading is based on the assumption that there will be enough liquidity in the markets when the moment comes to buy or sell. This is a particular consideration with SSFs because of their fragmented nature. Theoretically, an SSF is as liquid as the underlying stock, but in practice this is not the case because of various considerations such as hedging and position funding costs. As a result, spreads (i.e. the difference between bid and offered prices) on SSFs can be wider than for the comparable stock on the underlying exchange. The spread on the Vodafone USF, for example, is about 1.5p versus a fraction of 1p in the cash market, though this is offset by cost savings, e.g. absence of stamp duty on USFs.

**Regulation:** One of the main concerns about financial derivatives is the risk of dirty dealing. This is something to which single stock-based instruments are particularly vulnerable because the price of individual securities is more open to manipulation than more broadly-based instruments. This, in turn, affects the price and behaviour of derivatives constructed around them. The effect can go in the opposite way as well: derivative prices can be manipulated to influence the price of the underlying stock. So the regulator has to be satisfied that trading is clean in both the cash and derivative markets because of the linkage between the two.

In countries like Sweden and the UK where the derivative and securities markets are regulated by the same authority, coordination should present no problems. It also seems to work well in countries with split regulation, with the notable exception of the US.

A potential difficulty arises when the share is regulated in one country and the derivative based on it in another, as with the non-UK USFs listed by Liffe. How can the investor be sure that the non-UK stock trades in a clean market? The short answer is that he cannot. However he can draw comfort from a number of things. One is that common regulatory standards exist between most advanced industrial countries, notably within the EU, on investment services. Another is that the UK’s Financial Services Authority works closely with its opposite numbers abroad. A third is that Liffe has made arrangements to share trading information with the exchanges and regulators of countries whose shares it uses for futures trading. The fact

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**The risk of dirty dealing**

**Pricing single stock futures**

<table>
<thead>
<tr>
<th>Box 3</th>
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A basic formula used to price futures is:

\[ F = S (r-q)(T-t) \]

where

- \( F \) = futures price
- \( S \) = price of underlying asset
- \( r \) = risk free interest rate
- \( q \) = dividend yield
- \( T \) = time to maturity
- \( t \) = current time

The formula can be elaborated to include marginability etc..
remains, however, that some foreign securities markets have a less robust record of price transparency than the UK market.

Shareholder rights: Anyone who buys a stock has a wider set of expectations than someone who trades currencies, interest rates or even stock indices: he becomes a shareholder with rights to a dividend and a vote. But none of these rights come with a future on a stock. Does this matter, and should it be reflected in the price of the future?

The answer is no and yes. No, because the purpose in buying a stock is quite different from buying its derivative. In the first case, the investor is interested in a longer term investment, and aims to get involved with the company. In the second, the buyer is only interested in short term considerations: a hedge, a speculative move. But the answer is also yes because dividend expectations are factored into the price of the future, even if the holder of the future will not actually receive the payment. Indeed, very fine calculations are made by traders about the dividend implications of holding futures on a stock, even to the point of differentiating between dividends which are paid gross or net of tax. Any failure to price dividend expectations correctly will open up arbitrage opportunities for sharp traders who specialise in this esoteric area. The answer is also yes in a more technical sense: derivatives have to be adjusted to reflect rights issues, stock splits etc.

Settlement: Very few financial derivative contracts run to maturity: they are usually offset with an opposite trade. But if they do, there is the question of how they should be settled. Technically, this should be with physical delivery of the assets stated in the contract. But this is not always possible or convenient, particularly with share indices, and many financial derivatives are therefore settled with the cash equivalent. In stock futures, most of the exchanges settle in kind. Liffe is one of the few that settles in cash, arguing that this is simpler, particularly in the case of cross-border trades, and relieves investors of the inconvenience of taking delivery of securities that they probably don’t really want. But Liffe intends to offer a separate contract for those preferring to settle in kind.

Current state of the SSF market

Equities were late-comers to the derivative scene, and they still play a small part in the overall business. As shown in Table 1, the bulk of financial derivative trading is accounted for by interest rates, with approximately two thirds of the notional amounts outstanding in OTC dealing at the global level. This reflects the fast-growing use of hedging techniques by the corporate and investment world, and the evolution of new instruments such as interest rate swaps. Conversely, currency derivative volumes levelled out in the late 1990s because of falling volatility in the foreign exchange markets, and the elimination of currency risk in much of Europe with the introduction of the euro.

Growth of equity derivatives: The equity derivative sector is minute by comparison, the notional amounts outstanding amounting to around $1.9 trillion at the end of 2000, compared to over $60 trillion in the interest rate market. (Derivative numbers tend to be vast because a single contract can cover a large amount of underlying asset.)

However the point about equity derivative trading is that it showed a strong upward trend in the 1990s, virtually doubling in size between 1997 and 2000, making it the fastest-growing
segment of the market, though once the equity markets became more nervous in 2000, trading volumes became more volatile, and even started falling.

The earlier growth stemmed from a number of factors. One was the bull market itself, and the growing interest which this fuelled among investors for equity-based products. Another was the spread of the “equity” culture beyond its usual territory in “Anglo-Saxon” markets and into new ones, particularly in Continental and East Europe.

A third was the dramatic shift in the balance between the use of debt and equity as a source of finance, particularly in the US. As illustrated by Table 2, the ratio of US equity to government debt rose from 1.4:1 to 4.2:1 over the ten years from 1990 to 2000, helped by the fall-off in US government borrowing and the rise in equity issuance.
Structure of the equity derivatives market: The bulk of equity-based derivative trading consists of options on index-based contracts and individual stocks rather than of futures contracts. This is mainly because of the popularity of options, and the long-standing ban on certain types of equity-related futures in the US. The absence of widely traded SSFs has also spawned substitutes in the OTC markets, such as equity swaps, forwards and contracts for differences which can be structured to provide equivalent economic exposure.

Table 3

<table>
<thead>
<tr>
<th></th>
<th>June '98</th>
<th>Dec '98</th>
<th>June '99</th>
<th>Dec '99</th>
<th>June '00</th>
<th>Dec '00</th>
</tr>
</thead>
<tbody>
<tr>
<td>Options</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Forwards and swaps</td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Bank for International Settlements

Single stock futures: Formalised, exchange-based trading in SSFs began in Sweden in the late 1980s when OM Group, a company that manufactures exchange technology, sought to challenge the Stockholm Stock Exchange’s monopoly of equity trading by offering derivatives based on Sweden’s most popular shares. This bold initiative sparked bitter rivalry between the two institutions. But OM Group’s innovative approach won out: OM persuaded the exchange to enter into an alliance, and eventually took it over. Since then, 14 other exchanges have launched SSFs in over 200 stocks, mostly ones listed on the local market. (And some, like OM, had to overcome fierce resistance from their local exchanges, eg Safex from the Johannesburg Stock Exchange. SSFs are not always welcome because they threaten the trading monopoly enjoyed by many traditional exchanges.)

However, the volume of SSF trading remains tiny, less than 1 per cent of financial derivative trading, by most estimates. Table 4, showing trading volumes in stock-related derivatives on world exchanges, puts SSFs in context. The thin black layers at the top of the 1999 and 2000 columns mark virtually all the SSF trading that was done in those two years. In fact, trading was so low in the late 1990s that Copenhagen’s FUTOP, which had been trading three stock futures, decided to drop them in September 1998. Since then, though, FUTOP has had a change of heart, and re-launched 10 single stock futures contracts in June 2001.
However, these comparisons are not entirely justified, since the true measure of SSFs’ success is not how they perform compared to other derivatives, with which they have little in common, but how they match up to trading in the underlying markets for which they provide a substitute.

The early trading in Liffe’s new USFs suggested that they had got off to a modest start in London: in the first year, about 2.5m contracts were traded representing some 650m shares against a background of equity markets that measure their daily turnover in billions of shares (see Table 5). However, there have been days when USF trading volume has reached a sizeable proportion of trading in the underlying security - over ten per cent in some cases (see Table 6).
Why have these markets been so small? Clearly, the reason is not the absence of favourable conditions, because the equity boom of the 1990s did not produce a huge increase in SSF trading. Statistics from one of Europe’s more active exchanges to date, OM Stockholm, show volumes peaking with the collapse of the high-technology equity market in the spring of 2000, and then maintaining high but volatile levels for a while before falling away sharply in 2001 (see Table 7). However, that begs the question whether the subsequent bear market could prove more propitious to SSFs as defensive instruments, because of their hedging capabilities.

The exchanges themselves report other possible reasons for low volumes. Investors find them unfamiliar and risky, brokers do not market them aggressively because they earn more fees from dealing in the underlying stocks, and there is no tradition of approaching individual stocks through the derivatives market.

A more upbeat reason may be that their time has not yet come. If the evolutionary pattern of financial derivatives shows a steady breakdown into ever more specialised products, then the SSF will be one of the last creatures to emerge: an instrument focused not on broad market movements, or even a class of security, but on one specific security. Furthermore, its evolutionary momentum has undoubtedly been held back by the US ban. The lifting of that ban, and the increasingly sophisticated demands of investors are both reasons for believing that SSFs could become more popular.

| Table 6 |
| Trading volume: USF as % of underlying stock (December 7th 2001) |

<table>
<thead>
<tr>
<th>Company</th>
<th>% of Underlying Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENI</td>
<td>14.8</td>
</tr>
<tr>
<td>Telecom Italia</td>
<td>10.2</td>
</tr>
<tr>
<td>Telecom Italia Mobile</td>
<td>8.9</td>
</tr>
<tr>
<td>BP</td>
<td>8.2</td>
</tr>
<tr>
<td>Generali</td>
<td>7.4</td>
</tr>
<tr>
<td>ENEL</td>
<td>5.8</td>
</tr>
<tr>
<td>Royal Dutch</td>
<td>5.7</td>
</tr>
<tr>
<td>Nokia</td>
<td>4.6</td>
</tr>
<tr>
<td>Glaxo</td>
<td>4.1</td>
</tr>
<tr>
<td>General Electric</td>
<td>2.8</td>
</tr>
<tr>
<td>Exxon</td>
<td>2.7</td>
</tr>
<tr>
<td>Aegon</td>
<td>2.5</td>
</tr>
<tr>
<td>Pfizer</td>
<td>1.9</td>
</tr>
<tr>
<td>BBVA</td>
<td>1.3</td>
</tr>
<tr>
<td>Deutsche Telekom</td>
<td>1.3</td>
</tr>
<tr>
<td>HSBC</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Source: Liffe
The US love-hate affair with single stock futures

Single stock futures were outlawed in the US until 2001. Why?

There are two reasons. One is the regulatory turf war that bedevils the US securities industry, between the Securities and Exchange Commission (which regulates securities) and the Commodity Futures Trading Commission (which regulates futures). Single stock futures plumb between the two, creating a regulatory stand-off. The impasse was only resolved by a new law which came into force in 2001 giving both agencies a say.

The second reason was concern that SSFs could be used to manipulate the price of the underlying securities (and vice versa). Unlike the securities laws, the US commodity trading regulations did not outlaw insider trading, so SSFs could be used by insider dealers to evade the enforcement powers of the SEC. Hence, SSFs were potentially much the most manipulable segment of the equity-based derivative market. But that has changed: as well as sharing out regulatory responsibility for SSFs, the new law extends the anti-manipulation and insider dealing provisions of the securities laws to cover futures on corporate stocks, closing this big loophole.

The new law triggered rapid developments. The three major derivative exchanges, the Chicago Board Options Exchange, the Chicago Board of Trade and the Chicago Mercantile Exchange, formed a joint venture OneChicago, to trade SSFs from mid-2002. In January 2002 they announced an initial list of 30 US stocks on which futures would be traded, to be expanded to 50-75 stocks eventually (see Appendix II). The American Stock Exchange announced plans of its own, and Nasdaq teamed up with Liffe to create a trans-Atlantic alliance (see Box 5).

Will single stock futures catch on?

Single stock futures have only had limited success so far. Are they likely to catch on now that bigger exchanges are getting in on the act? The following points will help answer the question.

What have futures got that existing equity derivatives haven’t? If SSFs are to succeed, they must offer something that other equity derivatives do not. Some alternative products, such as swaps, forwards, synthetic futures and contracts for difference are substitutes for straight SSFs, particularly in the US, and should wither away if SSFs can provide a cheaper and more streamlined alternative. Most of these alternatives are not exchange traded, so considerations such as price transparency, counterparty risk and liquidity are less certain.

The real question is what SSFs offer over existing single stock options, which are popular and widely available in the US, European and Far Eastern markets, and over the cash market itself.

As mentioned earlier, options give investors the right, but not the obligation, to buy or sell securities. This makes them different in several ways, to the point where it is even misleading to suggest that they are comparable.
Apart from pure speculation, the purpose of an option is to provide insurance against an unwanted price movement, for the cost of a premium. A futures deal, by contrast, provides direct leveraged exposure to the stock, which can be used to trade the stock short term without putting up the full price, or to create an offsetting position to an exposure in the cash market, i.e. hedging.

The price behaviour of the two is very different. Where futures move in step with the underlying stock, the price of an option is affected by other considerations such as time decay and volatility (i.e. what is the likelihood that the option will be exercised?), and does not provide this certainty.

Futures are also cheaper, and typically less cash intensive. All the trader has to put up is the margin, whereas an option buyer has to pay a premium and possibly also a margin depending on local requirements. Furthermore, to obtain the full hedging coverage offered by a future, the option trader would have to go “deep in the money”, which is expensive.

So a future appeals to the speculator looking for quick and cheap exposure: it is essentially a substitute for the cash market. However, futures also have disadvantages: they only provide market exposure, not insurance, and for some investors this may not be suitable. They are also less useful for creating structured deals (i.e. those triggered by certain price movements but not by others), which are very much the stock in trade of today’s “financial engineers”, though they could be used to hedge deals put together in the OTC market.

**Do SSFs meet the market’s needs?** Clearly yes, insofar as investors need hedging products, and SSFs perform a function which is distinct from that offered by options or index-based derivatives. They also bring down the cost of gaining equity exposure. However cross-border SSFs, such as the USF contracts offered by Liffe in non-UK stocks, cater to a further dimension: the growing internationalisation of investment. USFs allow investors to buy foreign shares without having to enter into a cross-border transaction or a foreign settlement system. There are clearly cost advantages to this, though the added flexibility may turn out to be the greater long-term advantage as investors come to view their portfolio on an industry/sectoral rather than national basis.

**Will retail investors learn to love SSFs?** There is certainly potential in this area: private investors are becoming more numerous, more sophisticated, and more interested in speculative techniques, and they are more likely to be interested in derivatives on stocks than on currencies.
and interest rates. The equity culture is spreading in Europe. Furthermore the largest market of all, the US with over 20m private investors, remains completely untapped - a unique phenomenon in the securities business.

The evidence from existing SSF exchanges is mixed. Safex, for example, estimates that 99 per cent of trades originate from the institutional or professional side. The most recent survey of the Hong Kong market (in 2000) produced the following breakdown of transactions:

- Registered trader: 30.5%
- Local retail investor: 27.7%
- Local institutional investor: 41.8%

At OM Stockholm, a market with a stronger tradition of retail involvement in derivative trading, the retail proportion is said to be over 50 per cent, though no firm numbers are available. In the US, where the retail investor might be expected to be an active player, William Brodsky, the chairman of the Chicago Board Options Exchange, said in early 2001 that he thought professional rather than retail interest would dominate the field.

Liffe’s USF strategy is based heavily on the expectation that SSFs will appeal to the retail investor, and it has designed its contracts accordingly, viz by keeping the contract size down to as little as 100 shares in some cases. This view stems partly from the fact that retail investors are more interested in equity markets than in the interest rate or currency markets, and want ways to make more of their investments. But Liffe also believes that the SSF market will be the only derivative market where professional and private investors can operate on an equal footing (the other derivative markets having contract characteristics which discourage small deals).

One issue is whether SSFs are right for the retail investor. Clearly, they entail a higher level of risk, and require a fuller understanding than direct investment in stocks. However this is essentially a suitability issue, and regulations in most countries (including the UK) require brokers to consider the suitability of the products they offer to their clients. One concern among US regulators is that brokers will try to market SSFs to private investors as a cheaper way to invest in equities, and play down the risks. If so, the enforcement of suitability rules will have to be tightened up.

SSFs clearly have both hedging and speculative appeal for private investors, and Liffe is probably right to see scope for growth in the area, though the products will have to overcome the hurdles of understanding and risk, which are not inconsiderable.

The macro impact

If the advantages of SSFs include the ability to trade in a stock away from its home base, and to avoid the tax liability created by trading in the cash market, there are also disadvantages from a wider social point of view. Essentially, SSFs give investors and traders a way to engage in tax and regulatory arbitrage from which either the tax or the regulatory authorities could be the losers. So unless SSFs create compensating efficiency gains in other areas, the economy as a whole could be worse off.
Do they provide those gains? Yes, to the extent that they provide a cheaper proxy for actual share trading, and thereby make the equity markets more efficient. Yes also in that they make it easier to sell stock short, and thereby compensate for the markets’ well-documented “buy” bias, which causes prices to adjust more rapidly to good news than to bad news. Whether these wholly offset the negatives would be very hard to calculate. It is certainly the case that no regulator has ever barred equity derivatives because they are anti-social, only because of very specific regulatory concerns.

The impact on underlying markets

A major consideration with all derivatives is how they impact the underlying markets: do they make them more volatile, do they affect their liquidity?

In the early days of financial derivative trading, there were big concerns in this area because the links were poorly understood, and the timing of derivative contract maturities was ill-coordinated, viz the famous “witching hours” on Wall Street.

However since then, studies have tended to show that the creation of a derivative boosts the volume of trading in the underlying asset, and enhances its liquidity – at least in bonds and indices. Although no one has yet made a study of the impact of SSFs on the underlying stock, the Hong Kong Exchange, which trades 19 SSFs, concluded from a study of equity index futures that there were no volatility effects. Safex says the existence of a derivative can even reduce volatility in the underlying stock by absorbing some of the market pressure.

One would therefore expect the launch of a future to enhance the liquidity of the underlying stock. If so, it would be good news for the companies whose stocks have derivatives constructed on them. Although exchanges do not need companies’ permission to create derivatives on their stocks, most corporate treasurers would welcome such a move if it generated greater trading interest in their securities. However, it should be stressed that academic research in this area has not been wholly conclusive.

Fears have also been voiced that SSFs could cause investors to desert the cash markets: why incur the cost of trading real stocks when you can gain the exposure more cheaply by trading the derivatives? In practice there are regulations which prevent certain types of institutional investors from trading derivatives, and many of them, for example pension funds, need to hold real assets to meet their liabilities; so the cash markets look safe.

The impact on exchanges

The derivatives business is enormously competitive, not least among the exchanges themselves. An important question is where and how SSFs will be traded, and which exchanges will end up profiting from this new business.

- Will SSFs cluster round the exchanges where the underlying stock is listed, or will trading flow to the specialist derivative exchanges, and if so will the market concentrate on a single exchange, or spread out among many?
The first question focuses on whether there is value for investors in being able to trade futures on a stock away from its home base, but among other international SSFs. For example, will Microsoft futures trade better alongside the cash market in the US, or in the company of other international high-technology stock futures at Liffe? In the increasingly borderless world of equity trading (at least at the level we are talking about), the market context may matter more than the geographical location: if you want to trade exposure to global technology stocks, it may make more sense to do it through Liffe where you can choose between a dozen top names from all over the world, than through a US exchange where the choice might be limited to local names (an idea that Liffe seems to be reaching for by calling its stock futures “Universal”). On the other hand, an investor trading Microsoft futures will also have a close interest in the underlying stock, and may feel more comfortable trading close to the cash market.

The fact, however, is that the early initiatives in this field have been taken, not by stock exchanges but by derivative exchanges, setting a pattern for trading to develop in a derivative rather than cash market context.

If this is the direction in which we are heading, which exchanges will attract the business?

To date, the running in SSFs has been made by a dozen small exchanges, none of which have managed to make a huge success of the product, with the possible exception of Spain’s Meff which has seen high volumes in a limited range of SSFs (eg Telefonica). However even Meff’s

<table>
<thead>
<tr>
<th>Exchange</th>
<th>No of contracts listed</th>
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<tr>
<td>ADEX (Athens)</td>
<td>4</td>
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<tr>
<td>AEX (Amsterdam)</td>
<td>8</td>
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<tr>
<td>BDP (Portugal)</td>
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<td>Budapest</td>
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<tr>
<td>FUTOP (Copenhagen)</td>
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<tr>
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</tr>
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<td>Liffe (London)</td>
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<td>SFE (Sydney)</td>
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<tr>
<td>Singapore</td>
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</tr>
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</table>

1. April 2001
2. As from November 19th 2001
3. As from June 2001
4. As from October 31st 2001
5. As from October 26th 2001
success is very localised, which suggests that the field is still open for a single exchange to establish dominance at an international level (see Table 9).

As the first major exchange to launch cross-border SSFs, Liffe is well-placed to seize this position: it has a strong international menu of stocks, a powerful electronic trading platform in Liffe-CONNECT, and a joint venture with Nasdaq to cover the key US end of the market. It could also benefit from the “winner-takes-all” tendency of the derivatives business: trading usually gravitates towards the market offering the greatest volumes and liquidity. However this tendency is also subject to the vagaries of the international derivative business which is capable of migrating from one exchange to another if it offers a better deal.
The as-yet-unknown factor is how the entry of the US exchanges will impact the market. Unusually, the country’s three leading derivative exchanges, the Chicago Board Options Exchange, the Chicago Mercantile Exchange and the Chicago Board of Trade – all fierce rivals – joined forces to launch a single electronic exchange to handle SSFs. They will be powerful competitors, coming as they do from the birthplace of financial futures trading and the home of many of the world’s largest stocks, though a weakness may be their relative lack of experience in electronic dealing compared to the European exchanges. The American Stock Exchange (Amex) has also announced plans.

Liffe, now part of the Euronext group which includes the Amsterdam exchange with its small SSF business, could build up enough of a lead during 2002 to make it difficult for the Americans to catch up. If so, the US markets will heap recriminations on their warring regulators for holding up progress for so long. But Liffe has blown a good lead before, when it lost the Bund contract to Frankfurt in 1998, and its success is far from guaranteed.

Nor at the time of writing had Frankfurt-based Eurex made its intentions clear, though it said it was considering plans for SSFs. Under the winner-takes-all rule, it might have difficulty getting into the race, particularly since Liffe has already created contracts in the very blue chip stocks that it would need to attract business, e.g. Deutsche Telekom, Siemens and DaimlerChrysler. But another possibility is that it could forge an alliance of its own with a US exchange along Liffe-Nasdaq lines.

Conclusions

The surge of interest in SSFs marks another important stage in the evolution of financial instruments. But their success is far from assured because so few exchanges and investors have direct experience of them. The following questions deal with the main issues.

1. Do SSFs serve a useful purpose?
   Yes. As equity trading grows, so does the need for hedging products, particularly those able to target finer objectives: portfolio rebalancing, index tracking etc. Although there is already a wide range of equity-based derivatives (stock indices, single stock options, CfDs etc), SSFs offer a cheaper, simpler way of achieving certain fundamental and increasingly sought objectives, viz hedging, speculation, and short-term trading.

2. Are they excessively risky?
   Much of the negative US debate can be discounted here: although it was said to be about controlling risk, the real issue was that the US regulatory structure was not designed to cope with SSFs. That failing has now been corrected. SSFs are now fully regulated in all major markets. However SSFs do carry risks: they can expose investors to unlimited, leveraged losses. Also, they are capable of being presented in ways that exaggerate their advantages (i.e. their capital efficiency, low cost and flexibility) without making enough of those risks. That doesn’t make them excessively risky, but it does advise caution and suitability.

3. Are SSFs right for retail investors?
   Yes, provided the suitability test is applied. They are sound and useful instruments, well regulated, and offered by reputable exchanges. They also enable retail investors to achieve objectives which are increasingly appropriate for the private individual in the areas of hedging,
speculation and the more sophisticated trading strategies. But they are not for the faint-hearted or untutored. In practice, it will probably take the more adventurous and iconoclastic US private investor to open up the field.

4. Will SSFs succeed as a product?

Yes. The points in favour are: an identified need for them, backing from top brand names, and strong underlying favourable trends (growth of equity culture, growing demand for targeted derivative products, opening up of US market). The points against are uninspiring track record so far (but arguably due to very localised backing), and a need to engage the private investor, which could prove more challenging.

Of the points in favour, much the most important is the opening up of the US market, and the entry of the traditionally more open-minded American dealer/investor. This is literally the financial equivalent of opening up the floodgates. But the expansion of equity markets elsewhere in the world will lend strong support.

5. How will competition between exchanges work out?

SSF trading is likely to be concentrated in derivative rather than stock exchanges, and volumes will gravitate towards those exchanges offering the best liquidity. Although many local exchanges have been trading SSFs for some years, the field is still open for larger exchanges to dominate what is likely to become an increasingly international business. Liffe has been able to establish an early lead thanks to its timely entry with a strong range of international stocks - and the absence of competition from either the US or Europe. But the large US derivative exchanges will also present formidable competition which could still influence the final shape of the market.

A final point

SSFs have been portrayed in this report as a new stage in the evolution of financial derivatives – which is certainly the case. But they could be more than that: they could radically alter the dynamics of equity investing.

The more global that markets become, the more that investors take an active interest in their holdings, and the more value is at stake on stock exchanges, the more investors will want ways to manage their affairs quickly and cheaply. This report has stressed the efficiency of dealing in stocks through SSFs. Equally important, though, is the fact that users of Liffe and the US exchanges will be able to deal in large numbers of stocks from leading industrial countries through a single exchange and settlement system. This is very new.

Another aspect, also underrated, is the opportunity that SSFs give professional investors to create very refined portfolios, even building their own indices. The leverage possibilities could also draw hedge funds more deeply into the equity area, which would have a huge impact. Further out, exchanges could begin offering totally flexible contracts which allow traders to write their own terms. In this sense, SSFs as currently offered are not the ultimate derivative, only a step down the road. The possibilities are huge, but as yet only dimly perceived.
# Appendix 1

Single stock futures offered by Liffe’s Universal Stock Future (USF) programme as of October 31, 2001

<table>
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<tr>
<th></th>
<th>Telecoms</th>
<th>Technology</th>
<th>Banks</th>
<th>Oils</th>
<th>Pharmaceuticals</th>
<th>Insurance</th>
<th>Media</th>
<th>Retailers</th>
<th>Automobiles</th>
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<td>Finland</td>
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<td>E.ON AG Siemens AG</td>
<td>Bayerische Hypo-und Vereinsbank AG Deutsche Bank AG</td>
<td>Bayer AG</td>
<td>Allianz AG Münchener Rückversicherungs Gesellschaft AG (Munich Re.)</td>
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<td>DaimlerChrysler AG Volkswagen Inc</td>
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<td>Unicredit Italiano SpA San-Paolo-IMI SpA</td>
<td>Eni SpA</td>
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<td>Aegon NV</td>
<td>Koninklijke Ahold NV</td>
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<td>Telefonaktiebolaget LM Ericsson Telia AB</td>
<td>Nordea AB Svenska Handelsbanken</td>
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<td>Hennes &amp; Mauritz AB</td>
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<td>British Telecommunications plc</td>
<td>Vodafone Group plc</td>
<td>Marconi plc HSBC Holdings plc Lloyds TSB Group plc Royal Bank of Scotland Group plc Abbey National Plc HBOS</td>
<td>BPL plc Shell Transport &amp; Trading Co plc</td>
<td>AstraZeneca plc GlaxoSmithKline plc</td>
<td>CGNU Plc Legal &amp; General Group Plc</td>
<td>Tesco Plc</td>
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Appendix II

Single stock futures offered by OneChicago

American International Group (AIG)
American Express (AXP)
AOL Time Warner, Inc. (AOL)
Applied Materials (AMAT)
AT&T Corporation (T)
Bank One (ONE)
Cisco Systems, Inc. (CSCO)
Citigroup, Inc. (C)
Dell Computer Corporation (DELL)
eBay, Inc. (EBAY)
EMC Corporation (EMC)
General Electric Company (GE)
Goldman Sachs Group, Inc. (GS)
Intel Corporation (INTC)
International Business Machines Corporation (IBM)
Johnson & Johnson (JNJ)
J.P. Morgan Chase & Co. (JPM)
Merrill Lynch & Co., Inc. (MER)
Microsoft Corporation (MSFT)
Morgan Stanley Dean Witter & Co. (MWD)
Motorola, Inc. (MOT)
Nokia Corporation ADR (NOK)
Oracle Corporation (ORCL)
Pfizer (PFE)
Philip Morris (MO)
QUALCOMM, Inc. (QCOM)
Sun Microsystems (SUNW)
Siebel Systems, Inc. (SEBL)
Texas Instruments Incorporated (TXN)
VERITAS Software Corporation (VRTS)
David Lascelles is co-director of the CSFI. Most of his earlier career was with the Financial Times where he was New York bureau chief and Banking Editor. He now divides his time between helping to run the CSFI and lecturing at the ISMA Centre, Reading University, Europe’s leading post-graduate institution for investment banking.

2. “Derivatives for the retail client”: A proposal to permit retail investors access to the risk management aspects of financial derivatives, currently available only at the wholesale level. By Andrew Dobson. Nov 1993 (Only photostat available)

3. “Rating environmental risk”: A proposal for a new rating scheme that would assess a company’s environmental exposure against its financial ability to manage that exposure. By David Lascelles. December 1993

4. “Electronic share dealing for the private investor”: An examination of new ways to broaden retail share ownership, inter alia, by utilising ATM networks, PCs, etc. By Paul Laird. January 1994

5. “The IBM dollar”: A proposal for the wider use of “target” currencies, i.e., forms of public or private money that can be used only for specific purposes. By Edward de Bono. March 1994


7. “Banking banana skins”: The first in a periodic series of papers looking at where the next financial crisis is likely to spring from. June 1994


10. “Banking banana skins II”: Four leading UK bankers and a senior corporate treasurer discuss lessons for the future from the last banking crisis. November 1994


12. “Liquidity ratings for bonds”: A proposed methodology for measuring the liquidity of issues by scoring the most widely accepted components, and aggregating them into a liquidity rating. By Ian Mackintosh. January 1995

13. “Banks as providers of information security services”: Banks have a privileged position as transmitters of secure data: they should make a business of it. By Nick Collin. February 1995


15. “EMU Stage III: The issues for banks”: Banks may be underestimating the impact of Maastricht’s small print. By Malcolm Levitt. May 1995


21. “Banking banana skins III”: The findings of a survey of senior UK figures into where the perceived risks in the financial system lie. March 1996


26. “Banking Banana Skins: 1997”: A further survey showing how bankers might slip up over the next two to three years. April 1997


28. “Call in the red braces brigade... The case for electricity derivatives”: Why the UK needs an electricity derivatives market, and how it can be achieved. By Ronan Palmer and Anthony White. November 1997

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Morgan Stanley Dean Witter
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Prudential plc
Reuters
Royal Bank of Scotland
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