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LIFFE Equity and Index Options

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1 Introduction

Euronext, LIFFE and Euronext.liffe

Euronext was formed by the merger of the Amsterdam, Brussels and Paris cash and derivatives exchanges in September 2000. The Euronext Group has since grown further, adding BVLP (the Portuguese cash and derivatives exchange) and LIFFE (The London International Financial Futures and Options Exchange). The derivatives businesses of Euronext and LIFFE are being combined under the Euronext.liffe umbrella with the phased migration of all of Euronext's derivatives markets to LIFFE CONNECT™, the most sophisticated electronic derivatives trading platform in the world.

In this brochure:

- "Euronext.liffe" refers to the combined derivatives operations of Euronext and LIFFE, comprising the Euronext derivatives markets in Amsterdam, Brussels, Paris and Lisbon, and the LIFFE market in London; and
- the "LIFFE market" refers to the UK Recognised Investment Exchange which is administered by LIFFE Administration and Management (a UK company), and which forms part of Euronext.liffe.

About this booklet

This booklet explains, through a series of questions and answers, what options are, how they can be used, and also includes a guide on how to get started.

What is an option?

An option is, very simply, an instrument that gives its holder the right, but not the obligation, to buy or sell something at a fixed price.

Options are available on a wide range of products, literally from pork bellies to platinum. LIFFE lists options on interest rate futures, government bonds, commodities, individual equities and the FTSE 100 Index. It is LIFFE's options on shares and share indices, that are the subject of this booklet.

What can equity options offer you?

Options offer investors the means to take advantage of individual share price movements and general stock market fluctuations.

They may be used in a number of different ways including:

- as a form of insurance against a fall in the price of a share or in the FTSE 100 Index;
- as a way of generating income from an existing shareholding; and
- for straightforward limited risk speculation

New opportunities

In 1978 there were only two equity option markets in Europe, one in the UK and one in the Netherlands. Today, almost every European country has, or is planning to start, its own equity options market. Both private and institutional investors will be active on all of these markets.

While private client use of options is still relatively low in the UK, it accounts for around 70% of the volume on the world's largest options exchange, the Chicago Board Options Exchange and a similar proportion of volume on the Amsterdam Exchanges in the Netherlands.

Are options risky?

The answer to this is "yes and no" and largely depends on how they are used.

The buying of options involves a limited risk. That is to say that the maximum loss is limited to the price paid for the option and therefore is known at the outset.

The writing (ie selling) of options, although having a wide range of uses, is a potentially high-risk strategy requiring a high degree of product knowledge. The Exchange urges investors not to write 'uncovered' options until they have a thorough understanding of the implications.

How does trading take place?

Until the end of November 1998, equity and Index options traded by competitive face-to-face open outcry on the Exchange's trading floor. However, on Monday 30 November 1998, the individual equity options market was automated with the introduction of a trading system called LIFFE CONNECT™. The move to an automated trading environment for LIFFE's Individual Equity Options was simply a change in the method of trading for these particular products. The market now operates in a highly versatile, technological environment offering members and end-users considerable flexibility in the way they choose to access the market. Private investors and institutional users still access the market in the same way as before, by dealing through a broker.

A list of LIFFE Designated Brokers can be found on the LIFFE web site at www.liffe.com/liffeinvestor/brokers/index.htm

2 What are equity options?

Definition

There are two types of equity options – calls and puts. The buyer of a call option acquires the right, but not the obligation, to buy shares at a fixed price. The buyer of a put option acquires the right, but not the obligation, to sell shares at a fixed price.

Equity options

LIFFE currently offers options on the shares of over 90 leading UK companies (please see LIFFE's web site for the full list of options and access to price information – www.liffe.com) and the FTSE 100 Index.

How are they specified?

Option information is carried in many national newspapers, and by quote vendors. Information can also be found on LIFFE's web site. Information is typically set out as follows:

The unit of trading

Individual equity options are dealt in standard contracts. A contract normally represents an option on 1,000 or 100 shares of the underlying security[2].

Effect of corporate actions

Occasionally it is necessary to adjust the size of existing option contracts in order to reflect capital changes to the underlying shares eg as a result of a rights issue. Adjustments are made so that the positions of option holders (those who have bought) and writers (those who have sold) after an event are not unduly advantaged or disadvantaged. These adjustments minimise the impact on the value of their option and the amount of exposure to the underlying share.

Option		Calls			Puts		
		Jan	Apr	Jul	Jan	Apr	Jul
Angus Toys[1]	240	25	35	42	6	10	12
(254*)	260	14	24	31	14	18	20
	280	7	15	23	27	29	30

[1] Equity options are not available on Angus Toys plc, this company is used for illustrative purposes only

[2] Due to contract adjustments to take account of Corporate Actions, some equity options series may have a non-standard contract size. More information can be found on the LIFFE web site at www.liffe.com/investor/news/sizes.htm

It is therefore important that you check the exact size of a contract with your broker before dealing.

Information on corporate actions affecting LIFFE Individual Equity Options can be found on the LIFFE web site at www.liffe.com/investor/news/index.htm

Dividend entitlements

Call option holders are not entitled to any dividend due on the underlying security unless they exercise the option contract (and thereby acquire the shares) prior to the share's "ex-dividend" date.

When a share is marked "ex-dividend", the price of the underlying security will normally drop by the amount of the dividend. Unless there are exceptional circumstances, eg. payment of a special dividend, no adjustment is made to the option contract as a result of the underlying security being marked "ex-dividend".

Expiry date

Each option contract has an expiry date after which that particular contract is no longer available for trading. When one option expires another, with an expiry date in the future, is listed. Expiry dates are fixed at three-monthly intervals and there are three possible expiry cycles:

- January, April, July, October
- February, May, August, November
- March, June, September, December

Equity options have a maximum life of nine months, and so, at any time of the year, three expiry dates will be quoted for each option[3]. For instance, in November there will be equity options available on Angus Toys plc (which is on the January expiry cycle) with expiry dates in January, April and July. When the January options expire, October options will be introduced, so that April, July and October options will then be available.

Exercise price

The price at which an option holder has the right to buy or sell the underlying security is known as the exercise price or strike price. Exercise prices are fixed by the Exchange in accordance with the following scale.

20p	50p	110p	200p	330p
25p	60p	120p	220p	360p
30p	70p	130p	240p	390p
35p	80p	140p	260p	420p
40p	90p	160p	280p	460p
45p	100p	180p	300p	500p

Above 500p the scale rises at intervals of 50p with 100p rises over 1500p and 200p rises over 4000p.[4]

[3] Vodafone Individual Equity Options have additional expiry months and the maximum expiry month has been extended to two years. Specifically, they have four quarterly expiry months and two serial months in the first year and two further expiry months at six month intervals for the second year.

[4] Vodafone Individual Equity Options have additional strikes in addition to the standard strikes.

Exercise
LIFFE's equity options may be exercised on any business day up to and including the last trading day.

The term "exercise" refers to taking up the right to buy or sell the underlying shares. When an option holder exercises their option, a randomly selected writer is notified of this and is required to deliver or take delivery of the underlying shares.

Premium
To buy an option the buyer pays a sum of money, called the premium. Premiums are quoted in pence per share. Equity options must be paid for, in full, on the day following that on which the transaction is entered into. This is known as paying "premium up front".

How do I calculate the total cost of an option contract?
Imagine Angus Toys plc option prices are as follows:

Option		Calls			Puts		
		Jan	Apr	Jul	Jan	Apr	Jul
Angus Toys	240	25	35	42	6	10	12
(*254)	260	14	24	31	14	18	20
	280	7	15	23	27	29	30

The premium for the January 240p call option (that is, the right to buy 1,000 Angus Toys plc shares on or before the option's expiry day in January, at a cost of 240p per share) is 25p per share. Given that an option is normally for 1,000 shares, the cost of 1 contract will be £250 (1,000 shares at 25p/share). This is the amount payable, in full, by the buyer to the seller (ie writer) on the day following the transaction.

It should be noted that, for simplicity, only one price is shown for each option throughout this booklet and in the national newspapers. In practice, there will always be two prices quoted for each option, a bid and an offer price. For example, the January 240 call option price could be quoted as 23-27. This would mean that it would cost an investor 27p to buy this option and that he would receive 23p for selling it.

Is this the total cost?
No. There will be dealing costs associated with any traded option transaction just as there are when dealing in the underlying shares. Dealing, or commission costs, are fully negotiable with your broker.

Why are option premiums different for each exercise price and expiry month?

The value of an equity option contract is influenced by several factors:

- Underlying share price
- Time to expiry
- Volatility
- Dividends
- Interest rates

Underlying share price

The share price, together with the option's exercise price, determines the intrinsic value of an option. For example, if the share price exceeds the exercise price of a call option by 20p, the option is said to have 20p worth of intrinsic value and to be 20p in-the-money. In the case of a put option, the reverse is true. A put option is in-the-money when the exercise price exceeds the share price.

Time to expiry

Time has a value since the longer the option has to go until expiry, the more opportunity there is for the share price, and hence the option price, to move. Generally, the further away the expiry day, the higher an option's time value. This is true for both calls and puts.

Looking again at the January 240 call option on Angus Toys plc, the premium increases from 25p for the January expiry to 35p for the April expiry and to 42p for the July expiry.

Now let's look at intrinsic and time value combined. Again, taking the January 240 call option. If the payment of the premium gives the right to purchase stock at 240p when the current price is 254p, the option must be worth at least 14p (the difference between the current share price and the exercise price). This 14p is known as the option's intrinsic value.

The remaining 11p of the total 25p premium is known as the time value. Assuming the same exercise price, this will be greater for options which have a longer time to run until expiry.

Premium = Intrinsic Value + Time Value

The premium for the January 260 call option is 14p. This is because the exercise price, at 260p, is higher than the current underlying price of 254p so the call option has no intrinsic value. The premium in this case consists solely of time value.

Volatility

Time value is also affected by how volatile the price of an underlying share has been in the past or is expected to be in the future. More volatile shares attract higher time value as profit opportunities for option holders, and hence risks for option writers, are greater than for shares with more stable prices.

Dividends

Dividends are paid to shareholders, but not to holders of options. Since the share price tends to fall by the amount of the dividend after it has been announced, it follows that the price of an option will reflect the value of any expected dividend payments.

Interest rates

Interest rates also affect the price of equity options. However, changes in interest rates have a relatively small effect on option premiums.

In-, at- and out-of-the-money

Options with intrinsic value are said to be 'in-the-money'. When the exercise price of a call option is above the price of the underlying security and the option has time value only, it is said to be 'out-of-the-money'. Options with the exercise price closest to the underlying share price are said to be 'at-the-money'.

The table below shows that the call options with the 240p exercise price are in-the-money whilst the 280p and 300p options are out-of-the-money. The 260p options, whilst actually out-of-the-money, would be referred to as being the at-the-money options, since the exercise price is closest to the current share price.

Put options can similarly be described as in-, at-, or out-of-the-money. As you might expect, the terms are the reverse of those applied to call options at a particular strike price. Like call options, put options with a long time to expiry cost more than those, which are closer to expiry.

What is the difference between buyers and sellers and holders and writers?

The buyer of a call option buys the right to buy shares and the buyer of a put option buys the right to sell shares. If these are opening transactions they become the "holder" of the option. As with any market there must be someone on the other side of the transaction. This person is called the seller or, where making an opening transaction, the writer. If the holder of an option exercises their right to buy or sell, the writer of that option is obliged to sell (if they have written a call option) or buy (if they have written a put option) the underlying shares.

Having purchased an option, the buyer becomes the holder and as such has the right, but not the obligation, to buy (call) or sell (put) the underlying shares. The holder's maximum loss is limited to the premium paid to acquire this right (plus dealing costs). By contrast, losses for a writer can, but need not, be virtually unlimited. The writer receives the option premium and assumes an obligation to sell (call) or buy (put) the underlying shares if called upon to do so by the holder of the option.

Option	Calls	Jan	Apr	Jul	
Angus Toys	240	25	35	42	in-the-money
(*254)	260	14	24	31	at-the-money
	280	7	15	23	out-of-the-money
	300	3	10	16	out-of-the-money

It is of great importance when trading options that you explain to your broker the position that you wish to create when dealing. The following terms are used:

Opening purchase: A transaction whereby the buyer of an option becomes the holder of it.

Opening sale: A transaction whereby the seller becomes the writer of an option.

Closing sale: A transaction in which the holder of an option sells an option identical to one which they hold, thus extinguishing their rights as a holder.

Closing purchase: A transaction in which a writer buys an option identical to one which they have written, thus extinguishing their liability as a writer.

The Exchange would urge investors to consider very carefully the risks of writing options, unless (in the case of call options) they hold the requisite number of shares underlying the option, or (in the case of put options) they have sufficient cash to purchase the underlying shares at the stated exercise price. This is known as "covered" option writing. To do otherwise is called "naked" or "uncovered" writing and could expose the writer to losses they may not be able to meet.

What is margin?

Margin is the amount of collateral that writers of equity options are required to deposit or lodge with their broker as security for performance of their obligations. Buyers of equity and index options do not have to deposit margin. Margin may be satisfied by collateral deposited in the form of cash or could be provided in a wide variety of other forms including the shares underlying the relevant option. Your broker will advise you on the types of collateral they are willing to accept.

The amount of margin required, which must be no less than an Exchange set minimum, is determined by your broker.

Margin requirements are recalculated on a daily basis, in accordance with the movement of the underlying share price. To avoid frequent changes in the amount of collateral provided, many brokers require their clients to lodge collateral in excess of a minimum figure and insist that sufficient collateral is in place to cover margin requirements before clients' open written positions.

How can I use an option to buy or sell the underlying shares?

If the holder of an option wishes to take up their rights to buy or sell the underlying shares, they must instruct their broker to exercise their option. Their broker will then inform the London Clearing House (LCH) by means of an Exercise Notice.

Holders are normally entitled to exercise an equity option on any business day during an option's life (American style options). However, European style options on the FTSE 100 Index may only be exercised on the last trading day.

All Exercise Notices need to be submitted before certain cut off times on each business day. Your broker will advise you of these deadlines.

On receipt of an Exercise Notice, LCH will issue an equivalent Notice to another (randomly selected) broker requesting that their client, an option writer, fulfils the terms of the option contract. Equity bargains are then settled through CREST – the UK's equity settlement system.

What is the London Clearing House?

The London Clearing House (LCH) is the clearing institution for all LIFFE contracts. LCH is owned by over 100 of the world's largest financial institutions. LCH ensures that trades executed on LIFFE are efficiently administered through registration, clearing, settlement and delivery processes. LCH also ensures the financial performance of LIFFE contracts to its members.

The structure of the LIFFE market means that LCH has no responsibility for broker/client documentation, administration or performance.

If you have queries in this area your broker should, as always, be your first point of contact.

3 How are equity options used?

Why buy a call option?

- to participate in a rise in the underlying share price
- to lock in a favourable purchase price for a share
- to gain exposure to the equity market

Example 1:
It is 1 November and you expect the value of Angus Toys plc shares to increase. They are currently trading at 254p and you expect them to rise to 300p over the course of the next few weeks.

To take advantage of such an increase, you could either buy the shares or buy a call option on the shares. To buy 1000 shares would cost £2,540. To buy an option to buy 1000 shares, would cost a fraction of this. For instance, a January 260 Angus Toys plc call option contract, which gives the buyer the right to buy 1000 Angus Toys plc plc shares at 260p between 1 November and the expiry date of the options in January, would cost only £140.

Imagine that it is now 1 December and the share price has risen to 300p. The January 260 call option contract which was bought for £140, would also have risen in value. The option would now have an intrinsic value of 40p (300p-260p) and would be priced at around 45p – the additional 5p reflecting the remaining time value. Accordingly, the option contract would now be worth £450. To realise your profit you could make a closing sale.[5]

The option contract has shown a 221% increase over the initial purchase price, against an 18% rise in the share price. If the shares had fallen in value, the worst possible case scenario would be the loss of the premium.

Why buy a put option?

- to profit from a fall in the share price
- to protect the value of an equity portfolio against share price falls

Example 2 – Use by Private Clients:
Consider the course of events had your expectation been that the share price of Angus Toys plc would drop. Rather than a call option, you could have purchased a put option. In the same way that the buyer of a call option should make a profit if the share price rises, the buyer of a put option should make a profit if the share price falls.

Put options, like call options, can of course be bought independently of any action in the equity market. However, they can also be bought as a form of insurance to protect an existing shareholding against a share price fall. If the expectation was correct, the profit on the put option would then offset in part, or possibly in total, the loss sustained on the underlying shares.

Comparison between share and option transactions

Action	Equity Market	Options Market
1 November	Angus Toys plc @ 254p Buy 1000 for £2,540	Jan 260 call option @ 14p Buy 1 contract for £140
1 December	Angus Toys plc @ 300p Sell 1000 for £3,000	Jan 260 call option @ 45p Sell 1 contract for £4502
Analysis	Large initial outlay £460 profit 18% increase	Small initial outlay £310 profit 221% increase

[5] Selling the January 260 contract under these circumstances would not be risky, because you would be closing the option position you already hold.

Result:
Comparison between share and option transactions

Action	Equity Market	Options Market
1 November	Angus Toys plc @ 254p, Hold 1,000 @ £2,540	Jan 260 put option @ 14p Buy 1 contract @ £140
1 December	Angus Toys plc @ 230p Holding worth £2,300	Jan 260 put option @ 31p Sell 1 contract @ £310
Analysis	£240 loss 9% decrease	£170 profit 121% increase

Example 3 – Use by Institutional Investors:
The share price of Angus Toys plc has risen steadily over the last three months and on November 1 is 254p. You would like to benefit from any further increases in the share price, but also lock in existing profits to protect against a sudden short-term decline. Action: Buy an Angus Toys plc Jan 240 put option at a premium of 6p. The cost of the option is £60 (6p x 1,000).

Result:
The gain or loss at expiry will depend on the share price at expiry. If the share price is above 240p, the option would be abandoned because the stock price is greater than the exercise price and the option therefore has no value at expiry. Loss on the option is limited to the 6p premium paid for it. Profit potential for the stock is unlimited, although will be offset by the 6p premium paid for the option.

If at expiry the stock price is 240p, the loss on the stock is 14p and the loss on the option is the 6p premium paid for it, giving a total loss of 20p. This is the maximum loss that the combined stock and option portfolio can suffer.

The break even price for the option occurs when the stock price falls to 234p (the 6p benefit in holding the option is exactly offset by the 6p premium paid for it). At this price the loss on the stock (and therefore the loss on the portfolio) is 20p. At any share price below 234p, the gain realised through exercise of the option is greater than the 6p cost of the option. The profit on the put will offset the loss on the stock. For instance, were the underlying share price to decline to 220p at expiry, the put option would be worth 20p at expiry. Your net gain on the put option would be 14p (20p minus 6p initial premium cost) which partially offsets the 34p loss on the stock.

There are many strategies that can be achieved using options other than those illustrated above. As with all forms of investment, it is essential that investors who wish to enter the options market do so with a thorough understanding of how the market works.

Why write covered call options?

- to enhance the return on an equity portfolio in quiet markets
- to provide limited downside protection

Example 4 – Use by Institutional and/or Private Investors:
It is 1 November and Angus Toys plc shares are trading at 254p. An investor holds 10,000 shares and does not expect the price of Angus Toys plc shares to move very much over the next few months. The investor decides to write call options against the shareholding.

The January 260 calls are trading at 14p and the investor sells 10 contracts. As a writer the investor receives option premium equal to £1,400 and assumes the obligation to deliver 10,000 shares at 260p each if the option buyer exercises the contracts.

For the purpose of this example, let us imagine that Angus Toys plc shares are still trading at 254p in January. As a result, the option contracts expire worthless. The investor, as the writer, therefore retains both the option premium and the shareholding.

If the share price was anywhere below 260p at expiry the option is most likely to remain unexercised and the investor will be better off (by 14p per share) than had they not written the options.

Alternatively, with the share price anywhere above 260p at expiry, the option would almost certainly be exercised and the share effectively sold at 274p each (260p exercise price plus 14p premium).

Comparison between share and option transactions:

Action	Equity Market	Options Market
1 November	Share price = 254p	Sell 10 Jan 260 calls @ 14p Receives £1,400
January expiry	Share price = 254p	Options expire worthless
Analysis	No change to value of portfolio	Gain = £1,400 or 5.5%

4 FTSE 100 Index options

What is the FTSE 100 Index?

The Financial Times – Stock Exchange (FTSE)100 Index was launched in 1984. It tracks the share price movements of the top 100 UK companies. It is calculated every 15 seconds from 08.00 – 16.30 throughout the working day and as such acts as a real time indicator of the direction of the UK stock market.

When were index options introduced and what types are available?

FTSE 100 Index options were first introduced in 1984 and operate in much the same way as equity options, the main difference being that they are exercisable into cash and not the underlying shares. They are useful to investors who wish to implement a view on the direction of the stock market as a whole to protect or enhance portfolios of UK equities.

FTSE 100 Index options are of two sorts, 'American style' and 'European style' and calls and puts are available on both of them. The terms 'American' and 'European' dictate when an option can be exercised and have nothing to do with the USA or Europe. 'American' options can be exercised on any business day up to and including the expiry day. 'European' options can only be exercised on their expiry day. Both can be freely traded on any business day.

Should I use American or European options?

European style options are, all other things being equal, less expensive than American style options. However, they are also less flexible as they can't be exercised except on their expiry day. In deciding whether to buy European or American style options it is therefore important to weigh up the benefits of the lower cost of European options against the inability to be able to exercise them except on their last trading day. In practice, the vast majority of trading occurs in the European style options.

FLEX® options

In addition to the standard 'American' and 'European' style options described above, LIFFE also offers FLEX®[6] options on the FTSE 100 Index. In contrast to standard options for which all parameters are set by the Exchange, FLEX® options allow the investor to specify the exercise price and expiry date (subject to a maximum term of five years) of the option contract. FLEX® options may only be exercised on the last trading day.

To open a new FLEX® option series – ie, to make a transaction in an option with an exercise price and expiry date which is not listed by the Exchange – the minimum transaction size is 25 contracts. There is no minimum size for either the standard European style or American style options.

This brochure is concerned primarily with standard FTSE 100 Index options, and additional information regarding FLEX® options is available upon request from the Exchange.

Prices

FTSE 100 Index option prices, like equity options, are carried in many national newspapers and by all the major quote vendors. Equity and Index option price information can also be found on LIFFE's web site www.liffe.com

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Information is typically set out as follows:

	Strike Prices	Calls			Puts		
		Sep	Oct	Nov	Sep	Oct	Nov
FTSE 100	6725	97	264	379	47	194	284
6750	6775	68	233	348	68	213	303
	6825	45	204	318	95	234	322
	6875	28	177	290	128	257	343

The premium of a FTSE 100 Index option contract is given in index points. The cost of one contract is simply the premium in index points multiplied by £10. For example, the cost of a Sep 6875 call option contract is £280 (28 x £10).

Buying a FTSE 100 Index Call Option
Example 5 – Use by Private Clients:
It is early August and the FTSE 100 Index stands at 6600. You feel that the market is going to rise and decide to buy 2 November 6725 call option contracts. The premium is quoted at 200 index points, therefore your total premium outlay will amount to £4,000 (2 x £10 x 200) excluding dealing costs.

Result:
The Index rises and stands at 7000 by mid October. The November 6725 call option is now quoted at 300 index points. Feeling that the stock market has peaked you make a closing sale, realising a profit of £2,000.

Date	Index	Action
Early August	6600	Buy 2 November 6725 call options @ 200 Outlay = £4,000 (2 x £10 x 200)
Mid October	7000	Sell 2 November 6725 call options @ 300 Income = £6,000 (2 x £10 x 300)
Analysis	Rise of 6.1%	Net Profit = £2,000 An increase of 50% on the initial outlay of £4,000

Buying call options as an anticipatory hedge against a rise in the FTSE 100 Index
Example 6 – Use by Institutional Investors:
The FTSE 100 Index is standing at 6500 at the end of August and it is expected to rise by approximately 10% over the next month. A fund manager would like to purchase £10 million of UK stocks, but funds are not available until a future date. The fund manager wants to limit the price they have to pay in the future to the value of 6775.

The fund manager decides to purchase 152 (£10,000,000/ (6575 x £10)) November 6575 calls for 200. Each contract represents £10 per index point so the initial outlay (and maximum amount of money risked by the manager) is £304,000 (152 x 200 x £10).

Result:
If the index rises to 6800, the fund manager can sell the option back to the market realising a profit of £38,000 (25 x 152 x £10). With two months left to expiry there would also be some time value left, say 100 index points. In this case the manager would sell the options back to the market for 325 index points, an overall profit of £190,000 (125 x 152 x £10).

Buying calls in this scenario limits the total cost of buying a basket of stocks at a future date to a maximum cost of 6775 index points.

Buying a FTSE 100 Index put option
Example 7 – Use by Private Clients:
With the Index at 6900, a private investor feels that it is already too high and predicts that by early September it will have fallen to around 6500. With this view in mind the investor buys 3 Nov 6525 put option contracts for £3,000 (100 x 3 x £10).

Result:
In early September the Index stands at 6400. The investor now thinks that the market has bottomed out and decides to sell the put options.

These are currently 220 index points. By selling 3 contracts for £6,600, the investor realises a profit of £3,600.

Hedging (with insurance) using FTSE 100 Index put options
Example 8 – Use by Institutional Investors
Market expectations are bearish, though there is a degree of uncertainty. A fund manager buys FTSE 100 Index put options to hedge the value of a £100 million portfolio, maintaining the potential for the value of the portfolio to rise whilst protecting against a fall in its value below a specific level.

The FTSE 100 Index is at 6575 and the premium of the at-the-money FTSE 100 Index put option (exercise price of 6575) is 200. The fund manager buys 1,521 contracts (£100,000,000/(6575 x £10)).

Result
The total cost of the portfolio insurance is the premium paid of £3,042,000 (£10 x 200 x 1521), or 3.0% of the value of the portfolio. If the FTSE 100 Index level rises by 200 points to 6775, the combined position will break-even. The profit on the portfolio will offset the premium paid on the option. The maximum loss of the combined position is confined to the premium paid. The effective value of the hedged portfolio will not fall below the FTSE 100 Index stock market level of 6375 (6575 – 200).

The profit potential of the combined position is unlimited because the potential for a rise in the value of the portfolio above the level of 6775 has been maintained.

5 Getting Started

The regulations
For Institutional fund managers there may be regulations governing the use of equity and index options in any given portfolio. These regulations are different for different types of fund and it is essential to clarify the regulatory position before beginning to make use of options. For Private Clients, there are no such regulations.

How do I start trading equity and index options?
In order to start trading you must open an account with a broker who is prepared to take on new clients.

LIFFE provides additional information for private clients including a list of brokers[7] who will transact business on their behalf. Most brokers offer a variety of services, the most common of which are:

i) Execution only
If a broker offers an execution only service, they will not give any advice and will only execute orders given to them by their clients.

ii) Advisory
If a broker offers an advisory service, the client can expect to receive advice, for example, which option to buy, when and why.

iii) Discretionary
This type of service usually involves a client depositing a large sum of capital with the broker for them to invest on the client's behalf. The client will not normally get involved in the decision as to when or which option to buy – the broker will do this on the client's behalf.

Which is the best service for me and how much does it cost?
This depends on what you want. As with all things you generally get what you pay for.

If you want a lot of advice you should expect to pay for it through higher commissions. If you want a broker purely to execute your orders, expect to pay less.

What will my broker need to know?
Before transacting business on your behalf, your broker will need to understand your financial situation and your experience in dealing in shares and options. The broker will also need to know your attitude toward risk and generally what you are trying to achieve in using equity or index options.

How do I instruct my broker to deal for me?
When submitting an order to your broker your instructions should include all of the following:

- which option you wish to deal in
- whether it is a call or put
- whether you wish to buy or sell
- how many contracts you wish to buy or sell
- the expiry month and exercise price
- whether you are opening a new position or closing an existing one
- at what price you are prepared to deal/what limit you are prepared to deal at

[7] List of LIFFE Designated Brokers can be found on the LIFFE web site at www.liffe.com/liffeinvestor/brokers/index.htm

When do I have to pay my broker?

You should expect to open and maintain a cash deposit account with your broker. Your broker will deduct premiums from this account, probably on the morning following the day you trade.

What do I receive as evidence that I have dealt?

Your broker will issue a contract note which will detail, among other things:

- what you bought or sold
- the price at which you bought or sold
- your brokers' commission charges

Finding out more

If you would like general information about equity and index options, please see LIFFE's web site (www.liffe.com) or contact the Exchange on +44 (0)20 7379 2200.

6 Contract specifications

FTSE 100 Index Option (American-Style Exercise)

The FTSE 100 Index is based on the share prices of 100 of the largest blue-chip UK companies listed on the market. By investing in a FTSE 100 Index Option, investors are able to gain exposure to the entire market. In the case of American-style options, the option is exercisable at any time during its life. FTSE 100 Index Options are quoted in index points and have an assigned value of £10 for each index point move.

Unit of Trading	Contract valued at £10 per index point (eg value £65,000 at 6500.0)
Expiry Months	Nearest of June or December plus additional months such that the nearest three calendar months are always available for trading
Quotation	Index points (eg 6500.0)
Minimum Price Movement (Tick Size and Value)	0.5 (£5)
Exercise Day	Exercise by 17:05 on any business day, extended to 18:00 for expiring series on the Last Trading Day
Last Trading Day	10:30:30 Third Friday in expiry month[8]
Settlement Day	Settlement day is the first business day after the exercise day/Last Trading Day
Trading Hours	08:00 – 16:30
LIFFE code	SEI

Trading Platform:

- LIFFE CONNECT™ Trading Host for Futures and Options.
- Algorithm: Central order book applies a pro-rata trading algorithm, but with priority given to the first order at the best price subject to a minimum order volume and limited to maximum volume cap.
- Wholesale Trading Facilities: Block Trading.

Exchange Delivery Settlement Price (EDSP): The EDSP is based on the average values of the FTSE 100 Index every 15 seconds between (and including) 10:10 and 10:30 on the Last Trading Day. Of the 81 measured values, the highest 12 and lowest 12 will be discarded and the remaining 57 will be averaged to calculate the EDSP. Where necessary, the calculation will be rounded to the nearest half index point.

Daily Settlement Price: The daily settlement price is based on the 16:30 price of the FTSE 100 Index.

Contract Standard: Cash settlement based on a Daily Settlement Price for non-expiring series or the Exchange Delivery Settlement Price for expiring series.

Exercise Price Intervals: The interval between the exercise prices is determined by the time to maturity of a particular expiry month and is either 50 or 100 Index points. The Exchange reserves the right to introduce tighter strike intervals (eg 25 points) where necessary.

Introduction of new exercise prices: Additional exercise prices will be introduced on the business day after the underlying index level has exceeded the second highest, or fallen below the second lowest, available exercise price.

Option Premium: Payable by the buyer in full on the business day following a transaction.

Economic and Monetary Union/Euro: Please refer to the full contract specification on the LIFFE web site at www.liffe.com.

Unless otherwise indicated, all times are London times.

In the United States these products may only be offered and sold to prescribed entities under specified conditions.

[8] In the event of the third Friday not being a business day, the Last Trading Day shall normally be the last business day preceding the third Friday.

FTSE 100 Index Option (European-Style Exercise)

FTSE 100 Index Options (European-Style Exercise), are essentially the same as FTSE 100 Index Options (American-Style Exercise), excepting the rules which govern the exercise of the option. That is, in the case of European-style options, the option is only exercisable at expiry.

Unit of Trading	Contract Valued at £10 per index point (eg value £65,000 at 6500.0)
Expiry Months	March, June, September and December plus such additional months that the nearest four calendar months are always available for trading
Quotation	Index points (eg 6500.0)
Minimum Price Movement (Tick Size and Value)	0.5 (£5)
Exercise Day	Exercise by 18:00 on the Last Trading Day only
Last Trading Day	10:30:30 Third Friday in expiry month[9]
Settlement Day	Settlement day is the first business day after the Last Trading Day
Trading Hours	08:00 – 16:30
LIFFE code	ESX

Trading Platform:

- LIFFE CONNECT™ Trading Host for Futures and Options.
- Algorithm: Central order book applies a pro-rata trading algorithm but with priority given to the first order at the best price subject to a minimum order volume and limited to maximum volume cap.
- Wholesale Trading Facilities: Block Trading.

Exchange Delivery Settlement Price (EDSP): The EDSP is based on the average values of the FTSE 100 Index every 15 seconds between (and including) 10:10 and 10:30 on the Last Trading Day. Of the 81 measured values, the highest 12 and lowest 12 will be discarded and the remaining 57 will be averaged to calculate the EDSP. Where necessary, the calculation will be rounded to the nearest half index point.
Contract Standard: Cash settlement based on the Exchange Delivery Settlement Price.
Exercise Price Intervals: The interval between the exercise prices is determined by the time to maturity of a particular expiry month and is either 50 or 100 index points. The Exchange reserves the right to introduce tighter strike intervals (eg 25 points) where necessary.
Introduction of new exercise prices: Additional exercise prices will be introduced after the underlying index level has exceeded the second highest, or fallen below the second lowest, available exercise price.
Option Premium: Payable by the buyer in full on the business day following a transaction.
Economic and Monetary Union/Euro: Please refer to the full contract specification on the LIFFE web site at www.liffe.com.

Unless otherwise indicated, all times are London times.

In the United States these products may only be offered and sold to prescribed entities under specified conditions.

[9] In the event of the third Friday not being a business day, the Last Trading Day shall normally be the last business day preceding the third Friday.

FTSE 100 Index FLEX® Option (European-Style Exercise)

LIFFE FTSE 100 Index FLEX® Options are European-Style exercise and have similar specifications to the standard LIFFE FTSE Index Option (European-Style Exercise) ("ESX"). However, the nature of the FLEX® Options contract is that they allow investors the ability to tailor certain contract terms whilst maintaining the security of an exchange traded contract. Thereby, FLEX® Options allow investors to specify the exercise price and expiry date of the contract. The maximum expiry date for FLEX® Options is five years from the date of trading.

Unit of Trading	Contract valued at £10 per index point (eg value £65,000 at 6500.0)
Expiry Months	Any business day up to, and including, the third Friday of the quarterly month (March, June, September and December) following the business day five years from the date the contract is made
Quotation	Index points (eg 6500.0)
Minimum Price Movement (Tick Size and Value)	0.5 (£5)
Exercise Day	Exercise by 18:00 on the Last Trading Day only
Last Trading Day	10:30:30 on the expiry date
Settlement Day	Settlement day is the first business day after the Last Trading Day
Trading Hours	08:15 – 16:15
LIFFE Code	FLX

Trading Platform:

- FLEX® trades are negotiated between counterparties on a bilateral basis. Agreed trades are presented to LIFFE for verification and registration.

Exchange Delivery Settlement Price (EDSP): The EDSP is based on the average values of the FTSE 100 Index every 15 seconds between (and including) 10:10 and 10:30 on the Last Trading Day. Of the 81 measured values, the highest 12 and lowest 12 will be discarded and the remaining 57 will be averaged to calculate the EDSP. Where necessary, the calculation will be rounded to the nearest half index point.
Contract Standard: Cash settlement based on the Exchange Delivery Settlement Price.
Exercise Price Intervals: are agreed by the parties to the contract. A FTSE 100 Index FLEX® Option contract may not be made with an exercise price and expiry date which are the same as the exercise price and Last Trading Day of an existing series of the standard FTSE 100 Index Option (European-Style Exercise).
Introduction of new exercise prices: Additional exercise prices will be introduced after the underlying index level has exceeded the second highest, or fallen below the second lowest, available exercise price.
Option Premium: Payable by the buyer in full on the business day following a transaction.
Novation: If a standard FTSE 100 Index Option (European-Style Exercise) series is made available for trading with an exercise price and Last Trading Day which are the same as the exercise price and expiry date of an existing FTSE 100 Index FLEX® Option contract, then the contract shall be replaced by novation by a standard FTSE 100 Index Option (European-Style Exercise) contract.
Economic and Monetary Union/Euro: Please refer to the full contract specification on the LIFFE web site at www.liffe.com.

Unless otherwise indicated, all times are London times.

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FLEX® is a registered trademark of the Chicago Board Options Exchange Inc. and has been licensed for use by LIFFE Administration and Management.

Equity Options

Unit of Trading	One option normally equals rights over 1000 or 100 shares
Expiry Months	January Cycle (J): means the three nearest expiry months from Jan, Apr, Jul, Oct cycle February Cycle (F): means the three nearest expiry months from Feb, May, Aug, Nov cycle March Cycle (M): means the three nearest expiry months from Mar, Jun, Sep, Dec cycle
Quotation	Pence/share
Minimum Price Movement (Tick Size and Value)	0.5 pence/share (£5.00)
Exercise Day	Exercise by 17:20 on any business day, extended to 18:00 for all series on a Last Trading Day
Last Trading Day	16:30 Third Wednesday in expiry month
Settlement Day	Settlement Day is four business days following the day of exercise/Last Trading Day
Trading Hours	08:00 - 16:30

Trading Platform:

- LIFFE CONNECT™ Trading Host for Equity Options.
- Algorithm: Central order book applies a price-time trading algorithm with priority given to the first order at the best price.
- Wholesale Trading Facilities: Block Trading.

Contract Standard: Delivery will be 1,000 or 100 shares (or other such number of shares as determined by the terms of the contract).
Exercise Price Intervals: The interval between the exercise prices is set according to a fixed scale determined by the Exchange.
Introduction of new exercise prices: Additional exercise prices will be introduced after the underlying index level has exceeded the second highest, or fallen below the second lowest, available exercise price.
Option Premium: is payable in full by the buyer on the business day following a transaction.
Economic and Monetary Union/Euro: Please refer to the full contract specification on the LIFFE web site at www.liffe.com.

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7 Glossary

American style exercise
An option that may be exercised at any time prior to expiry.

At-the-money
A call/put option where the exercise price is approximately the same as the current market price of the underlying security.

Closing purchase
A transaction in which a writer purchases an option having the same terms as an option which they have previously sold, thus terminating their liability as a writer.

Closing sale
A transaction in which the holder of an option sells in the market an option identical to one which they hold, thus extinguishing their rights as a holder.

European style exercise
An option that may be exercised only on the last trading day.

Exercise notice
A formal notification that the holder of a call/put option wishes to buy/sell the underlying security at the exercise price.

In-the-money
A call/put option where the exercise price is below/above the current market price of the underlying security, ie it has intrinsic value.

Intrinsic value
A call/put option has intrinsic value if the exercise price of the option is below/above the current market price of the underlying security. The intrinsic value is then the difference between the exercise price and the price of the underlying security.

Margin
The sum required as collateral from the writer of an option. It may be lodged as cash or in the form of certain specified securities.

Opening purchase
A transaction in which the buyer becomes the holder of an option.

Opening sale
A transaction in which the seller of an option becomes the writer.

Out-of-the-money
A call/put option in which the exercise price is above/below the current price of the underlying security, ie it has no intrinsic value.

Time value
The amount by which an option's premium exceeds its intrinsic value. The time value reflects the remaining life of an option.

Volatility
A measure of past, or estimated future price movements in the underlying security. Options (calls or puts) on highly volatile shares are, all other things being equal, more expensive than options on less volatile shares.

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- the value of investments and any income from them may go down as well as up. You may not get back all of your original investment
- past performance is not necessarily a guide to future performance
- rates of exchange may cause the value of underlying investments to go up or down
- tax arrangements may change
- all stock market based investment is exposed to a degree of risk

Euronext, LIFFE and Euronext.liffe

Euronext was formed by the merger of the Amsterdam, Brussels and Paris cash and derivatives exchanges in September 2000. The Euronext Group has since grown further, adding BVLP (the Portuguese cash and derivatives exchange) and LIFFE (The London International Financial Futures and Options Exchange). The derivatives businesses of Euronext and LIFFE are being combined under the Euronext.liffe umbrella with the phased migration of all of Euronext's derivatives markets to LIFFE CONNECT™, the most sophisticated electronic derivatives trading platform in the world.

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Consumer

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