

Options on Single Stock Futures Overview

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An SSF option is, very simply, an instrument that conveys to its holder the right, but not the obligation, to buy or sell an SSF future at a fixed price. The writer/seller of the option grants this right and receives a premium from the buyer for undertaking this obligation.

There are two types of options - calls and puts.

The buyer of an SSF call option acquires the right, but not the obligation, to buy an SSF at a fixed price. The seller of a call option is obliged to deliver an SSF to the buyer at the fixed/strike price. The buyer of a call option anticipates an upward movement in the stock and hopes that the price of the SSF will exceed the call strike price upon expiry – thereby profiteering from the option position.

The buyer of an SSF put option acquires the right but not the obligation, to sell an SSF at a fixed price. The seller of a put option is obliged to receive an SSF from the buyer at the fixed/strike price. The buyer of a put option anticipates a downward movement in the stock and hopes that the price of the SSF will be below the put strike price upon expiry – thereby profiteering from the option position.

Options on SSF's are American Style exercisable into futures – meaning that they can be exercised anytime during their term until expiry. This differs from European Style options which are only exercisable at expiry of the option.

Risks and Rewards

The risk in options differs between buyers and sellers. Buying of options involves limited risk that is limited to the price paid for the option (premium) and is therefore known at the outset.

The writing of options, whilst a good source of income, is a potentially high-risk strategy requiring intimate product knowledge. The following table provides further detail on the risks and rewards to both parties.

	Buyer	Seller
Call option		
Premium	Paid	Received
Position taken	Can buy the share	May be forced to sell the share
View of future price movement	Will rise	Will not rise
Maximum gain	Unlimited	Option premium
Maximum loss	Option premium	Unlimited
Put Option		
Premium	Paid	Received
Position taken	Can sell the share	May be forced to buy the share
View of future price movement	Will fall	Will not fall
Maximum gain	Limited*	Option premium
Maximum loss	Option premium	Limited*

* Note: Gain is limited to difference between option strike price and cash price of the underlying. Cash price must be below put strike price to reflect any gain (buyer) or loss (seller).

What is the price for a SF Option?

The price paid for an option is the premium. It is the only variable feature of an option contract and depends on market conditions such as interest rates, volatility and time remaining until expiration. All other option contract terms are predetermined, including the contract months and the strike prices (also referred to as the exercise price).

Option contracts are quoted by their premium on the Safex trading system. There are two major components of the premium namely, intrinsic value and time value.

Intrinsic Value

This represents the profit you would make if you were to immediately exercise the option you are holding.

Example

In our example, if Company X futures are trading today at R87.96 and you have a call option with an exercise price of R85.00, you have the right to immediately go long (buy) the futures at R296 ($R2.96 \times 100$) below the current futures price.

	Call Option	Put Option
In the money	Futures price > strike price	Futures price > strike price
At the money	Futures price = strike price	Futures price = strike price
Out the money	Futures price < strike price	Futures price < strike price

Another way to describe an option that has intrinsic value is to say that the option is in-the-money. Options can also be described as at-the-money (the strike price is equal to the futures price) or out-of-the-money (the option has no intrinsic value and would not be profitable to exercise).

Time Value

Time value reflects the amount of premium in excess of the intrinsic value that you would be prepared to pay in the hope that the option will be worth exercising before it expires. In other words, even out-the-money options command a price because they may move into the money at some point during the life of the option.

The factors affecting the time value of an option are:

Volatility - The more volatile the underlying stock, the greater the chance that an option could change in value. This means that an out-of-the-money option could move to in-the-money during the life of the option.

Time to expiry - Generally, the longer the time remaining until expiry, the higher the option premium because there is a greater possibility that the value of the underlying future might increase, thereby placing the option in-the-money. Time value declines rapidly towards the end of an option's life.

Interest rates - Although not significant, short-term interest rates do have an influence on the time value because of the impact they have on the financing of the option premium.

Dividends - Notwithstanding the fact that futures and the options on them have no claims to the dividend stream of the underlying stock, the stock's price is dependent on dividend payouts. Higher cash dividends tend

to imply lower call premiums and higher put premiums.

Example:

You wish to purchase a call option on a Company X share with a strike price of R85.00.

The current futures price is R87.96. The premium that you are required to pay for the option is R450 (effectively R4.50 per share).

The call option strike price is below the current market price, and is therefore in-the-money. The difference between the strike and the current market price is R2.96 (or R296 per contract), and this is the intrinsic value. The balance of R1.54 (or R154.00 per contract) paid is referred to as time value.

Ultimately the calculation of option pricing is a subject of interpretation by the option price-maker. However, all option pricing is ultimately based upon the Black and Scholes option pricing model. This is a complicated model that requires detailed explanation and is, therefore, beyond the scope of this text.

How are SSF Options quoted?

The contract months for the options are exactly the same as those of the underlying futures contracts, with quarterly expirations in March, June, September, and December.

Strike prices are established at R5.00 intervals above and below the current futures level (e.g. R55.00, R60.00, R65.00 etc).

Price-makers quote options on the Safex trading system (ATS) by their option premiums (to the nearest whole Rand).

So, in our example, if a September 2001 Company X future is currently priced at R87.96 a call option contract with a strike of R85.00 would be quoted on the ATS by its premium as R450 (effectively R4.50 per share).

Options are quoted on the Safex trading system as:

Month of expiry, year of expiry, three letter code of stock followed by the letter Q, strike price, option type e.g. Dimension Data R60.00 strike call options expiring in March 2002 are quoted as MAR02 DDTQ 60.00 C

Writing SSF Options

An advantage of SSF options is that an investor can sell (write) options as part of an investment strategy – or just to provide a hedge and simultaneously enhance investment returns. This can, generally, be achieved by writing covered options, meaning that the writer of the option actually owns the stock at the time of writing.

Example - Writing covered call options

You own 10,000 Sanlam Limited shares that you bought a month ago at R8.50.

You would like to sell them at R9.00 but the market has been in limbo for the past month.

The shares are currently trading at R8.60 on the spot market.

You establish that DEC01 SLMQ 900 call options are trading today at R30. This means that call options on Sanlam Individual Equity Futures, which expire in December 2001, with an exercise price of R9.00, are trading at the equivalent of R30 per contract, which represents a premium of R0.30 per share.

You place an order with your futures broker to sell 100 call option contracts (the equivalent of 10,000 shares) that expire in December at R30 per contract with a strike price of R9.00 per share. Once your broker has managed to find a buyer for the options, he gives you the details of the margin that you need to place with the Exchange. Let's look at two possible scenarios that can occur upon the December expiry.

Scenario 1 – Options expire out-of-the-money

Sanlam shares are trading at R8.75 and the options expire worthless (the buyer of the call will certainly not call on you to buy your shares at R9.00 when he can obtain them in the market for R8.75). You still have your shares that are now worth R8.75 in the market. In addition to this you have earned 30c per share doing the covered call option strategy.

Covered Call	Stock only	
Holding Gain on shares	R2,500 [10,000 x (8.75 – 8.50)]	R2,500
Premium income	R3,000 [10,000 x 30c / share]	Nil
	R5,500 [55c per share]	R2,500 (25c per share)

Scenario 2 – Options expire in-the-money

Sanlam shares are trading at R9.10 and the options expire in the money. You need to deliver 10,000 Sanlam shares to the call option holder. You have achieved the R9.00 selling price you wanted and in addition to this you have earned 30c per share doing the covered call option strategy. This strategy has given you a 20c enhancement on the ruling market price!

Covered Call	Stocks only	
Holding Gain on Shares	R5,000 [10,000 x (9.00 – 8.50)]	R6,000 [10,000 x (9.10 – 8.50)]
Premium income	R3,000 [10,000 x 30c /share]	Nil
	R5,500 [55c per share]	R2,500 [25c per share]
	R8,000 [80c per share]	R6,000 [60c per share]

The risk to the writer of these options would be that the market completely rallied during this term and Sanlam shares were trading at R12.00 by the December close. Had you not written the option, the gain from holding the stocks would have far exceeded the covered call strategy. This comes down to your investment horizons and required returns. Did the covered call strategy achieve your investment objectives? Was the strike level of the call sufficient to meet your investment returns? Hindsight is not an exact science and derivative strategies can only be structured upon your perceptions of the future at that time.

This example is one of the many strategies that are possible using options on Individual Equity Futures. The example has ignored the transaction costs involved in trading futures and options on futures as these have little effect on the profit calculation.

How does the margining system work?

Unlike over-the-counter (OTC) traded options where buyers pay option premium to the sellers at the beginning of the option contract period, Safex options are margined options. This means that both parties (buyer/seller) put up initial margin at the beginning of the contract period. The seller does not receive the full premium, and the buyer does not pay the full premium at inception of the contract. The premium is paid to the seller over the life of the option through the daily process of Mark-to-Market. The initial margin requirement for individual equity options varies amongst stocks and is set by Safex's Risk Management Committee using the Portfolio Scanning* method. Safex revalues the value of each option daily and credits/debits the options holder's account accordingly (as under the normal futures margining system). *Many different variations of this method are used by derivatives exchanges world-wide. The basis of Portfolio Scanning is that the whole of a

participant's portfolio on the exchange is valued ("scanned") at a number of points over a wide range of market moves. The range is selected to cover almost all conceivable market moves within the next day. The lowest of the portfolio values is identified and from this is found the greatest loss which the participant could suffer on the next day. The initial margin, due in cash the next morning, is then set equal to this greatest loss.

How does one exit an SSF Option position?

Options also differ from futures in how a position can be liquidated. You have three alternatives as the holder (buyer) of an option:

Exercise into futures – this choice is only for a holder of an options position. By exercising into futures, the holder assumes a futures position at the strike price of the option.

Offset the option – to offset a long or short option position, the investor enters into an equal and opposite trade to his position.

Let the option expire – as a long position holder of an out-of-the money option, you have the choice of either allowing it to expire, or to sell it prior to expiry for whatever value can be obtained (bear in mind that time value of money decelerates towards zero the nearer the option is to expiry causing an out-of-the-money option to expire worthless).

If you hold an in-the-money option, it will be automatically exercised at expiration by the Exchange into SSF's, which automatically expire into physical delivery of shares.

Why trade SSFs?

Easy Stock Exposure

SSFs provide a quick and simple mechanism for gaining exposure to specific stock. In the physical market, investors wishing to create a synthetic long or short position in a share would need to buy a pair of options, with concomitant costs, execution and related risks, as well as greater brokerage expense. SSFs allow the investor to create a very simple long or short position in a share with a single, cost-effective, purchase or sale. Arbitrageurs, in particular, benefit from such cost savings and ease of trade as short term exposures via SSFs do not require transfer of ownership – as evident in the physical market. Quick stock exposure is further aided by faster settlement (½ a day for futures trades versus 3 days for spot trades).

Hedging Stock Positions

If a stockholder anticipates a short-term fall in price, the holder can sell a future (or buy a put option) to avoid making a loss, without having to sell the share. Any loss caused by a fall in the price of the stock is offset by gains made on the futures or option position.

Increased Gearing

When buying the actual stock the buyer has to pay the seller the full value. When buying a future or option, no money changes hands between buyer and seller. Instead only an initial margin deposit is required as security for the market (priced to reflect the volatility of the underlying stock).

Example

Share X is currently priced at R500, the March future is priced at R520. A buyer of the physical stock would need to pay the full R500 to the seller. However, in order to buy the future, roughly R52.00 must be paid as an initial margin. Should the stock rise to R530 and the future to R550 the effective returns on the stock and futures are 6% ($R30/R500$) and 58% ($R30/R52$) respectively.

Taking Advantage of a Predicted Fall in Price

An investor can take advantage of a predicted fall in price by selling a futures contract, known as shorting. You do not need to own underlying shares to be able to short a stock. As the price of a future falls in line with the price of the underlying share, sellers of futures make a positive return, because they are able to buy back the future at a lower price. The same result can be obtained by purchasing a put option on the SSF.

To create the same result using physical shares involves the complication and expense of borrowing the stock and paying interest thereon.

Pairs Trading

Pairs trading involves the buying of one share and the selling of another. The objective is to take a position on the relative performance of two stocks – usually from the same sector. For instance, one might feel that ABC Bank has a better outlook than XYZ Bank. One can buy ABC futures while selling a similar quantity of XYZ futures. The overall gain or loss depends on the performance of the two stocks. This is a far more effective way to gain such exposure without needing to buy or sell the equities outright.

Index Composition

SSFs allow fund managers to hedge against the arrival or demotion of a share on a particular index. Index tracking fund managers generally rush to get up to weight in particular stocks being added to indices. This causes a significant skew in prices as traders try to gear up in a limited purchase environment. SSFs allow fund managers to gradually ease their way into certain stocks.

Similarly, when stocks get demoted from an index (even when it has been clearly about to happen for some weeks) the untimely rush for stock selling promotes instability in less liquid stocks. Fund managers can use SSFs to create an orderly move out of a share even where they may find liquidity problems prevent an orderly sale of the underlying stock.

SSFs as an alternative to Warrants

The warrants industry has been a massive success in South Africa - allowing retail investors the chance to obtain geared investment returns on stocks. Warrants are essentially options on individual stocks quoted by large financial institutions at varying strike levels. The pricing of warrants, however, utilises a higher volatility in the calculation of their premium making warrants relatively more expensive than SSFs. Investors find the following additional benefits when trading SSF options:

Flexibility of strike levels. Strike levels on warrants are only set by the financial institutions themselves.

SSFs can be sold short by retail investors. Warrants only allow the investor to go long a position.

Homogeneity of SSFs allow them to easily be sold to any investor. Warrants issued by one financial institution cannot be sold to another financial institution.

Changes in Corporate Structure

The applications of SSFs are endless insofar as corporate activities are concerned. In the world of mergers, corporate acquisitions often involve the largest of stocks. SSFs could prove most useful in ensuring appropriate buying levels.

Likewise, SSFs could aid in hedging against the perceived adversities of rights issues, share splits, scrip dividends, extraordinary dividends and share buy-backs.