JSE International Derivatives Exchange

Potential Clients Introduction

Date:	20 June 2008
Created by:	Matthys Visser; Stefan Steyn; James Boardman; Sipho Mhlambi; Anne Clayton; Magnus de Wet; Antonie Kotze
Reviewed by:	Allan Thomson; Warren Geers; Anne Clayton; Magnus de Wet
Quality Assured	Anne Clayton; Magnus de Wet
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1 References

Document	Author	Version	Issue Date
Various meetings with key JSE stakeholders			
Clearing risk mitigation at the JSE	Des Davidson	-	Feb 2006
Yield-X rules	JSE	-	25 Jun 2007
Yield-X directives	JSE	-	6 Nov 2007
IDX Product Specification	JSE	6.1	21 May 2008

2 Version Control

Version	Author	Date	Reason for Changes
0.1	Magnus de Wet	4 June 2008	Liquidity Provider introduction created from IDX Internal Specification
0.2	Magnus de Wet	9 June 2008	Added current market stats and currency hedging recommendations for potential client and liquidity providers
0.3	Thys Visser	25 August 2008	Removed unnecessary Corporate Action details

3 Introduction

The JSE International Derivatives Exchange (IDX) is a JSE initiative that will provide South African investors (including corporates, trusts and funds) with an opportunity to trade and achieve exposure to the price movements of internationally listed securities within the current Exchange Control regime. The initiative underscores the JSE's strategic cornerstone by expanding horizontally and utilising existing resources (employees, intellectual property and systems) in order to grow the JSE's revenue stream.

It is proposed that the JSE list, provide a trading platform, regulate, risk manage, clear and cash settle derivative securities (single stock futures and options) based on internationally listed equities (e.g. BP, Siemens, Microsoft and HSBC) which are not also listed on the JSE. As evidenced in the Agricultural Products Market (in respect of derivatives on agricultural products) and the Equity Derivatives Market (in respect of derivatives on indices), it is not necessary to list the underlying instrument (spot) on the JSE to achieve true price discovery.

This document proposes and assumes that IDX will be hosted on the Yield-X trading platform for the following reasons –

- the similarities of the proposed new product (international derivatives) and the currency derivatives and interest rate derivatives trading on the Yield-X trading system;
- the trader audience for international derivatives will be the same as the existing trader audience currently trading in Yield-X derivatives;
- the existing SARB reporting structures that can be utilised without system changes; and
- the high configurability of the Yield-X trading system, where testing has proven that international derivatives can successfully be listed and traded on the Yield-X trading system without any system changes.

This document is a multi-purpose working document. In its current form, it is a high-level document which attempts to identify the salient features of the new product to potential clients.

4 Trading on the Yield-X trading system

In line with international trends on true price discovery and transparency, the JSE recommends that IDX is order driven. However, in order to start a new market a hybrid market model (allowing for both on-screen and reported trades) will initially be supported.

4.1 On-Screen trading

The on-screen trading of international derivatives will be conducted on the Yield-X trading system and will be subject to Yield-X rules and directives. A new trading window will be created in the Yield-X trading system. Figure 1 illustrates the proposed on-screen trading window for international derivatives (futures contracts). This screen will display the best bids/offers on the central order book. Orders on the central order book will match on time price priority. Figure 2 indicates an example of the bids/offers window used for adding orders onto the central order book. Figure 3 indicates an example of the central order book depth.

Figure 1 The Yield-X trading window for international derivatives

International_Derivatives

Instrument	QtyB	Bid	/	Offer	QtyO	Change	Last Rate	Time	High	Low	Volume
JUN08 BARG	0	0.00000	/	0.00000	0	0.00000	65.7700	00:00	0.00000	0.00000	0
JUN08 BATG	0	0.00000	/	0.00000	0	0.00000	307.030	13:21	307.030	307.030	10
JUN08 BPPG	0	0.00000	/	0.00000	0	0.00000	84.2700	00:00	0.00000	0.00000	0
JUN08 BSYG	0	0.00000	/	0.00000	0	0.00000	86.9600	13:22	86.9600	86.9600	10
JUN08 GSKG	0	0.00000	/	0.00000	0	0.00000	167.720	13:22	167.720	167.720	10
JUN08 RIOG	0	0.00000	/	0.00000	0	0.00000	853.470	13:22	853.470	853.470	10
JUN08 VODG	0	0.00000	/	0.00000	0	0.00000	24.6600	13:22	24.6600	24.6600	10
SEP08 BARG	0	0.00000	/	0.00000	0	0.00000	65.7700	00:00	0.00000	0.00000	0
SEP08 BATG	0	0.00000	/	0.00000	0	0.00000	307.030	13:22	307.030	307.030	10
SEP08 BSYG	0	0.00000	/	86.96000	10	0.00000	86.9600	00:00	0.00000	0.00000	0
SEP08 GSKG	0	0.00000	/	0.00000	0	0.00000	167.720	00:00	0.00000	0.00000	0
SEP08 RIOG	0	0.00000	/	0.00000	0	0.00000	853.470	00:00	0.00000	0.00000	0
SEP08 VODG	0	0.00000	/	0.00000	0	0.00000	24.6600	00:00	0.00000	0.00000	0
SEP08 BPPG	0	0.00000	/	0.00000	0	0.00000	84.2700	00:00	0.00000	0.00000	0
DEC08 BARG	0	0.00000	/	65.77000	10	0.00000	65.7700	00:00	0.00000	0.00000	0
DEC08 BATG	10	307.03000	/	307.03500	10	0.00000	307.030	00:00	0.00000	0.00000	0
DEC08 BPPG	0	0.00000	/	0.00000	0	0.00000	84.2700	00:00	0.00000	0.00000	0
DEC08 BSYG	10	86.96000	/	86.96400	10	0.00000	86.9600	00:00	0.00000	0.00000	0
DEC08 GSKG	0	0.00000	/	0.00000	0	0.00000	167.720	00:00	0.00000	0.00000	0
DEC08 RIOG	0	0.00000	/	853.47000	10	0.00000	853.470	00:00	0.00000	0.00000	0
DEC08 VODG	0	0.00000	/	0.00000	0	0.00000	24.6600	00:00	0.00000	0.00000	0

Figure 2 The Yield-X Bid/Offers Window for International Derivatives

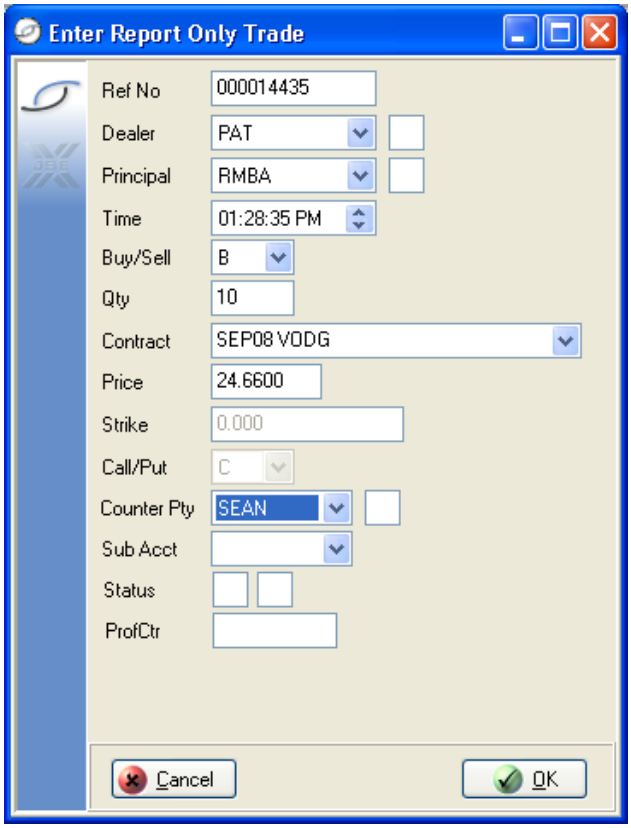
Figure 3 The Yield-X Depth Window for International Derivatives

4.2 Reported trades

Transactions in IDX securities which meet the criteria of a "reported transaction" as set out in the Yield-X rules and directives[1] may be conducted away from the central order book and reported to the Yield-X trading system. To encourage market participation, it is proposed that the criteria for a reported transaction in respect of international derivatives be the same as the criteria in respect of currency derivatives (i.e. 1 (one) contract). See Annexures A and B, which sets out the proposed Yield-X rules and directives amendments, respectively.

[1] Yield-X rule 7.120 and Directive CE 1

Figure 4 Yield-X trading system – Screen to report off market trades



4.3 Listing

Listing of new international derivatives will be done on request from the market. However, these securities must comply with the requirements prescribed by the JSE. The requirements include:

- Must be an internationally listed instrument.
- A liquidity provider will be required for any security before it will be listed.
- A reference price on day of listing and prices and dividend data daily thereafter. (see section 8.2)

If a request is not supported by a liquidity provider, the JSE will consider listing the instrument if –

- there are two counterparties to a pre-arranged transaction; and
- the minimum value of a trade exceeds 10 million ZAR in value.

4.4 Market times

Due to the possible time zone differences of the underlying markets that IDX will be tracking, IDX will be open the maximum practical amount of time. However, to start IDX will track the current Yield-X trading times which are reflected in Table 1.

Table 1 Proposed IDX trading times and periods

Time	Period	Trading Day
08h00-17h00	Automated Trading	Trading takes place where bids and offers are anonymously matched by the Yield-X system
17h00	Market Close	Automated Trading ends
08h00 -17h15	Reporting	All off-screen trades (reported trades) will be reported onto the Yield-X system.

4.5 Pre-trade and post-trade disclosure

The Yield-X trading system provides for pre and post trade anonymity in the central order book, consequently –

- there will be no pre-trade disclosure of member details in IDX (i.e. only order details will be seen, but not the identity of the members who entered the orders); and
- there will be no post-trade disclosure of member details on IDX (i.e. the market will only see the details of the trade but not the identity of the members that have traded).

4.6 Traded currency

All contracts on IDX will be quoted and traded in ZAR to 2 decimal places, and reported, allocated or assigned to 4 decimal places.

4.7 Nominal

All contracts traded on IDX will be traded in a nominal of 1, the reasons being -

- the price of some foreign companies quoted in ZAR could be large.
- it will increase the liquidity of the market.
- it is easier to effectively apply corporate actions.

The JSE will consider listing different size nominals if requested to do so, or if it is determined that this will increase market participation in IDX.

4.8 Identification codes

The Yield-X trading system uses 4 letter alpha codes for contracts on the trading windows. The first three letters are used to determine the underlying instrument the contract is linked to. G will be used as the fourth letter for all IDX securities to indicate that the underlying is an international company (Global or non-South African). This alpha code plus the expiry date will uniquely identify an instrument on IDX.

Data Vendors making use of the Yield-X datafeed application will not receive the alpha codes; instead they will be receiving a "comms" code. Unlike the alpha code the comms code is unique as it already includes a letter representing the expiry date. A list of comms codes are maintained and published by the Yield-X Operations Desk.

4.9 Settlement

All IDX contracts will be cash settled in ZAR.

4.10 Options

The JSE will not list options initially on IDX, however the listing of options will be considered at a later stage. The options when listed will have the following features -

- Option type - American (options can be exercised at any time).
- When the future is loaded an option will automatically be created. This strike is loaded at the money. From this point on, the market will load the strikes at which they want to trade. The increment at which the contracts can be loaded by the market will be determined when the contract is loaded. This will depend on the size of the contract's share price.
- Users may load their own strike prices on the Yield-X trading system. A strike interval of 1 cent is anticipated.

4.11 Spreads and splits

The Yield-X trading system will automatically create spread instruments. The JSE will not list splits initially, however the listing of splits will be considered at a later stage.

Table 2 Examples of spreads and splits

	Spreads	
	Buy	**Sell**
Bid	Far	Near
Offer	Near	Far

	Splits	
	Buy	**Sell**
Bid	NASDAQ	S&P 500
Offer	S&P 500	NASDAQ

4.12 Proposed Booking Fees

The JSE proposes a booking fee of 2 basis points based on the underlying price per contract traded. This rate is the same as the current Equity Derivative SSF booking fees. The formula for calculating the booking fees will therefore be as follows:

((Nominal x Spot x 0.2) / 100) x Number of contracts traded

4.13 Hedging your Currency risk

4.13.1 Clients

As indicated in the Closeout Dates and Methodologies section of this document, the IDX team recommends that the expiry dates of international derivatives are aligned with Currency derivatives. This was proposed for the reason that the Yield-X system can also be used by clients to hedge their currency risk associated with trading international derivatives. This will ensure a perfect hedge in removing the volatile currency element from the international derivative instrument. The client's exposure will then purely be to the offshore international instrument. This can be best explained by means of an example. Assume the following variables:

- An internationally listed future instrument trades at $1,000
- The Rand/Dollar exchange rate is 1$ = R10
- The internationally listed future therefore trades at R10,000 (Not taking present value and dividend assumptions into account)

Assume the international future's price stays constant at $1,000 but the R/$ exchange rate changes from R10 a dollar to R8 a dollar (Rand therefore strengthened against Dollar). The buyer of the International Future would lose money as the value of his future would now only be R8,000 ($1,000 X R8), a loss of R2,000. The seller of the international future on the other hand would have made R2,000 without the price of the underlying moving.

To remove this currency fluctuation risk, the buyer of the international future could have sold 1 Rand/Dollar currency future contract (which gives him exposure to $1,000) when the exchange rate was 1$ = R10. When the currency went down to R8 he would therefore have made R2,000 (R2 * $1,000) on the short currency position.

By using the Currency Future instrument the holder of the International Derivative therefore eliminated his/her currency risk as the R2,000 loss on the International Derivative was eliminated by the short currency derivative.

Table 3 Summarises

Currency fluctuation	Impact on International Derivative	
	Buyer	**Seller**
Rand strengthens against foreign currency	Loses money	Makes money
Rand weakens against foreign currency	Makes money	Loses money

4.13.2 Liquidity Providers

IDX Liquidity Providers using their overseas balance sheets in order to hedge themselves with the physical international instrument are also recommended to hedge themselves with the currency or currency forward in order to eliminate the currency risk as explained in the clients section above.

5 Clearing and Settlement

The success of IDX is also dependant on the participation of our Clearing Members. As a result the JSE will apply as much as possible of the proven existing Clearing and Settlement methodologies used in the current Equity, Agricultural and Yield-X markets.

5.1 Clearing model

SAFCOM presently acts as the clearing house for the conclusion of securities traded on the equity derivative market, agricultural products market and Yield-X.

The risk management functions are governed in terms of clearing house agreements entered into separately with each clearing member, wherein clearing members guarantee all obligations arising from transactions in exchange contracts reported to SAFCOM for clearing.

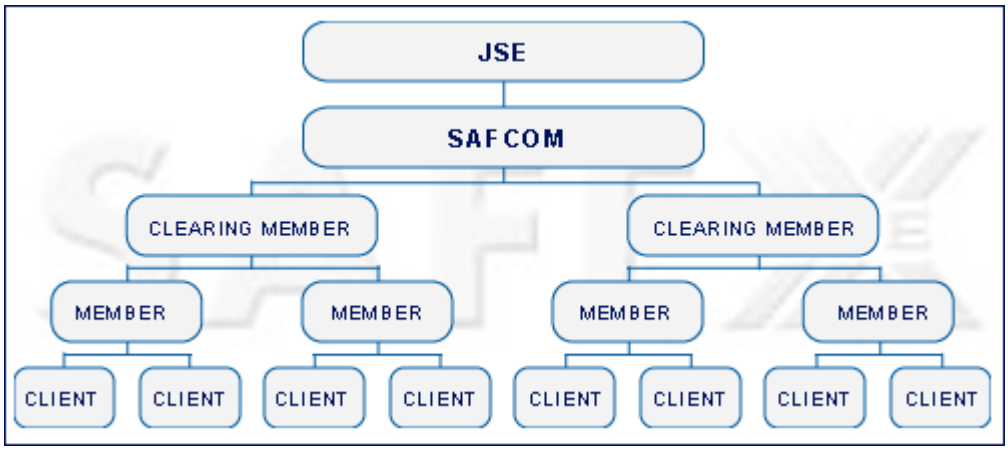
SAFCOM acts as the central counterparty to the participants to the transactions in the securities that it clears. By a process of "novation" SAFCOM interposes itself in transactions between market participants, becoming the buyer from the seller and the seller to the buyer. In this manner, each participant's credit exposure to the other is substituted with an exposure to the clearing house, thus ensuring that in the event of default of one participant, the other is not affected.

In order to address the central counterparty risk it takes on, SAFCOM uses a hierarchical risk management structure (see Figure 5) whereby a client's obligation for the due fulfilment of an exchange contract is guaranteed by his or her trading member, and the trading member's obligation is in turn guaranteed by its clearing member. The enforcement of these obligations is laid out in exchange rules, thus ensuring that SAFCOM only becomes the guarantor of last resort if a clearing member is not able to perform.

SAFCOM uses a cash margining system to mitigate the market risk inherent in highly-geared derivative instruments. All participants are required to pay initial margin for their positions in exchange contracts. This "good faith deposit" is paid via participants' trading and clearing members to SAFCOM and is returned once the exposures are closed out.

Initial margin is designed to cover all but extreme market movements and is adjusted by the daily mark-to-market process which re-values all open positions. The variation margin that results from the daily mark-to-market process ensures that initial margin levels are maintained. SAFCOM may, in the event of extreme price movements, invoke an intra-day mark-to-market to cover any additional price risk that eventuates.

Figure 5 Risk management hierarchy



5.2 Clearing members

As the support of the clearing members is crucial to the success of IDX, the JSE will consult the clearing members and address any potential concerns they may have with the clearing of international derivatives and agree on appropriate risk calculation and mitigation methodologies. The JSE acknowledges that the setting of high initial margins will discourage participation in IDX and has undertaken preliminary analysis regarding the calculation of initial margin. This analysis is set out in the sections below.

5.3 Portfolio scanning methodology

Initial margin will be determined using the portfolio scanning methodology as currently used in respect of JSE listed equity derivative securities and currency derivatives. This methodology is a standard deviation based margining methodology using daily returns from the previous seven years as input. It is based on data from the previous 2001 daily underlying closing prices (2000 changes) recalculated every 30 days.

The benefits of the portfolio scanning margining methodology are-

- its simplicity;
- its good global track record;
- it is a transparent, fair and reproducible method that is well understood and accepted by market participants; and
- it allows for offsetting of initial margin based on the combined risk of deals, thus position holders pay less initial margin when the combination of positions lessens the risk.

A further explanation of the portfolio scanning methodology is attached in Appendix 1

5.4 Initial margin calculations

In the clearing of existing derivatives, the SAFCOM initial margin calculation uses a standard deviation of 3.5. Standard deviations are a statistical measure of dispersal around the mean.

The current model for calculating the currency futures initial margin will be adopted for IDX. To establish a ZAR closing price for the past 2001 days, it is proposed that the historic prices of the currency spot, based on the Reuters/Bloomberg ZAR daily closing price, is multiplied by the underlying security closing price for that day.

5.5 Market versus stock specific volatilities and initial margins

It is recommended that stock specific measures are employed which will enable the JSE to observe correlations, volatilities and develop risk profiles for a specific underlying security. Initial margins, specific to the underlying security will allow for more accurate valuation which will enable the JSE/SAFCOM to set smaller initial margins for the less risky securities, thereby encouraging trades and liquidity in IDX.

5.6 Regression and stress testing

The JSE will be running regression analyses on the variation in ZAR denominated prices on a number of internationally listed or quoted securities to confirm the valuation methodology in respect of the calculation of initial margin. Regression analysis will test, inter alia, stock correlation with ZAR movements and stress tests to determine the outcome of the 5 best and worst days for individual stocks when combined with the five best and worst days for the Rand.

5.7 Intra-day margining

In terms of the Yield-X rules[2], SAFCOM in its sole discretion may mark-to-market positions at any time on any business day and call for additional variation margin.

5.8 Close out dates and methodologies

Close out dates and methodologies are dependant on the type of underlying security listed on IDX -

5.8.1 If the underlying security is a derivative listed or quoted on an international exchange, close out of the international derivative in IDX will be aligned to the close out dates of that particular exchange. However due to time zone differences the JSE may require that close out occurs on the business day following the close out of the underlying derivative.

5.8.2 If the underlying security is an equity security listed or quoted on an international exchange, close out of the international derivative in IDX will be aligned to current JSE currency derivatives close out periods. (i.e. 2 days prior to the third Wednesday of Mar, Jun, Sep & Dec or the previous business day if a public holiday) and the close-out methodology will be determined by the JSE.

[2] Yield-X rule 8.40.2

6 Liquidity providers and Products

The success of IDX is also very dependant on the participation of liquidity providers.

6.1 Liquidity providers

Essentially, the liquidity providers will determine the underlying securities listed on international markets or exchanges, in which they wish to provide liquidity. As the SARB/National Treasury approval of IDX prohibits hedging on an on-shore balance sheet, resulting in Forex exposure, members participating as liquidity providers require access to an off-shore balance sheet. Potential liquidity providers have been identified based on the interest shown in this product and their access to international markets/exchanges and an offshore balance sheet.

6.2 Potential markets/exchanges

To ensure operational efficiency, the JSE has identified three exchanges operating within a time zone similar to the JSE and proposes, for discussion purposes, that the international derivatives listed on IDX track securities listed on the LSE, Euronext and/or the Deutsche Borse. Table 4 sets out the salient features of these exchanges and the rationale for their selection. Table 5 sets out the daylight saving schedule for 2008/2009.

Table 4 Recommended markets/exchanges

Exchange	Underlying (Spot/Derivatives)	Reasons for selection of market/exchange	Trading Times	Discount rate
LSE	Spot	Well respected exchange with many of the worlds largest companies listed on the exchange as a primary listing. The JSE has a good relationship with the LSE.	08h00 - 17h30 GMT	LIBOR
EURONEXT	Spot / Derivatives	One of the largest, most sophisticated derivatives exchanges in the world.		
LIFFE		Derivatives on most of the worlds largest companies (Both European and American) are traded on the exchange	08h00 - 17h00 GMT	LIBOR
NYSE		Very efficient Single Stock futures trading market, and trading platform. (Universal Stock Futures)	08h00h- 18h00 GMT	EURIBOR
Deutsche Borse	Spot / Derivatives	One of the largest exchanges in Europe		
Eurex		Many dual listings from large and well known companies representing all markets around the globe.	09h00 - 17h30 CET	EURIBOR
Frankfurt Stock Exchange		Similar trading times as the JSE due to similar time lines.		EURIBOR

Table 5 Daylight saving schedule 2008/2009

Daylight Saving (summer) Time

Northern Hemisphere (2008/2009)			
	DST START 2008	**DST END 2008**	**DST START 2009**
EUROPE			
European Union and rest of Europe (except Iceland) - (GMT)	30-Mar, 01h00	26-Oct, 01h00	29-Mar, 01h00
NORTH AMERICA			
U.S.A. (except Hawaii, Arizona)	09-Mar, 02h00	02-Nov, 02h00	08-Mar, 02h00

6.3 Products (underlying securities)

The JSE proposes that initially ±5 international single stock futures ("ISSF") contracts will be listed on IDX. Over time and depending on market participation the JSE, will increase the number of ISSF contracts listed with the longer term objective to list options on the ISSFs and ZAR based international index futures.

For discussion purposes, Table 6 sets out six securities which are constituents of the FTSE100 listed on the LSE. The selection of the securities was based on market capitalisation. Table 7 sets out the top 5 stocks by % weight of the relative index.(FTSE 100, DAX, Euronext 100, NASDAQ and Hang Seng)

Table 6 Example of underlying securities listed on the LSE[3]

Underlying instrument	BLB Code*	Yield-X Code**	GBP Price	ZAR Price
BG GROUP PLC	BG/	BGGG	**10.79**	**176.21**
BRITISH SKY BROADCASTING GROUP PLC	BSY	BSYG	**5.33**	**86.96**
BT GROUP PLC	BT/A	BTPG	**2.09**	**34.05**
RIO TINTO PLC	RIO	RIOG	**52.26**	**853.47**
ROYAL DUTCH SHELL PLC	RDSA	RDAG	**16.98**	**277.3**
VODAFONE GROUP PLC	VOD	VODG	**1.51**	**24.66**

*Bloomberg ticker code

**Proposed Yield-X code

[3] Data as at 4 April 2008

Table 7 Top 5 securities by % weight of the relative index[4]

FTSE 100		% Weight in the Index
BP/ LN Equity	BP PLC	7.538
HSBA LN Equity	HSBC Holdings PLC	6.445
VOD LN Equity	Vodafone Group PLC	6.15
RDSA LN Equity	Royal Dutch Shell PLC	4.659
GSK LN Equity	GlaxoSmithKline PLC	4.366
DAX		**% Weight in the Index**
SIE GY Equity	Siemens AG	9.484
EOA GY Equity	E.ON AG	9.357
ALV GY Equity	Allianz SE	9.052
DAI GY Equity	Daimler AG	7.707
BAS GY Equity	BASF SE	6.252
Euronext 100		**% Weight in the Index**
FP FP Equity	Total SA	5.936
EDF FP Equity	Electricite de France	5.465
RDSA NA Equity	Royal Dutch Shell PLC	4.201
MTP FP Equity	ArcelorMittal	3.838
SAN FP Equity	Sanofi-Aventis SA	3.442
NASDAQ		**% Weight in the Index**
AAPL UW Equity	Apple Inc	11.757
MSFT UW Equity	Microsoft Corp	6.062
QCOM UW Equity	QUALCOMM Inc	5.263
GOOG UW Equity	Google Inc	4.3
RIMM UW Equity	Research In Motion Ltd	4.228
Hang Seng		**% Weight in the Index**
5 HK Equity	HSBC Holdings PLC	15.616
941 HK Equity	China Mobile Ltd	13.333
939 HK Equity	China Construction Bank Corp	5.25
1398 HK Equity	Industrial & Commercial Bank of China	4.813
2628 HK Equity	China Life Insurance Co Ltd	3.947

[4] Data as at 4 April 2008

6.4 Contract specifications

The contract specifications will be similar to the SSFs listed on the EDM. An example is set out in Table 8 below.

Table 8 Example of international derivatives contract specification

Product	International Single Stock Future
Underlying Instrument	Vodafone Group PLC
Underlying Primary Listed Exchange	London Stock Exchange (LSE)
Contract size	1 x The underlying share price in ZAR
Expiry dates and times	13:40 On the 3rd Monday of Mar, Jun, Sep & Dec. (Or the previous business day if a public holiday)
Quotations	Price per underlying share to two decimals in ZAR.
Minimum Price Movement	0.01 ZAR
Expiry Valuation Method	The official closing price determined by the JSE will be used.
Settlement Method	Cash settled
Trading Hours	08h00 – 17h00
Fees	2 Basis points of nominal value

6.5 Liquidity provider rebates

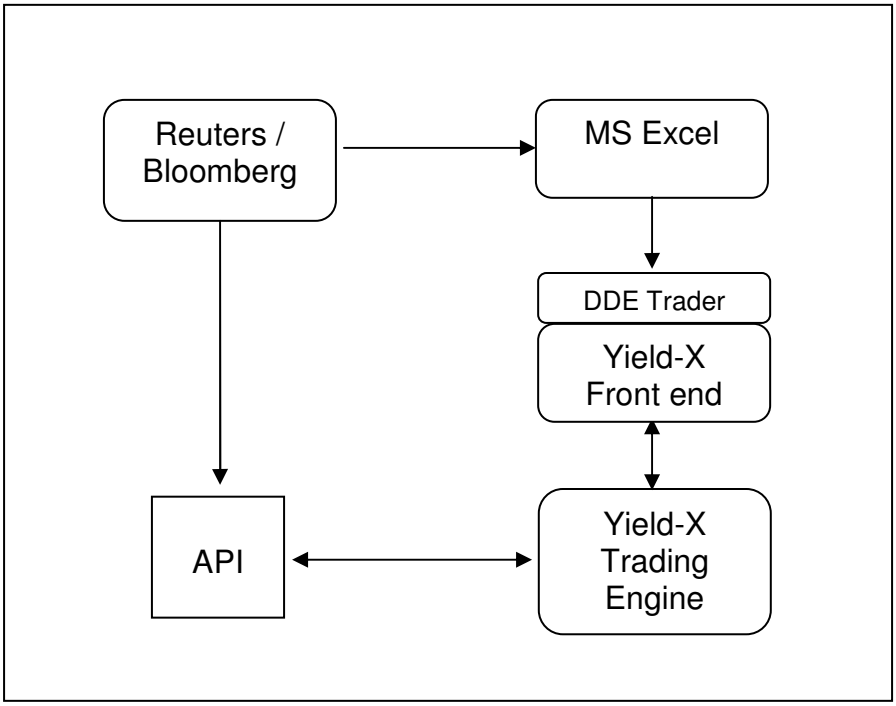
In order to increase market liquidity and encourage the participation of liquidity providers in IDX, the JSE will waive booking fees for a period agreed to with liquidity providers.

6.6 Liquidity providers software

The JSE has a vanilla Front End which is freely available for the Yield-X platform. This Front End already contains functionality which will allow auto quoting for a liquidity provider. Multiple liquidity providers in the currency futures market are already making use of this functionality.

Figure 4 explains how the process and system works.

Figure 4



For example, liquidity providers will receive their live prices from Reuters / Bloomberg or their currency desks, and pull this information into MS Excel. In their Excel model they will adjust the bid and ask spreads. This is then automatically fed into the DDE Yield-X vanilla Front-End, and is then pushed into the Yield-X central order book.

Alternatively liquidity providers can also develop their own Front End software as Yield-X has a true open Application Programmable Interface (API). The Yield-X API specification is available at the following URL:
http://www.yieldx.co.za/docs/specifications/YieldX%20Application%20Programmers%20Interface%20

7 Corporate Actions

7.1 Corporate actions process

The JSE will make the necessary adjustments to international derivatives listed on IDX in respect of corporate actions on the underlying security. Corporate action data will be sourced from the exchange where the underlying security is listed or from internationally recognized corporate action information providers. The JSE will alert the market, by way of a market notice of all corporate actions impacting international derivatives listed on IDX. The JSE Ltd will adjust the international derivative contracts in a manner that neither party will gain or loose as a result of the corporate action.

Changes to contracts will be made to reflect all corporate actions. Data will be received from the particular source by the Information Services' corporate actions division. The data will be processed and sent to the necessary parties within the exchange to make all the necessary adjustments to the contracts. Market notices will only be sent out when the JSE have made changes to contracts.

8 Valuations

8.1 Overview

The value of an ISSF closely tracks the price of the underlying security. The cost of buying a ISSF and holding it to expiry is generally determined by three factors:

- The spot (cash) price of the underlying security
- The interest income foregone by holding the security rather than the cash (opportunity cost).
- The dividends that can be generated by the security i.e. any dividends paid to the holder before the expiry of the ISSF.

ISSFs will be available to the open market, thus the prices will be subject to the normal supply and demand forces after initial listing on Yield-X.

8.2 Reference data

To ensure that the reference data is complete accurate and reliable, the JSE will source daily dividend data and live prices of the underlying securities from both Reuters and Bloomberg. The price discovery of the value of the underlying security of IDX international derivative will be referenced from the relevant market/exchange.

8.3 Time of valuations

The JSE will perform valuations on all IDX international derivatives at 17h30 on every trading day. These valuations will be published with all other statistical data on the Yield-X website. If required, the JSE will perform a valuation at 15h00. Figure 6 below is an example of the valuation results published in MS Excel format on the Yield-X website

Due to obvious time zone constraints, the JSE will close at a different time to the market/exchange where the underlying security is listed or quoted. If the exchange/market where the underlying securities are listed or quoted closes after the official closing time of IDX, a snapshot will be taken of the relevant prices and these prices will be used to calculate the IDX closing price and the mark-to-market valuations. The snapshot will take place in the time period 17h00 to 17h05. During this period the JSE will either use the mid-spread or the last traded price.

If after the close of IDX the price of the underlying security moves more than a percentage determined by SAFCOM intra-day margining will be performed in the morning of the next business day and the closing price of the underlying security will be used for the revised mark-to-market calculations.

Figure 6 Example of a mark-to-market valuation results published on the Yield-X website

IDX CLOSING PRICES	2008/03/31			
CONTRACT	SPOT	DISCOUNTED DIV	M-T-M GBP	M-T-M ZAR
VODAFONE GROUP PLC				
20-Mar-2008	1.50	0.0000	1.50	24.35
19-Jun-2008	1.50	0.0576	1.45	23.94
18-Sep-2008	1.50	0.0576	1.46	24.47

8.4 Valuation methodology

8.4.1 Instrument type

The valuation methodology is dependant on the instrument type of the underlying security -

- where the underlying security of a ISSF is an internationally listed equity security, the spot price, as determined in a snapshot, of the underlying securities will be used in the FairValue formula as the closing price; or
- where the underlying security of a ISSF is an internationally listed derivative instrument, the closing price will be the price of the derivative instrument, as determined in a snapshot, that will be converted into a ZAR denominated closing price.

8.4.2 FairValue formula

The formula currently used by the JSE to calculate the fair value (forward value) of a single stock is (this also determines the price of the SSF)

$$FairValue = (cp - dd) * \left[1 + i\frac{x}{365}\right]$$

where

$$dd = \sum_{k=1}^{n} D_k \Big/ \left(1 + i_k \frac{x_k}{365}\right)$$

and

cp = closing spot/price at the end of the day of the underlying stock

i = interest rate (simple format) applicable for x, taken from the relevant yield curve

x = days to expiry of the futures contract

dd = discounted dividends

k = a counter

n = the number of dividends that fall within the time period from the valuation date to the expiry date

D_k = the k-th cash dividend

x_k = the number of days from the valuation date till the k-th dividend's ex-date

i_k = the interest rate (in simple format) applicable for x_k, taken from the relevant yield curve.

8.4.3 Adaptation of the FairValue valuation methodology

The FairValue valuation methodology requires adaptation to incorporate the currency aspect. In IDX international derivatives the JSE is currently researching two methodologies, however, in theory both methodologies should result in the same outcome. Both methods are explained below and Figure 5 illustrates these.

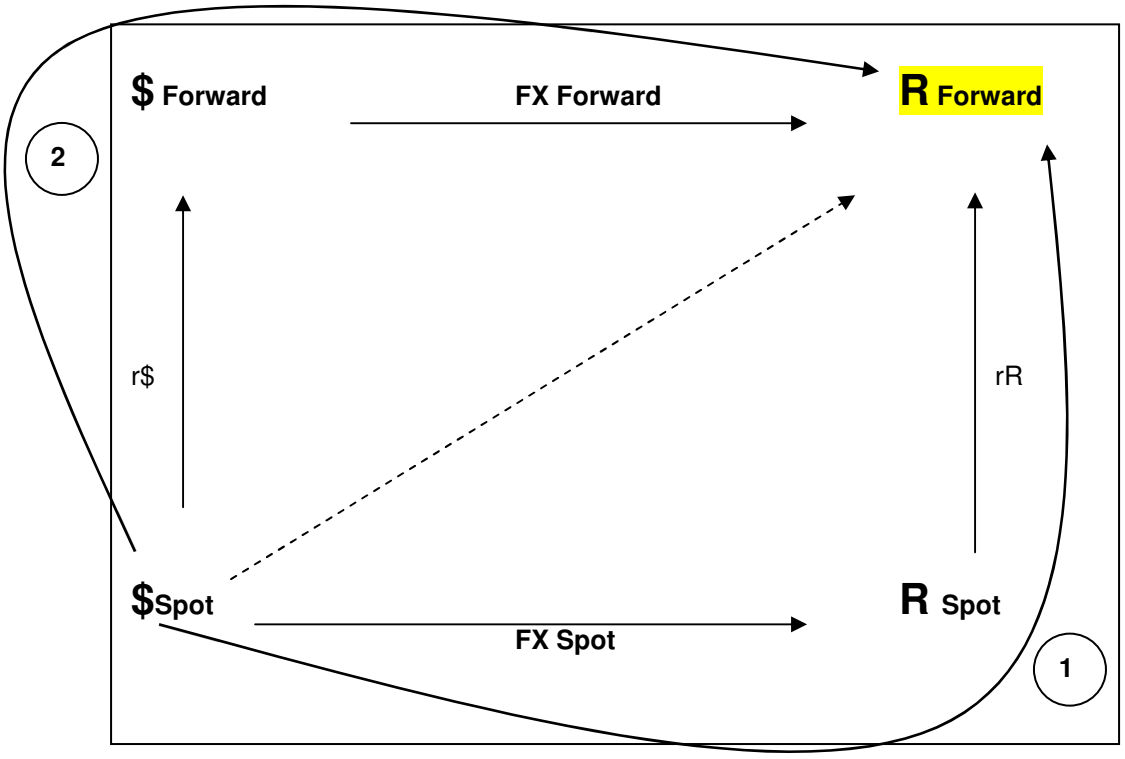
Method 1

The first method is to convert the foreign denominated spot price of the underlying security and the foreign denominated discounted dividends to a ZAR denominated spot price and ZAR denominated discounted dividends using the spot foreign exchange rate. The ZAR forward price is then calculated using the FairValue formula with the relevant domestic interest rate. This is shown as route 1 in Figure 5.

Method 2

The second method is to calculate the forward price in the foreign currency using the FairValue formula with the relevant foreign interest rates. convert the foreign denominated spot price of the underlying security to a foreign denominated forward rate using the foreign interest rate and then calculate the ZAR forward rate using the foreign exchange forward (F_t). This is shown as route 2 in Figure 5.

Figure 5 Illustration of the FairValue adaptation methodologies



The foreign exchange forward is calculated as follows

$$F_t = S_{fx} \frac{1 + i_d t_d}{1 + i_f t_f}$$

where we have

S_{fx} = the spot exchange rate

i_d = the relevant domestic interest rate (simple format)

i_f = the relevant foreign interest rate

$t_d = \frac{x}{365}$ = domestic time

$t_f = \frac{x}{M}$ = foreign time.

M = foreign convention on days per annum used. This is 360 for US Dollar and Euro and 365 for Pound.

9 SARB Reporting

9.1 Rationale for reporting

SARB needs to maintain proper recording of transactions affecting the Financial Account section of Balance Of Payments. The requirement to report to SARB is a condition of the listing of "inward listed" securities and currency derivatives. The JSE has entered into a service level agreement with SARB and all reporting to SARB must be in accordance with this agreement.

9.2 Nature and frequency of the reporting

The reports are known as secondary trading reports and the following principles apply:

- all secondary reports are reportable to SARB;
- all secondary reports involve two legs (i.e. a purchase and a sale for that particular security);
- transactions may not be bulked (i.e. transactions must be reported individually).

The Clearing & Settlement Division of the JSE is responsible for reporting to the SARB. In respect of transactions in currency derivatives data is extracted from the Yield-X trading system, converted into CSV/Excel spreadsheets, using the Crystal Reports software, and emailed to SARB.

The following reports are currently submitted to SARB:

- Daily trades
- Month-end summaries; and
- Month-end positions.

9.3 Impact of additional reporting

It has been assumed that the SARB will require similar reporting in respect of international derivatives. The impact of additional reporting will be minimal, as the Crystal Reports software is highly configurable, user friendly and can be adjusted on an ad hoc basis.

10 Membership

10.1 JSE authorisation and approval procedures

New membership applications are subject to the current Yield-X membership application procedures. Membership applications are coordinated by the Yield-X membership liaison officer (Secretarial Services) who reviews the documentation for completeness before forwarding to the Surveillance Division for approval. The Yield-X liaison officer also confirms that the proposed officers are qualified in terms of the Yield-X rules and directives.

The JSE Surveillance Division reviews the application and supporting documents (including a Surveillance Questionnaire). Once the Surveillance Division is satisfied that all the requirements have been met, a recommendation, by the Company Secretary, to approve the membership application is tabled at the JSE executive committee. This process typically takes 6 to 8 weeks in respect of applicants that are not members of one of the JSE markets and 2 to 3 weeks for applicants that are members of one or more of the JSE markets.

In addition to approval as a member of Yield-X, existing members have been authorised, by the JSE, to trade specific Yield-X securities. Consequently, with the introduction of IDX existing Yield-X members will require further authorisation to trade international derivatives.

11 Surveillance

11.1 Amendments to Yield-X rules and directives

Necessary amendments to the Yield-X rules and directives have been identified and the proposed amendments are set out in Annexure A and B. The proposed amendments will be forwarded to the Rules Working Group for approval and then tabled at JSE Exco for approval. Once JSE Exco approval has been received, the proposed amendments will be notified to the Yield-X members for a period of 10 business days. At the end of this period, and if no objections have been received -

- the proposed rule changes will be forwarded to the FSB for the approval of the Registrar and publication in the Government Gazette for a period of 10 business days, after which the amendments will come into force;
- the directives will come into force with immediate effect or at a later date to coincide with the rule amendments.

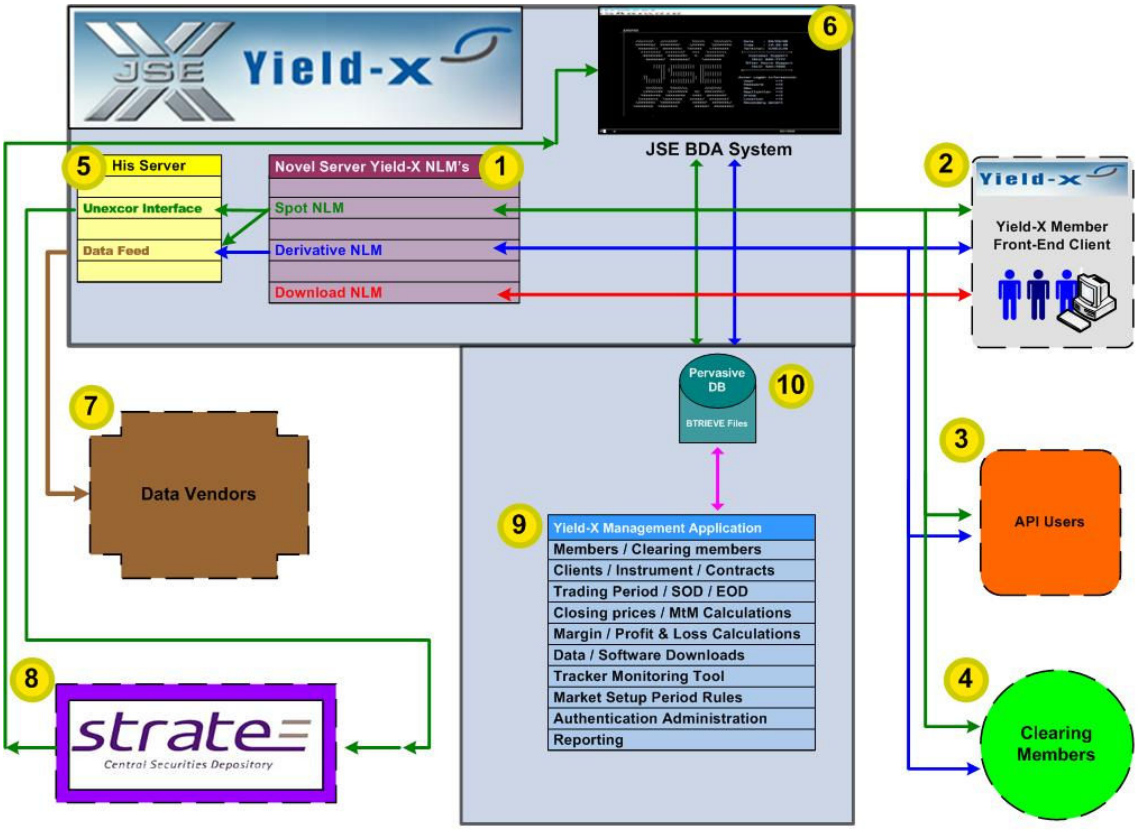
11.2 Capital Adequacy

The Surveillance division monitors the capital adequacy of Equities members on a daily basis, using the CAPAD Scans. With regard to Equities members that are also Yield-X members, the position risk determination in respect of interest rate derivatives and currency derivatives is calculated using the initial margin paid. It is assumed that in respect of international derivatives the same method will be employed. With the introduction of IDX, the Trading division will provide the Surveillance division with a CSV Excel report distinguishing the initial margin paid, per member, by derivative security. The report will be created using Crystal Reports.

12 Yield-X System

Due to the configurability of the Yield-X trading platform, initial tests executed on the Yield-X test system have proven that IDX instruments can successfully be loaded and traded on Yield-X without any changes to the system. During the tests IDX instruments were loaded under the Bond Index Asset Class. The IDX team recommends that a new Asset Class specifically for JSE International Derivatives is created once the business case for the initiative is proven successful.

12.1 Systems Diagram



The numbers on the diagram are explained below:

1) The Yield-X trading engine is built on a Novel Operating System. Three Novel Loadable Modules (NLMs) forms the heart of the system:
    a. Derivative NLM – This module controls the Futures and Options trading activity. It controls the central order book, trade reporting and post trading activities for Bond, Currency and International derivatives.
    b. Spot NLM – This module controls the spot trading activity. It controls the central order book, trade reporting and post trading activities for Government and Corporate Bonds, Exchange Traded Funds (ETFs), Retail Notes and any other spot instruments.
    c. Download NLM – This module is used for software upgrades to the freely available vanilla Front End. It contains the latest Front End modules (EXEs and DLLs) associated with the Front End. In the case of a software upgrade the JSE will place the affected modules on this NLM and users will be prompted to download them upon logon.
2) The Yield-X Vanilla Front End is freely available to any Yield-X member and its employees. It provides Yield-X users with trading, post trading and reporting functionality for both Spot

and Derivative instruments. It contains functionality which will allow auto quoting for liquidity providers. Multiple liquidity providers in the currency futures market and interest rate market are already making use of this functionality.

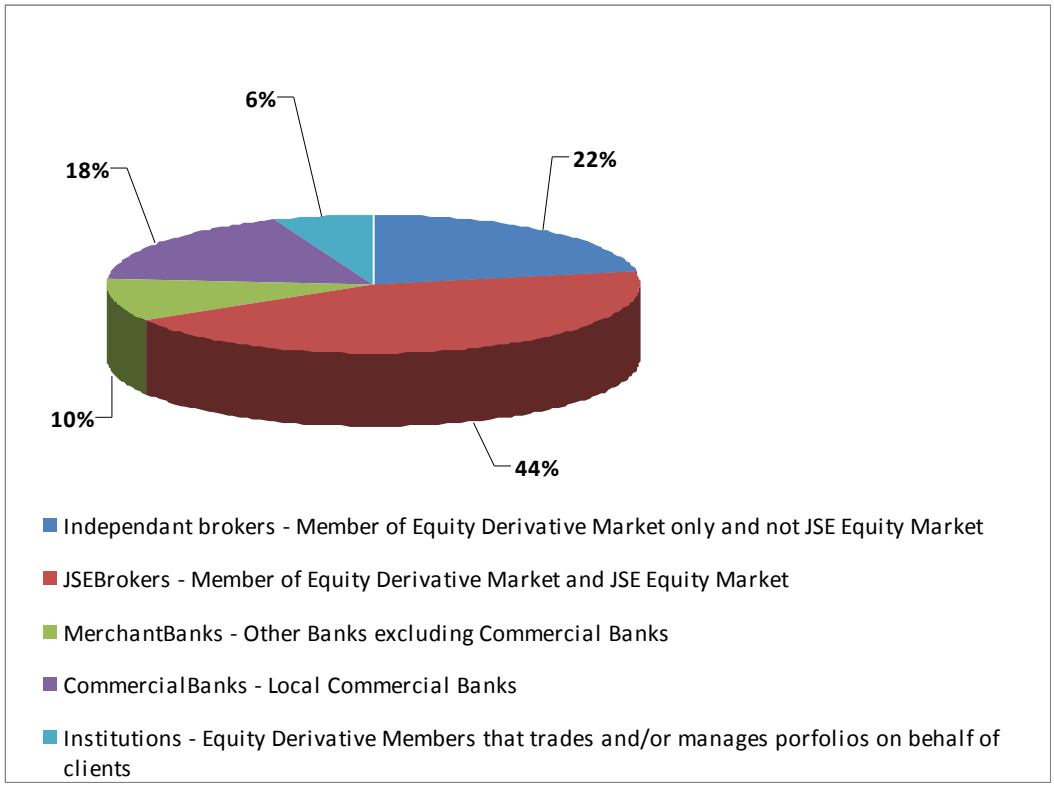
3) The Yield-X system is a true open Application Programmable Interface (API). Since it is message based, liquidity providers, market participants and clearing members can develop customised solutions that suites their needs and business models.
4) Clearing Members connect to the Yield-X system for clearing and settlement purposes. Clearing members can develop their own clearing solutions or contract STT for a standard clearing solution.
5) The Host Integration Server (HIS) Server performs 2 main actions:
    a. Connects to the Unexcor Interface – This interface allows for access from our Spot NLM to the Strate Unexcor settlement system. See Strate Unexcor below.
    b. Datafeed – The Yield-X system has a separate TCP/IP based trickle feed system used by Data Vendors to receive data. See Data Vendors below.
    c. Quant Application – The Yield-X proprietary bond margining system also resides on the HIS server. This application is MS Excel based.
    d. Crystal Reports – The report templates used by the JSE's management system for reporting are also stored on the HIS server. Important to note that these crystal reports does not access the Yield-X databases. Crystal reports access XML dumps created by the Yield-X management system from the databases.
6) BDA Derivative transaction reporting - If a member makes use of the JSE Broker Dealer Accounting (BDA) system, derivative transactions from IDX will be uploaded from the Yield-X system to their BDA client accounts as per any other derivative traded on Safex and Yield-X on a daily basis. Reporting of these transactions are compulsory for Equity Market members. The process is batch driven and positions are uploaded every business day in the evenings.
7) Data Vendors connect to the Yield-X Datafeed to receive data. The data published on this feed is anonymous and only the best bids/offers, trades and closing prices are published.
8) The Strate Unexcor system settles spot transactions originated from amongst other the Yield-X system. This system makes use of a 3 day settlement cycle and is particularly popular in the bond market. It can however settle any spot instrument and has a connection to the BDA system for reporting of these transactions. Note that the reporting of spot transactions to BDA is different as the reporting of derivate transactions as reported above.
9) As indicated on the diagram, the Yield-X Management system is used for:
    a. Maintenance of reference data associated with Members, Clearing Members, Clients, Instruments and Contracts
    b. Trading periods and other Start of Day (SOD), End of Day (EOD) configurations
    c. Data and software downloads
    d. Closing price and Mark-to-Market calculations
    e. Margin calculation and recording of profit/losses
    f. Tracker (trade replay functionality) and other monitoring tools
    g. Authentication administration to the Yield-X system
10) The Yield-X system makes use of a file based database called Pervasive BTrieve for storage of reference and transactional data.

13 Current Market Statistics

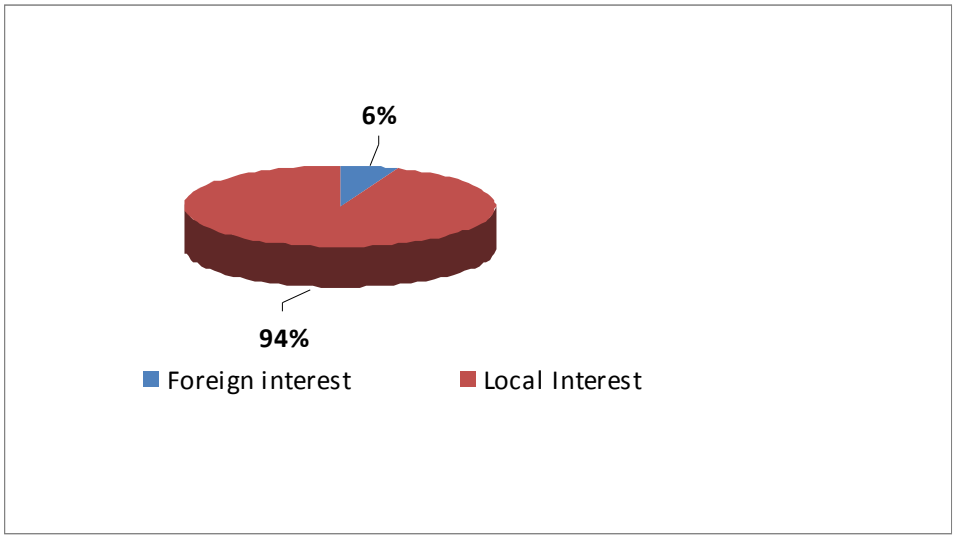
Below market statistics indicating the current trades on both the Equity Derivative and Yield-X markets. Data from 1 January 2008 to 31 March 2008 was used.

13.1 Equity Derivative Market (Safex)

Unfortunately the type of client is not categorized or flagged in this market. Members are however categorized and the data below indicates the market share per member category based on JSE booking fees:

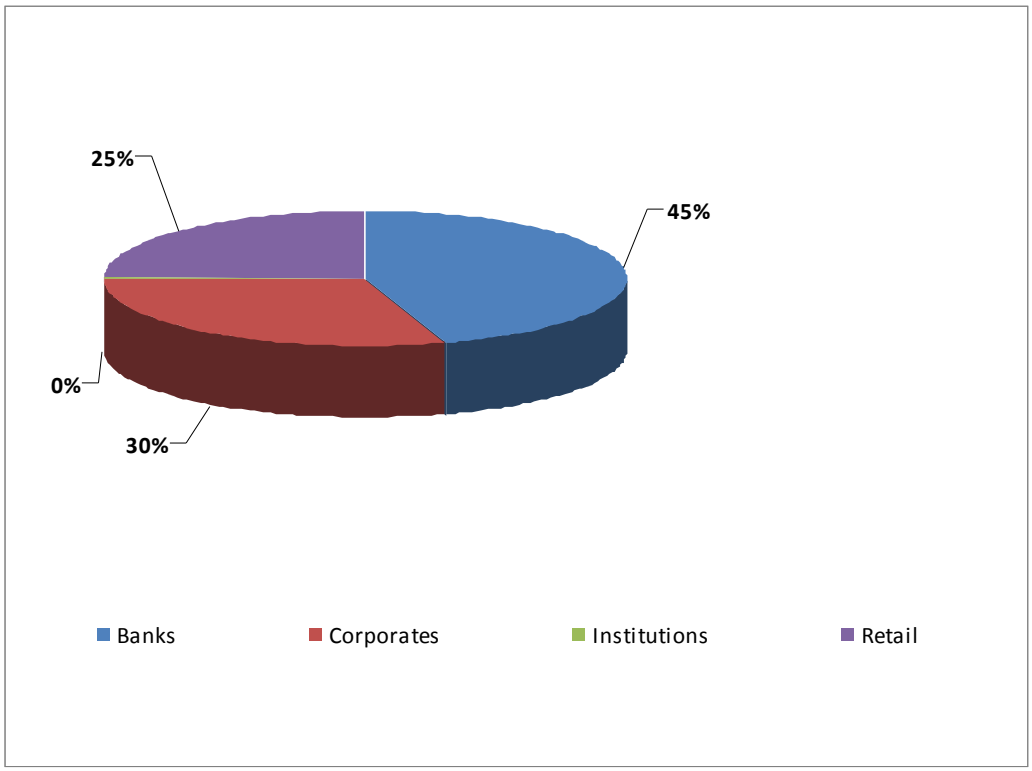


The diagram below indicates Foreign versus Local open interest on the Safex market:



13.2 Yield-X

Clients are categorized in this market and the data below were therefore gathered on a client level:



Annexure A - Proposed amendments to the Yield-X rules

General explanatory notes

1. Words underlined with a solid line (____) indicate the insertions in the existing rules.
2. Words in bold and in square brackets (**[ ]**) indicate omissions from the existing rules.

Section 2: Definitions and Interpretation

2.10 Definitions

In these Yield-X rules, unless otherwise clearly indicated by, or inconsistent with the context, the following terms shall have the meanings that are assigned to them hereunder, namely –

"international derivatives"	means those Yield-X securities which are derivative instruments and the financial terms of which are determined by a security listed on an external exchange;

6.20 Contract specifications of Yield-X securities

6.20.1 The contract specifications of interest rate derivatives, **[and]** currency derivatives and international derivatives contained in the list of Yield-X securities kept in terms of these Yield-X rules shall be determined by the JSE Executive.

Annexure B - Proposed amendments to the Yield-X directives

General explanatory notes

1. Words underlined with a solid line (___) indicate the insertions in the existing directives.
2. Words in bold and in square brackets (**[ ]**) indicate omissions from the existing directives.

AB Qualification Requirements

1 Provision of investment advice and the exercise of discretion

1.1 In accordance with rule 10.215 and subject to AB 1.3, no employee of a member may –

1.1.1 advise on transactions in JSE authorised investments (excluding Yield-X securities) or exercise discretion in the management of JSE authorised investments (excluding Yield-X securities);

1.1.2 advise on transactions in bonds or exercise discretion in the management of bonds;

1.1.3 advise on transactions in interest rate derivatives or exercise discretion in the management of interest rate derivatives ; **[or]**

1.1.4 advise on transactions in currency derivatives or exercise discretion in the management of currency derivatives; or

1.1.5 advise on transactions in international derivatives or exercise discretion in the management of international derivatives;

unless such person has obtained a pass in all of the relevant modules of the Registered Persons Examination of the South African Institute of Financial Markets, as indicated in the table set out in AB 1.2.

1.2 Registered Persons Examinations table

Registered Persons Examination	**AB 1.1.1**	**AB 1.1.2**	**AB 1.1.3**	**AB 1.1.4**	**AB 1.1.5**
The Regulation of South African Financial Markets	✓	✓	✓	✓	✓
Introduction to Financial Markets	✓	✓	✓	✓	✓
International Derivatives			✓	✓	✓
Bonds and the Long-Term Debt Markets		✓	✓		
The South African Money Market		✓	✓		
International Equity Markets	✓				
The South African Foreign Exchange Market				✓	✓

1.3 Any person having qualified in terms of AB 1.1.1 to AB 1.1.**[4]**5 and who ceases to advise on transactions or exercise discretion for a period of more than three years must pass the relevant examinations in AB 1.2 again, prior to resuming the provision of advice or the exercising of discretion.

2 Dealers

2.1 ...

2.4 In accordance with rule 3.120.5 and subject to AB 2.5 and AB 2.6, no employee of a member may execute transactions in currency derivatives or international derivatives unless such person has obtained a pass in all of the following modules of the Registered Persons Examination of the South African Institute of Financial Markets –

2.4.1 The Regulation of South African Financial Markets;

2.4.2 Introduction to Financial Markets; and

2.4.3 International Derivatives.

2.5 ...

3 ...

CE Reported Transactions

1 The minimum values, as determined by the JSE, for value eligible reported transactions are as follows –

1.1 20 (twenty) contracts, in respect of interest rate derivatives;

1.2 1 (one) contract, in respect of currency derivatives;

1.3 1 (one) contract, in respect of international derivatives;

1.**[3]**4 R50 000 000 (fifty million Rand) nominal, in respect of bonds; and

1.**[4]**5 R50 000 000 (fifty million Rand) nominal, per leg, in respect of carry transactions.

Appendix 1 – Margin calculations

PLEASE NOTE THIS IS AN EXTRACT FROM AN EXISTING JSE DOCUMENT AND IS ONLY INCLUDED FOR INFORMATION PURPOSES:

What is Margin?
The JSE uses a variation of the SPAN model to calculate the amount of margin required for any portfolio containing derivative positions, i.e. futures and/or options on futures. The model requires certain parameters to be able to perform the calculation..

Margin Parameters
To calculate the amount of margin you should pay to the exchange for your positions you need the latest margin parameters. Any margin parameter changes are published in a notice to all our members

Initial margin is the amount of money determined by the clearing house on the basis specified by the risk management committee and held in respect of the aggregate position of a member or a client. Initial margin shall be paid to or by a member or client whenever the risk of loss changes with respect to the aggregate position (good faith deposit). This margin is reinvested at a competitive rate and at close out of the positions of the client/member the initial margin is paid back plus the interest earned for the period. The initial margin may be reduced or increased based on changes in the margin parameters

Variation Margin is paid by the members or client on a daily basis as the result of the mark to market process of the clients/members position. Mark to market refers to the present loss/profits of the position.

Additional margin may be required by the Clearing member from his members and by the members from their clients.

The member may require the client to deposit retained margin with him which may be used to furnish initial and additional margin requirements.

The client may have to top up his account with the member with maintenance margin . The client has to pay an amount of money to restore additional margin when the additional margin has been used to meet payments of variation margin.

How is it Calculated ?
Portfolio Scanning
The JSE uses the Portfolio Scanning method, of which SPAN ("Standard Portfolio Analysis of Risk"), introduced by the Chicago Mercantile Exchange in 1987, is the best known example. SPAN and other variations of Portfolio Scanning 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 chosen to cover (almost) all conceivable market moves within the next day. The lowest of the portfolio values is identified: from this is found the greatest loss which the participant could suffer on the next day. His margin, due in cash on the next morning, is then set equal to this greatest loss.

RMCO
The responsibility for setting margin parameters - the extent of the market moves - lies with the Exchange's Risk Management Committee, RMCO. Each Clearing Member has a seat on the RMCO. The Clearing Members underwrite the Exchange, and therefore have a direct interest in its risk management.

RMCO expresses its attitude to risk in the fundamental margining parameter, the "Risk Parameter". This is measured in standard deviations ("Sds") and has been set at 3.5 Sds since the margining methodology was introduced.

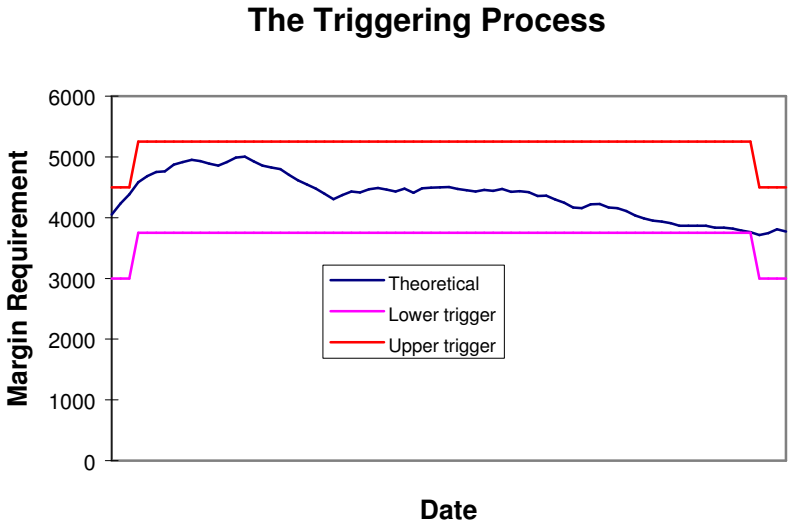
The Risk Parameter determines the width of the range over which prices are scanned. An underlying assumption is that prices are lognormally distributed. Given the standard deviation of such a distribution - in other words, the volatility of the price - the price move corresponding to 3.5 Sds can be found. The scanning range then covers moves up and down of this amount from the mark-to-market price.

The Risk Parameter of 3.5 Sds corresponds to a confidence level of 99.95%. The chance that larger moves will occur in practice - which means that margins will be insufficient to cover losses - is, at 3.5 Sds and under the assumption of lognormality, 1 in 2,000 in any day, and 1 in 9 over a whole year.

Should, however, it appears during a day that such a larger price move is going to happen, the Exchange can resort to the next line of defence. This is the "intra-day margin call", in which all positions are marked-to-market and margins recalculated, resulting in cash calls for immediate settlement.

Initial Margin requirements
Given the mark-to-market price of a futures contract and its volatility, the 3.5 Sd price-move is found each day. This is converted to the gain or loss on a one-contract short or long position.5

This figure gives a "theoretical" margin requirement, which is an unrounded amount which would tend to fluctuate from day to day. In order that margins are round figures which are not subject to too frequent changes, RMCO lays down certain "Trigger Steps" for each contract. The process is illustrated in the graph below.



The actual Initial Margin Requirement ("IMR") is initially set to be the multiple of the Trigger Step above the theoretical value. If on a subsequent day the theoretical value moves above this "Upper trigger", the IMR is moved up a step. If the theoretical value moves under the trigger steps below (the "Lower trigger"), the IMR is moved down a step.

Volatilities
The process of finding IMRs requires a volatility for each contract on each day. The volatility to be used has been defined by RMCO as the larger of the long-term volatility trend and the overnight market volatility.

The long-term volatility trend is calculated as the 750-day (three year) exponential volatility, of daily historical closing prices. The overnight market volatility is derived from the implied volatilities of at-the-

[5] This is not usually equal to the price move because, for example, the share index contracts are defined on 10 times the underlying index.

money options quoted on the futures, where these exist.6 Where options exist on more than one expiry month, a weighted linear regression is performed to allow for the term-structure of volatility in finding the overnight volatility.

If options do not exist on a contract, the contract's own 30 day exponential historical volatility is used as a surrogate for the overnight market volatility.

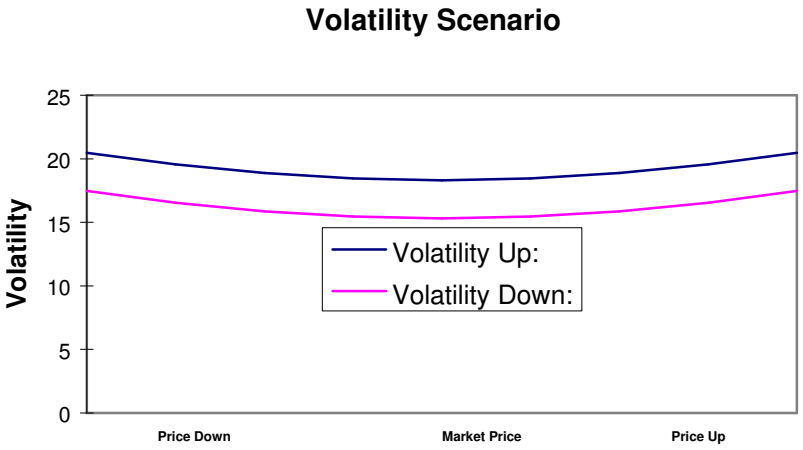
Volatility Scenarios

The description above has concentrated on Price Scenarios - i.e. The construction of the different prices (and in particular the extreme prices) at which portfolios are scanned.

Where portfolios contain options, they are also scanned over varying volatilities.

There are two sets of scenarios, known as "Volatility Up" and "Volatility Down". These are found from the market volatility plus or minus the Volatility Scanning Range, or VSR, a margining parameter set by RMCO for each series of contracts.

In addition, and adjustment is made for the effect (the "Range Price Volatility Effect", or RPVE) which large price moves would have on volatilities. Volatilities in both volatility scenarios are increased for prices far from the market. (to the extent, this also allows for the risk arising from the so-called "Volatility Smile".) The RPVE is more marked for the shorter contracts.



[6] In fact, "exist" is defined as an open interest of 1,000 or more on a futures contract.

Offsets and Spreads

Offsets are allowed between positions in all expiry months in each series of contracts. Each expiry has a RMCO defined parameter, its Class Spread Margin Requirement or CSMR. This is calculated from a statistical analysis of correlation and the Risk Parameter.

For a simple “long March , short June” position the process is quite easy. The net margin will be the positive difference between the two positions’ IMRs (the effect of offsetting), plus each of their CSMRs (the effect of spreading), as shown in the example below:

Contract	Position	IMR/Contract	IMR	CSMR/Contract	CSMR	Total Margin
March	+10	R3,500	R35,000	R1,000	R10,000	
June	-10	R4,000	R40,000	R1,000	R10,000	
			R5,000	+	R20,000	R25,000

Where a position contains options or a less straightforward mix of contracts, the calculation becomes more complicated. The effect, however, is always to attempt to optimise the use of capital by minimising the amount of margin due. This is achieved by bringing into the process only those portions of positions for which offsetting and spreading produces a net benefit.

In addition to offsetting between contract months, offsets are allowed between net positions in groups of contracts which show sufficient correlation, for example the ALSI/ INDI and R150/R153 groups. The calculations follow the same approach as above; the relevant margin parameters are the Series Margin Requirements, or SSMRs