

NEW TRADING AND INFORMATION SYSTEM

CONCEPTUAL TRAINING



JSI

HIGH LEVEL ARCHITECTURE



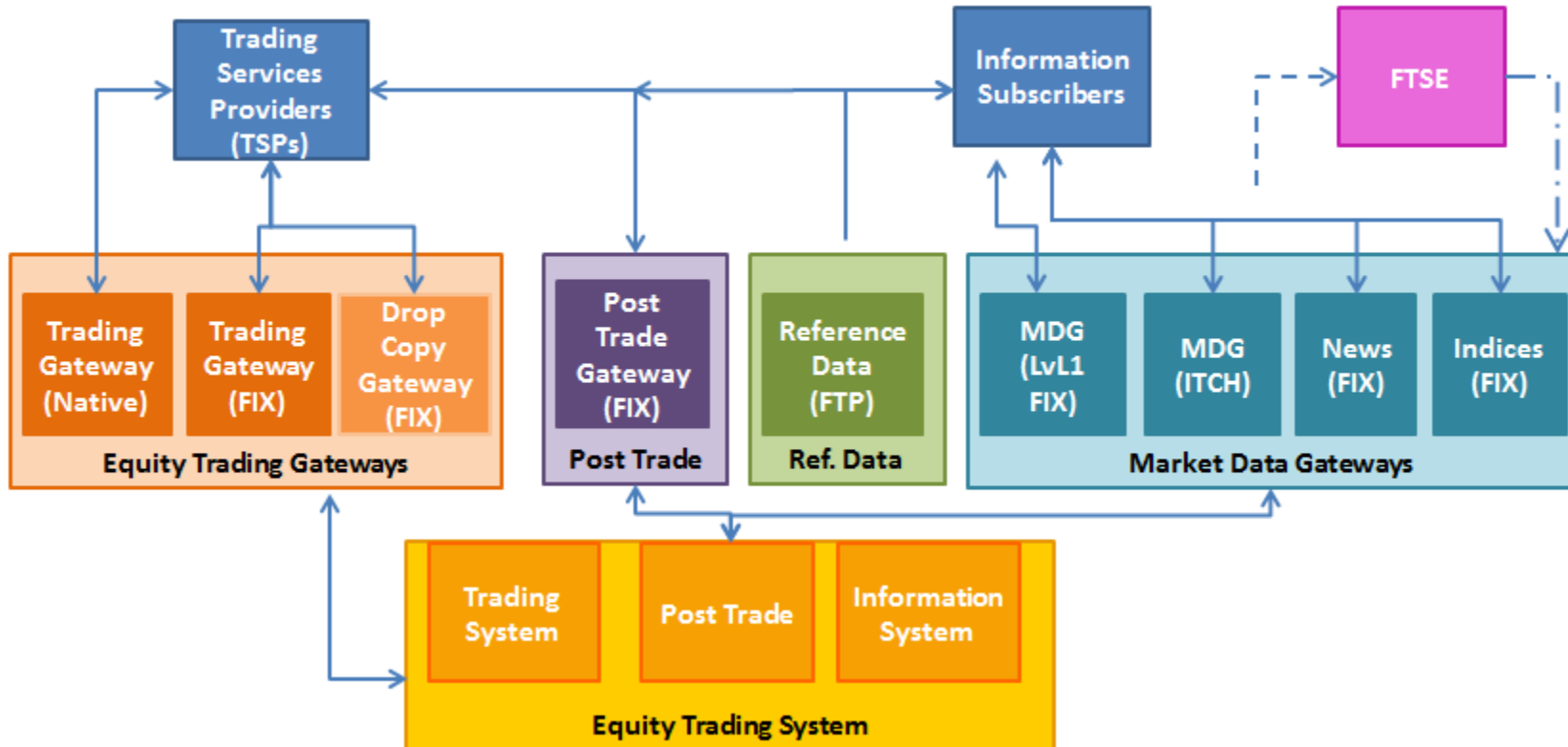
- NEW TRADING AND INFORMATION SYSTEM ARCHITECTURE
- JSE MARKET STRUCTURE
- MARKET USERS
- PARTICIPANT STRUCTURE



EQUITY MARKET ACCESS

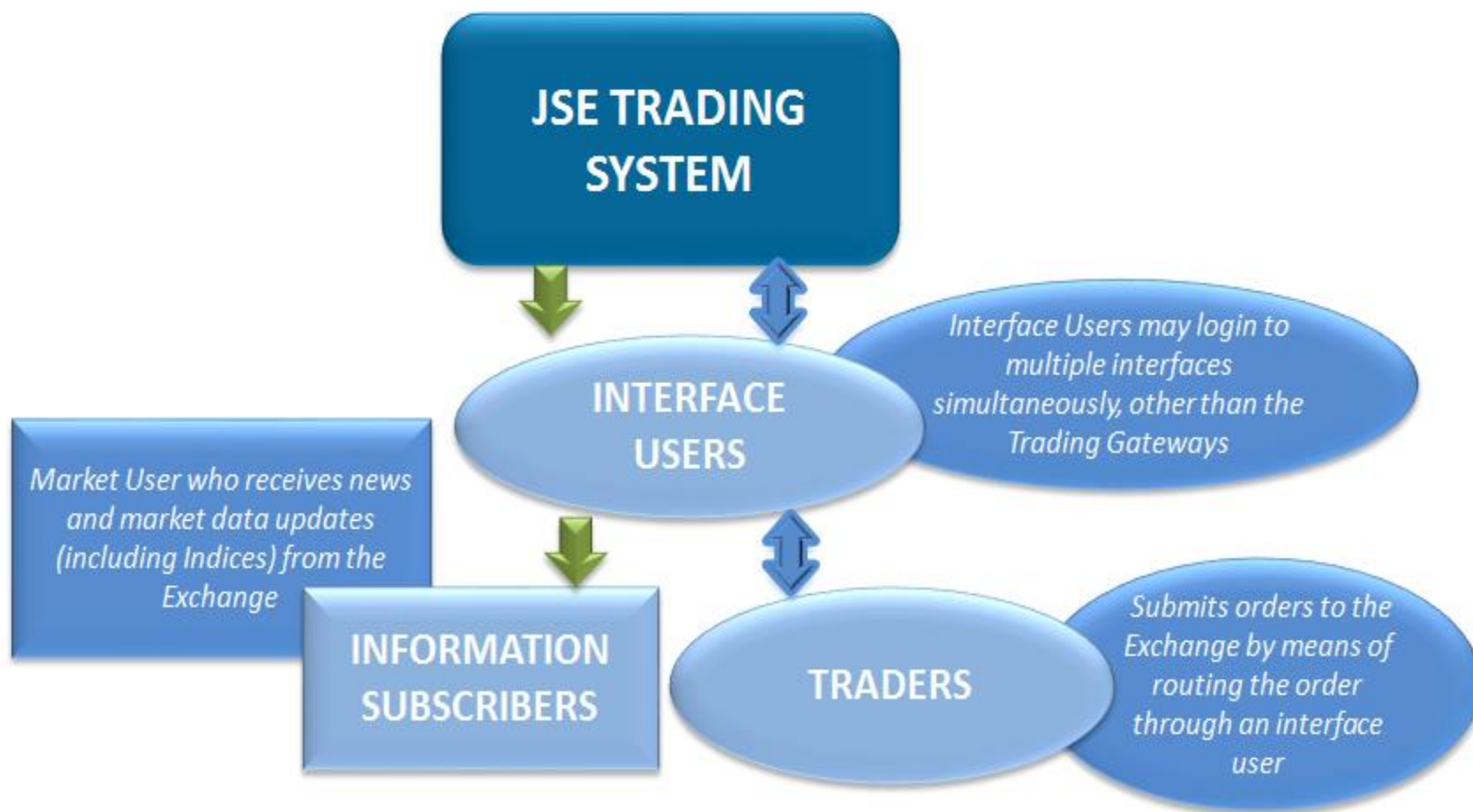


Participants gain access to the Equity Market through Gateways dependent on their roles:

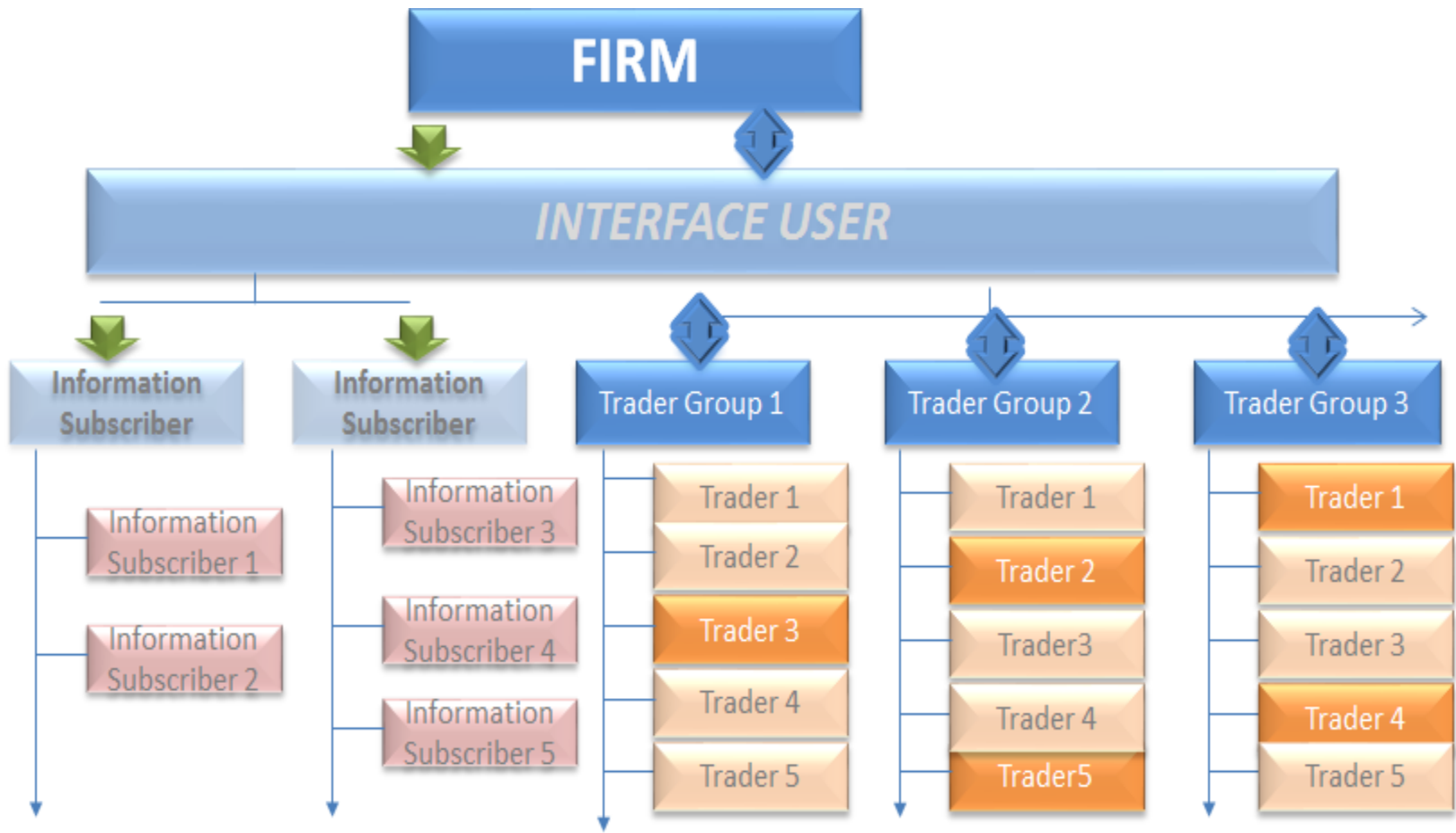


MARKET USERS

JSE



PARTICIPANT STRUCTURE



Traders will be assigned to all trader groups/ Nodes

EQUITY MARKET STRUCTURE

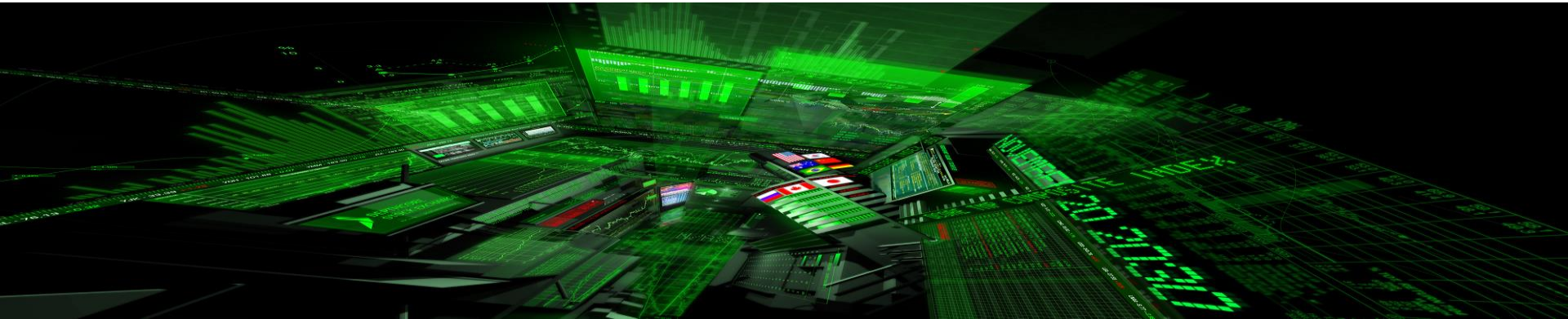
JSE



TRADER/TRADER GROUP/FIRM SUSPENSIONS



- On suspension of a Trader Group all the Traders who belong to the suspended Trader Group will automatically be suspended.
- The behaviour for the suspended Trader Group (and all Traders in the group) under the Dual Party Trade Reporting model will be same as the actions described above when a Trader has been suspended (by replacing Trader with Trader Group).



HIGH LEVEL ARCHITECTURE - NOTES



- Traders must know which Trading Gateways are being used by their firm.
- Traders must know which Interface User (CompID) the trader is accessing the system through.
- Traders must know what Trader Groups exist for the firm.
- Traders are identified in the system using the combined Trader ID and Trader Group codes.
- The concept of Trading Sector no longer exists in the new system and is provided to the various software through reference data files.

TRADES & POST TRADE GATEWAY

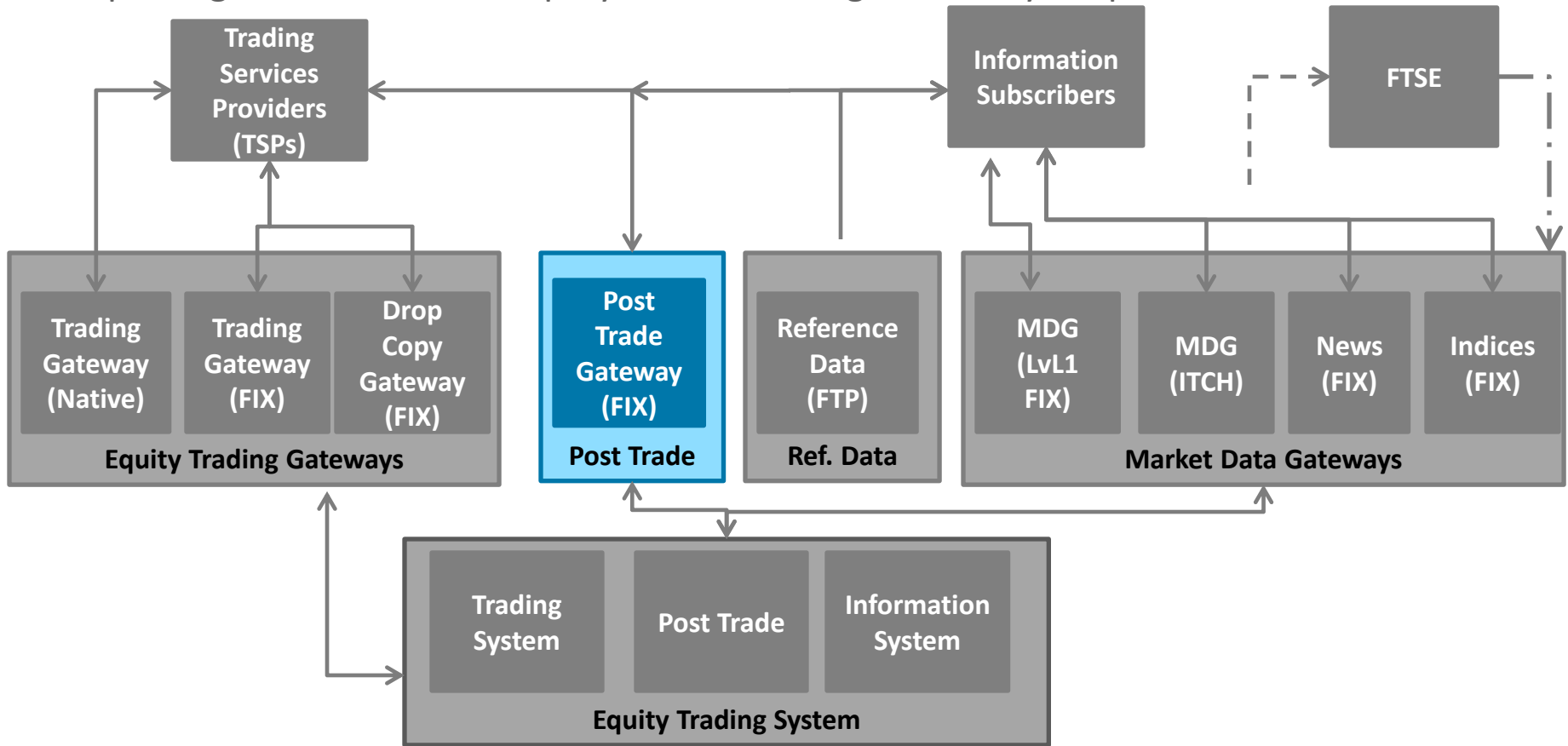


- **Post Trade Gateway Overview**
- **User Access**
- **Trade Types**
- **Trade Validation**
- **Trade Submission:**
 - Single sided
 - Dual sided
- **Message Flows**

EQUITY MARKET ACCESS



Participants gain access to the Equity Market through Gateways dependent on their roles:



USER ACCESS



- Clients will receive real-time information on executed, submitted and cancelled trades for the current day through the Post Trade Gateway which uses FIX.
- Even though a trader receives an OER (Order Execution Report) from the Order Management Gateways (FIX Trading or Native Trading), the Trade is NOT a confirmed trade until the TCR (Trade Capture Report) is received from the Post Trade Gateway.
- The details of trades conducted on previous trading days are not available in the system (it does not keep the previous day's information).
- Each Interface User ID (CompID) must be registered with the relevant JSE and NSX markets before FIX communications can begin through the gateway.
- In order to manage trades, the default Interface User (CompID) of the Firm must be specified and linked to the Post Trade Gateway Interface User (CompID).

TRADE REPORTING SESSION



Start of Trading Session 07:00 – 08:30	Opening Auction Call Session 08:30 – 09:00	Continuous Trading Session 09:00 – 16:50	Continuous Trading 1 09:00 – 12:00	Intraday Auction Call 12:00 – 12:15	Continuous Trading 2 12:15 – 16:50	Closing Auction Call Session 16:50 – 17:00	CPP Session 17:00 – 17:05	CPX Session 17:05 – 17:10	EOD Volume Auction 17:10 – 17:15	Post Close 17:15 – 18:15
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Trade Reporting

Start: 08:00

End: 18:15

The start of the session will be published through the MDGs.

Off Book trades can be submitted/cancelled during the Start and End times specified for the Trade Reporting Session regardless of the session that a market/segment/instrument may be in.

Trades and statistic updates will be published through the MDGs.



OFF BOOK TRADES



Off Book Trades are concluded outside the central order book. These trades may be submitted by one member (Single-sided Off Book Trades) or by both members (Dual-sided Off Book Trades).

The Trade Type associated with the Trade Report will determine whether the trade is published and/or included in statistical data updates.

Single Sided Reporting Model

Off Book trades where the member is the same on both the buy and sell legs of the trade.

Dual Sided Reporting Model

Off Book trades is where there are 2 members to a trade i.e. the member is different on the buy and sell legs of the trade.



TRADE TYPES



Trade Name	Trade Type	Market	Book Type	Reporting Model	Published to Market Y/N	Market Data Stats	JSE Overall Stats
Automated Trade	AT	JSE/NSX	On book	N/A	Y	Y	Y
Uncrossing Trade	UT	JSE/NSX	On Book	N/A	Y	Y	Y
Block Trade	BT	JSE/NSX	Off Book	Both	Y	Y	Y
Book Build	BK	JSE/NSX	Off Book	Dual	Y	Y	Y
Corporate Finance Trade	CF	JSE/NSX	Off Book	Both	Y	Y	Y
Delta Trade	OD	JSE/NSX	Off Book	Dual	N	N	N
Give Up	GU	JSE/NSX	Off Book	Dual	N	N	N
Cancellation of previous day's published off book trade	LC	JSE/NSX	Off Book	Both	Y	N	N
Cancellation of previous day's non-published off book trade	NC	JSE/NSX	Off Book	Both	N	N	N
Late Trade (After Hours Trade)	LT	JSE/NSX	Off Book	Single	Y	Y	Y
Namibia Trade	NX	NSX	Off Book	Single	Y	Y	Y
Off Order Book Principal Trade	OP	JSE/NSX	Off Book	Single	Y	Y	Y
Option Exercised	OX	JSE/NSX	Off Book	Both	N	N	N
Portfolio Trade	PF	JSE/NSX	Off Book	Both	Y	Y	Y
Cancellation of previous day's on book trade	PC	JSE/NSX	Off Book	Both	Y	N	N
Traded Option Exercised	TX	JSE/NSX	Off Book	Both	N	N	N
Warrant Exercised	WX	JSE/NSX	Off Book	Both	N	N	N
Cross Trade	XT	JSE/NSX	On Book	N/A	Y	Y	Y
EOD Volume Auction	VT	JSE/NSX	On Book	N/A	Y	Y	Y

TRADE VALIDATION

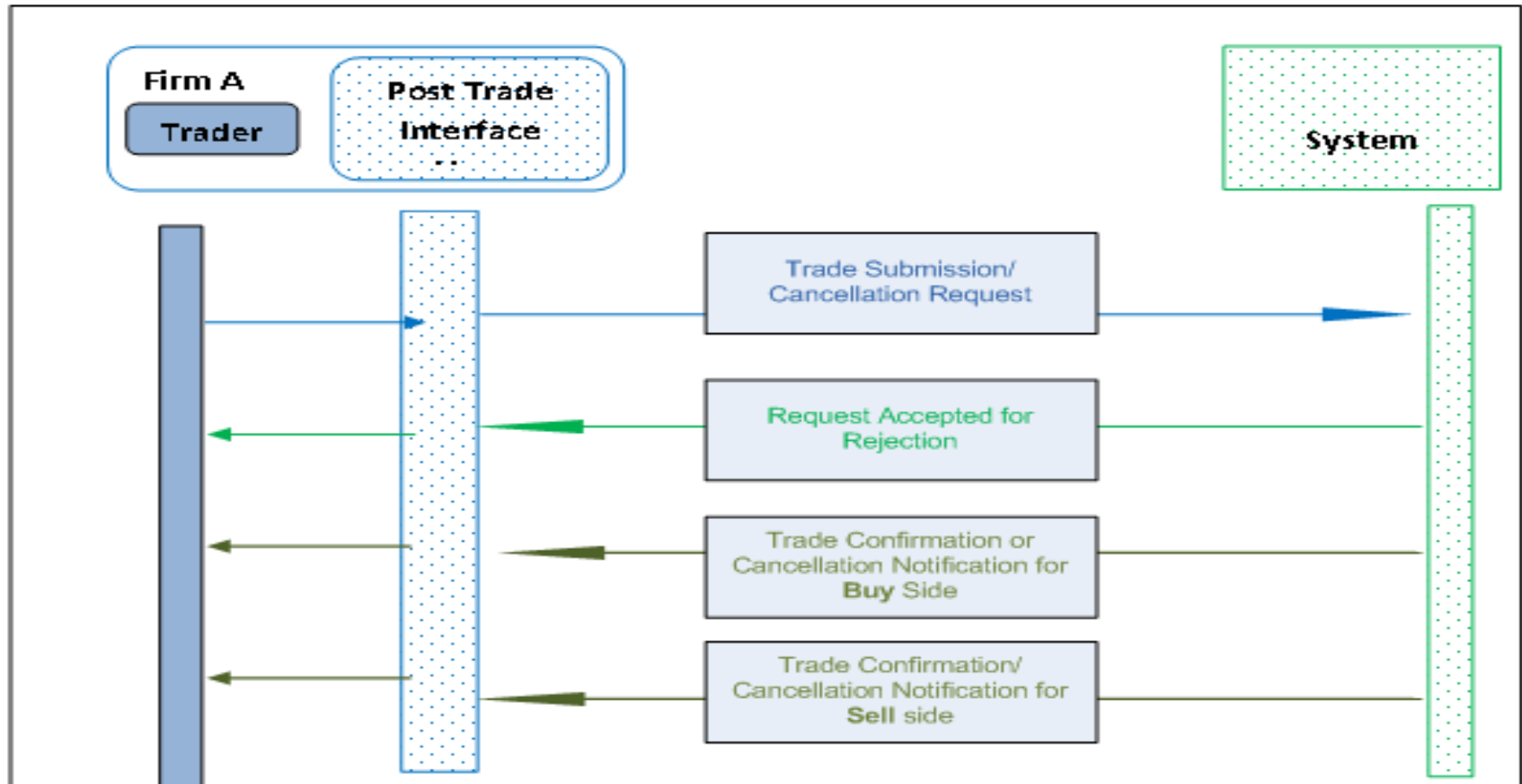


Upon submission of an Off Book Trade or Trade Cancellation, the System will perform the following validations:

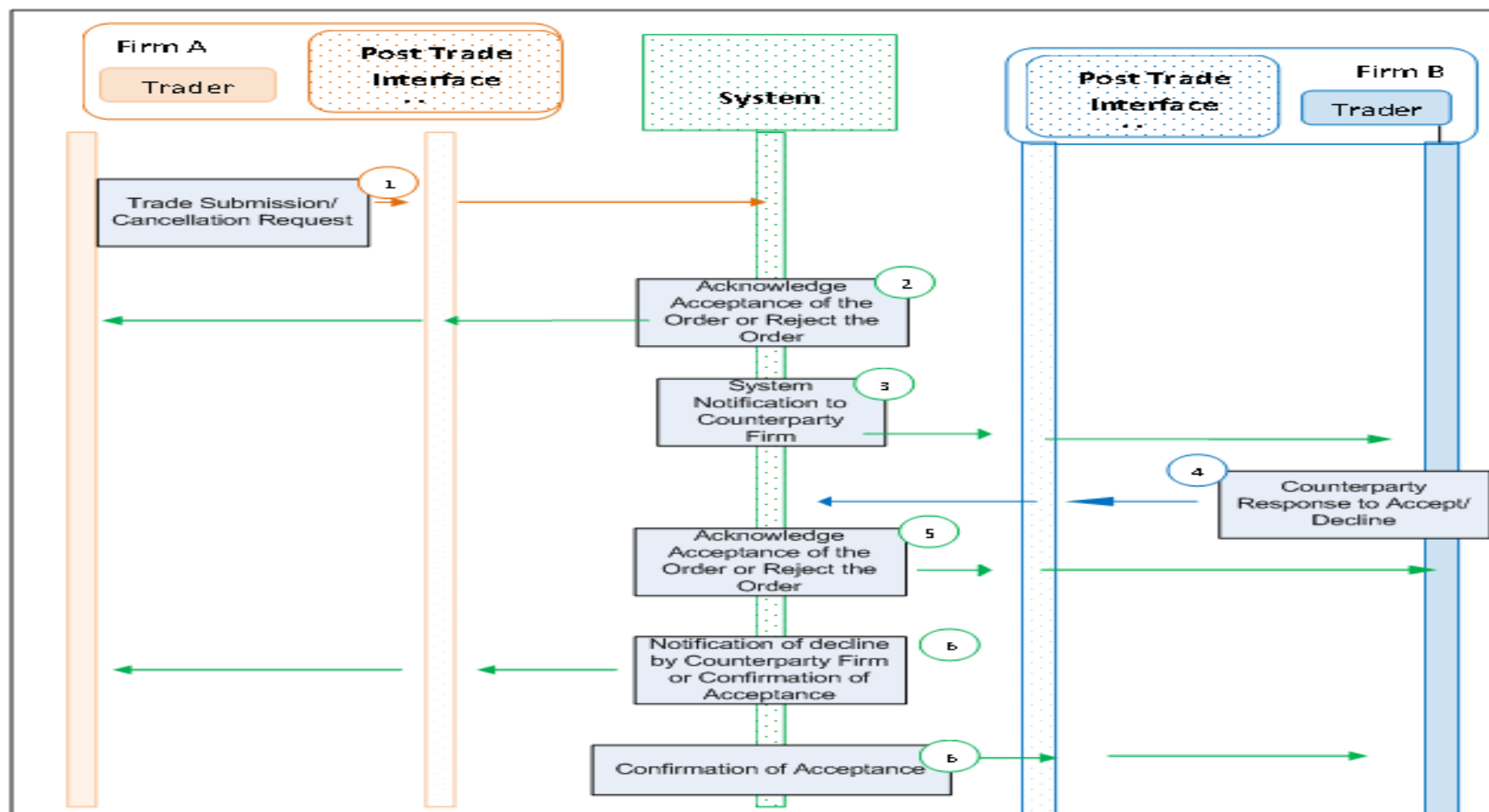
- Trade type is for a valid market/segment
- Dealing capacity is allowed per trade type
- Whether it is a valid Trade Reporting session
- Can the Member be the same on both sides (single party trade reporting model)
- Whether a Member can be different on each sides (dual party trade reporting model)
- Trade is not backdated for more than one trading day
- The Trader ID and Trader Group is valid
- The Member has a default Interface User and is configured to access the Post Trade Gateway
- Other field validations as per the Post Trade Gateway specifications



SINGLE-SIDED OFF BOOK TRADES



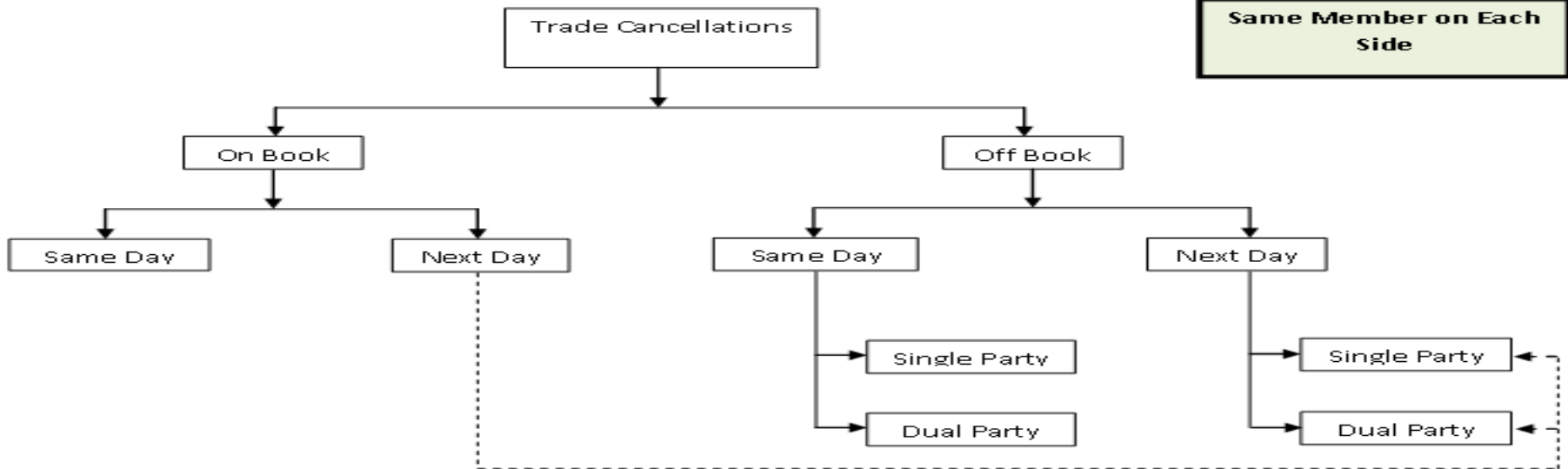
DUAL-SIDED OFF BOOK TRADES



TRADE CANCELLATIONS – SINGLE-SIDED



Same Member on Each Side



Can only be done same day

Firm submits both Trade Cancellation Requests

If requests Match then the trade is cancelled

Trade Status change published with "Cancel"

Only backdated 1 day

Firm submits a PC as Equal & Opposite completing both sides

If request accepted by System then the trade is accepted

New PC Trade published with "Cancel"

Can only be done same day

Firm submits a Trade Cancellation Request

If request accepted by System then the cancellation is accepted

Trade Status change published with "Cancel"

Only backdated 1 day

Firm submits a NC or LC as Equal & Opposite completing both sides

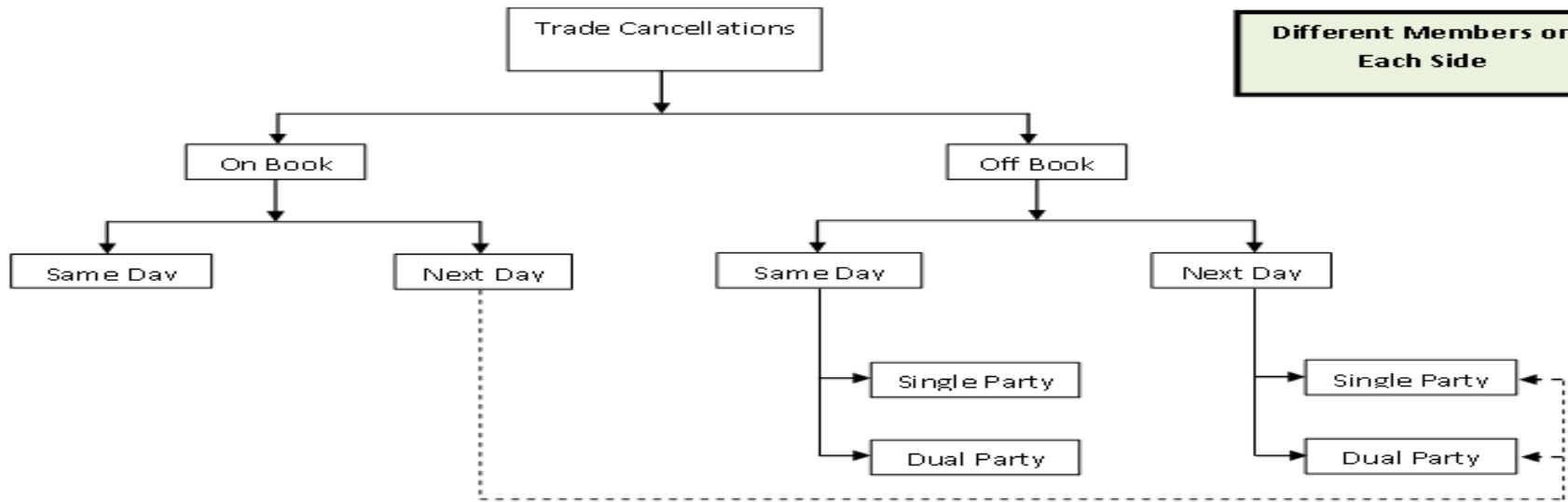
If request accepted by System then the trade is accepted

New LC Trade published (NC not published)

TRADE CANCELLATIONS – DUAL-SIDED



Different Members on Each Side



Can only be done same day

Each Firm submits a Trade Cancellation Request

If requests Match then the trade is cancelled

Trade Status change published with "Cancel"

Only backdated 1 day

A Firm submits a PC as Equal & Opposite

If request accepted by other Firm then the trade is accepted

New PC Trade published

Can only be done same day

A Firm submits a Trade Cancellation Request

If request accepted by other Firm then the cancellation is accepted

Trade Status change published with "Cancel"

Only backdated 1 day

A Firm submits a NC or LC as Equal & Opposite

If request accepted by other Firm then the trade is accepted

New LC Trade published (NC not published)

OWN TRADE BOOK DOWNLOAD



- All On Book and Off Book trades executed on the same day as the request (including cancellations) will be available on the own trade download functionality through the Post Trade Gateway.
- Off Book trades which have been published prior to the date of the request will not be available through the own trade download functionality.



STATISTICS



There are various statistics that are published from the System through the Market Data Gateways for the current trading day:

- Turnover (Off Book);
- Turnover (On Book);
- VWAP (On Book);
- VWAP (All Trades i.e. On Book and Off Book);
- Volume of Trades (On Book);
- Volume of Trades (Off Book);
- Number of Trades (On Book); and
- Number of Trades (Off Book).



Statistics calculated will be rounded down to three decimal places.

STATISTICS contd



The following statistics will be updated automatically upon trade cancellations which takes place on trades executed on the current trading day.

- Turnover (Off Book);
- Turnover (On Book);
- VWAP (On Book);
- VWAP (All Trades i.e. On Book and Off Book);
- Volume of Trades (On Book);
- Volume of Trades (Off Book);
- Number of Trades (On Book); and
- Number of Trades (Off Book).



TRADES & POST TRADE GATEWAY



- Traders must know the default interface user (COMPID) for the firm.
- Traders must know when Trade Reporting is allowed.
- Traders must know how to submit Single and Dual Sided Trade Reports.
- Traders must know how to submit trade cancellations.
- Traders cannot amend the client account on an executed or submitted trade.

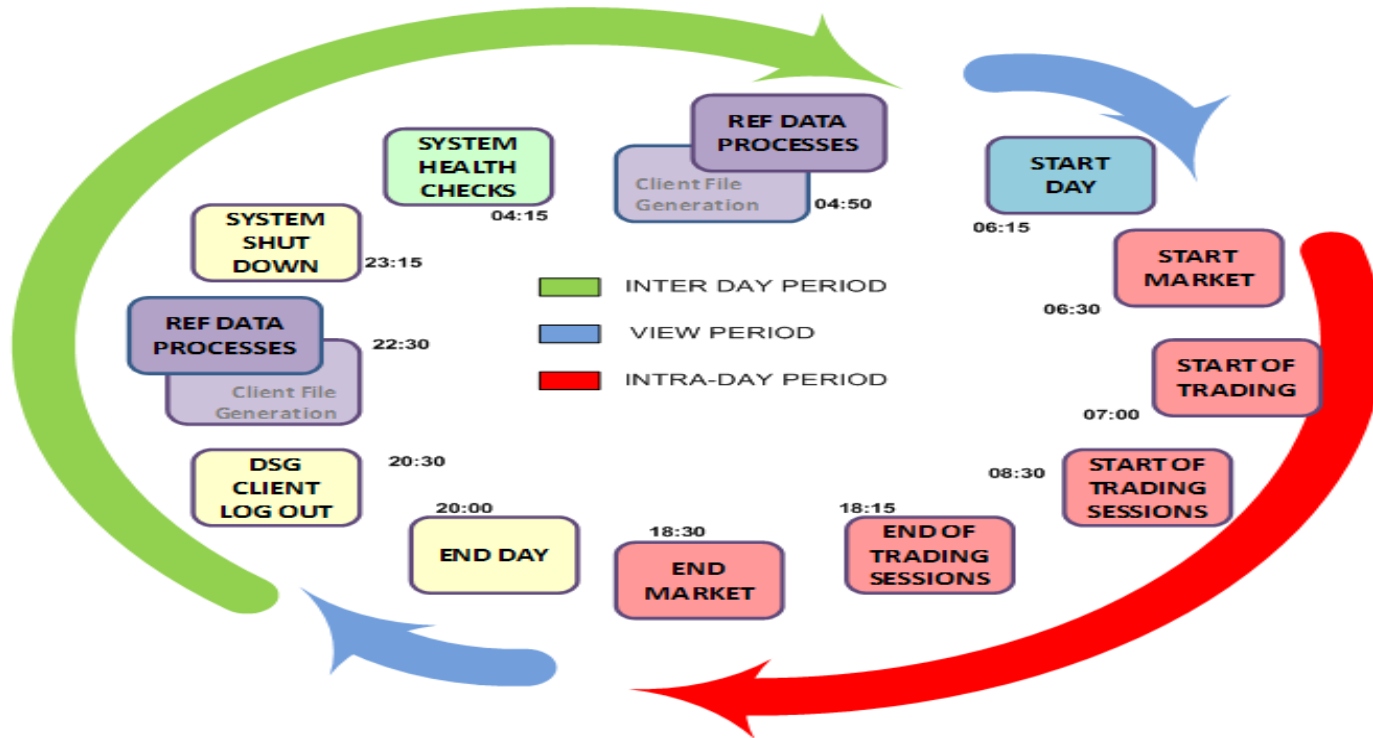
DETAILED TRADING DAY



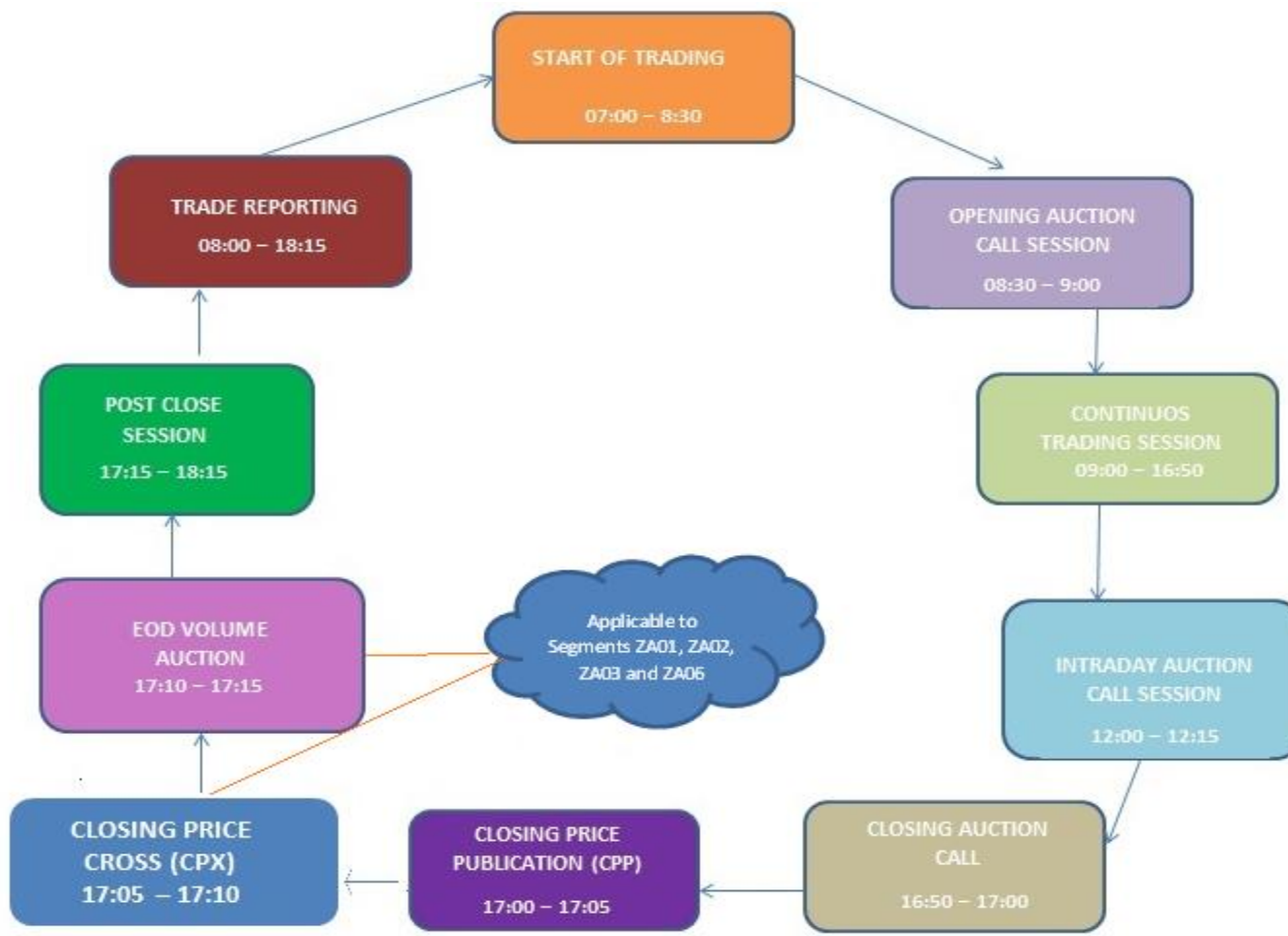
- DAILY TRADING LIFE CYCLE
- DETAILED TRADING DAY
- TRADING SESSIONS and TRADING CALENDAR
- CIRCUIT BREAKERS



EXCHANGE DAILY LIFE CYCLE



DAILY TRADING LIFE CYCLE – TRADING SESSIONS



TRADING CALENDAR



The trading calendar can be defined on a market level or an instrument level. The JSE has chosen to define the calendar at a market level. JSE and NSX markets follow the same calendar.

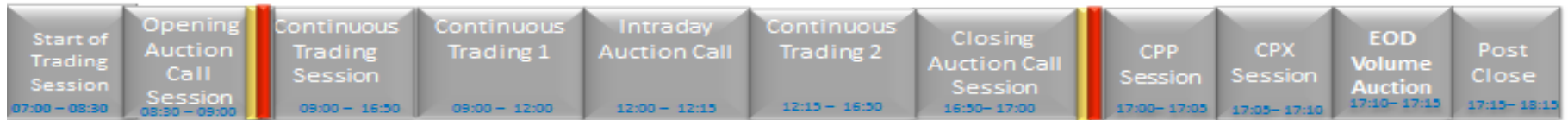
Through the trading calendar a particular date may be tagged as one of the following days:

- Trading Day
- Non Trading Day
- Early Close Day
- Futures Close Out Day

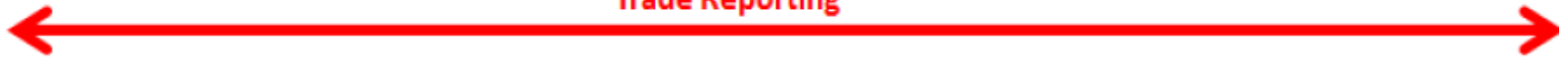
If a day has not been defined in the trading calendar, it is considered to be a normal trading day.



EARLY CLOSE DAY EXAMPLE



Trade Reporting



Example of an Early Close Day Schedule

EARLY CLOSE DAY

	START OF TRADING	OPENING AUCTION CALL	CONTINUOUS TRADING	CONTINUOUS TRADING 1	INTRADAY AUCTION CALL	CONTINUOUS TRADING 2	CLOSING AUCTION CALL	CLOSING PRICE PUBLICATION	CLOSING PRICE CROSS	EOD VOLUME AUCTION	POST CLOSE	TRADE REPORTING
ZA01	07:00 - 08:30	08:30 - 09:00	09:00 - 11:50				11:50 - 12:00	12:00 - 12:05	12:05 - 12:10	12:10 - 12:15	12:15 - 13:00	08:00 - 13:00
ZA02	07:00 - 08:30	08:30 - 09:00	09:00 - 11:50				11:50 - 12:00	12:00 - 12:05	12:05 - 12:10	12:10 - 12:15	12:15 - 13:00	
ZA03	07:00 - 08:30	08:30 - 09:00		09:00 - 11:00	11:00 - 11:15	11:15 - 11:50	11:50 - 12:00	12:00 - 12:05	12:05 - 12:10	12:10 - 12:15	12:15 - 13:00	
ZA06	07:00 - 08:30	08:30 - 09:00	09:00 - 11:50				11:50 - 12:00	12:00 - 12:05	12:05 - 12:10	12:10 - 12:15	12:15 - 13:00	
ZA12	07:00 - 08:30	08:30 - 09:00	09:00 - 12:00				12:00 - 12:10	12:10 - 12:15	12:15 - 12:20		12:20 - 13:00	
ZA11	07:00 - 08:30	07:00 - 08:30		09:00 - 11:00	11:00 - 11:15	11:15 - 11:50	11:50 - 12:00	12:00 - 12:05	12:05 - 12:10		12:10 - 13:00	
ZA04	07:00 - 08:30	08:30 - 09:10	09:10 - 11:49					11:49 - 11:50			11:50 - 13:00	
Functionality allowed	View open/expired orders; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades; unexecuted orders with EHL flag are expired	Closing price publication; order deletion; manage Off Book trades	Order entry, order modification (except price), order deletion; manage Off Book trades	Order entry at the closing price only / amendment of the size only / deletion	Order deletion; GTT orders are expired; manage Off Book trades	Manage Off Book trades

FUTURES CLOSE OUT (FCO) DAY

FCO AUCTION CALL SESSION



Start: 12:00

End: 12:15

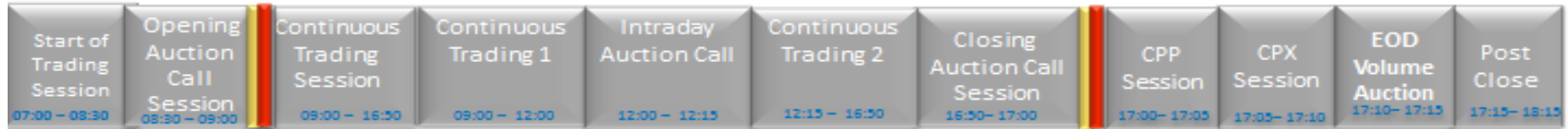
The FCO session will only be applicable on certain days as defined in the trading calendar- currently the 3rd Thursday of every quarter.

Only certain instruments that have been flagged will participate in the FCO Auction Call session. Circuit breaker tolerance will be applied during this session (where applicable).

All orders accepted during this session will be added to the order book. Entry and modification of Pegged Hidden Limit Orders will not be allowed during this session.

FCO Auction Call Session may be followed by one Market Order and two Price Monitoring extensions, dependent on the applicable segment rules.

FUTURES CLOSEOUT DAY EXAMPLE



Trade Reporting

FUTURES CLOSE OUT DAY

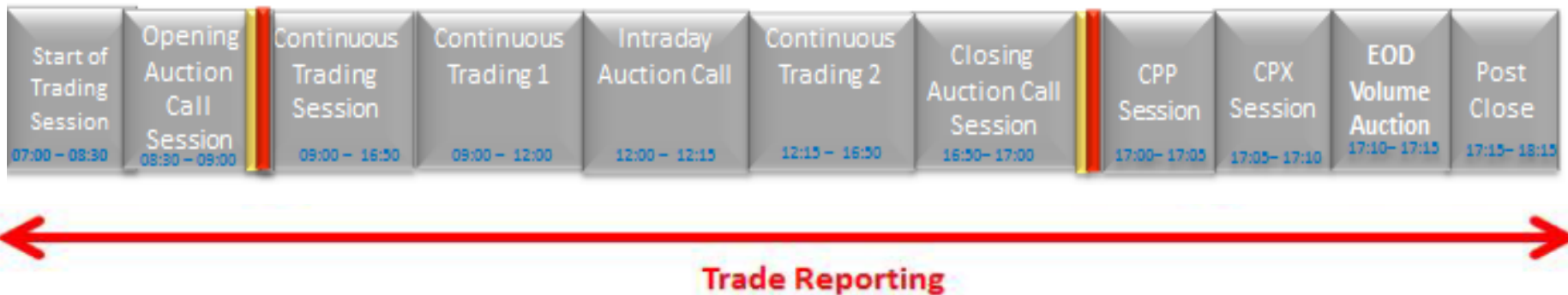
SCHEDULE FOR INSTRUMENTS THAT WILL PARTICIPATE IN THE FCO AUCTION CALL SESSION

	START OF TRADING	OPENING AUCTION CALL	CONTINUOUS TRADING	CONTINUOUS TRADING 1	FCO AUCTION CALL	CONTINUOUS TRADING 2	CLOSING AUCTION CALL	CLOSING PRICE PUBLICATION	CLOSING PRICE CROSS	EOD VOLUME AUCTION	POST CLOSE	TRADE REPORTING
ZA01	07:00 - 08:30	08:30 - 09:00		09:00 - 12:00	12:00 - 12:15	12:15 - 16:50	16:50 - 17:00	17:00 - 17:05	17:05 - 17:10	17:10 - 17:15	17:15 - 18:15	08:00 - 18:15
ZA02								17:00 - 17:05	17:05 - 17:10	17:10 - 17:15	17:15 - 18:15	
ZA03								17:00 - 17:05	17:05 - 17:10	17:10 - 17:15	17:15 - 18:15	
ZA06								17:00 - 17:05	17:05 - 17:10	17:10 - 17:15	17:15 - 18:15	
Functionality allowed	View open/expired orders; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades	Order entry/amendment/deletion; submission of orders with EHL flag; automatic matching; manage Off Book trades	Order entry/amendment/deletion; manage Off Book trades; unexecuted orders with EHL flag are expired	Closing price publication; order deletion; manage Off Book trades	Order entry, order modification (except price), order deletion; manage Off Book trades	Order entry at the closing price only / amendment of the size only / deletion	Order deletion; GTT orders are expired; manage Off Book trades	Manage Off Book trades

DETAILED TRADING DAY



During a typical trading day, instruments trading in a given market segment will move through various trading sessions. A trading session defines a set of rules during a particular phase of a trading day.



- The start of each trading session is published through the Market Data Gateways (MDGs).
- The trading sessions are automatically invoked for each segment based on the session parameters applied for each segment.

START OF TRADING SESSION

JS

Start of Trading Session 07:00 – 08:30	Opening Auction Call Session 08:30 – 09:00	Continuous Trading Session 09:00 – 16:30	Continuous Trading 1 09:00 – 12:00	Intraday Auction Call 12:00 – 12:15	Continuous Trading 2 12:15 – 16:30	Closing Auction Call Session 16:30 – 17:00	CPP Session 17:00 – 17:05	CPX Session 17:05 – 17:10	EOD Volume Auction 17:10 – 17:15	Post Close 17:15 – 18:15
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Start: 07:00
End: 08:30

This session will typically be the first session for an instrument following the successful Start of Day processes.

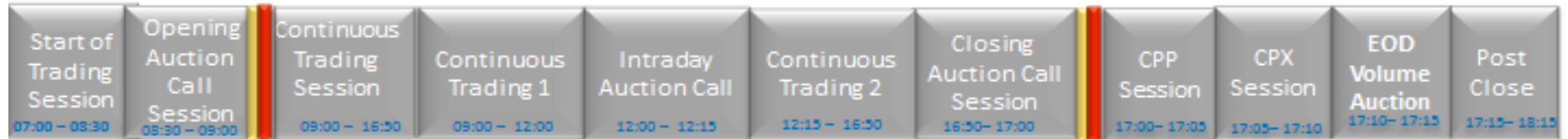
No automatic execution of orders will take place during this session.

Traders will not be able to manage orders during this session.

GTC/ GTD orders carried forward from the previous trading day will be the only orders on the order book, published via the MDGs.



TRADE REPORTING



Trade Reporting

Start: 08:00
End: 18:15

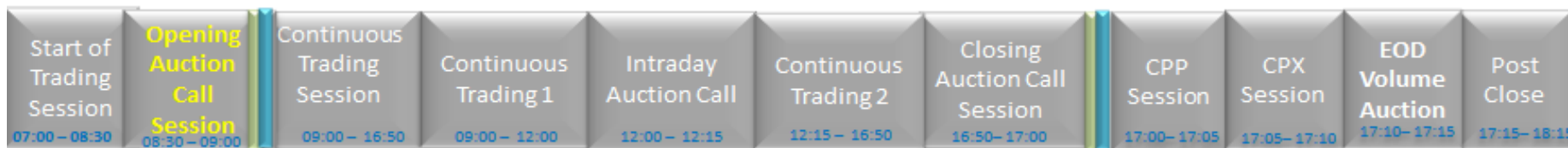
The start of the session will be published through the MDGs.

Off book trades can be submitted/cancelled during the Start and End times specified for the Trade Reporting Session regardless of the session that a market/segment/instrument may be in.

Trades and statistic updates will be published through the MDGs.



OPENING AUCTION CALL SESSION



Start: 08:30

End: 09:00

Market, Limit, Stop and Stop Limit orders will be allowed during this session. Orders can be submitted, cancelled or amended during this session. Valid Stop and Stop Limit orders will be parked in an unelected state until the Auction Uncrossing.

The entry of new or modification of existing Pegged Hidden Limit Orders during this session is not permitted.

Unexecuted Market Orders will expire following the Uncrossing of the Auction.

The orders accumulated during this session will be executed at the uncrossing based on the Volume Maximising Algorithm, following any extension period(s).

VOLATILITY AUCTION CALL SESSIONS



Start of Trading Session 07:00 – 08:30	Opening Auction Call Session 08:30 – 09:00	Continuous Trading Session 09:00 – 16:50	Continuous Trading 1 09:00 – 12:00	Intraday Auction Call 12:00 – 12:15	Continuous Trading 2 12:15 – 16:50	Closing Auction Call Session 16:50 – 17:00	CPP Session 17:00 – 17:05	CPX Session 17:05 – 17:10	EOD Volume Auction 17:10 – 17:15	Post Close 17:15 – 18:15
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The Start and End times of this session are not scheduled and will initiate automatically due to any Circuit Breaker tolerance level being breached.

This session lasts for 5 minutes and may be followed by one Market Order Extension of 2 minutes. This will be followed by a random period of up to 30 seconds when the uncrossing occurs.

Market, Limit, Stop and Stop Limit orders will be allowed during this session. Orders can be submitted, cancelled or amended during this session. Valid Stop and Stop Limit orders will be stored in an unelected state until the Uncrossing period where they may be elected if applicable.

The entry of new or modification of existing Pegged Hidden Limit Orders during this session is not permitted.

The orders accumulated during this session will be executed at the Uncrossing based on the Volume Maximizing algorithm.



CIRCUIT BREAKERS



- A Circuit Breaker prevents unnatural price movements in an instrument by triggering a Volatility Auction Call session. This provides traders with an opportunity to correct the order price, if necessary or adjust to market sentiment/news.
- Circuit Breaker (CB) tolerance is defined as a percentage in relation to the Static Reference Price and / or Dynamic Reference Price of an instrument.
- If the difference between the price of the next trade and the Static Reference Price or Dynamic Reference Price is equal or greater than that permitted by the Circuit Breaker tolerance defined for the relevant session, the instrument will automatically be moved into:
 - A Volatility Auction Call session



CIRCUIT BREAKERS

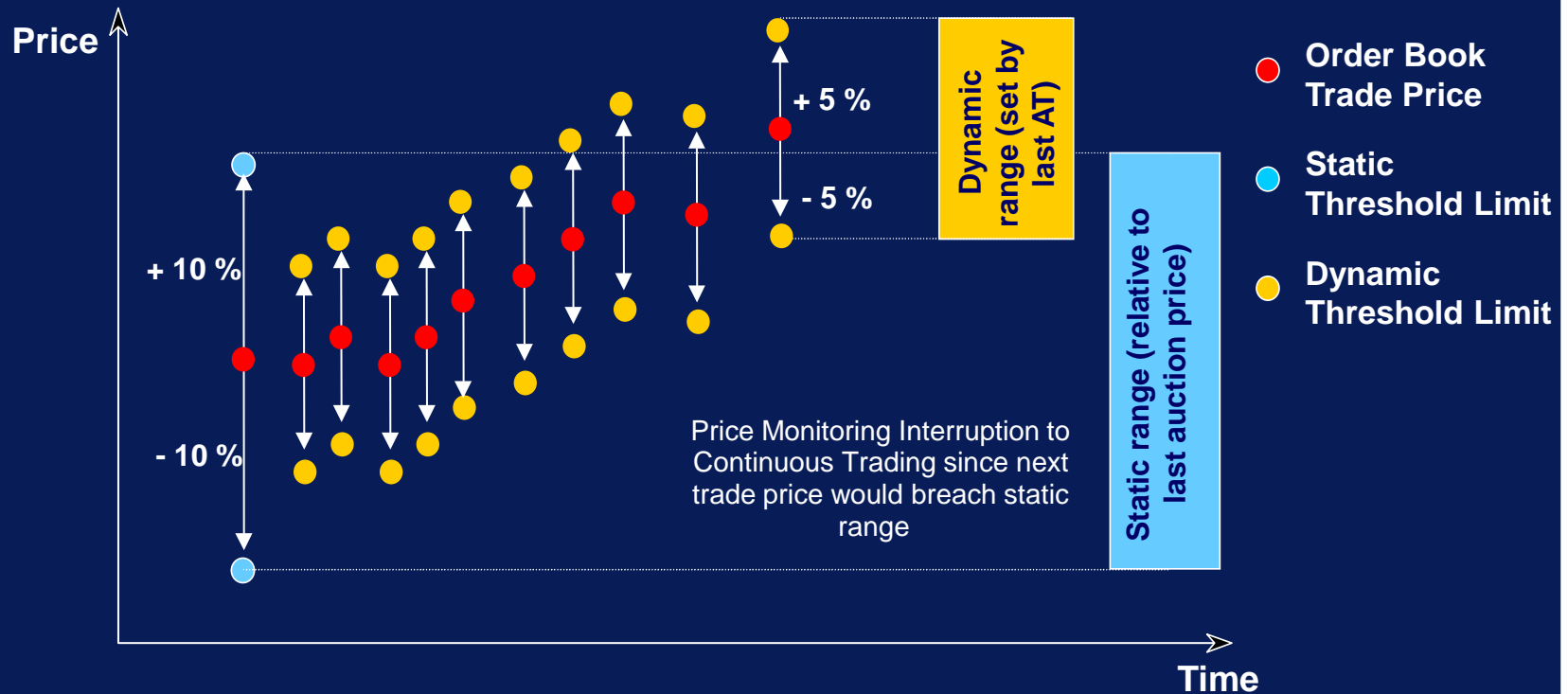


Static and Dynamic circuit breakers are configured at a Segment level.

Circuit breakers are only enabled for Segments ZA01 and ZA02, as follows:

	ZA01		ZA02	
Trading Session	Static Circuit Breaker %	Dynamic Circuit Breaker %	Static Circuit Breaker %	Dynamic Circuit Breaker %
Continuous Trading	10%	3%	15%	5%
Closing Auction Call	8%	6%	20%	10%
Opening Auction Call	8%	6%	20%	10%
Reopening Auction Call	8%	6%	20%	10%
FCO Auction Call	15%	2%	30%	4%
Volatility Auction Call	10%	3%	15%	5%

STATIC AND DYNAMIC THRESHOLDS EXAMPLE



AUCTION CALL EXTENSIONS



Possible Extensions to Auction Call Sessions:

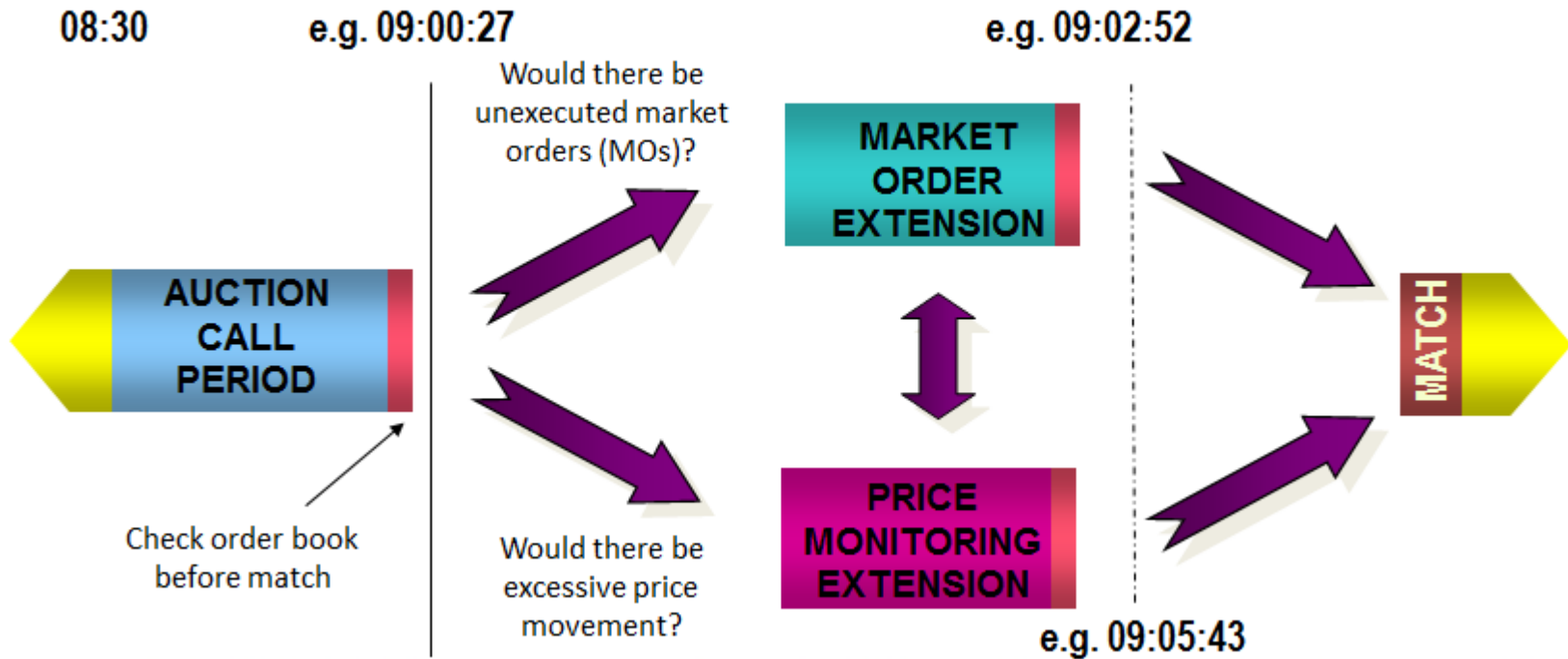
	Opening Auction Call	Continuous Trading	Intra-Day Auction Call	Closing Auction Call	FCO Auction Call
		Volatility Auction Call			
Market Order Extension	One	One	One	One	One
Price Monitoring Extension	One	No Extension	No Extension	Two	Two

AUCTION CALL EXTENSIONS



If, while calculating the price that orders can execute, it is established that there will be:

- Unexecuted Market Orders – a Market Order Extension (MOE) will be invoked.
- Excessive Price Movement – a Price Monitoring Extension (PME) will be invoked.



CONTINUOUS TRADING SESSION



Start of Trading Session 07:00 – 08:30	Opening Auction Call Session 08:30 – 09:00	Continuous Trading Session 09:00 – 16:50	Continuous Trading 1 09:00 – 12:00	Intraday Auction Call 12:00 – 12:15	Continuous Trading 2 12:15 – 16:50	Closing Auction Call Session 16:50 – 17:00	CPP Session 17:00 – 17:05	CPX Session 17:05 – 17:10	EOD Volume Auction 17:10 – 17:15	Post Close 17:15 – 18:15
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Start: 09:00

End: 16:50

The System will continuously match incoming orders against those that are already in the order book according to price-visibility-time priority.

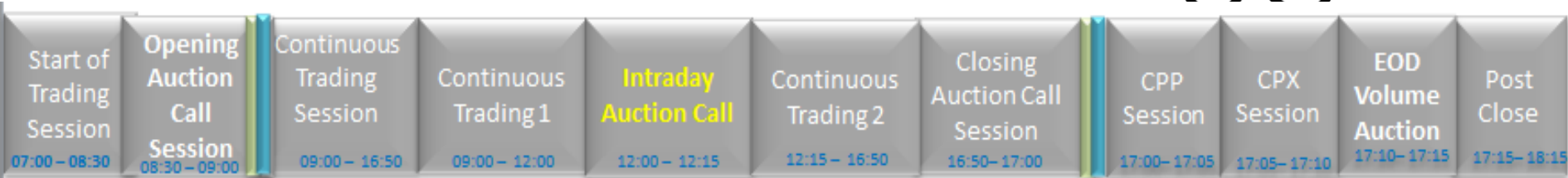
The start of this session will be published through the Market Data Gateways (MDGs). Order updates will be published via the MDGs. Trades will be published through the Post Trade Gateway.

Entry of Market, Limit (visible and hidden), Stop, Stop Limit orders will be allowed during this session.

All orders accepted during this session will be added to the order book. Traders will be able to submit, cancel or amend orders during this session.



INTRA-DAY AUCTION CALL SESSION



Start: 12:00

End: 12:15

This session is applicable to instruments in ZA03 and ZA11.

The start of this session will be published via the market data Gateways.

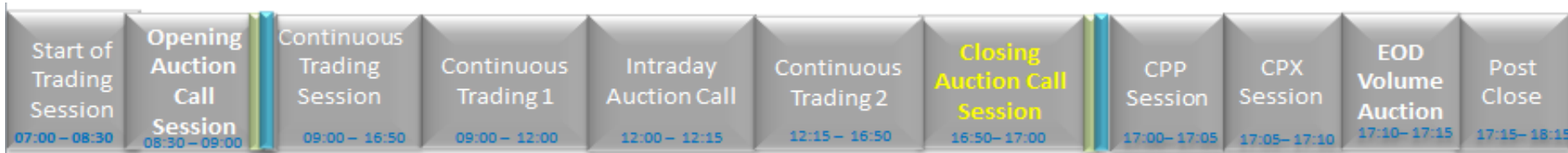
Market, Limit, Stop and Stop Limit orders will be allowed during this session. Orders can be submitted, cancelled or amended during this session. Valid Stop and Stop Limit orders will be stored in an unelected state until the Uncrossing period where they may be elected if applicable.

The entry of new or modification of existing Pegged Hidden Limit Orders during this session is not permitted.

The orders accumulated during this session will be executed based on the Volume Maximizing algorithm during the uncrossing period, following any Price Monitoring or Market Order Extensions.



CLOSING AUCTION CALL SESSION



Start: 16:50

End: 17:00

The Closing auction Call Session will be scheduled after Continuous Trading for all Segments except ZA04.

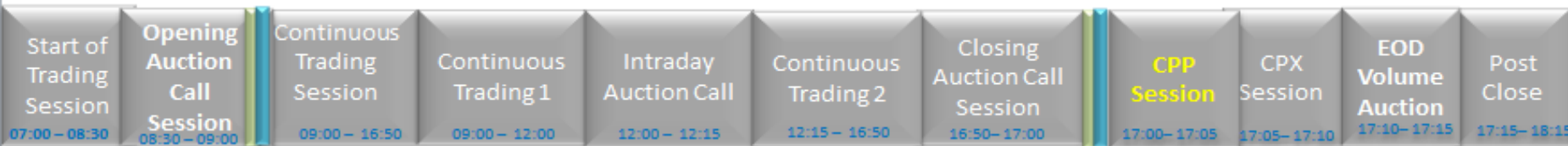
Traders will be able to submit, cancel or amend orders during this session. Market, Limit, Stop and Stop Limit orders are permitted during this session.

The entry of new or modification of existing Pegged Hidden Limit Orders during this session is not permitted.

The orders accumulated during this session will be executed based on the Volume Maximizing algorithm during the uncrossing phase of the auction following any Price Monitoring or Market Order Extensions that may be initiated



CLOSING PRICE PUBLICATION (CPP) SESSION



Start: 17:00

End: 17:05

The Closing Price Publication session facilitates the publication of closing prices.

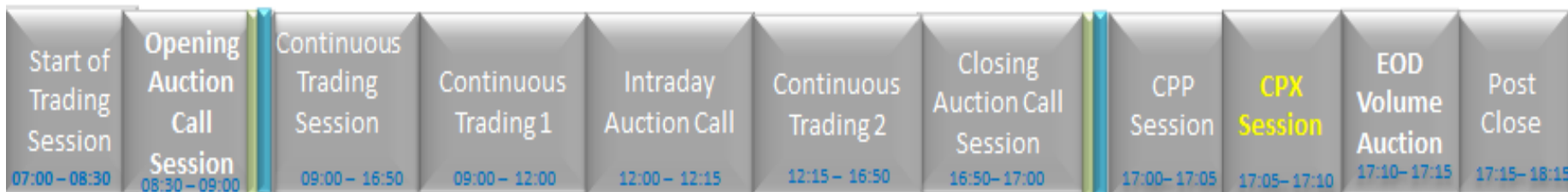
Existing orders that are eligible* to participate in the CPX session will remain on the order book during the CPP session.

Traders will have the ability to cancel orders during this session, however order entry and modification will not be allowed.

The duration of five minutes for the CPP session in Segments ZA01, ZA02, ZA03, ZA06, ZA11, ZA12 allows participants to confirm with their clients whether or not they would want their eligible* orders to participate in the subsequent CPX session.



CLOSING PRICE CROSS (CPX) SESSION



Start: 17:05

End: 17:10

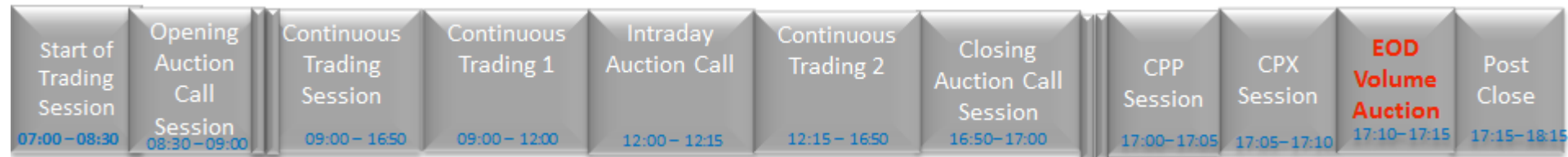
Applicable to Segments ZA01,ZA02,ZA03,ZA06,ZA11,ZA12.

At the start of the CPX session, all eligible* orders will either remain on the order book or will be injected onto the order book to participate in the session at the Published Closing Price.

Orders with prices worse than the Published Closing Price will not participate in the session. Orders with prices that are equal to or better than the published Closing Price will participate in the CPX session. Executions will only occur at the published Closing Price.



EOD Volume Auction



Start: 17:10

End: 17:15

The EOD Volume Auction session will be triggered after the Closing Price Cross Session and will have a duration of 5 minutes

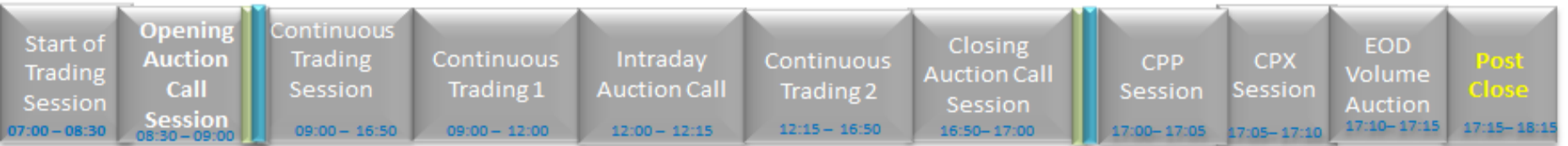
At the start of the Closing Auction call session, Orders with a TIF of GDx and all eligible* orders and Pegged Limit Orders that have opted in will be injected into the GDx container to participate in the session.

Throughout the EOD Volume auction, no indicative price or Volume information will be disseminated

Executions will take place at the Closing Price at the end of the EOD Volume Auction Call session with a single auction trade message with Trade subtype "VT"



POST CLOSE SESSION



Start: 17:15

End: 18:15

No executions will take place during the Post Close session. GTT orders are expired.

During this phase the order book is closed for market participants.

Traders will be able to cancel orders during this session but no new orders or order amendments will be accepted.

Off-book trades can be entered during this session.



TRADING SESSIONS - SUMMARY



Below is a summary of the Trading Sessions and the order validity combinations:

	Orders will be rejected		Orders will be accepted and added to the Order Book		Orders will be accepted and Parked until injected/elected
	Orders accepted and expired immediately if they do not execute upon aggression		Orders will be carried forward from the previous day		

SESSION NAME	ORDER TYPE/TIME IN FORCE																	
	OPG	ATC	IOC	FOK	GTC	GTD	GTT	GFA	GFX	DAY	CPX	GDX	MARKET	LIMIT	STOP/STOP LIMIT	CROSS	PEGGED HIDDEN	PEGGED HIDDEN LIMIT
Start of Trading Session																		
Opening Auction Call Session																		
Continuous Trading Session																		
Volatility Auction Call Session																		
Intra-day Auction Call Session																		
Closing Auction Call Session																		
Closing Price Publication Session																		
Closing Price Cross Session																		
EOD Volume Auction Call Session																		*
Post Close Session																		
Halt Session																		
Halt and Close Session																		
Pause Session																		
Re-opening Auction Call Session																		
FCO Auction Call Session																		

*Only existing pegged order can participate in EOD Volume Auction

UNSCHEDULED TRADING SESSIONS



Unscheduled trading sessions will be manually triggered by Market Operations. Scheduled trading sessions will not be carried out until the unscheduled trading period has been lifted.

Halt Session

- The start of this session will be published through the MDGs
- No executions will take place during the Halt session
- Orders in the order book will remain in the System without being expired
- Traders cannot submit new or amend existing orders during this session however, they will have the ability to cancel orders
- Any client reference amendments to orders will not be allowed
- If the Halt Session is invoked during a scheduled Auction Call Session, Market Orders that are on the order book will expire and be automatically cancelled by the System at the start of the Halt Session

Halt and Close Session

- The behaviour follows that of the Halt Session
- In addition the calculation of closing prices will be performed
- Closing prices will be disseminated via the relevant MDGs
- If the Halt & Close Session is invoked during a scheduled Auction Call Session, Market Orders that are on the order book will expire and be automatically cancelled by the System at the start of the Halt & Close Session

Pause Session

- The start of this session will be published through the MDGs
- No executions will take place
- Traders will be able to submit, amend or cancel, orders during this session
- Entry of new or modification of existing Pegged Hidden Limit Orders will not be allowed
- Valid Stop and Stop Limit orders will be stored in an unelected state
- If the Pause Session is invoked during a scheduled Auction Call Session, Market Orders that are on the order book will expire and be automatically cancelled by the System at the start of the Pause Session

Re-opening Auction Call Session

- The start of this session will be published through the MDGs
- Entry of Market, Limit, Stop and Stop Limit orders will be permitted and added to the order book
- Traders will be able to submit, cancel or amend orders
- The entry of new or modification of existing Pegged Hidden Limit Orders will not be permitted
- The re-opening auction call session will only be invoked during the Continuous Trading Session

MANUALLY INVOKED EVENTS



Managing Status of Instruments

- Market Operations can suspend an instrument Intra-Day
- All users will be notified of the suspension via the MDGs
- On Suspension, all orders for a particular instrument will be deleted
- No new orders will be accepted
- The Closing Price will be published for instruments suspended after the Opening Auction Call Session but prior to the Closing Auction Call Session

Managing Status of Segments and Markets

- Market Operations can suspend a Segment or Market Intra-Day
- All users will be notified of the suspension via the MDGs
- On Suspension, all orders for the Segment or Market will be deleted
- The entry of new orders will not be permitted
- Closing Prices for all instruments in the relevant suspended Segment or Market will be published upon the suspending of the Segment/ Market

DETAILED TRADING DAY - NOTES



- Traders must know the various trading sessions for all segments for all the different types of trading days.
- Traders must know what they are allowed to do in the various trading sessions particularly in relation to the management of orders.
- Traders must know which auction call sessions can be extended and how many extensions there can be.
- Traders must know the Static and Dynamic Circuit Breaker tolerance limits and avoid putting instruments into volatility auctions.

TRADING REFERENCE DATA



- EXCHANGE MARKET SIZE (EMS)
- MINIMUM RESERVE SIZE (MRS)
- MINIMUM EXECUTION SIZE (MES)
- LIQUIDITY CALCULATIONS



EXCHANGE MARKET SIZE (EMS)



- The EMS is used to define the requirements for certain Off Book trades.
- The EMS for instruments are reviewed on a quarterly basis to ensure that trading is conducted effectively.
- EMS is calculated differently for the various segments:

All Segments

- EMS = % OF Avg daily volume for an instrument over 12 month period
- $$\frac{(\text{Avg Daily Volume})}{20}$$

MINIMUM RESERVE SIZE (MRS)



- The MRS (Minimum Reserve Size) is specified per instrument and refers to the order size of a Pegged Hidden Limit Order at the point of entry or modification.
- An incoming Pegged Hidden Limit order will be rejected if the Order Quantity is less than MRS (Minimum Reserve Size) or when amending the order if the Order Quantity is less than MRS (Minimum Reserve Size).
- MRS is based on the number of shares and is calculated on a segment level,

ZA01	15% of Average Daily Volume or R50m notional, whichever is the lesser; Minimum of 10,000
ZA02	15% of Average Daily Volume; Minimum of 25,000
ZA03	150% of Average Daily Volume
*ZA06	15% of Average Daily Volume; Minimum of 10,000

* Will only come into effect on 26 September 2016



MINIMUM EXECUTION SIZE (MES)



- MES (Minimum Execution Size) which needs to be specified on every Pegged Hidden Limit order and honoured during the initial aggression of the order as well as later executions when the order persists in the order book
- MES is ignored during auctions as the purpose of the algorithm is to maximise volume execution.
- MES is a mandatory field for all Pegged Hidden Limit orders.
- MES must always be equal to or greater than MRS.
- MES will be stated by the Trader on order entry using the order attribute Minimum Execution Size.
- MES of a Pegged Hidden Limit order may be amended by the Trader.
- MES specified on the order must always be (on entry or amendment) a multiple of the Lot size of the instrument; and equal to or greater than the Minimum Reserve Size of the instrument.

LIQUIDITY CALCULATIONS



Instruments are given a liquidity rating of 1-3 depending on how they fulfil certain trading criteria. This is not published by the Trading System but is received via BDA Dissemination files.

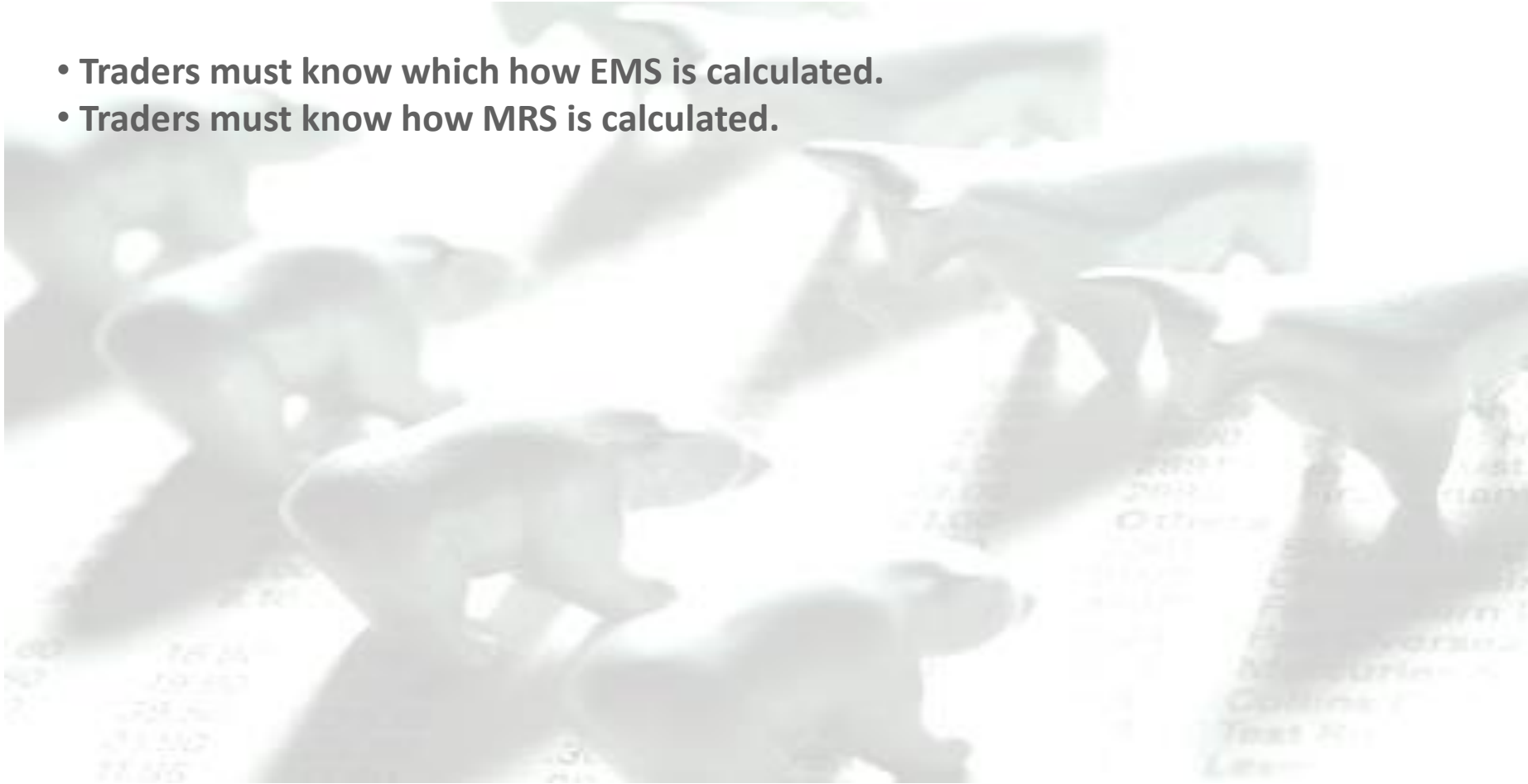
JSE Liquidity Rating	Ave Value Traded pm*	Parameter	% Days Traded	Parameter	Instrument sub-type
1	>R100,000,000	AND	≥75%	OR	Debenture (DB), Kruger Rand (KR), Preference Share (PS), Exchange Traded Funds (ETF)
2	>R30,000,000	AND	≥33%		
3	<R30,000,000	OR	<33%	OR	Warrant (WR), Investment Product (IP), Nil Paid Letter (NL) and Exchange Traded Notes(ETN)

* Calculated over a 3 month period.

TRADING REFERENCE DATA - NOTES



- Traders must know which how EMS is calculated.
- Traders must know how MRS is calculated.



THE ORDER BOOK



- ORDER ENTRY PARAMETERS
- ORDER TYPES
- TIME IN FORCE (TIF) VALIDITY
- PARKED ORDERS
- INJECTED ORDERS
- ELECTED ORDERS
- ORDER MANAGEMENT

THE ORDER BOOK

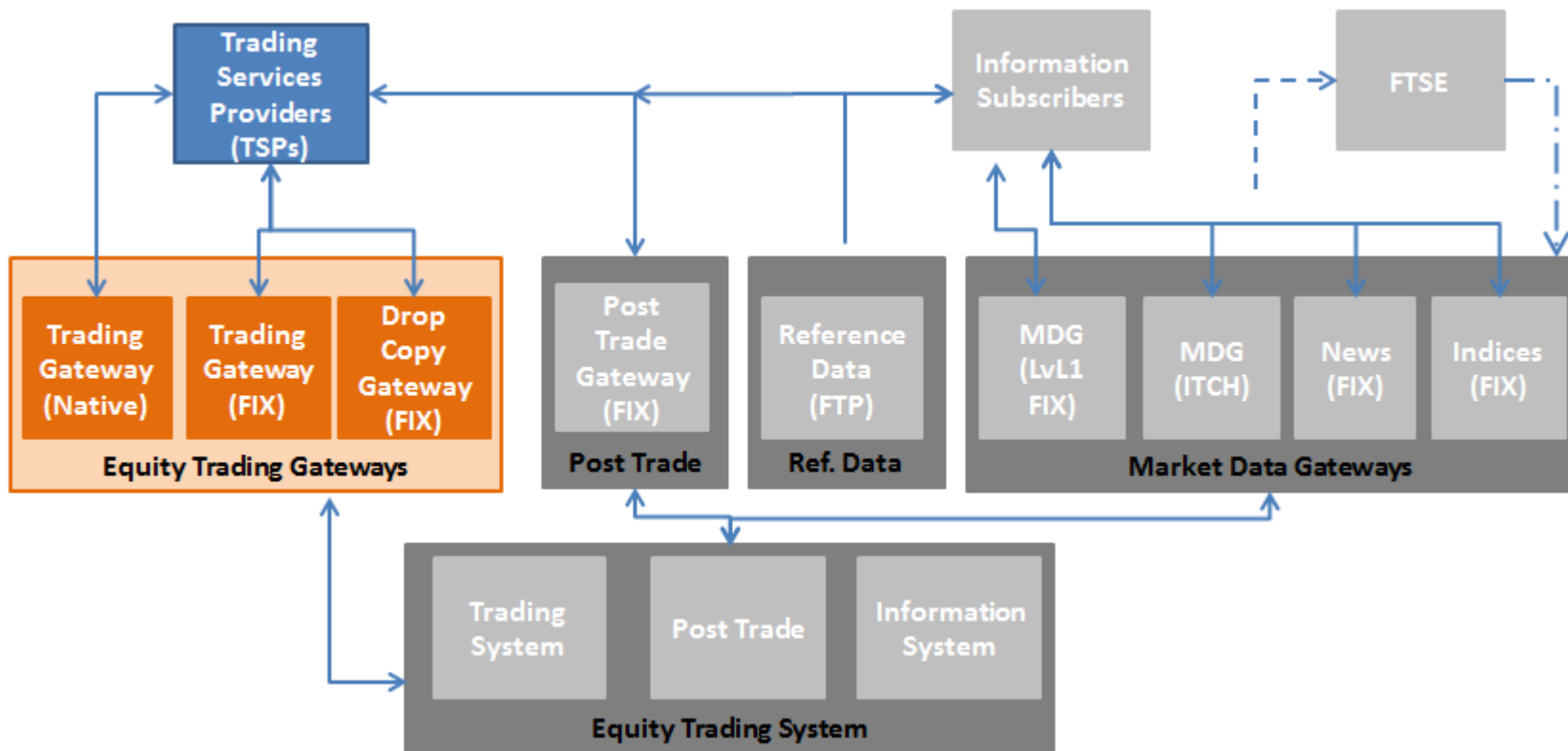


- An order book is the list of orders that the exchange uses to record the interest of buyers and sellers in a particular instrument.
- It is an order matching facility where members participate on equal terms, competing for execution on the basis of strict price-visibility-time rules.
- The JSE trading engine determines which buy and sell orders can be matched. When order matching occurs, a trade is executed.
- Trading is anonymous and neither buyer or seller will ever know who their order was matched against.

EQUITY MARKET ACCESS



Participants gain access to the Equity Market through Gateways dependent on what they have subscribed to:



MANDATORY ORDER ENTRY PARAMETERS



Field	Mandatory	Description	Example Possible Values
Instrument ID	Yes	The unique identifier of the security.	12345
Client Order ID	Yes	Unique client order identifier assigned to an order by the trading party.	ABC123GF
Firm ID	Yes	ID of the Trading Firm.	JSEZAJJXXX
Side	Yes	Whether the order is to buy or sell.	Buy or Sell
TIF	Yes	Time validity of the order.	E.g. Day
Order Type	Yes	The type of the order .	MO; LO; SO; SL
Order Quantity	Yes	The quantity being bought or sold. This should be a whole number that is greater than zero and must be a multiple of the instrument's LOT SIZE.	1 to 99 999 999
Limit Price	Yes	For Limit orders, this refers to the minimum price in cents that the order can execute at and is specified by the trading party.	112
Capacity	Yes	Denotes if the order is entered as an 'Agency' or 'Principal'	A or P
Expiry Time	Required if time in force = GTT	The time at which an order with GTT order should expire.	Cannot exceed 17:00:00
Expiry Date	Required if time in force = GTD	The date on which an order with GTD order should expire.	Cannot be greater than 90 calendar days
Trader ID	Yes	The trader entering the order is identified by this field.	12345
Trader Group	Yes	The group which the Trader belongs to and represented by a node in the System.	JSE1ABCXXX
Client Account	Yes	This will be the BDA account for the firm on an order or Off Book Trade.	1234567
MES	Yes (For Pegged Hidden Limit orders)	The Minimum Execution Size for a Pegged Hidden Limit order which is a mandatory field.	MES >= MRS

ORDER TYPES

ORDER	DESCRIPTION
MARKET ORDER (MO)	<ul style="list-style-type: none"> • Stipulates only volume of shares • Visible size = Order Quantity • MO will execute against all possible price levels on the contra side • MO will interact with Pegged Hidden orders in the order book subject to MES constraints • MO entered during an Auction Call Session will reside in the order book until the uncrossing is performed at which point the remainder of unexecuted MOs will be expired
LIMIT ORDER (LO)	<ul style="list-style-type: none"> • Stipulates volume and a limit price • LO can be visible or Pegged hidden orders • For Visible Orders; Visible size = Order Quantity • Pegged Hidden Limit Order: Visible size= 0 • Limit orders will always execute at the specified limit or better
STOP ORDER (SO)	<ul style="list-style-type: none"> • SO is a MO that will remain unelected until the stop price is reached • Once elected, SOs will be treated similar to a regular MO • SO may not have time in force attributes of OPG, GFA, GFX and ATC and will be rejected upon entry
STOP LIMIT ORDER (SL)	<ul style="list-style-type: none"> • SL is a LO that will remain unelected until the stop price is reached • Once elected, SLs will be treated similar to a regular LO • SO may not have time in force attributes of OPG, GFA, GFX and ATC and will be rejected upon entry
PEGGED and PEGGED LIMIT	<ul style="list-style-type: none"> • Enhancement of current Hidden Order functionality • Large-in-size orders can be pegged to a specific set of instruments to: <ul style="list-style-type: none"> • The mid-point of the visible BBO • The best Bid (if it is buy pegged order) • The best Offer (if it is a sell pegged order) • Possibility of execution will be increased due to the tracking of Price movements of the market
CROSS ORDER	<ul style="list-style-type: none"> • A cross order is a limit order with a Time in Force validity of DAY • This is an Internal Cross / Single Sided cross where the pre-negotiated trade is entered within a single member firm. • The Cross order message will require both buy and sell order details. • The order price entered must be within the visible best bid and offer price.

TIME IN FORCE VALIDITY (TIF)



TIF VALIDITY TYPE		DESCRIPTION
DAY	Good for Day	<ul style="list-style-type: none"> Orders will be expired at Market End of the trading day that they are submitted.
ATC	At the Close	<ul style="list-style-type: none"> Orders injected into the Closing Auction Call session.
FOK	Fill Or Kill	<ul style="list-style-type: none"> Orders with FOK time in force (except for Stop and Stop Limit orders) will be rejected during Auction Call sessions. Orders will either be fully executed on receipt or immediately expired.
GFA	Good for Auction	<ul style="list-style-type: none"> Orders injected into the next Auction Call session. GFA orders will be valid for multiple auctions.
GFX	Good for Intraday Auction	<ul style="list-style-type: none"> Orders injected into the Intraday Auction Call session. The remainder of GFX orders will expire following the uncrossing of the intraday auction.
GTD	Good Till Date	<ul style="list-style-type: none"> GTD orders will remain on the order book until fully filled, cancelled or upon reaching the specified expiry date.
GTT	Good Till Time	<ul style="list-style-type: none"> GTT orders are only valid for the current trading day. The time specified on a GTT order must be less than the start of Post Close session.
IOC	Immediate Or Cancel	<ul style="list-style-type: none"> Orders with IOC time in force (except for Stop and Stop Limit orders) will be rejected during Auction Call sessions. The remainder of partially filled IOC orders will be expired.
OPG	At the Open	<ul style="list-style-type: none"> OPG orders will only be accepted if submitted during the Opening Auction Call session.
GTC	Good Till Cancelled	<ul style="list-style-type: none"> GTC orders will remain on the order book until they have been filled, cancelled or have reached their maximum order duration.
CPX	Closing Price Cross	<ul style="list-style-type: none"> Directs orders to the CPX session. Orders with TIF CPX can be entered during the sessions that allow for order management. These orders will be parked until the start of the CPX session.
GDX	Good for EOD Volume Auction Call	<ul style="list-style-type: none"> Orders injected into the EOD Volume Auction Call session

PARKED ORDERS



An order submitted by a Participant will be held in the system until the applicable period is reached, at which point it is passed onto the order book.

- ATC, GFX,GFA,CPX and GDX order types submitted by a Participant will be held in the system until the applicable period is reached, at which point it is passed onto the order book.
- ATC, GFX,GFA,CPX and GDX orders are only injected in applicable Auction Call sessions.
- Whilst the order is held by the system it is not publicly visible and does not participate in continuous trading/ inapplicable Auction Call sessions.
- Parked orders may still be modified and deleted.
- The order will maintain time priority in line with all other orders that have been parked for that particular instrument. When modified, it follows the same rules as it would on the visible order book to determine whether price/time priority is maintained.
- The ability to park orders prior to the period they are intended for, ensures that they have a higher priority when going into the period.

INJECTED ORDERS



Once the applicable session has been reached, the parked order is injected into the order book.

- As the period becomes effective the OPG, ATC, GFX, GFA, CPX or GDX order will be injected into the order book as if the Participant had at that point submitted the order themselves.
- The order will then either execute against any valid orders or remain on the book.
- Any visible orders already active on the order book will always have higher priority than the parked orders being injected.
- If the injected order does not execute during the Auction Call session, it will be removed from the order book before the transition to the next trading session.
- The transitioning of the period can also control the removal of the order, if it has not already been fully executed.
- Parked orders that are not matched at the end of the Auction Call session will be parked until the next Auction Call session. The orders will then be deleted at the end of the day.



ELECTED ORDERS



- **Stop Limit Orders**

- Identifies a Stop/ Stop Limit that is added to the order book based on a triggering condition of the order.
- Stop and Stop Limit buy orders - elected if the last traded price \geq stop price.
- Stop and Stop Limit sell orders – elected if the last traded price \leq stop price.

- **Pegged Limit Orders**

Pegged Limit Orders that have not breached the hard limit will be considered as active orders

The hard Limit should be considered breached for a:

- Buy pegged order, pegged to the mid, if the mid-price \geq hard limit price of the order
- Buy pegged order, pegged to the bid, if the best visible bid price \geq hard limit price of the order
- Sell pegged orders, pegged to the mid, if the mid-price, if mid-price \leq hard limit price of the order
- Sell pegged orders, pegged to the offer, if the best visible offer price \leq hard limit price of the order

PEGGED AND PEGGED LIMIT ORDER CHARACTERISTICS



- Hidden Order functionality will be replaced and enhanced by the Pegged Hidden Order and Pegged Hidden Limit Order functionality
- Pegged Hidden orders are able to interact with both visible and other hidden orders on the order book
- Clients can Peg their Hidden Order to :
 - The mid-point of the visible BBO
 - The best Bid (if it is buy pegged order)
 - The best Offer (if it is a sell pegged order)
- All Orders are subject to a Minimum Reserve Size (MRS) at an instrument level and will be mandatory to specify a Minimum Execution Size (MES) \geq MRS
- Participants will be able to set a hard limit on a Pegged Order
- Pegged Limit Orders can participate in the new EOD Volume Auction (if opted in)

CROSS ORDER CHARACTERISTICS



- A cross order is a limit order with a Time in Force validity of DAY.
- This is an Internal Cross / Single Sided cross where the pre-negotiated trade is entered within a single member firm.
- The Cross order message will require both buy and sell order details.
- The order price entered must be within the visible best bid and offer price.
- Cross orders cannot be Pegged hidden orders and will not trigger a Volatility Auction Call session upon execution
- A trade resulting from the submission of a Cross Order results only in a Cross Trade (XT) and has no impact to orders

PRICE IMPROVEMENT



- The passive price determination algorithm may result in a determined execution price outside of the best visible best bid and offer, without a new resultant best bid and offer being created.
- Price improvements are applied in the following situations:
 - If the determined price is equal to or less than the best visible bid, the price will be adjusted to equal the best visible bid plus half a tick
 - If the determined price is equal to or greater than the best visible offer, the price will be adjusted to equal the best visible offer less half a tick.

PEGGED ORDER EXAMPLE



Example: Incoming Sell Visible order

Main Order Book						Pegged Order container (Price- Time)					
<u>Mid point = 105</u>											
Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order ID	Bid Size	Hard limit	Hard limit	Offer Size	Order ID
O1	1000	100	110	1000	O2	P1	[800](MES800)PM				
						P2	[900](MES 900)PB				
Incoming Visible Sell order O3 2900 @ 99 O3 executes qty of 800 with P1 @ 105 O3 executes qty of 900 with P2 @ 100.5 O3 executes qty of 1000 with O1 @ 100 Rest of the O3 qty is added to the book Order books is as follows ;											
Order ID	Bid Size	Bid Price	Offer Price	Offer Size	Order ID	Order id	Bid Size	Hard limit	Hard limit	Offer Size	Order ID
			99	200	O3						
			110	1000	O2						

STOP ORDER EXAMPLE



Step 1: Order Book contains three Passive orders on the Sell side. There is also an unelected Buy Stop order (Order 10) with a Stop price of 90 in the Order book.

Buy			Sell		
Order ID	Quantity	Price	Order ID	Price	Quantity
			12	90	1000
			13	92	2000
			14	94	1000
10	1000				

Step 2: Incoming Buy order 2000 @93 aggresses the Order book.

Step 3: The incoming aggressing order 2000 @93 will be sweeping multiple price points (90 and 92) in the Order book and once it completes its execution, the Buy Stop order with a Stop price of 90 will get elected to the Order book. The following executions will happen.

1000@90 (Order 11 and 12)

1000@92 (Order 11 and 13)

Buy			Sell		
Order ID	Quantity	Price	Order ID	Price	Quantity
11	2000	93	12	90	1000
			13	92	2000
			14	94	1000
10	1000				

Step 4: Post completion of execution of the Aggressing order the elected Buy Stop order will get executed against the remaining quantity of the Partially filled order on the contra side resulting in the following trade:

1000@92 (Order 10 and 13)

STOP LIMIT ORDER EXAMPLE



Step 1

There is one LO on either side of the book and one Stop Limit order in an unelected state.

Order ID	Type	Stop Price	Bid Size	Bid Price		Offer Price	Offer Size	Stop Price	Type	Order ID
1	LO		1000	104		107	1000		LO	2
						106	12000	105	SL	

Step 2

Orders 3,4 and 5 enter the order book

Trade occurs between order 3 and 5:
15000 @ 105

Order ID	Type	Stop Price	Bid Size	Bid Price		Offer Price	Offer Size	Stop Price	Type	Order ID
4	MO		12000	106		106	12000	105	SL	6
3	LO		15000	105		105	15000		LO	5
1	LO		1000	104		107	1000		LO	2

The stop order is then elected and executes with order 4
12000@ 106.

CPP & CPX SESSION- Example



Order 1:
Buy LO with TIF CPX is entered
Size= 10,000
Price= 2005 ZAC

Order 2:
Buy LO with TIF CPX is entered
Size= 20,000
Price= 1995 ZAC

Order 3:
Buy LO with TIF CPX is entered
Size= 40,000
Price= 2005 ZAC

Order 4:
Sell LO with TIF CPX is entered
Size= 15,000
Price= 2000 ZAC

Orders 1, 2, 3 & 4 will be accepted by the Trading System. These orders will be parked until the start of the CPX session. Order book priority will be maintained in the parked container.

↓
The Closing Price will be determined at the Uncrossing of the Auction.

↓
The Closing Price determined during the Uncrossing of the Closing Auction Call session will be published at the start of the CPP session.

In this example, Published Closing Price is 2,000 ZAC.

↓
Executions only at the Published Closing Price; i.e. only at 2,000 ZAC.

Order 1: Injected onto the order book as the Limit Price is better than the Closing Price.

Order 2: Expired as the Limit Price is worse than the Closing Price.

Order 3: Injected onto the order book below order 1.

Order 4: Injected onto the order book.

EOD Volume Auction Example



Closing Price = 105

Central Order Book:

ID	Opt in to VA	Bid Size	Bid Price	Offer Price	Offer Size	Opt in to VA	ID
O1	Yes	100	107				
O2	No	300	106				
O3	Yes	500	106				

Pegged Order Book:

ID	Opt in to VA	Bid Size	MES	Hard Limit	Hard Limit	Offer Size	MES	Opt in to VA	ID
P1	Yes	600	300	104	103	300	300	Yes	P3
P2	Yes	300	300		104	700	700	No	P4
						400	400	Yes	P5
					105	200	200	Yes	P6

GDx Container:

ID	Bid Size	Limit Price	Limit Price	Offer Size	ID
G1	600	105	105	500	G4
G2	300	105	107	800	G5
G3	200	107			

EOD Volume Auction Example



The CPX session will be the trigger for the Volume Auction Uncrossing.

Step 01: At the start of CPX Session all eligible pegged orders will be injected into the bottom of the GDX Container

Step 02: The GDX container at the start of the EOD Volume Auction Call Session:

ID	Bid Size	Limit Price	Limit Price	Offer Size	ID
G1	600	105	105	500	G4
G2	300	105	103	300	P3
G3	200	107	105	200	P6

Step 03: The GDX will first aggress the central order book resulting in the following trades:

EOD Volume Auction Example



Buy ID	Sell ID	Price	Size	Trade ID
O1	G4	105	100	T1
O3	G4	105	400	T2
O3	P3	105	100	T3

[Step 04: The sell side of the GDx container will then aggress the buy side of the GDx container resulting in the following trades:](#)

Buy ID	Sell ID	Price	Size	Trade ID
G1	P3	105	200	T4
G1	P6	105	200	T5

[Step 05: A single Auction Trade message will be generated and disseminated via the MDGs at the end of the uncrossing:](#)

Trade Sub-Type	Price	Size
VT	105	1000

ORDER MANAGEMENT SUMMARY



ORDER SUBMISSION

- Orders are submitted onto the order book when the conditions of the order have been met; E.g.. TIF; Stop Price; etc

ORDER CANCELLATION

- Only open or parked orders can be cancelled
- Orders can be automatically cancelled , at the request of the client

ORDER AMENDMENTS

- Only the Order Quantity; Minimum Execution Size; Limit Price; Expiry date of GTD orders; Expiry time of GTT orders; Client Account number can be amended on open orders
- Increasing the Order Quantity and Price will result in a loss of time and price priority

CLIENT ACCOUNT AMENDMENTS

- The original client account specified in the order may be amended by a Trader
- This can only be done for open and parked orders; and must be done within the same trading day

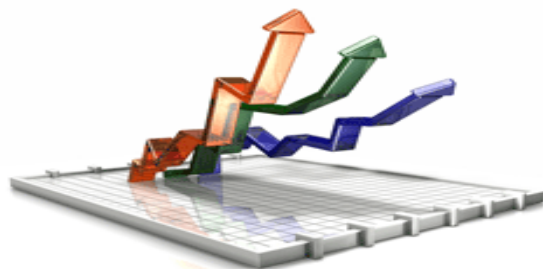
AMENDMENT OF UNELECTED ORDERS

- Unelected Stop and Stop Limit Orders can be only have the Stop Price; Limit Price; Order Quantity; Expiry date of GTD orders; Expiry time of GTT orders; amended
- Increasing the order quantity or changing the stop price will be treated as a new SO being submitted. The order then loses price and time priority

OWN ORDER BOOK DOWNLOAD (OOBD)



- A Drop Copy interface user with login privileges to the Drop Copy Gateway may request a download of all Open/Pegged Hidden Limit/Parked Orders.
- Such a request may be made at any time but the primary purpose of this functionality is to provide the Trader (user) with details of their open orders to assist them during a System recovery.
- OOBD will always be requested for a particular Trader (user) and Trader Group combination by a Drop Copy interface user.
- If the request is successful, a copy of the execution report for all open orders for the particular Trader and Trader Group (user) will be sent by the System.
- There is a limit to the number of own order book download requests a drop copy user can use within a trading day; any request exceeding this amount will be rejected.



ORDER BOOK - NOTES

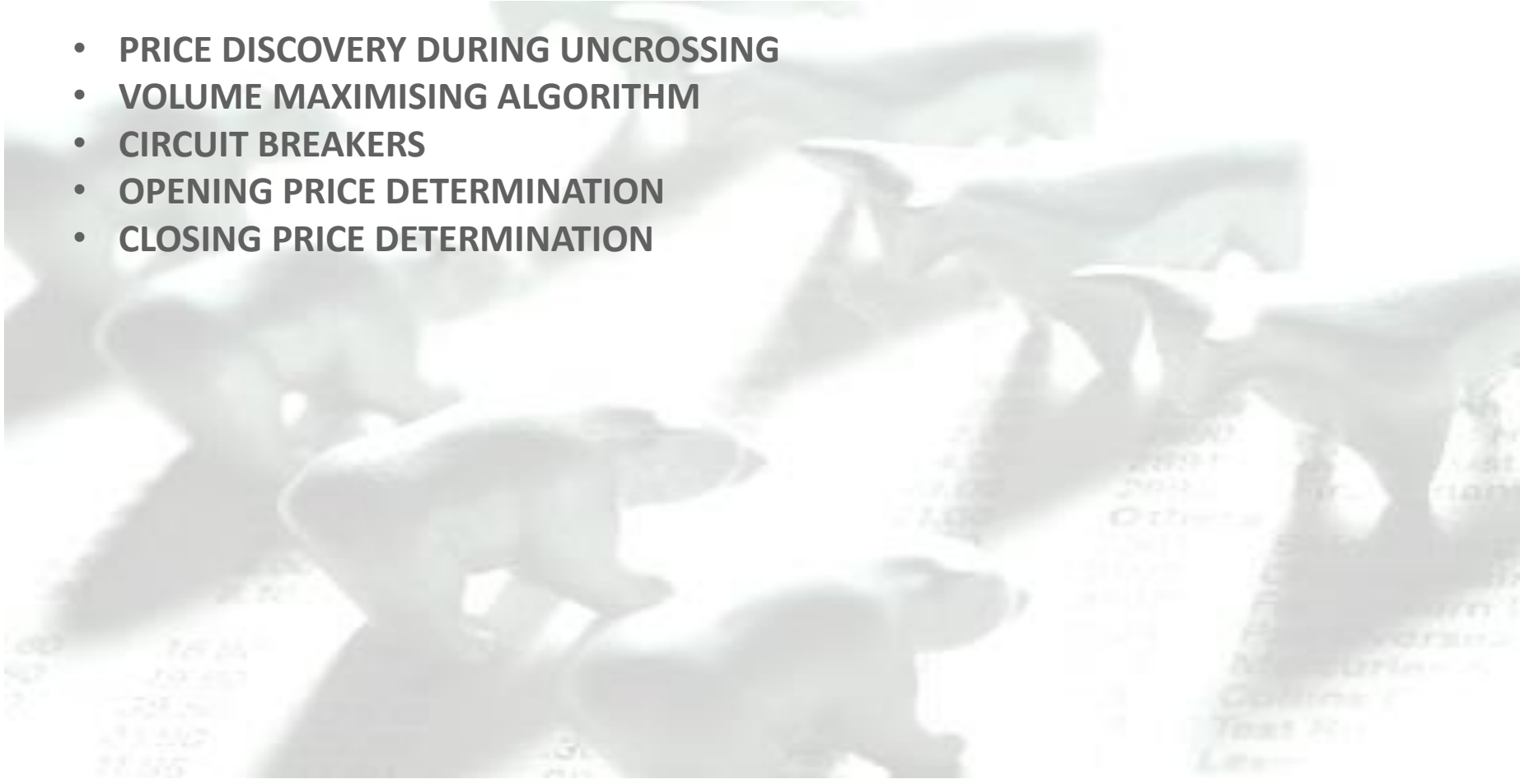


- Traders must know the mandatory parameters required on orders.
- Traders must know the various order types allowed.
- Traders must know what Time in Force Validities are allowed.
- Traders must know what orders are parked.
- Traders must know how orders are elected or injected.
- When Pegged Hidden Limit Orders exist in an instrument, Traders must know how price improvement works.
- Traders must know how that the Client Account number can only be amended on an Open Order i.e. Only on the unexecuted part of an order.
- Traders must know how the new order types SO & SL work and when they are elected.
- Traders must know how to do an Own Order Book Download.

AUTOMATED MATCHING



- PRICE DISCOVERY DURING UNCROSSING
- VOLUME MAXIMISING ALGORITHM
- CIRCUIT BREAKERS
- OPENING PRICE DETERMINATION
- CLOSING PRICE DETERMINATION



PRICE DISCOVERY



Price discovery during an auction uncrossing is based on the following principles:

Maximum Execution	The highest executable volume for each possible price (i.e. the minimum of the buy and sell executable volumes at any given price)
Minimum Surplus	The lowest surplus for each possible price (i.e. the smallest difference between the buy and sell executable volumes at any given price)
Market Pressure	Should the market pressure be on the buy side (the buy executable volume is greater than the sell executable volume), the highest possible price will be the auction price. Should the market pressure be on the sell side, the lowest possible price will be the auction price.
Reference Price	The auction price will be the possible price closest to the reference price.

The uncrossing price is calculated using orders on the book at the time of the uncrossing.

UNCROSSING THE ORDER BOOK- VOLUME MAXIMISING ALGORITHM



The Auction Price for an instrument will be the price at which the largest number or shares can be executed
i.e. the price at which the volume is maximised.



If there are multiple prices at which volume is maximised then
Order Imbalance is used to determine the Auction Price



Buy Imbalance

Aggregate quantity of all buy orders with prices
equal to or greater than the price being considered.



Market Pressure

If all the prices at which the Order Imbalance is
minimised have a buy imbalance, then the highest
price will be the auction price. This means that
there will be a remaining quantity on the buy side.



Sell Imbalance

The aggregate quantity of sell orders with prices
equal to or less than the price being considered.



Market Pressure

If all the prices at which the Order Imbalance is
minimized has a sell imbalance then the lowest
price will be the auction price. This means that
there will be a remaining quantity on the sell side.

If, after Market Pressure has been applied, there are still multiple price options for the
auction uncrossing price then the Dynamic Reference Price is applied.

UNCROSSING THE ORDER BOOK- VOLUME MAXIMISING ALGORITHM



Static Reference Price

At the beginning of the day the Static Reference Price for an instrument will be its Previous Close. The Static Reference Price will be updated after each auction (Opening, Re-Opening, Intraday or Volatility)



Dynamic Reference Price:

The Dynamic reference price applicable to an instrument is updated continuously during the course of a day and serves as a reference point when calculating the price of a share during either an Auction or Continuous Trade. At the start of the day, the Dynamic Reference Price for an instrument will be the previous day's closing price.

OPENING PRICE DETERMINATION



Opening
Auction
Uncrossing
Trade Price

- The opening price of an Instrument will be determined by the first trade.

First
Automatic
Trade

- If no opening auction takes place, the first automatic trade (AT) price will be the opening price.

No Opening
Trade Price

- If no trade happens for an Instrument there will be no opening price and accordingly, no opening price message will be published.

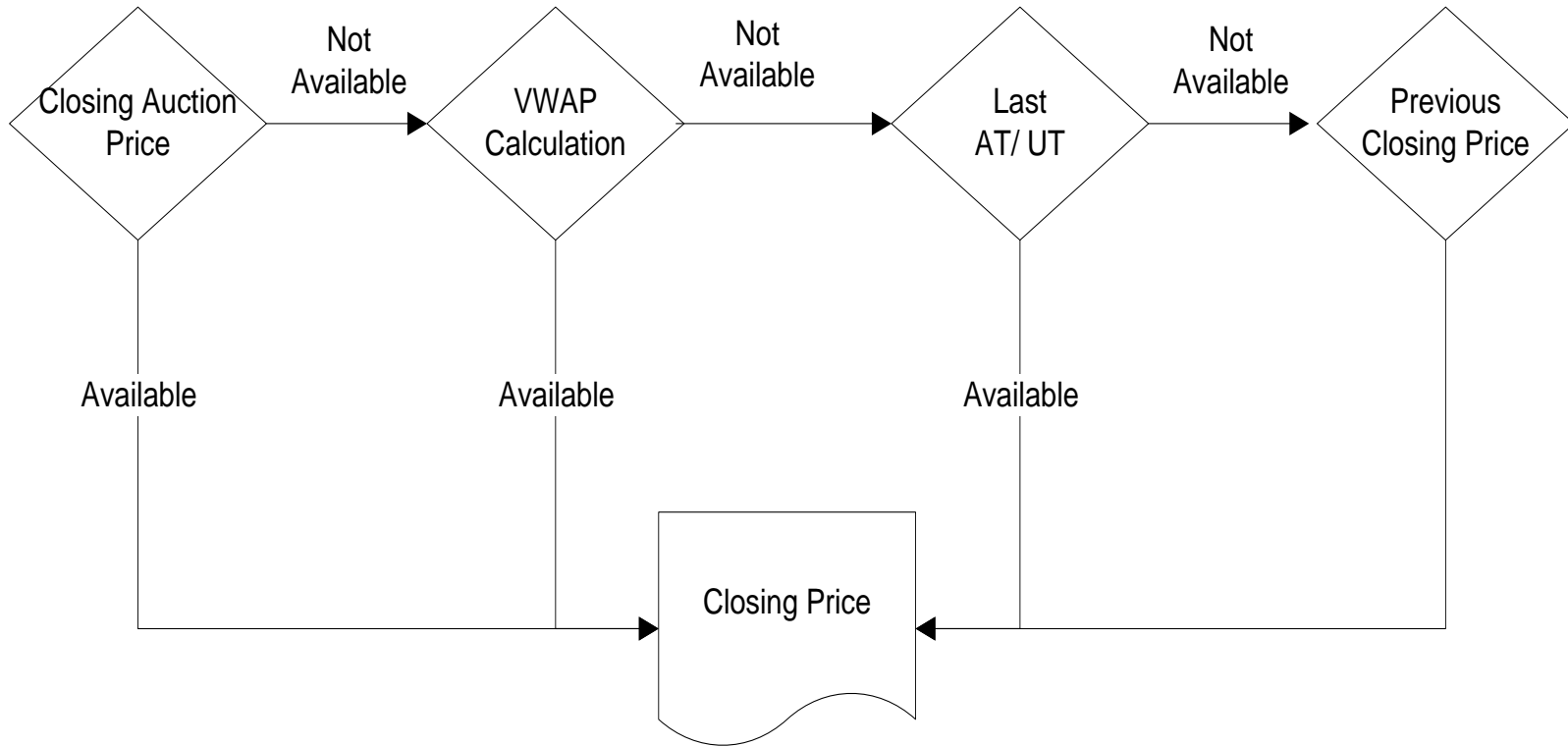
CLOSING PRICE METHODOLOGY PER SEGMENT



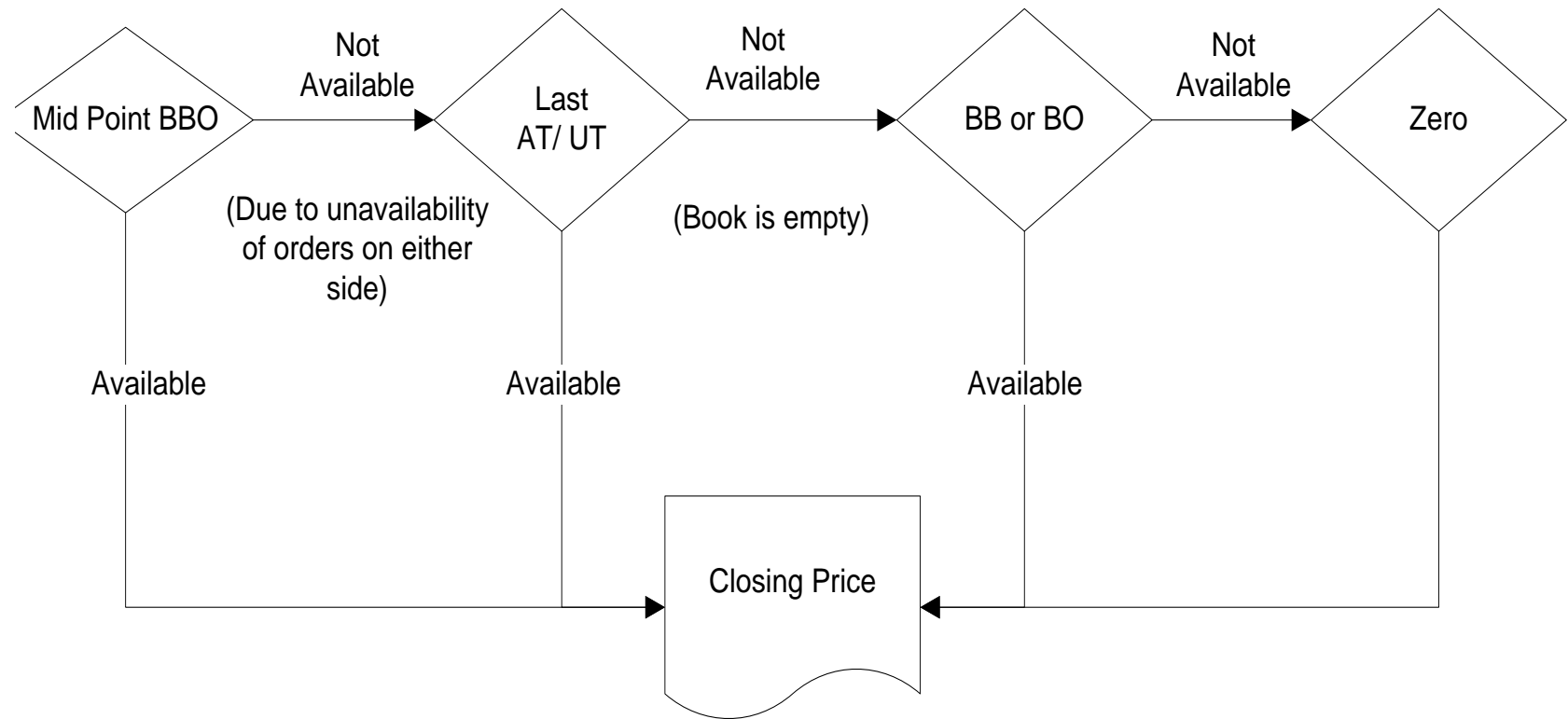
Segment	Primary Closing Price	Secondary Closing Price	Methodology
ZA01	Closing Auction	VWAP	Methodology 1
ZA02	Closing Auction	VWAP	Methodology 1
ZA03	Closing Auction	VWAP	Methodology 1
ZA04	Mid-point	None	Methodology 2
ZA06	Closing Auction	Mid-point	Methodology 3
ZA11	Closing Auction	VWAP	Methodology 1
ZA12	Closing Auction	VWAP	Methodology 1

ZA12	Closing Auction	VWAP	Methodology 1
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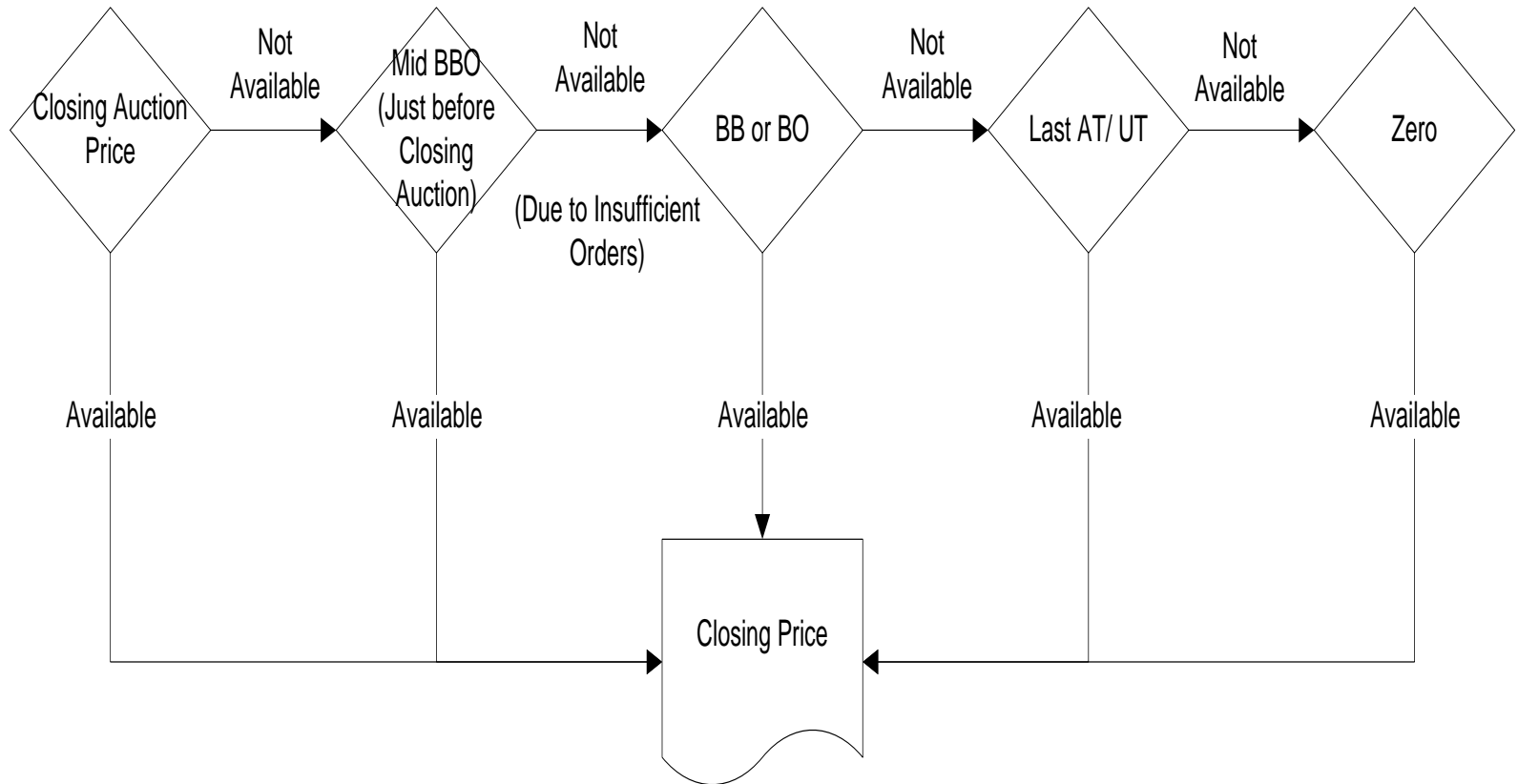
CLOSING PRICE: METHODOLOGY 1



CLOSING PRICE: METHODOLOGY 2



CLOSING PRICE: METHODOLOGY 3



AUTOMATED MATCHING - NOTES



- **Traders must know how there are 3 algorithms:**
 - **Passive Price Determination (Continuous Matching);**
 - **Volume Maximising Algorithm (Auction Uncrossing);**
 - **Price Improvement (Limited Pegged Hidden Limit Orders involved) ; and**
- **Traders must know how the volume maximising execution algorithm works**
- **Traders must know how that the Opening Price of an instrument is determined; and**
- **Traders must know the different closing price methodologies and which ones apply to which segments.**

QUESTIONS

JS

