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## Regulatory Circular RG03-10

Date: January 30, 2003

To: Members and Member Firms

From: Trading Operations

RE: Market Linkage Implementation

As ordered by the Securities and Exchange Commission (SEC), **the implementation of intermarket linkage will begin on January 31, 2003 on all options exchanges.** The goals of linkage are to limit trade-throughs and provide NBBO protection for customer orders. Linkage will be implemented in two phases. Phase 1 will begin with the classes listed below.

OPTION	COMPANY	DPM	LOCATION
AAQ	Apple Computer	Slk/Hull	1-8
BAC	Bank of America	Equitec	2-4
EK	Eastman Kodak	VanDer Moolen	4-2
EP	El Paso Corp.	SIG	2-3
GM	General Motors	Geneva	4-3
HPQ	Hewlett Packard	SIG	3-5
NOK	Nokia	SIG	3-5
PEP	Pepsico	Slk/Hull	1-5
PG	Procter&Gamble	Equitec	2-4
QLC	QLogic	Wolverine	5-8
QXB	Ebay	T.D. Options	6-9
RCQ	Broadcom	Knight	9-1
SGQ	Sieble Systems	Knight	9-8
UVA	Nvidia	SMC	4-4

Attached is greater detail on three subjects:

- Rollout Schedule
- Phase I Linkage Concepts
- Autofade for quotes

Linkage questions can be directed to any Equity Floor Procedure Committee Linkage Sub-committee member listed below or Tim Watkins at 312-786-7172.

### **EFPC Linkage Sub-committee:**

Dave Miller  
Anthony Carone  
Dan Carver  
Steve Dillinger  
Damon Fawcett  
Kevin Hincks  
Ken Mueller



## Linkage Phase 1 Rollout

Implementation of the first phase of intermarket linkage will begin on January 31<sup>st</sup> 2003. There will be incremental rollout dates in February with a “big bang” for all remaining classes on March 4<sup>th</sup>.

### FRIDAY, JANUARY 31, 2003

OPTION	COMPANY	DPM	LOCATION
AAQ	Apple Computer	Slk/Hull	1-8
BAC	Bank of America	Equitec	2-4
EK	Eastman Kodak	VanDer Moolen	4-2
EP	El Paso Corp.	SIG	2-3
GM	General Motors	Geneva	4-3
HPQ	Hewlett Packard	SIG	3-5
NOK	Nokia	SIG	3-5
PEP	Pepsico	Slk/Hull	1-5
PG	Procter&Gamble	Equitec	2-4
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RCQ	Broadcom	Knight	9-1
SGQ	Sieble Systems	Knight	9-8
UVA	Nvidia	SMC	4-4

### WEDNESDAY, FEBRUARY 5, 2003

AMD	Advanced Micro	Knight	9-3
AXP	American Express	Timber Hill	4-6
CA	Computer Associates	Knight	9-3
CCU	Clear Channel	Slk/Hull	1-2
EMC	EMC Corp.	Botta	2-10
F	Ford Motor Co.	Prime Markets	4-9
GS	Goldman Sachs Grp.	SIG	3-5
JUX	Juniper Networks	SMC	4-4
KCQ	KLA Tencor Corp.	Slk/Hull	11-4
LLY	Lilly (Eli) & Co.	Knight	9-1
UAB	Echostar Comm.	Specialist	2-6
S	Sears Roebuck	Slk/Hull	1-7
TXN	Texas Instrument	SIG	3-4
VZ	Verizon Comm.	SIG	3-9

### MONDAY, FEBRUARY 10, 2003

ABT	Abbott Labs	Slk/Hull	1-4
AIG	American Intl.	T.D. Options	6-8
CQE	Cephalon	SIG	5-2
EDS	Electronic Data Sys.	Geneva	4-3
FNM	Fannie Mae	T.D.Options	6-10
FQC	Nextel Comm.	Knight	9-3
HD	Home Depot	SIG	3-5
MER	Merrill Lynch&Co.	Timberhill	4-6
MRK	Merck & Co.	Wolverine	5-8
SUQ	Sun Micro Sys.	Mercury	4-5

**WEDNESDAY, FEBRUARY 12, 2003**

OPTION	COMPANY	DPM	LOCATION
ANQ	Applied Materials	T.D.Options	6-5
CPN	Calpine Corp.	Equitec	2-4
EZQ	Electronic Arts	Knight	9-4
JNJ	Johnson&Johnson	Equitec	2-5
UED	Expedia	SIG	3-10
T	AT&T	T.D.Options	6-4
TMX	Telephonos de Mexico	T.D Options	6-9
UPS	United Parcel Service	Botta	2-9
ZQN	Amazon.Com	T.D.Options	6-8

**WEDNESDAY, FEBRUARY 19, 2003**

BMJ	Bristol Myers	Stonehedge	4-8
COF	Capital One	Platinum	10-3
DDS	Dillards Inc.	Wolverine	5-8
EIX	Edison International	Equitec	9-6
L	Liberty Media	Slk/Hull	1-4
RAD	Rite Aid Corp.	SIG	3-3
UBF	Brocade Comm. Sys.	T.D. Options	6-1
YHQ	Yahoo	SIG	3-5

**TUESDAY, FEBRUARY 25, 2003****TOP 20 NATIONAL RANK AS OF DECEMBER, 2002**

QQQ		Wolverine	5-9
INQ	Intel	SIG	3-3
MSQ	Microsoft	SIG	3-10
MO	Phillip Morris	Slk/Hull	1-4
TYC	Tyco International	Equitec	2-4
AOL	America Online	Slk/Hull	1-4
IBM	Internat.Bus.Mach	T.D.Options	6-5
CYQ	Cisco Systems	T.D.Options	6-10
GE	General Electric	Slk/Hull	1-5
UAL	United Airlines	Specialist	2-6
C	Citigroup Inc.	SIG	3-8
HAL	Halliburton	SIG	3-9
DLQ	Dell Computer	T.D.Options	6-7
ORQ	Oracle	T.D.Options	6-10
JPM	J.P. Morgan	SIG	3-9
AMQ	Amgen	Specialist	2-6
QAQ	Qualcom	SIG	3-4
WMT	Walmart	Equitec	1-9
PFE	Pfizer	SIG	3-8
MU	Micron Tech	Mercury	4-5

**TUESDAY, MARCH 4, 2003****ALL REMAINING CLASSES**

Questions regarding Linkage phase one rollout can be directed to Tim Watkins at 312-786-7172.



## Linkage – Phase 1

### **The primary linkage concepts for phase 1 are:**

- 1) Certain sized Principal (P) and Principal-Acting-As-Agent (PA) orders are allowed in Phase 1.
- 2) All P and PA orders are immediate or cancel (IOC) limit orders priced at the NBBO. P orders are sent by eligible market makers or DPMs.
- 3) PA orders are sent by the DPM on behalf of an unexecuted customer order that is marketable against the away NBBO.
- 4) Only P and PA orders that are autoex eligible will be allowed for Phase 1. More specifically:
  - P orders are restricted to a 10-contract maximum in Phase 1.
  - P orders are restricted to one autoex trade per class per exchange per minute.
  - PA orders are restricted (in Phase 1) to the lesser of the sending and receiving exchange's autoex sizes at the time the order is sent. The CBOE autoex size is the lesser of the RAES size or the CBOE disseminated quote size.
- 5) Outbound P and PA orders routed to away exchanges will receive autoex handling or be rejected.
- 6) If the away market does not respond to a CBOE linkage order with a fill report or a reject, the Linkage Plan imposes a 20 second wait before taking alternate action such as trading through the away quote. Some of the exchanges (AMEX and PHLX) will be implementing Phase 2 functionality this January, and instead of rejecting PA orders sized too large, these exchanges may route these orders for manual handling. If after 20 seconds, the away exchange has not responded and has not faded its quote, the DPM or market maker is entitled to trade through that posted NBBO at the next best NBBO price.
- 7) Inbound P and PA orders will route to RAES and ABP or be rejected back to the away exchange.
- 8) RAES will execute an inbound linkage order even if the NBBO is locked or crossed.
- 9) All P or PA orders have a 10-contract minimum autoex size guarantee. If CBOE's disseminated quote size is less than 10, the RAES wheel will make up the difference. This applies only to linkage trades.
- 10) In support of the linkage "trade or fade" concept, an AutoFade mechanism will be introduced. Any time the CBOE AutoQuote size is reduced to zero due to a RAES or LOU trade, AutoFade will move the CBOE quote to one tick worse than the "Best of the Rest" NBBO price and disseminate with a default size. The AutoFade process will apply to all RAES or LOU trades, not just linkage trades.
- 11) If a manual quote is disseminated, linkage functionality will not be imposed for Phase 1. Incoming linkage orders will automatically be rejected.
- 12) Members should avoid initiating trade throughs of away exchanges.
- 13) Market Makers will access linkage through their clearing firm links to CBOE. For PA orders, DPMs will access linkage via CBOE systems.
- 14) Phase 2 linkage adds additional concepts, regulations, functionality, and the Satisfaction order type.

### **Principal-Acting-As-Agent (PA) – Linkage Autoex Size**

PA order creation necessitates that the DPM determine the eligible autoex size at the away NBBO market. If the PA size is rejected because it exceeds that market's autoex size, the ORS Order Inquiry (IQOD) will log the autoex size from the rejecting exchange. As the autoex sizes may change, each exchange has provided the following web sites for their autoex sizes by option class:

**AMEX:** <http://www.amextrader.com/trader/amexcontent/autoex50up.stm>

**ISE:** **PA autoex size is displayed in the ISE disseminated quote.**  
The autoex size for P orders is 10.

**PHLX:** <http://www.phlx.com/products/phlxopt.htm>

**PCX:** [http://www.pacificex.com/options/options\\_directory.html](http://www.pacificex.com/options/options_directory.html) (for cust. and PA autoex size)  
[http://www.pacificex.com/options/bdautoex/opt\\_sel\\_issues.xls](http://www.pacificex.com/options/bdautoex/opt_sel_issues.xls) (for BD orders)

**CBOE:** <http://www.cboe.com/TradTool/Symbols/SymbolDirectory.asp>

- The CBOE autoex size for PA orders is a calculated value. It is determined by the lesser of the RAES series volume and our disseminated quote size, with a minimum of 10. This CBOE autoex value is then compared to the autoex size of the incoming PA order to determine the Linkage Autoex Size of the PA order.
- The CBOE autoex size for P orders is 10 contracts.
- For Phase 1 linkage, incoming orders that exceed these autoex sizes will be rejected in full, no partial execution.
- For Phase 2 linkage, incoming orders that exceed these autoex sizes will automatically trade the autoex size, and the balance will route to PAR for 15 second manual handling.

#### **PA Order Handling:**

- Routing PA orders to multiple NBBO markets:  
The DPM may send PA orders to multiple NBBO exchanges at the same time without any time restrictions. The unexecuted customer size may be split among the NBBO markets.
- Routing multiple PA orders to one NBBO market:  
If there is only one NBBO market, the customer order size may be sent as two PA orders to the same NBBO exchange. The Linkage Plan requires the first PA order to be sized for the Linkage Autoex Size, and the second PA order may be sent after 15 seconds for the balance of the customer size. Under phase 1 processing, if the size of the customer balance for the second PA order exceeds the Linkage Autoex Size, it is not eligible for linkage. Non-linkage routing means must be used to access the away market. This will be remedied in phase 2 when the linkage rules are expanded to any size linkage order.

#### **Interim Linkage Pilot:**

The current interim linkage pilot is scheduled to end on January 31<sup>st</sup> 2003. The firms who developed the special procedures for PA routing under the pilot are being asked to only support Principal (P) routing under the full Linkage Plan. The exchange systems (PAR and TNT) will be used to route PA orders.

Linkage questions can be directed to any Equity Floor Procedure Committee Linkage Sub-committee member listed below or Tim Watkins at 312-786-7172.

#### **EFPC Linkage Sub-committee:**

Dave Miller  
Anthony Carone  
Dan Carver  
Steve Dillinger  
Damon Fawcett  
Kevin Hincks  
Ken Mueller



## AutoFade

As linkage functionality is rolled out class by class, an autofade function to automatically move the CBOE quote will be implemented. Autofade will be imposed when a RAES or LOU trade reduces the quote size to zero. This applies to all RAES or LOU trades, not just linkage trades. This will replace the process of blocking RAES for the Block Time period. The following is an overview of functionality for automatically fading the quote. This functionality will apply until hybrid trading is implemented.

1. Normal Autofade scenario:

- When quote size is decremented to zero, fade the quote price 1 tick worse than the Best-of-the-Rest (BOTR) NBBO, (or fade to the best book price and size if that is better than the BOTR).
  - Autofade size = the lesser of the TPF class default size or the previous AQ size
  - Autofade timer = Block Timer. Currently set to not exceed 30 seconds.
  - Autofade will print an alert notice to the DPM when the fade begins.
  - Any AutoQuote (WAQ or VQI) update during a fade time frame, either due to a manual send or an underlying tick, will clear the fade and reset price and size to the new AutoQuote values. Timers reset.
  - The Timer expires after 30 seconds if no new AutoQuote values are received. The fade price and size will be cleared, and a Best Quote calculation will be completed using the previous AutoQuote values for price & size.
2. Autofade will only allow a marketable order to automatically trade at the posted price and size. It will not allow that same marketable order to trade at multiple price points as each fade occurs (no drill down). The balance of the untraded order will route to PAR (or the Size Exhaust Destination).
  3. Autofade will only be imposed after a RAES or LOU trade exhausts size.
  4. A normal book trade or cancel that depletes full size in the quote will cause the normal Best Quote calculation to be used. This calculation will use the current AutoQuote (WAQ or VQI) price and size. If, however, autofade moves the quote to the book price, and the book is traded during the fade time period, the quote would fade to either the next best book price (if that price is still > or = than BOTR) or to 1 tick worse than BOTR for the duration of the timer. At the expiration of the timer, a new Best Quote calculation would restore the previous AutoQuote price and size.
  5. Autofade will not be used for single-list classes. They will continue to function as they do today by disseminating a size of 1 and blocking RAES for the Block Time period.
  6. Manual quotes currently do not decrement the size, so no autofade will occur for normal inbound orders. Linkage orders would route to PAR during phase 2 processing (or reject in phase 1) due to the series being non-autoex eligible.
  7. Step up processing will be disabled during the autofade time period for that series-side.
  8. The new quote will be flagged as an autofade quote change on MDR. A set of arrows will appear in the BKR broker column for a faded bid or CBK column for a faded offer.
  9. The autofade process will not fade both sides of the quote. The fade will only occur on the quote side that is reduced to zero. **Please be advised that it may be possible for the quote to fade wider than the normal width. CBOE is attempting to secure an exemption from the market-maker quote width requirements for these instances but no such exemption is in place at this time.** Either an autoquote update or the expiration of the timer will cause the quote to revert back to normal width.
  10. Autofade will be activated when a class is enabled for linkage.

Questions regarding AutoFade can be directed to Tim Watkins at 312-786-7172, Roger Mulcahy at 312-786-7280, or Brian Stucka at 312-786-7377.

The following is an example of an AutoFade Alert Notice that will be printed for the DPM:

SIZE EXHAUSTED ON OFFER

HD SEP 20 CALL

MQ: \* 1.00 - 1.35 \*

SZ: 100 x 10

09:04:20 QUOTE FADED

AutoFade calculation:

**The price calculated by autofade will be 1 tick worse than the BOTR:**

Normal RAES trade:	CBOE Bid is 1.20 *	BOTR Bid is 1.15	Autofade price will be 1.10
	CBOE Ask is 1.45 *	BOTR Ask is 1.50	Autofade price will be 1.55
Step-up RAES trade:	CBOE Bid is 1.20	BOTR Bid is 1.25 *	Autofade price will be 1.20
	CBOE Ask is 1.45	BOTR Ask is 1.40 *	Autofade price will be 1.45

(\* = NBBO)

For a normal RAES trade, autofade would calculate a price one tick worse than the BOTR.

For a step-up RAES trade, autofade would calculate a price one tick worse than the BOTR.

- Please note that autofade from one-tick step-up would not change the CBOE quote, and if a value greater than one-tick were in place, autofade may actually tighten CBOE markets in certain situations.

Step-up set to 2 ticks:	CBOE Bid is 1.15	BOTR Bid is 1.25 *	Autofade price will be 1.20
	CBOE Ask is 1.50	BOTR Ask is 1.40 *	Autofade price will be 1.45

**The size calculated by autofade will be the lesser of the Class default size and the previous AQ size.**