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July 31, 2009

Via Federal Express

Ms. Elizabeth King
Associate Director
Division of Trading and Markets
Securities and Exchange Commission
100 F Street, N.E.
Washington D.C. 20549

Re: Penny Pilot Report for the Period from February 1, 2009 – April 30, 2009

Dear Ms. King:

The Chicago Board Options Exchange, Incorporated (“CBOE”) is submitting this letter and the attached report which describes the impact of the Penny Pilot during the period of February 1, 2009 through April 30, 2009, as compared to the three-month period prior to a class participating in the Pilot Program.¹ This is CBOE’s sixth report evaluating the Penny Pilot.

As you know, CBOE has filed a proposed rule change (SR-CBOE-2009-31) to expand the Penny Pilot. CBOE’s proposal would significantly expand the Pilot Program to all equity and ETF option classes (over 2,000 classes), following a relatively brief roll-out period lasting approximately six months. Under CBOE’s proposal, which has been endorsed by the Equity Options Trading Committee of SIFMA, option series below \$1 premium value would be quoted in penny increments, and series at \$1 or above would be quoted in nickel increments. CBOE’s proposal also contemplates the launch of the new Linkage Plan prior to any expansion of the Penny Pilot Program. CBOE believes strongly that the new Linkage Plan should be implemented before any expansion occurs.

The benefits of CBOE’s proposal are set forth in its proposed rule change, CBOE’s comment letter on a NYSEArca rule filing to expand the Penny Pilot, as well as CBOE’s past reports to the SEC concerning the Penny Pilot. CBOE notes that SIFMA has submitted a

¹ Initially, thirteen option classes were included in the Pilot Program (“Phase I classes”). On September 28, 2007, twenty-two additional option classes were added to the Pilot Program (“Phase II classes”). On March 28, 2008, twenty-eight additional classes were added to the Pilot Program (“Phase III classes”). Presently, there are fifty-eight option classes participating in the Penny Pilot.

persuasive comment letter and analysis to CBOE's proposed rule change, supporting CBOE's proposal and explaining why the optimal breakpoint in the Penny Pilot classes should be \$1.²

With respect to the most recent period under review, the impact of quoting in penny increments on average spread, liquidity at the BBO, quote traffic, and trading volume continues to show mixed results.

- Average Spread. Average spread width decreased by an average of 40% for Phase I classes, 54% for Phase II classes, and 55% for Phase III classes during the most recent three month review period.
- Liquidity at the BBO. From the beginning of the Penny Pilot, CBOE has expressed concerns relating to the significant reduction in liquidity at the BBO. During the most recent review period, the average quoted size decreased 91% for the Phase I classes, 73% for Phase II classes, and 73% for Phase III classes. The percentage reduction in average size has been consistent throughout the Pilot Program. As previously noted, CBOE members and institutional investors continue to advise that executing large size orders is difficult in Penny Pilot classes, and that trading is moving to non-listed markets.
- Quote Traffic. Quote traffic, both into CBOE and to OPRA, continues to explode. In this review period, the industry's total number of quotes per day in penny series increased 304% in Phase I classes, 187% in Phase II classes, and 177% in Phase III classes. As CBOE has pointed out in its prior reports on the Penny Pilot, there are real costs to exchanges and others to process and store these quotations. Four exchanges experienced peak message rates last month.
- Volume. A summary review of the data would suggest that trading volume increased in the Penny Pilot classes during the most recent review period: +48% in Phase I classes, +71% in Phase II classes, and +26% in Phase III classes. However, in the Phase I classes, 7 of 13 classes actually decreased in total average daily volume and customer average daily volume, while 8 of 13 Phase I classes decreased in firm average daily volume. Much of the increase in Phase I classes was attributable to three classes: CAT (+179%), SUNW (+222%), and GE (+477%).

Similar results are evident in the Phase II and Phase III classes. For example, for Phase II classes, 12 of 22 classes decreased in total average daily volume and in customer average daily volume, while 15 of 22 Phase II classes decreased in firm average daily volume. For Phase III classes, 11 of 26 classes decreased in total average daily volume, 10 of 26 classes decreased in customer average daily volume, and 15 of 22 classes decreased in firm average daily volume. As CBOE has previously reported, reduction in average daily volume may be attributable to many factors, including the Penny Pilot, market conditions overall and/or conditions in a particular security.

² See letter from Thomas F. Price dated June 17, 2009, commenting on SR-NYSEArca-2009-44, SR-CBOE-2009-31, and SR-ISE-2009-32.

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CBOE would be pleased to meet with you to discuss our report as well as CBOE's separate proposal to expand the Penny Pilot Program as described in its rule filing SR-CBOE-2009-31. If you have any questions concerning CBOE's report, please call me.

Sincerely,

A handwritten signature in black ink, appearing to read "Patrick Sexton", with a long horizontal flourish extending to the right.

Patrick Sexton

Attachment

CBOE Penny Pilot Report

Time Period

Comparisons for Phase 1 and Phase 2 classes are done between a 3-month pre-period and a 3-month post period that starts on February 1, 2009 and ends on April 30, 2009. For Whole Foods (WFMI), the pre-period is from October through December 2006. For the remaining classes in the initial pilot, the pre-period is from November 2006 through January 2007.¹ For the classes in the second phase, the pre-period is from July 1, 2007 through September 27, 2007. For the classes in the third phase, the pre-period is from January 1, 2008 through March 27, 2008. A note: data from Nasdaq Options Market is excluded from these analyses.

Quote Quality – Average Spreads and Average Size

The section focuses on quotes disseminated to OPRA for each of the pilot classes. The summary covers all quotes sent in all of the series and differentiates between quotes in series that are subject to quoting in penny differentials (penny series) and series that are quoted in nickel differentials (nickel series). Average spread is calculated as a straight average of the spreads (disseminated offer less disseminated bid) of all quotes disseminated to OPRA. Average quoted size is calculated by averaging both bid sizes and ask sizes disseminated to OPRA.

Phase 1 Classes

Spread Width: Overall, the Industry's average spreads in penny series decreased by an average of 40% from \$0.10 in the pre-period to \$0.06 in the post-period. Average spreads in the post period ranged from \$0.04 to \$0.17. In nickel series, spreads decreased an average of 11%. Average spreads in the post period ranged from \$0.11 to \$0.29. The table below shows Industry average spreads in the pre and post periods for each pilot stock for penny series, nickel series and all series.

Average Spread Width

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
A	0.13	0.04	-65%	0.25	0.17	-33%	0.19	0.09	-54%
AMD	0.09	0.05	-48%	0.21	0.19	-13%	0.16	0.06	-59%
CAT	0.09	0.04	-58%	0.21	0.16	-25%	0.17	0.10	-40%
FLEX	0.10	0.08	-18%	0.18	0.25	43%	0.14	0.12	-13%
GE	0.08	0.04	-57%	0.18	0.13	-24%	0.13	0.07	-43%
INTC	0.07	0.03	-60%	0.16	0.11	-32%	0.12	0.05	-59%
IWM	0.10	0.06	-39%	0.24	0.25	4%	0.19	0.17	-12%
MSFT	0.07	0.03	-58%	0.15	0.12	-23%	0.11	0.06	-50%
QQQQ	0.13	0.17	29%				0.13	0.17	29%
SMH	0.09	0.04	-60%	0.18	0.13	-26%	0.13	0.06	-54%
SUNW	0.08	0.08	-5%	0.15	0.29	93%	0.09	0.11	23%
TXN	0.09	0.04	-55%	0.20	0.15	-23%	0.14	0.07	-48%
WFMI	0.11	0.06	-45%	0.30	0.19	-37%	0.26	0.11	-58%
Total	0.10	0.06	-40%	0.20	0.18	-11%	0.15	0.10	-37%

¹ SUNW changed its symbol to JAVA but it is still shown as SUNW.

Quoted Size: Quoted size has decreased significantly in the post period. The Industry's average sizes are down 91% from 13,685 to 1,251 in penny series and 73% from 4,212 to 1,124 in nickel series. The decrease in sizes was very similar in all classes in penny series. QQQQ, for example decreased from an average size of 60,549 to an average size of 4,466. The table below shows average size in penny series, nickel series and all series for the pilot classes in the pre and post periods.

Average Size

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
A	1,153	341	-70%	550	377	-31%	1,703	718	-58%
AMD	5,306	702	-87%	2,450	593	-76%	7,756	1,295	-83%
CAT	3,008	535	-82%	1,603	602	-62%	4,611	1,137	-75%
FLEX	1,670	399	-76%	1,135	459	-60%	2,805	858	-69%
GE	11,974	1,012	-92%	5,354	990	-82%	17,327	2,002	-88%
INTC	20,547	1,431	-93%	7,781	1,942	-75%	28,329	3,373	-88%
IWM	19,584	2,653	-86%	8,786	3,208	-63%	28,369	5,861	-79%
MSFT	18,093	1,805	-90%	6,759	2,088	-69%	24,852	3,893	-84%
QQQQ	60,549	4,466	-93%				60,549	4,466	-93%
SMH	17,473	891	-95%	5,905	1,307	-78%	23,378	2,198	-91%
SUNW	7,762	882	-89%	5,266	729	-86%	13,027	1,611	-88%
TXN	8,731	788	-91%	3,904	841	-78%	12,635	1,629	-87%
WFMI	2,061	354	-83%	1,053	356	-66%	3,114	710	-77%
Total	13,685	1,251	-91%	4,212	1,124	-73%	17,574	2,289	-87%

Phase 2 Classes

Spread Width: Overall, the Industry's average spreads in penny series decreased by an average of 54% from \$0.13 in the pre-period to \$0.06 in the post-period. Average spreads in the post period ranged from \$0.03 to \$0.28. In nickel series, spreads decreased an average of 36%. Average spreads in the post period ranged from \$0.12 to \$0.48. The table below shows Industry average spreads in the pre and post periods for each pilot stock for penny series, nickel series and all series.

Average Spread Width

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AAPL	0.10	0.04	-57%	0.33	0.22	-33%	0.30	0.19	-36%
AMGN	0.12	0.05	-54%	0.29	0.21	-29%	0.23	0.15	-36%
AMZN	0.10	0.05	-54%	0.32	0.25	-24%	0.28	0.21	-25%
BMY	0.11	0.03	-70%	0.25	0.13	-50%	0.19	0.06	-66%
C	0.11	0.07	-34%	0.28	0.30	7%	0.22	0.14	-34%
COP	0.11	0.04	-66%	0.30	0.17	-42%	0.26	0.12	-53%
CSCO	0.10	0.03	-69%	0.23	0.12	-49%	0.17	0.05	-70%
DIA	0.15	0.08	-47%	0.34	0.36	6%	0.29	0.26	-11%
DNDN	0.17	0.28	67%	0.40	0.45	14%	0.28	0.41	45%
FCX	0.20	0.04	-78%	0.58	0.19	-67%	0.53	0.15	-72%
GM	0.11	0.07	-33%	0.27	0.17	-36%	0.21	0.11	-48%
MO	0.12	0.04	-69%	0.29	0.14	-51%	0.24	0.05	-77%
MOT	0.09	0.04	-58%	0.23	0.16	-32%	0.12	0.05	-58%
NYX	0.16	0.05	-70%	0.43	0.16	-61%	0.37	0.10	-72%
OIH	0.13	0.10	-22%	0.40	0.48	21%	0.36	0.41	14%
QCOM	0.10	0.04	-64%	0.24	0.14	-44%	0.18	0.09	-51%
RIMM	0.13	0.05	-63%	0.55	0.22	-60%	0.50	0.18	-65%
SPY	0.14	0.07	-51%	0.34	0.27	-21%	0.30	0.20	-34%
T	0.12	0.03	-73%	0.28	0.14	-50%	0.21	0.07	-68%
XLE	0.14	0.05	-65%	0.27	0.20	-27%	0.23	0.14	-38%
XLF	0.14	0.04	-71%	0.26	0.13	-52%	0.19	0.07	-65%
YHOO	0.10	0.04	-63%	0.25	0.15	-41%	0.18	0.07	-62%
Total	0.13	0.06	-54%	0.34	0.22	-36%	0.28	0.15	-47%

Quoted Size: Quoted size has decreased significantly in the post period. The Industry's average sizes are down 73% from 996 to 273 in penny series and 19% from 497 to 402 in nickel series. The decrease in sizes was very similar in all classes in penny series. CSCO, for example decreased 79% from an average size of 2,199 to an average size of 454 in penny series. The table below shows average size in penny series, nickel series and all series for the pilot classes in the pre and post periods.

Average Size

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AAPL	530	75	-86%	226	116	-48%	262	109	-58%
AMGN	410	87	-79%	181	128	-29%	258	112	-57%
AMZN	490	99	-80%	200	142	-29%	256	134	-48%
BMJ	541	176	-67%	280	177	-37%	406	176	-57%
C	1,146	375	-67%	688	780	13%	864	496	-43%
COP	484	160	-67%	214	229	7%	273	202	-26%
CSCO	2,199	454	-79%	1,033	638	-38%	1,569	496	-68%
DIA	2,460	495	-80%	1,715	616	-64%	1,888	574	-70%
DNDN	212	91	-57%	158	211	33%	184	183	-1%
FCX	134	107	-20%	84	217	158%	92	185	102%
GM	519	136	-74%	309	377	22%	386	227	-41%
MO	323	189	-41%	155	136	-13%	205	180	-12%
MOT	1,420	333	-77%	458	287	-37%	1,223	328	-73%
NYX	208	123	-41%	154	183	19%	165	152	-8%
OIH	382	103	-73%	149	119	-20%	181	117	-36%
QCOM	950	171	-82%	432	308	-29%	647	246	-62%
RIMM	233	172	-26%	94	217	130%	108	207	91%
SPY	4,713	1,232	-74%	1,938	1742	-10%	2,513	1,560	-38%
T	649	249	-62%	376	353	-6%	497	282	-43%
XLE	1,320	306	-77%	758	424	-44%	921	381	-59%
XLF	1,521	698	-54%	916	1236	35%	1,266	866	-32%
YHOO	1,069	173	-84%	417	204	-51%	726	181	-75%
Total	996	273	-73%	497	402	-19%	677	336	-50%

Phase 3 Classes

Spread Width: Overall, the Industry's average spreads in penny series decreased by an average of 55% from \$0.13 in the pre-period to \$0.03 in the post-period. Average spreads in the post period ranged from \$0.03 to \$0.43. In nickel series, spreads decreased an average of 34%. Average spreads in the post period ranged from \$0.12 to \$1.52. The table below shows Industry average spreads in the pre and post periods for each pilot stock for penny series, nickel series and all series.

Average Spread Width

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AA	0.12	0.04	-66%	0.26	0.15	-41%	0.20	0.07	-67%
AIG	0.14	0.07	-51%	0.38	0.26	-30%	0.31	0.14	-54%
BAC	0.11	0.04	-60%	0.29	0.15	-47%	0.21	0.09	-59%
BSC	0.23			0.56			0.50		
CFC	0.19			0.48			0.32		
DELL	0.09	0.03	-64%	0.22	0.12	-44%	0.14	0.05	-65%
EBAY	0.11	0.03	-67%	0.25	0.13	-48%	0.18	0.06	-69%
EEM	0.22	0.05	-77%	0.75	0.21	-72%	0.66	0.12	-82%
EMC	0.09	0.04	-63%	0.20	0.12	-40%	0.12	0.05	-58%
F	0.09	0.07	-25%	0.21	0.24	12%	0.11	0.10	-7%
GS	0.19	0.09	-52%	0.56	0.36	-36%	0.52	0.33	-37%
HAL	0.11	0.04	-66%	0.24	0.13	-46%	0.18	0.08	-58%
HD	0.11	0.03	-70%	0.24	0.13	-48%	0.18	0.07	-61%
JPM	0.12	0.04	-68%	0.27	0.12	-55%	0.22	0.10	-56%
LEH	0.15			0.39			0.34		
MER	0.15			0.34			0.29		
MNX	0.25	0.43	76%	1.00	1.52	52%	0.91	1.34	47%
NEM	0.12	0.04	-67%	0.28	0.16	-43%	0.24	0.12	-48%
PFE	0.09	0.03	-65%	0.22	0.12	-45%	0.14	0.05	-65%
RIO	0.13	0.04	-72%	0.28	0.14	-49%	0.22	0.07	-69%
SBUX	0.10	0.04	-67%	0.22	0.14	-39%	0.15	0.06	-63%
SNDK	0.11	0.06	-46%	0.28	0.21	-23%	0.21	0.11	-49%
TGT	0.13	0.04	-73%	0.28	0.15	-46%	0.24	0.11	-56%
VLO	0.11	0.03	-70%	0.28	0.12	-56%	0.23	0.07	-70%
VZ	0.11	0.04	-67%	0.25	0.14	-45%	0.19	0.08	-60%
WM	0.15			0.33			0.24		
WMT	0.10	0.03	-67%	0.23	0.15	-34%	0.18	0.11	-41%
XOM	0.12	0.04	-62%	0.28	0.19	-32%	0.25	0.15	-39%
Total	0.13	0.06	-55%	0.34	0.23	-34%	0.27	0.15	-45%

Quoted Size: Quoted size has decreased significantly in the post period. The Industry's average sizes are down 73% from 952 to 260 in penny series and 25% from 498 to 375 in nickel series. The decrease in sizes was very similar in all classes in penny series. The table below shows average size in penny series, nickel series and all series for the pilot classes in the pre and post periods.

Average Size

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AA	586	200	-66%	311	184	-41%	424	196	-54%
AIG	592	290	-51%	364	681	87%	427	442	3%
BAC	1,255	477	-62%	757	1,279	69%	969	787	-19%
BSC	324			193			215		
CFC	257			251			254		
DELL	2,292	409	-82%	1,029	324	-68%	1,822	394	-78%
EBAY	1,261	294	-77%	643	281	-56%	944	291	-69%
EEM	873	343	-61%	589	503	-14%	637	412	-35%
EMC	2,225	384	-83%	1,206	498	-59%	1,938	406	-79%
F	1,341	210	-84%	668	397	-41%	1,238	247	-80%
GS	235	44	-81%	127	60	-53%	137	58	-58%
HAL	972	211	-78%	441	284	-36%	693	240	-65%
HD	1,263	284	-77%	497	328	-34%	842	302	-64%
JPM	1,130	179	-84%	614	462	-25%	799	369	-54%
LEH	373			253			279		
MER	596			385			441		
MNX	671	470	-30%	492	294	-40%	515	324	-37%
NEM	622	125	-80%	414	241	-42%	474	205	-57%
PFE	1,989	385	-81%	697	331	-53%	1,524	375	-75%
RIO	775	319	-59%	381	540	42%	527	391	-26%
SBUX	1,037	358	-65%	465	338	-27%	817	355	-57%
SNDK	867	100	-88%	420	155	-63%	598	117	-80%
TGT	611	175	-71%	354	268	-25%	422	231	-45%
VLO	742	175	-76%	430	328	-24%	514	239	-54%
VZ	840	157	-81%	440	215	-51%	615	180	-71%
WM	487			327			405		
WMT	1,434	235	-84%	699	346	-50%	1,006	301	-70%
XOM	1,018	164	-84%	486	287	-41%	603	252	-58%
Total	952	260	-73%	498	375	-25%	717	309	-57%

Quote Quantity

This section focuses on the number of quotes disseminated to OPRA and the number of quotes that individual quoters sent to CBOE. As described above, the numbers are compared for the pre and post periods.

Phase 1 Classes

Outbound Quotes to OPRA: The Industry's total number of quotes per day in the penny series increased 304% from an average of 1.3 million to 5.4 million. In the nickel series the Industry's total number of quotes per day increased 146% from an average of 1.2 million to 3.0 million. In penny series, changes ranged from a decrease of 65% in AMD to an increase of 420% in INTC. The table below compares pre- and post-period quote traffic for each of the penny pilot classes in penny series, nickel series and all series.

Quotes per Day

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
A	319,150	942,245	195%	291,943	504,463	73%	611,093	1,446,708	137%
AMD	1,111,099	388,734	-65%	1,105,372	51,497	-95%	2,216,471	440,231	-80%
CAT	1,020,435	7,324,041	618%	1,856,912	8,168,675	340%	2,877,347	15,492,716	438%
FLEX	129,693	171,326	32%	119,617	47,067	-61%	249,310	218,393	-12%
GE	616,097	3,394,487	451%	544,236	2,018,726	271%	1,160,333	5,413,212	367%
INTC	705,679	3,666,354	420%	598,575	1,001,496	67%	1,304,254	4,667,849	258%
IWM	2,648,860	13,382,689	405%	5,849,903	19,537,071	234%	8,498,763	32,919,760	287%
MSFT	1,115,342	3,796,678	240%	922,322	1,506,190	63%	2,037,664	5,302,869	160%
QQQQ	7,046,005	29,691,528	321%				7,046,005	29,691,528	321%
SMH	740,611	2,704,013	265%	728,012	998,710	37%	1,468,623	3,702,723	152%
SUNW	301,383	685,672	128%	40,160	129,547	223%	341,544	815,219	139%
TXN	845,332	1,909,902	126%	785,255	888,451	13%	1,630,587	2,798,352	72%
WFMI	756,813	1,983,354	162%	1,727,648	1,031,373	-40%	2,484,461	3,014,727	21%
Average	1,335,115	5,387,771	304%	1,214,163	2,990,272	146%	2,455,881	8,148,022	232%

Peak Quotes per Second: Peak quotes are based on sustained rates over a 1-minute period. All of the quotes in a minute are counted and the total is divided by 60 to determine the quotes per second. For this portion of the analysis, the pre period is from December 1, 2007 through the penny pilot start date for each stock. The post period includes all of the peaks since the class started the penny pilot. Peak rates for quotes inbound to CBOE increased substantially, with peaks in SUNW increasing 2346%, SMH increasing 416%, and IWM increasing 360%. Twelve of the 13 classes had increases in peak quote rates outbound to OPRA. SUNW had the biggest increase at 1190%. The table below shows the inbound and outbound peak rates in the pre and post periods for each of the pilot classes.

CBOE Peak Quote Rates

Class	Inbound			Outbound		
	Pre	Post	% Chg	Pre	Post	% Chg
A	218	612	181%	154	485	215%
AMD	445	557	25%	323	527	63%
CAT	728	1,999	175%	499	1,362	173%
FLEX	211	211	0%	169	153	-9%
GE	344	1,331	287%	238	960	303%
INTC	341	924	171%	271	1,257	364%
IWM	857	3,943	360%	700	2,778	297%
MSFT	545	1,072	97%	434	1,208	178%
QQQQ	825	3,536	329%	743	2,393	222%
SMH	171	882	416%	151	823	445%
SUNW	57	1,394	2346%	48	619	1190%
TXN	285	896	214%	225	457	103%
WFMI	600	1,050	75%	468	604	29%

Phase 2 Classes

Outbound Quotes to OPRA: The Industry's total number of quotes per day in the penny series increased 187% from an average of 1.7 million to 5.0 million. In the nickel series the Industry's total number of quotes per day increased 43% from an average of 6.5 million to 9.3 million. In penny series, changes ranged from a 1% decrease in MOT to an increase of 568% in CSCO. The table below compares pre- and post-period quote traffic for each of the penny pilot classes in penny series, nickel series and all series.

Quotes per Day

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AAPL	3,046,909	4,714,786	55%	22,808,987	23,181,557	2%	25,855,895	27,896,343	8%
AMGN	682,920	2,473,173	262%	1,341,235	4,097,020	205%	2,024,154	6,570,194	225%
AMZN	1,364,044	3,472,831	155%	5,713,813	15,417,617	170%	7,077,857	18,890,448	167%
BMY	533,512	1,763,685	231%	569,448	792,185	39%	1,102,959	2,555,870	132%
C	1,099,964	1,197,671	9%	1,756,308	507,892	-71%	2,856,272	1,705,562	-40%
COP	1,268,397	3,712,264	193%	4,572,051	5,960,129	30%	5,840,448	9,672,393	66%
CSCO	552,746	3,693,660	568%	649,046	1,083,955	67%	1,201,793	4,777,615	298%
DIA	6,642,862	15,218,094	129%	21,868,260	28,568,148	31%	28,511,122	43,786,242	54%
DNDN	154,750	414,214	168%	162,318	1,397,935	761%	317,069	1,812,149	472%
FCX	1,397,283	4,556,540	226%	7,926,679	10,830,782	37%	9,323,962	15,387,322	65%
GM	970,295	291,910	-70%	1,658,542	177,114	-89%	2,628,837	469,024	-82%
MO	885,475	1,592,211	80%	2,097,219	315,304	-85%	2,982,693	1,907,515	-36%
MOT	602,007	596,735	-1%	155,345	71,227	-54%	757,352	667,961	-12%
NYX	943,804	3,162,751	235%	3,742,270	2,897,024	-23%	4,686,074	6,059,775	29%
OIH	1,443,427	3,707,640	157%	9,077,926	17,339,780	91%	10,521,353	21,047,420	100%
QCOM	889,667	3,807,781	328%	1,250,832	4,668,324	273%	2,140,498	8,476,105	296%
RIMM	2,082,325	3,078,013	48%	18,329,980	10,420,595	-43%	20,412,306	13,498,608	-34%
SPY	9,290,510	27,528,646	196%	35,577,287	49,393,090	39%	44,867,797	76,921,736	71%
T	746,992	4,796,034	542%	945,272	2,182,612	131%	1,692,264	6,978,645	312%
XLE	3,721,355	12,443,032	234%	9,095,070	22,311,685	145%	12,816,424	34,754,716	171%
XLF	977,365	4,260,260	336%	714,874	1,933,277	170%	1,692,239	6,193,536	266%
YHOO	475,367	2,649,784	457%	527,007	1,069,022	103%	1,002,373	3,718,806	271%
Total	1,729,027	4,960,532	187%	6,503,321	9,300,740	43%	8,232,348	27,896,343	73%

Peak Quotes per Second: Peak quotes are based on sustained rates over a 1-minute period. All of the quotes in a minute are counted and the total is divided by 60 to determine the quotes per second. The post period includes all of the peaks since the class started the penny pilot. Peak rates for quotes inbound to CBOE increased substantially, with peaks in DNDN increasing 681%, YHOO increasing 299% and XLE increasing 223%. Twenty one of the 22 classes had increases in peak quote rates outbound to OPRA. AMGN had the biggest increase at 290%. The table below shows the inbound and outbound peak rates in the pre and post periods for each of the pilot classes.

CBOE Peak Quote Rates

Class	Inbound			Outbound		
	Pre	Post	% Chg	Pre	Post	% Chg
AAPL	2,741	4,294	57%	1,936	3,209	66%
AMGN	517	1,545	199%	375	1,462	290%
AMZN	1,501	3,292	119%	1,029	1,975	92%
BMY	344	890	159%	276	588	113%
C	519	1,346	159%	359	1,137	217%
COP	1,460	1,501	3%	1,160	1,274	10%
CSCO	544	1,325	144%	444	1,060	139%
DIA	2,412	4,102	70%	1,921	3,238	69%
DNDN	642	5,015	681%	578	2,018	249%
FCX	1,943	3,029	56%	1,716	1,828	7%
GM	1,155	1,379	19%	973	1,212	25%
MO	934	722	-23%	737	531	-28%
MOT	206	547	166%	161	266	66%
NYX	1,640	2,245	37%	1,135	1,339	18%
OIH	1,437	2,770	93%	1,142	2,183	91%
QCOM	560	1,102	97%	457	1,585	247%
RIMM	3,172	6,520	106%	2,526	4,240	68%
SPY	3,255	6,160	89%	2,931	4,564	56%
T	473	1,032	118%	418	627	50%
XLE	1,193	3,855	223%	1,005	3,054	204%
XLF	478	1,535	221%	377	1,276	238%
YHOO	348	1,387	299%	271	1,025	278%

Phase 3 Classes

Outbound Quotes to OPRA: The Industry's total number of quotes per day in the penny series increased 177% from an average of 1.3 million to 3.5 million. In the nickel series the Industry's total number of quotes per day increased 54% from an average of 3.6 million to 5.6 million. In penny series, changes ranged from a decrease of 85% in AIG to an increase of 481% in PFE. The table below compares pre- and post-period quote traffic for each of the penny pilot classes in penny series, nickel series and all series.

Quotes per Day

Class	Penny Series			Nickel Series			All Series		
	Pre	Post	% Chg	Pre	Post	% Chg	Pre	Post	% Chg
AA	980,914	1,498,117	53%	1,396,385	456,676	-67%	2,377,299	1,954,792	-18%
AIG	955,208	141,959	-85%	2,488,116	89,465	-96%	3,443,324	231,424	-93%
BAC	1,982,659	5,979,007	202%	2,669,153	3,778,062	42%	4,651,812	9,757,069	110%
BSC	2,088,171			10,093,395			12,181,566		
CFC	418,077			337,306			755,382		
DELL	850,846	2,204,249	159%	504,367	450,049	-11%	1,355,212	2,654,298	96%
EBAY	905,420	3,072,163	239%	954,698	846,424	-11%	1,860,118	3,918,587	111%
EEM	1,143,404	4,122,369	261%	5,632,365	3,090,098	-45%	6,775,768	7,212,466	6%
EMC	1,011,439	2,306,938	128%	396,996	560,367	41%	1,408,435	2,867,305	104%
F	279,528	334,977	20%	50,393	83,532	66%	329,920	418,509	27%
GS	2,605,878	4,206,619	61%	25,533,954	35,568,648	39%	28,139,833	39,775,267	41%
HAL	1,047,394	3,235,769	209%	1,157,106	2,201,309	90%	2,204,500	5,437,078	147%
HD	919,194	3,356,491	265%	1,122,373	2,310,797	106%	2,041,567	5,667,288	178%
JPM	2,013,109	9,247,546	359%	3,587,246	18,933,484	428%	5,600,355	28,181,030	403%
LEH	1,455,596			5,121,145			6,576,741		
MER	2,413,819			6,682,465			9,096,283		
MNX	1,268,040	3,951,070	212%	8,850,633	19,447,401	120%	10,118,673	23,398,471	131%
NEM	1,463,981	4,436,038	203%	3,583,259	9,882,782	176%	5,047,240	14,318,820	184%
PFE	394,101	2,291,313	481%	221,716	519,674	134%	615,817	2,810,987	356%
RIO	1,468,234	4,524,933	208%	2,498,918	2,182,212	-13%	3,967,152	6,707,146	69%
SBUX	701,468	2,434,639	247%	437,698	590,262	35%	1,139,165	3,024,901	166%
SNDK	932,658	2,592,543	178%	1,413,160	1,168,119	-17%	2,345,818	3,760,662	60%
TGT	1,203,351	5,148,001	328%	3,362,283	8,014,574	138%	4,565,633	13,162,575	188%
VLO	1,687,816	5,687,512	237%	4,564,834	4,040,502	-11%	6,252,650	9,728,014	56%
VZ	912,800	2,511,190	175%	1,177,023	1,624,090	38%	2,089,823	4,135,281	98%
WM	1,395,361			1,488,563			2,883,925		
WMT	1,374,169	3,937,263	187%	1,918,598	5,681,396	196%	3,292,767	9,618,658	192%
XOM	1,322,868	2,954,576	123%	4,695,045	7,426,556	58%	6,017,913	10,381,132	73%
Total	1,256,982	3,485,882	177%	3,640,685	5,606,369	54%	4,897,668	9,092,250	86%

Peak Quotes per Second: Peak quotes are based on sustained rates over a 1-minute period. All of the quotes in a minute are counted and the total is divided by 60 to determine the quotes per second. The post period includes all of the peaks since the class started the penny pilot. Peak rates for quotes inbound to CBOE increased, with peaks in BAC increasing 222%, JPM increasing 219% and AIG increasing 163%. All of the classes had increases in peak quote rates outbound to OPRA. JPM had the biggest increase at 294%. The table below shows the inbound and outbound peak rates in the pre and post periods for each of the pilot classes.

CBOE Peak Quote Rates

Class	Inbound			Outbound		
	Pre	Post	% Chg	Pre	Post	% Chg
AA	635	861	36%	464	550	19%
AIG	783	2,059	163%	454	1,503	231%
BAC	916	2,948	222%	646	1,650	156%
BSC	2,763			1,371		
CFC	538			282		
DELL	606	1,206	99%	447	904	102%
EBAY	457	712	56%	337	507	50%
EEM	1,404	2,610	86%	912	1,466	61%
EMC	382	597	56%	193	442	129%
F	148	375	153%	109	252	131%
GS	3,201	3,545	11%	1,624	2,072	28%
HAL	402	942	134%	290	834	188%
HD	488	839	72%	242	791	227%
JPM	920	2,935	219%	546	2,152	294%
LEH	1,781	2,463	38%	827	1,625	96%
MER	2,035	2,573	26%	1,016	1,396	37%
MNX	1,868	2,361	26%	1,531	1,998	31%
NEM	874	1,739	99%	439	1,360	210%
PFE	251	597	138%	165	507	208%
RIO	966	2,090	116%	488	1,440	195%
SBUX	358	501	40%	239	370	55%
SNDK	504	964	91%	314	593	89%
TGT	907	1,530	69%	380	1,155	204%
VLO	858	1,526	78%	554	1,092	97%
VZ	444	694	56%	238	573	140%
WM	883	925	5%	552	552	0%
WMT	833	1,231	48%	453	920	103%
XOM	617	1,504	144%	416	1,195	188%