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March 9, 2009

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 August 1, 2008 - January 31, 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 August 1, 2008 through January 31, 2009.¹ This is CBOE’s fifth report evaluating the Penny Pilot.² The Penny Pilot is currently scheduled to continue until March 27, 2009. The SEC and the options exchanges need to determine whether to extend the Pilot Program in its current form or modify it, and also whether to expand the Pilot Program to include other option classes at the end of March 2009 or at a later date.

For the reasons described below, in this time of economic unrest and uncertainty CBOE believes that an aggressive expansion of the Pilot Program in its current form, as some are recommending, would be imprudent and could have a potentially long-term negative impact on the options industry. Moreover, CBOE does not believe that the data supports an aggressive expansion for the vast majority of equity option classes, as the impact of quoting in pennies in certain large ETFs (*e.g.*, QQQs and IWM) has greatly skewed the statistical results of the Pilot Program from the beginning. In large ETFs, the results of the Penny Pilot are vastly different than in many of the equity option classes.

Instead, CBOE continues to recommend that the options industry adopt the long-term solution to the issue of penny pricing in options that CBOE initially recommended last March 2008. At that time, CBOE proposed that the industry adopt a structure whereby all option series of less than \$1 premium value are quoted in penny increments, with all series at \$1 or above quoted in nickel increments. CBOE’s proposal would apply to all equity and ETF option classes. CBOE has explained the advantages of its proposal:

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, fifty-eight option classes participating in the Penny Pilot represent approximately 50% of the national average daily volume.

² Previously, CBOE submitted three reports analyzing the Penny Pilot Program. See letters from CBOE’s President Edward Joyce to Elizabeth King, dated June 1, 2007, November 1, 2007, March 4, 2008, and September 4, 2008.

- Provides the benefits of penny quoting and trading in those option contracts that customers actually trade. In January 2009, 42% of customer contract volume was in series priced up to \$1. In the Penny Pilot classes, 51% of customer contract volume was in series priced up to \$1. These statistics are not surprising given that 32% of all outstanding series are priced below \$1, and 42% all of series are priced over \$3.
- Introduces penny increments in nearly all listed option classes;
- Reduces the current dime increment to nickels in those same classes for series priced \$1 and above;
- Helps to reduce the explosion of quote traffic that would otherwise occur if the current \$3 breakpoint was maintained as part of a large expansion;
- Provides a simple and easily understood standard for investors as to which options are quoted in penny increments; and
- Provides flexibility in that if market conditions improve in the future, and it is determined that the benefits of penny quoting at a breakpoint higher than \$1 outweigh any negatives, modifying the breakpoint would be fairly easy to implement.

CBOE's proposal was endorsed by the Equity Options Committee of SIFMA, which it noted that "retail order flow is far more likely to concentrate activity in low premium options as opposed to those with much larger premium levels."³ CBOE reiterated this long-term solution to the issue of penny pricing in options in its September 4, 2008, Penny Pilot Report to the SEC.

After two years of the Penny Pilot, the impact of quoting in penny increments on average spread, liquidity at the BBO, quote traffic, and trading volume shows mixed results.

- Average Spread. A cursory review of the data would suggest that the Penny Pilot continues to have a positive impact, as average spread width decreased by an average of 14% for Phase I classes, 18% for Phase II classes, and 20% for Phase III classes during the most recent five month review period. However, reviewing only summary statistics does not provide a complete picture as to what occurred, given that the average spread width in some classes increased significantly – QQQQ +74%, DNDN +168%, MNX +78%. CBOE is aware that the average spread width in many non-Pilot option classes widened during this reporting period due to the unusual market conditions that have existed. Nonetheless, in evaluating the Pilot Program and determining how the next phases should be structured, one cannot ignore that the average spread width reductions are significantly less than in prior review periods, in which the average spread width consistently decreased in the range of 40-50%.
- Liquidity at the BBO. From the beginning of the Penny Pilot, CBOE has been concerned with 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, 80% for Phase II classes, and 82% for Phase III classes. The percentage reduction in average size has been consistent throughout the Pilot Program. In some classes, the average disseminated size in a class is very small – less than 75 contracts across all exchanges. 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. In light of these

³ See letter from Melissa MacGregor, Vice President and Assistant General Counsel, SIFMA, to Elizabeth King dated March 10, 2008.

uncertain market conditions, now is not the time to experiment and risk a further reduction in the liquidity at the BBO in the listed options markets.

- Quote Traffic. Quote traffic, both into CBOE and to OPRA, continues to explode. In the last five months, the industry's total number of quotes per day in penny series increased 363% in Phase I classes, 171% in Phase II classes, and 124% in Phase III classes. There are real costs to exchanges and others to process and store these quotations. The peak message rate to OPRA from the exchanges currently is 724,586 messages per second, which is 27% greater than it was six months ago when the peak message rate was 571,535.
- Volume. A summary review of the data would suggest that trading volume increased in the Penny Pilot classes during the most recent five month review period: +60% in Phase I classes, +43% in Phase II classes, and +27% in Phase III classes. However, similar to the statistics relating to average spread width, reviewing only summary statistics would be misleading. For example, for Phase I classes, 8 of 13 classes actually decreased in total average daily volume and customer average daily volume, while 10 of 13 Phase I classes decreased in firm average daily volume. Much of the 60% increase in Phase I classes was attributable to three classes QQQQ (+93%), IWM (+74%), and GE (+176%). If these three classes were excluded, industry volume actually decreased 9%.

Similar results are evident in the Phase II and Phase III classes. For example, for Phase II classes, 13 of 22 classes decreased in total average daily volume and 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, 12 of 26 classes decreased customer average daily volume, and 18 of 22 classes decreased in firm average daily volume.

CBOE recognizes that it is difficult to discern the extent to which the sharp reduction in average daily volume in many of the Pilot classes may be attributable to the Penny Pilot, as opposed to some combination of the Penny Pilot and market conditions overall and/or conditions in a particular security. Nonetheless, certain trends and conclusions are apparent:

- Where there is an increase in total average daily trading volume in a class, market-maker trading volume is a significant factor in the increase;
- Any increase in customer volume generally is less than the amount by which overall trading volume increased; and
- In those classes that experienced a volume decrease, firm volume generally is trending downward in the Penny Pilot classes at a greater rate than customer or market-maker volume.

As it has noted in the past, CBOE is concerned that the quoting in penny increments may be causing certain unintended consequences in the Pilot classes, such as driving business that was previously transacted on the exchanges to off-floor mechanisms and eliminating small to medium size liquidity providers in favor of a select number of large participants. The latter obviously affects the liquidity that may be available at the BBO.

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CBOE strongly believes that its proposal that the options industry adopt a structure whereby all option series of less than \$1 premium value are quoted in penny increments, with all series at \$1 or above quoted in nickel increments is balanced, flexible, reasonable and appropriate. The benefits of CBOE's proposal are clear: it provides for penny quoting and trading in a substantial percentage of option contracts that customers actually trade; it expands the Pilot to all equity and ETF option classes; it eliminates the confusion that will naturally result from quoting and trading some number of option classes in pennies and nickels and others in nickels and dimes; and it narrows the increment from a dime to a nickel in those series priced \$1 and above. Finally, it is flexible in that the breakpoint can be modified in subsequent years if it is deemed worthwhile to the industry overall.

We would be pleased to meet with you to discuss our report and our proposal. If you have any questions concerning CBOE's report, please call me.

Sincerely,

A handwritten signature in cursive script that reads "Edward J. Joyce".

Edward J. Joyce

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 6-month post period that starts on August 1, 2008 and ends on January 31, 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 just 14% from \$0.10 in the pre-period to \$0.08 in the post-period. Average spreads in the post period ranged from \$0.04 to \$0.22. In nickel series, spreads increased an average of 31%. Average spreads in the post period ranged from \$0.14 to \$0.45. 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	0.08	-34%	0.25	0.27	9%	0.19	0.17	-12%
AMD	0.09	0.06	-33%	0.21	0.27	29%	0.16	0.09	-42%
CAT	0.09	0.07	-26%	0.21	0.27	30%	0.17	0.21	23%
FLEX	0.10	0.10	1%	0.18	0.26	48%	0.14	0.14	-2%
GE	0.08	0.07	-10%	0.18	0.26	48%	0.13	0.16	24%
INTC	0.07	0.04	-43%	0.16	0.16	-4%	0.12	0.07	-39%
IWM	0.10	0.09	-12%	0.24	0.34	43%	0.19	0.24	26%
MSFT	0.07	0.04	-41%	0.15	0.14	-8%	0.11	0.08	-30%
QQQQ	0.13	0.22	74%				0.13	0.22	74%
SMH	0.09	0.06	-37%	0.18	0.21	15%	0.13	0.10	-26%
SUNW	0.08	0.06	-30%	0.15	0.31	110%	0.09	0.10	10%
TXN	0.09	0.06	-35%	0.20	0.22	10%	0.14	0.11	-21%
WFMI	0.11	0.12	3%	0.30	0.45	47%	0.26	0.24	-8%
Total	0.10	0.08	-14%	0.20	0.26	31%	0.15	0.15	-2%

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 1,210 in penny series and 74% from 4,212 to 1,087 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 4,493. 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	335	-71%	550	344	-37%	1,703	679	-60%
AMD	5,306	681	-87%	2,450	502	-80%	7,756	1,183	-85%
CAT	3,008	596	-80%	1,603	599	-63%	4,611	1,195	-74%
FLEX	1,670	412	-75%	1,135	441	-61%	2,805	853	-70%
GE	11,974	955	-92%	5,354	992	-81%	17,327	1,947	-89%
INTC	20,547	1,342	-93%	7,781	1,861	-76%	28,329	3,203	-89%
IWM	19,584	2,525	-87%	8,786	3,211	-63%	28,369	5,736	-80%
MSFT	18,093	1,781	-90%	6,759	2,046	-70%	24,852	3,827	-85%
QQQQ	60,549	4,493	-93%				60,549	4,493	-93%
SMH	17,473	882	-95%	5,905	1,199	-80%	23,378	2,081	-91%
SUNW	7,762	641	-92%	5,266	652	-88%	13,027	1,293	-90%
TXN	8,731	737	-92%	3,904	883	-77%	12,635	1,620	-87%
WFMI	2,061	356	-83%	1,053	312	-70%	3,114	668	-79%
Total	13,685	1,210	-91%	4,212	1,087	-74%	17,574	2,214	-87%

Phase 2 Classes

Spread Width: Overall, the Industry's average spreads in penny series decreased by an average of just 18% from \$0.13 in the pre-period to \$0.11 in the post-period. Average spreads in the post period ranged from \$0.05 to \$0.45. In nickel series, spreads decreased an average of 3%. Average spreads in the post period ranged from \$0.16 to \$0.73. 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	0.08	-14%	0.33	0.36	9%	0.30	0.33	8%
AMGN	0.12	0.11	-9%	0.29	0.34	17%	0.23	0.26	14%
AMZN	0.10	0.09	-17%	0.32	0.32	-1%	0.28	0.28	-2%
BMJ	0.11	0.05	-53%	0.25	0.19	-27%	0.19	0.10	-46%
C	0.11	0.06	-44%	0.28	0.25	-13%	0.22	0.15	-30%
COP	0.11	0.08	-27%	0.30	0.31	5%	0.26	0.26	1%
CSCO	0.10	0.05	-54%	0.23	0.16	-31%	0.17	0.08	-53%
DIA	0.15	0.14	-7%	0.34	0.42	25%	0.29	0.35	20%
DNDN	0.17	0.45	168%	0.40	0.73	85%	0.28	0.61	116%
FCX	0.20	0.11	-44%	0.58	0.46	-21%	0.53	0.39	-26%
GM	0.11	0.11	1%	0.27	0.27	-1%	0.21	0.18	-16%
MO	0.12	0.06	-49%	0.29	0.27	-5%	0.24	0.12	-52%
MOT	0.09	0.06	-33%	0.23	0.25	8%	0.12	0.09	-26%
NYX	0.16	0.11	-31%	0.43	0.36	-16%	0.37	0.27	-28%
OIH	0.13	0.19	52%	0.40	0.67	70%	0.36	0.61	71%
QCOM	0.10	0.07	-36%	0.24	0.21	-12%	0.18	0.16	-13%
RIMM	0.13	0.10	-24%	0.55	0.35	-36%	0.50	0.31	-38%
SPY	0.14	0.10	-23%	0.34	0.35	2%	0.30	0.29	-5%
T	0.12	0.06	-49%	0.28	0.19	-31%	0.21	0.12	-43%
XLE	0.14	0.12	-13%	0.27	0.34	23%	0.23	0.28	20%
XLF	0.14	0.07	-49%	0.26	0.19	-26%	0.19	0.12	-35%
YHOO	0.10	0.09	-10%	0.25	0.23	-8%	0.18	0.15	-15%
Total	0.13	0.11	-18%	0.34	0.33	-3%	0.28	0.25	-10%

Quoted Size: Quoted size has decreased significantly in the post period. The Industry's average sizes are down 80% from 996 to 200 in penny series and 48% from 497 to 257 in nickel series. The decrease in sizes was very similar in all classes in penny series. CSCO, for example decreased 88% from an average size of 2,199 to an average size of 256 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	78	-85%	226	78	-65%	262	78	-70%
AMGN	410	89	-78%	181	102	-44%	258	98	-62%
AMZN	490	89	-82%	200	100	-50%	256	98	-62%
BMJ	541	139	-74%	280	150	-47%	406	143	-65%
C	1,146	324	-72%	688	506	-26%	864	413	-52%
COP	484	117	-76%	214	136	-36%	273	132	-52%
CSCO	2,199	256	-88%	1,033	285	-72%	1,569	265	-83%
DIA	2,460	444	-82%	1,715	523	-69%	1,888	504	-73%
DNDN	212	55	-74%	158	91	-42%	184	76	-59%
FCX	134	63	-53%	84	74	-12%	92	72	-22%
GM	519	134	-74%	309	209	-32%	386	166	-57%
MO	323	118	-63%	155	95	-38%	205	112	-45%
MOT	1,420	212	-85%	458	194	-58%	1,223	210	-83%
NYX	208	54	-74%	154	66	-57%	165	62	-62%
OIH	382	73	-81%	149	74	-51%	181	74	-59%
QCOM	950	133	-86%	432	197	-54%	647	174	-73%
RIMM	233	100	-57%	94	95	1%	108	96	-11%
SPY	4,713	978	-79%	1,938	1,223	-37%	2,513	1,158	-54%
T	649	179	-72%	376	237	-37%	497	204	-59%
XLE	1,320	257	-81%	758	318	-58%	921	302	-67%
XLF	1,521	381	-75%	916	726	-21%	1,266	532	-58%
YHOO	1,069	117	-89%	417	171	-59%	726	141	-81%
Total	996	200	-80%	497	257	-48%	677	232	-66%

Phase 3 Classes

Spread Width: Overall, the Industry's average spreads in penny series decreased by an average of 20% from \$0.13 in the pre-period to \$0.11 in the post-period. Average spreads in the post period ranged from \$0.04 to \$0.44. In nickel series, spreads decreased an average of 5%. Average spreads in the post period ranged from \$0.16 to \$1.19. 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	0.08	-32%	0.26	0.27	1%	0.20	0.17	-18%
AIG	0.14	0.13	-8%	0.38	0.34	-9%	0.31	0.24	-22%
BAC	0.11	0.07	-37%	0.29	0.22	-22%	0.21	0.16	-23%
BSC	0.23			0.56			0.50		
CFC	0.19			0.48			0.32		
DELL	0.09	0.04	-53%	0.22	0.16	-28%	0.14	0.07	-48%
EBAY	0.11	0.05	-55%	0.25	0.21	-18%	0.18	0.09	-48%
EEM	0.22	0.12	-46%	0.75	0.44	-41%	0.66	0.29	-55%
EMC	0.09	0.06	-36%	0.20	0.19	-8%	0.12	0.09	-28%
F	0.09	0.07	-20%	0.21	0.32	49%	0.11	0.13	13%
GS	0.19	0.26	36%	0.56	0.74	32%	0.52	0.69	32%
HAL	0.11	0.07	-34%	0.24	0.25	2%	0.18	0.17	-7%
HD	0.11	0.05	-58%	0.24	0.17	-29%	0.18	0.10	-42%
JPM	0.12	0.08	-33%	0.27	0.25	-7%	0.22	0.20	-7%
LEH	0.15	0.09	-40%	0.39	0.28	-29%	0.34	0.21	-38%
MER	0.15	0.31	110%	0.34	0.42	21%	0.29	0.38	29%
MNX	0.25	0.44	78%	1.00	1.19	19%	0.91	1.04	15%
NEM	0.12	0.07	-45%	0.28	0.22	-22%	0.24	0.17	-28%
PFE	0.09	0.05	-45%	0.22	0.18	-17%	0.14	0.09	-34%
RIO	0.13	0.07	-45%	0.28	0.20	-27%	0.22	0.13	-41%
SBUX	0.10	0.05	-51%	0.22	0.18	-20%	0.15	0.08	-48%
SNDK	0.11	0.15	29%	0.28	0.64	133%	0.21	0.32	54%
TGT	0.13	0.07	-48%	0.28	0.25	-14%	0.24	0.19	-21%
VLO	0.11	0.06	-43%	0.28	0.23	-16%	0.23	0.16	-31%
VZ	0.11	0.08	-32%	0.25	0.23	-7%	0.19	0.16	-16%
WM	0.15	0.11	-27%	0.33	0.41	25%	0.24	0.20	-18%
WMT	0.10	0.06	-45%	0.23	0.21	-10%	0.18	0.16	-12%
XOM	0.12	0.08	-27%	0.28	0.30	6%	0.25	0.25	4%
Total	0.13	0.11	-20%	0.34	0.33	-5%	0.27	0.23	-17%

Quoted Size: Quoted size has decreased significantly in the post period. The Industry's average sizes are down 82% from 952 to 173 in penny series and 59% from 498 to 202 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	93	-84%	311	100	-68%	424	96	-77%
AIG	592	157	-74%	364	285	-22%	427	226	-47%
BAC	1,255	278	-78%	757	404	-47%	969	355	-63%
BSC	324		-100%	193		-100%	215		-100%
CFC	257		-100%	251		-100%	254		-100%
DELL	2,292	225	-90%	1,029	211	-79%	1,822	222	-88%
EBAY	1,261	188	-85%	643	210	-67%	944	194	-79%
EEM	873	222	-75%	589	219	-63%	637	220	-65%
EMC	2,225	301	-86%	1,206	342	-72%	1,938	310	-84%
F	1,341	143	-89%	668	180	-73%	1,238	151	-88%
GS	235	57	-76%	127	55	-57%	137	55	-60%
HAL	972	162	-83%	441	205	-54%	693	185	-73%
HD	1,263	204	-84%	497	218	-56%	842	211	-75%
JPM	1,130	179	-84%	614	279	-55%	799	250	-69%
LEH	373	98	-74%	253	151	-40%	279	132	-53%
MER	596	119	-80%	385	119	-69%	441	119	-73%
MNX	671	472	-30%	492	423	-14%	515	433	-16%
NEM	622	99	-84%	414	156	-62%	474	137	-71%
PFE	1,989	260	-87%	697	222	-68%	1,524	248	-84%
RIO	775	182	-77%	381	220	-42%	527	199	-62%
SBUX	1,037	199	-81%	465	167	-64%	817	192	-76%
SNDK	867	109	-87%	420	110	-74%	598	109	-82%
TGT	611	118	-81%	354	149	-58%	422	139	-67%
VLO	742	110	-85%	430	164	-62%	514	141	-73%
VZ	840	103	-88%	440	140	-68%	615	123	-80%
WM	487	110	-77%	327	139	-58%	405	118	-71%
WMT	1,434	152	-89%	699	200	-71%	1,006	183	-82%
XOM	1,018	151	-85%	486	177	-64%	603	172	-72%
Total	952	173	-82%	498	202	-59%	717	189	-74%

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 363% from an average of 1.3 million to 6.2 million. In the nickel series the Industry's total number of quotes per day increased 219% from an average of 1.2 million to 3.9 million. In penny series, changes ranged from a decrease of 51% in AMD to an increase of 534% in IWM. 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	1,081,407	239%	291,943	839,974	188%	611,093	1,921,382	214%
AMD	1,111,099	541,550	-51%	1,105,372	86,074	-92%	2,216,471	627,624	-72%
CAT	1,020,435	3,427,034	236%	1,856,912	7,907,391	326%	2,877,347	11,334,424	294%
FLEX	129,693	201,628	55%	119,617	52,200	-56%	249,310	253,828	2%
GE	616,097	3,528,139	473%	544,236	2,899,427	433%	1,160,333	6,427,566	454%
INTC	705,679	3,084,179	337%	598,575	1,029,776	72%	1,304,254	4,113,955	215%
IWM	2,648,860	16,789,262	534%	5,849,903	28,285,667	384%	8,498,763	45,074,929	430%
MSFT	1,115,342	4,850,801	335%	922,322	2,658,299	188%	2,037,664	7,509,100	269%
QQQQ	7,046,005	40,760,648	478%				7,046,005	40,760,648	478%
SMH	740,611	2,687,254	263%	728,012	1,073,916	48%	1,468,623	3,761,170	156%
SUNW	301,383	642,249	113%	40,160	130,830	226%	341,544	773,079	126%
TXN	845,332	1,421,605	68%	785,255	797,301	2%	1,630,587	2,218,906	36%
WFMI	756,813	1,331,339	76%	1,727,648	760,986	-56%	2,484,461	2,092,325	-16%
Average	1,335,115	6,180,546	363%	1,214,163	3,876,820	219%	2,455,881	9,759,149	297%

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 614%, 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 463%. 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	1331	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	407	614%	48	270	463%
TXN	285	896	214%	225	438	95%
WFMI	600	958	60%	468	604	29%

Phase 2 Classes

Outbound Quotes to OPRA: The Industry's total number of quotes per day in the penny series increased 171% from an average of 1.7 million to 4.7 million. In the nickel series the Industry's total number of quotes per day increased 107% from an average of 6.5 million to 13.5 million. In penny series, changes ranged from a 13% decrease of 3% in DNDN to an increase of 520% 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	4,614,507	51%	22,808,987	34,067,198	49%	25,855,895	38,681,705	50%
AMGN	682,920	2,072,761	204%	1,341,235	4,336,391	223%	2,024,154	6,409,151	217%
AMZN	1,364,044	2,741,468	101%	5,713,813	11,956,844	109%	7,077,857	14,698,312	108%
BMJ	533,512	1,553,381	191%	569,448	875,285	54%	1,102,959	2,428,666	120%
C	1,099,964	2,978,263	171%	1,756,308	2,833,596	61%	2,856,272	5,811,859	103%
COP	1,268,397	2,720,070	114%	4,572,051	9,458,242	107%	5,840,448	12,178,312	109%
CSCO	552,746	3,428,251	520%	649,046	1,494,337	130%	1,201,793	4,922,589	310%
DIA	6,642,862	13,697,152	106%	21,868,260	43,115,324	97%	28,511,122	56,812,476	99%
DNDN	154,750	134,182	-13%	162,318	185,538	14%	317,069	319,721	1%
FCX	1,397,283	2,965,921	112%	7,926,679	11,110,176	40%	9,323,962	14,076,096	51%
GM	970,295	1,027,047	6%	1,658,542	776,696	-53%	2,628,837	1,803,743	-31%
MO	885,475	1,964,833	122%	2,097,219	669,167	-68%	2,982,693	2,634,000	-12%
MOT	602,007	748,483	24%	155,345	131,339	-15%	757,352	879,822	16%
NYX	943,804	1,710,161	81%	3,742,270	3,059,627	-18%	4,686,074	4,769,789	2%
OIH	1,443,427	3,222,288	123%	9,077,926	22,246,336	145%	10,521,353	25,468,624	142%
QCOM	889,667	3,193,408	259%	1,250,832	5,537,348	343%	2,140,498	8,730,756	308%
RIMM	2,082,325	3,935,090	89%	18,329,980	23,703,439	29%	20,412,306	27,638,529	35%
SPY	9,290,510	26,132,584	181%	35,577,287	73,044,959	105%	44,867,797	99,177,543	121%
T	746,992	3,781,612	406%	945,272	2,902,492	207%	1,692,264	6,684,104	295%
XLE	3,721,355	14,179,501	281%	9,095,070	40,332,906	343%	12,816,424	54,512,407	325%
XLF	977,365	4,882,208	400%	714,874	3,823,430	435%	1,692,239	8,705,638	414%
YHOO	475,367	1,432,347	201%	527,007	1,160,651	120%	1,002,373	2,592,998	159%
Total	1,729,027	4,687,069	171%	6,503,321	13,491,878	107%	8,232,348	18,178,947	121%

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 YHOO increasing 299%, XLE increasing 223% and XLF increasing 221%. 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%
BMJ	344	581	69%	276	387	40%
C	519	1,346	159%	359	1,137	217%
COP	1,460	1,501	3%	1,160	1,274	10%
CSCO	544	1,127	107%	444	836	88%
DIA	2,412	4,102	70%	1,921	3,238	69%
DNDN	642	903	41%	578	750	30%
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%