

NASDAQ OMX PHLX
Options Penny Pilot Expansion Report 4
February 27, 2009

Summary

This is the fourth and final NASDAQ OMX PHLX report of the Penny Pilot program. The results are consistent with the earlier reports showing significant changes in spreads, quote size, and traffic. Overall, spreads declined for many categories of options, quote size at the inside declined, and quote traffic increased.

Market volatility associated with the credit crisis characterized the most recent after-penny pilot interval. Heightened volatility can be associated with increased spreads and order activity as market participants respond to higher risk. The results shown in this analysis reflect the combined impacts of the penny pilot and these other economic forces.

General

This report provides quote information for three time periods:

- Before penny pilot – covering 3 months before a symbol was added to the penny pilot stocks.
- Immediately after penny pilot – covering the period from when a symbol was added to penny pilot to July 31, 2008.
- Current – covering August 1, 2008 to January 31, 2009.

Much of the data provided here is aggregated across symbols. We provide four symbol groups: 1) all 63 symbols, 2) 13 original symbols, 3) 22 first expansion symbols, and 4) 28 second expansion symbols. Some symbols ceased trading during the intervals reducing the total number in each group.

We spot-tested and found that the un-weighted, aggregate data provided here provides an accurate representation of trends in spreads and size in the individual symbols. Although weighted averages are more appropriate, they did not significantly change the direction and magnitude of change between the time periods. We provide several disaggregated tables to highlight differences across individual symbols.

Quoted Spreads – NBBO

Quoted spreads declined for all penny pilot symbol categories up to \$5 or \$10 premiums and 9 months to expiration. Table 1 is representative, showing the overall trends in spreads over all months. More details are found in the appendix tables A1-A4, A9, and A11.

Table 1 :: NBBO Un-weighted Average Spread :: All 63 symbols :: \$

Option premium	All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.084	0.040	0.068	(18.39%)
1-<3	0.112	0.061	0.096	(13.77%)
3-<5	0.174	0.120	0.160	(8.02%)
5-<10	0.204	0.155	0.211	3.41%
10-<20	0.253	0.227	0.322	27.15%
20+	0.307	1.496	0.548	78.38%

Front month spreads declined most, up to premiums of \$10 (Table 2). Considering the significant increase in volatility between the before and current periods, it is not surprising that spreads for higher prices and longer expirations increased. Spreads that declined would likely have declined further under normal market conditions. Average spreads increased slightly from the first after-penny pilot period to the second.

Table 2 :: NBBO Un-weighted Average Spread :: All 63 symbols :: \$

Option premium	1 month to expiration			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.073	0.027	0.033	(54.38%)
1-<3	0.104	0.053	0.062	(40.61%)
3-<5	0.169	0.115	0.123	(27.46%)
5-<10	0.194	0.140	0.168	(13.30%)
10-<20	0.228	0.177	0.240	5.53%
20+	0.245	0.201	0.312	27.63%

Front month average spreads declined for almost all symbols (Table 3 and details in Table A11). Average spreads in this category declined more than 50%. Volume-weighted and un-weighted results were nearly identical.

Table 3 :: NBBO Average Spread :: One Month to Expiration :: \$

All 63 symbols		Premium < \$1			
Symbol	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	
Un-weighted Average	0.073	0.028	0.033	(54.2%)	
Weighted Average	0.072	0.024	0.030	(58.2%)	
Minimum	0.055	0.014	0.017	(74.5%)	
Maximum	0.121	0.075	0.084	35.3%	

QQQQ front month spreads declined for premiums up to \$5. As seen in the aggregate statistics, spreads widened between the first and the second after-penny pilot periods, especially in the high premium and distant expirations.

Table 4 :: NBBO Un-weighted Average Spread :: QQQQ :: \$

Option premium	1 month to expiration			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.055	0.015	0.018	(67.58%)
1-<3	0.074	0.027	0.030	(59.43%)
3-<5	0.119	0.048	0.057	(51.97%)
5-<10	0.127	0.063	0.148	16.61%
10-<20	0.128	0.076	0.284	120.97%
20+	0.127	0.069	0.478	276.28%

Quote Size at the Inside – NBBO

Average individual quote size at the NBBO (Table 5 and details in appendix Tables A5 – A8 and A10) declined significantly, in most cases continuing to decline between the first and the second after penny pilot periods.

Table 5 :: NBBO Average Quote Size :: ALL 63 symbols :: Shares

	All months			Pct Change (1) - (3)
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	
63 symbols	1,767	451	313	(82.29%)
13 symbols	4,041	630	424	(89.51%)
22 symbols	1,323	475	314	(76.26%)
28 symbols	976	345	257	(73.67%)
QQQQ	21,337	2,011	1,387	(93.50%)

While the decline in individual quote size at the inside is dramatic, it is a crude measurement of the impact of the penny pilot program on liquidity.

First, quote size at the inside price in a pennies environment is not directly comparable to the number of shares available with wider minimum price variation. In a penny environment liquidity can be distributed over multiple price increments within a comparable spread.

Second, the recent dramatic increase in market volatility may have reduced liquidity provision by market participants. This trend could in particular be behind the decline from the first to the second after-penny pilot periods.

Quote Message Traffic – PHLX

Overall quote traffic grew 310% for penny pilot symbols (Table 6 and appendix Table A15). While dramatic, the increase is most likely not entirely caused by the penny pilot program. Increased market volatility in underlying issues was likely a very significant source of increased quote activity. There was also significant variation across symbols,

with many symbols experiencing much smaller increases in traffic and even a few with declines (Table A11).

Table 6 :: Average Daily Outbound PHLX Quotes :: Thousands

	Symbol	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
All		42,052.3	144,215.6	172,484.4	310.2%
Minimum		25.7	91.7	72.7	182.7%
Maximum		5,124.0	23,425.1	22,411.8	337.4%
Minimum growth	AMD	374.2	311.6	163.5	(56.3%)
Maximum growth	XLFF	89.9	1,610.3	2,136.1	2277.2%

NBBO Average Spreads By expiration date and premium

Table A1 :: NBBO Un-weighted Average Spread :: All 63 symbols :: \$

Option premium	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.073	0.027	0.033	(54.38%)	0.074	0.030	0.037	(50.10%)	0.085	0.042	0.059	(30.44%)	0.143	0.100	0.189	31.91%	0.084	0.040	0.068	(18.39%)
1-<3	0.104	0.053	0.062	(40.61%)	0.099	0.050	0.060	(39.88%)	0.108	0.060	0.080	(26.39%)	0.190	0.122	0.235	23.49%	0.112	0.061	0.096	(13.77%)
3-<5	0.169	0.115	0.123	(27.46%)	0.161	0.112	0.121	(24.87%)	0.166	0.115	0.140	(15.69%)	0.268	0.190	0.321	19.93%	0.174	0.120	0.160	(8.02%)
5-<10	0.194	0.140	0.168	(13.30%)	0.188	0.150	0.164	(12.91%)	0.189	0.146	0.178	(5.75%)	0.311	0.230	0.400	28.59%	0.204	0.155	0.211	3.41%
10-<20	0.228	0.177	0.240	5.53%	0.230	0.210	0.243	5.78%	0.228	0.214	0.261	14.29%	0.380	0.320	0.577	51.93%	0.253	0.227	0.322	27.15%
20+	0.245	0.201	0.312	27.63%			0.351				0.446		0.440	0.478	0.930	111.24%	0.307	1.496	0.548	78.38%

Table A2 :: NBBO Un-weighted Average Spread :: Original 13 symbols :: \$

Option premium	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.066	0.022	0.030	(54.60%)	0.063	0.022	0.030	(52.84%)	0.069	0.028	0.043	(37.72%)	0.084	0.058	0.139	65.43%	0.069	0.028	0.044	(37.01%)
1-<3	0.090	0.046	0.059	(34.97%)	0.083	0.037	0.051	(38.02%)	0.084	0.041	0.063	(25.59%)	0.105	0.079	0.185	76.39%	0.088	0.045	0.069	(22.20%)
3-<5	0.143	0.110	0.122	(14.43%)	0.134	0.100	0.117	(12.73%)	0.132	0.092	0.121	(8.08%)	0.154	0.138	0.253	64.04%	0.138	0.101	0.136	(1.57%)
5-<10	0.144	0.128	0.178	23.17%	0.135	0.130	0.163	20.81%	0.136	0.122	0.166	22.25%	0.173	0.170	0.317	82.88%	0.154	0.133	0.187	21.09%
10-<20			0.252				0.248				0.260				0.613				0.327	
20+			0.220				0.272				0.371				0.848				0.468	

Table A3 :: NBBO Un-weighted Average Spread :: First expansion 22 symbols :: \$

Option premium	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.072	0.030	0.036	(49.56%)	0.071	0.035	0.041	(42.39%)	0.081	0.049	0.072	(10.80%)	0.142	0.109	0.205	44.73%	0.079	0.046	0.068	(14.54%)
1-<3	0.102	0.055	0.067	(34.05%)	0.097	0.054	0.067	(30.36%)	0.108	0.068	0.094	(12.57%)	0.199	0.133	0.239	20.08%	0.109	0.068	0.094	(13.64%)
3-<5	0.167	0.115	0.123	(26.44%)	0.158	0.112	0.122	(22.79%)	0.165	0.123	0.151	(8.68%)	0.278	0.205	0.314	12.85%	0.172	0.126	0.152	(11.26%)
5-<10	0.194	0.146	0.163	(16.19%)	0.188	0.145	0.160	(14.62%)	0.191	0.150	0.187	(1.91%)	0.321	0.249	0.379	18.34%	0.198	0.160	0.194	(2.03%)
10-<20	0.227	0.189	0.229	1.01%	0.224	0.197	0.226	0.66%	0.234	0.200	0.254	8.62%	0.408	0.331	0.544	33.36%	0.246	0.220	0.289	17.12%
20+			0.335				0.356				0.438				0.853				0.491	

Table A4 :: NBBO Un-weighted Average Spread :: Second expansion 28 symbols :: \$

Option premium	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.078	0.027	0.034	(55.78%)	0.078	0.032	0.037	(52.92%)	0.096	0.044	0.056	(41.91%)	0.173	0.113	0.201	16.00%	0.094	0.041	0.082	(13.37%)
1-<3	0.113	0.055	0.060	(46.68%)	0.105	0.054	0.057	(45.78%)	0.121	0.062	0.076	(37.05%)	0.225	0.133	0.258	14.81%	0.125	0.063	0.112	(10.05%)
3-<5	0.184	0.117	0.124	(32.35%)	0.169	0.116	0.121	(28.24%)	0.182	0.119	0.139	(23.54%)	0.314	0.202	0.363	15.59%	0.194	0.123	0.180	(7.15%)
5-<10	0.217	0.141	0.170	(21.69%)	0.206	0.163	0.167	(18.85%)	0.213	0.153	0.176	(17.26%)	0.369	0.244	0.461	24.81%	0.233	0.162	0.239	2.41%
10-<20	0.271	0.179	0.261	(3.51%)	0.270	0.247	0.256	(5.16%)	0.267	0.249	0.268	0.37%	0.452	0.352	0.589	30.27%	0.303	0.256	0.348	14.71%
20+	0.312	0.208	0.338	8.36%	0.345	0.296	0.346	0.07%			0.457				0.965				0.596	

NBBO Average Inside Quote Size
By expiration date

Table A5 :: NBBO Average Quote Size :: ALL 63 symbols :: Shares

1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
1,680	297	212	(87.4%)	2,073	420	312	(84.9%)	2,025	517	349	(82.8%)	785	311	208	(73.5%)	1,767	451	313	(82.3%)

Table A6 :: NBBO Average Quote Size :: Original 13 symbols :: Shares

1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
4,020	417	297	(92.6%)	4,619	558	407	(91.2%)	4,598	730	480	(89.6%)	2,075	463	299	(85.6%)	4,041	630	424	(89.5%)

Table A7 :: NBBO Average Quote Size :: First expansion 22 symbols :: Shares

1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
1,128	305	205	(81.8%)	1,463	432	301	(79.4%)	1,454	549	351	(75.9%)	501	339	199	(60.3%)	1,323	475	314	(76.3%)

Table A8 :: NBBO Average Quote Size :: Second expansion 28 symbols :: Shares

1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
950	233	172	(81.9%)	1,285	349	270	(79.0%)	1,190	389	277	(76.7%)	364	216	167	(54.1%)	976	345	257	(73.7%)

NBBO Average Spread and Quote Activity
 QQQQ
 By expiration date and premium

Table A9 :: NBBO Un-weighted Average Spread :: QQQQ :: \$

Option premium	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
<1	0.055	0.015	0.018	(67.58%)	0.055	0.016	0.020	(64.48%)	0.061	0.030	0.042	(31.48%)	0.083	0.045	0.138	66.38%	0.062	0.026	0.039	(36.26%)
1-<3	0.074	0.027	0.030	(59.43%)	0.067	0.021	0.025	(62.76%)	0.071	0.041	0.057	(20.51%)	0.097	0.066	0.131	34.50%	0.075	0.040	0.056	(25.53%)
3-<5	0.119	0.048	0.057	(51.97%)	0.116	0.042	0.044	(62.40%)	0.117	0.057	0.079	(32.02%)	0.139	0.091	0.139	0.00%	0.121	0.061	0.081	(33.22%)
5-<10	0.127	0.063	0.148	16.61%	0.119	0.064	0.104	(12.71%)	0.123	0.083	0.146	18.77%	0.158	0.124	0.205	29.51%	0.131	0.087	0.150	14.79%
10-<20	0.128	0.076	0.284	120.97%	0.121	0.082	0.248	104.71%	0.127	0.116	0.355	179.95%	0.181	0.165	0.714	295.57%	0.142	0.112	0.395	178.70%
20+	0.127	0.069	0.478	276.28%	0.120	0.086	0.526	338.62%	0.131	0.117	0.591	351.34%	0.211	0.265	0.886	320.30%	0.166	0.125	0.632	279.98%

Table A10 :: NBBO Average Quote Size :: QQQQ :: Shares

(1) Before	1 month to expiration				2 months to expiration				3-9 months to expiration				10+ months to expiration				All months			
	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)	
23,157	1,027	1,083	(95.32%)	26,864	1,433	1,215	(95.48%)	23,546	2,381	1,550	(93.42%)	9,992	1,681	121	(98.79%)	21,337	2,011	1,387	(93.50%)	

NBBO Quoted Spread by Symbol Before and After Penny Pilot

Table A11a :: NBBO Average Spread :: One Month to Expiration :: \$

Symbol	Premium < \$1			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
A	0.075	0.032	0.045	(39.6%)
AA	0.080	0.027	0.031	(61.4%)
AAPL	0.059	0.030	0.030	(48.9%)
AIG	0.078	0.030	0.037	(52.9%)
AMD	0.060	0.020	0.031	(49.1%)
AMGN	0.071	0.032	0.046	(34.9%)
AMZN	0.066	0.029	0.035	(46.8%)
BAC	0.065	0.019	0.022	(66.2%)
BMJ	0.073	0.023	0.028	(61.7%)
BSC	0.105	0.049		
C	0.069	0.018	0.020	(70.8%)
CAT	0.072	0.027	0.032	(56.0%)
CFC	0.076	0.075		
COP	0.067	0.026	0.036	(46.4%)
CSCO	0.060	0.015	0.022	(63.9%)
DELL	0.065	0.016	0.020	(70.0%)
DIA	0.085	0.029	0.043	(48.9%)
DNDN	0.062	0.068	0.084	35.3%
EBAY	0.065	0.018	0.022	(66.9%)
EEM	0.121	0.047	0.052	(57.3%)
EMC	0.064	0.019	0.031	(51.5%)
F	0.065	0.023	0.030	(53.5%)
FCX	0.090	0.053	0.037	(58.4%)
FLEX	0.073	0.027	0.039	(46.0%)
GE	0.062	0.016	0.023	(63.3%)
GM	0.071	0.021	0.031	(56.6%)
GS	0.106	0.051	0.072	(32.2%)
HAL	0.078	0.025	0.029	(62.7%)
HD	0.071	0.020	0.024	(66.3%)
INTC	0.058	0.015	0.019	(67.9%)
IWM	0.068	0.022	0.029	(56.8%)
JPM	0.077	0.019	0.029	(63.0%)
LEH	0.084	0.032	0.031	(62.9%)
MER	0.083	0.030	0.052	(37.9%)
MNX		0.047	0.076	
MO	0.065	0.027	0.031	(53.1%)
MOT	0.067	0.023	0.029	(55.8%)
MSFT	0.060	0.014	0.017	(72.5%)
NEM	0.080	0.023	0.033	(58.8%)
NYX	0.088	0.044	0.037	(57.4%)
OIH	0.076	0.060	0.069	(9.8%)
PFE	0.064	0.017	0.023	(64.3%)
QCOM	0.069	0.020	0.032	(54.1%)
QQQQ	0.055	0.015	0.018	(67.6%)
RIMM	0.073	0.035	0.030	(59.1%)
RIO	0.083	0.028	0.028	(66.7%)
SBUX	0.068	0.020	0.026	(61.5%)
SMH	0.067	0.024	0.032	(52.6%)
SNDK	0.073	0.019	0.050	(31.6%)
SPY	0.076	0.024	0.034	(55.8%)
SUNW	0.074	0.025	0.029	(60.8%)
T	0.066	0.020	0.028	(58.2%)
TGT	0.079	0.025	0.029	(64.1%)
TXN	0.064	0.021	0.026	(59.7%)
VLO	0.077	0.022	0.027	(64.7%)
VZ	0.074	0.023	0.029	(61.4%)
WFMJ	0.073	0.029	0.052	(28.1%)
WM	0.074	0.026	0.029	(60.9%)
WMT	0.071	0.019	0.026	(63.7%)
XLE	0.080	0.036	0.046	(42.3%)
XLF	0.083	0.018	0.021	(74.5%)
XOM	0.072	0.022	0.034	(53.2%)
YHOO	0.061	0.019	0.027	(56.6%)
Un-weighted Average	0.073	0.028	0.033	(54.2%)
Weighted Average	0.072	0.024	0.030	(58.2%)
Minimum	0.055	0.014	0.017	(74.5%)
Maximum	0.121	0.075	0.084	35.3%

Table A11b :: NBBO Average Spread :: One Month to Expiration :: \$

Symbol	Premium < \$1			
	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
XLF	0.083	0.018	0.021	(74.5%)
MSFT	0.060	0.014	0.017	(72.5%)
C	0.069	0.018	0.020	(70.8%)
DELL	0.065	0.016	0.020	(70.0%)
INTC	0.058	0.015	0.019	(67.9%)
QQQQ	0.055	0.015	0.018	(67.6%)
EBAY	0.065	0.018	0.022	(66.9%)
RIO	0.083	0.028	0.028	(66.7%)
HD	0.071	0.020	0.024	(66.3%)
BAC	0.065	0.019	0.022	(66.2%)
VLO	0.077	0.022	0.027	(64.7%)
PFE	0.064	0.017	0.023	(64.3%)
TGT	0.079	0.025	0.029	(64.1%)
CSCO	0.060	0.015	0.022	(63.9%)
WMT	0.071	0.019	0.026	(63.7%)
GE	0.062	0.016	0.023	(63.3%)
JPM	0.077	0.019	0.029	(63.0%)
LEH	0.084	0.032	0.031	(62.9%)
HAL	0.078	0.025	0.029	(62.7%)
BMJ	0.073	0.023	0.028	(61.7%)
SBUX	0.068	0.020	0.026	(61.5%)
AA	0.080	0.027	0.031	(61.4%)
VZ	0.074	0.023	0.029	(61.4%)
WM	0.074	0.026	0.029	(60.9%)
SUNW	0.074	0.025	0.029	(60.8%)
TXN	0.064	0.021	0.026	(59.7%)
RIMM	0.073	0.035	0.030	(59.1%)
NEM	0.080	0.023	0.033	(58.8%)
FCX	0.090	0.053	0.037	(58.4%)
T	0.066	0.020	0.028	(58.2%)
NYX	0.088	0.044	0.037	(57.4%)
EEM	0.121	0.047	0.052	(57.3%)
IWM	0.068	0.022	0.029	(56.8%)
YHOO	0.061	0.019	0.027	(56.6%)
GM	0.071	0.021	0.031	(56.6%)
CAT	0.072	0.027	0.032	(56.0%)
SPY	0.076	0.024	0.034	(55.8%)
MOT	0.067	0.023	0.029	(55.8%)
QCOM	0.069	0.020	0.032	(54.1%)
F	0.065	0.023	0.030	(53.5%)
XOM	0.072	0.022	0.034	(53.2%)
MO	0.065	0.027	0.031	(53.1%)
AIG	0.078	0.030	0.037	(52.9%)
SMH	0.067	0.024	0.032	(52.6%)
EMC	0.064	0.019	0.031	(51.5%)
AMD	0.060	0.020	0.031	(49.1%)
AAPL	0.059	0.030	0.030	(48.9%)
DIA	0.085	0.029	0.043	(48.9%)
AMZN	0.066	0.029	0.035	(46.8%)
COP	0.067	0.026	0.036	(46.4%)
FLEX	0.073	0.027	0.039	(46.0%)
XLE	0.080	0.036	0.046	(42.3%)
A	0.075	0.032	0.045	(39.6%)
MER	0.083	0.030	0.052	(37.9%)
AMGN	0.071	0.032	0.046	(34.9%)
GS	0.106	0.051	0.072	(32.2%)
SNDK	0.073	0.019	0.050	(31.6%)
WFMJ	0.073	0.029	0.052	(28.1%)
OIH	0.076	0.060	0.069	(9.8%)
DNDN	0.062	0.068	0.084	35.3%
BSC	0.105	0.049		
CFC	0.076	0.075		
MNX		0.047	0.076	
Un-weighted Average	0.073	0.028	0.033	(54.2%)
Weighted Average	0.072	0.024	0.030	(58.2%)
Minimum	0.055	0.014	0.017	(74.5%)
Maximum	0.121	0.075	0.084	35.3%

PHLX Average Outbound Quote Traffic

Table A12a :: Average Daily Outbound PHLX Quotes :: Thousands

Symbol	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
A	95.5	318.0	462.0	383.6%
AA	366.6	924.3	726.6	98.2%
AAPL	3,015.1	11,812.0	8,654.6	187.0%
AIG	798.4	1,914.0	765.1	(4.2%)
AMD	374.2	311.6	163.5	(56.3%)
AMGN	164.7	755.9	1,639.2	895.0%
AMZN	604.4	3,406.7	3,277.5	442.3%
BAC	573.1	1,604.3	3,178.0	454.5%
BMJ	80.8	317.6	635.4	686.2%
C	234.7	1,296.1	1,500.5	539.3%
CAT	508.2	1,207.3	2,741.2	439.4%
COP	418.5	1,669.9	3,082.6	636.7%
CSCO	99.4	951.2	1,375.1	1282.8%
DELL	338.8	746.6	981.7	189.8%
DIA	2,300.8	12,000.4	14,471.2	529.0%
DNDN	25.7	315.4	113.0	339.1%
EBAY	354.5	629.9	914.8	158.1%
EEM	722.3	1,441.0	2,183.2	202.3%
EMC	275.0	453.4	633.0	130.1%
F	66.5	247.6	112.5	69.3%
FCX	894.2	4,317.6	2,911.8	225.6%
FLEX	65.0	91.7	72.7	11.9%
GE	226.5	663.0	1,608.4	610.3%
GM	367.8	1,043.0	480.4	30.6%
GS	5,124.0	6,707.9	6,858.7	33.9%
HAL	607.8	1,314.2	1,473.9	142.5%
HD	328.4	764.6	1,462.6	345.4%
INTC	321.3	545.5	1,084.7	237.6%
IWM	1,502.5	5,705.5	10,072.1	570.4%
JPM	807.1	2,400.0	4,557.9	464.7%
LEH	957.5	2,612.5	1,871.5	95.5%
MER	992.8	1,991.1	1,831.0	84.4%
MO	147.9	453.2	613.2	314.6%
MOT	33.3	313.8	202.0	507.4%
MSFT	446.4	784.3	1,916.1	329.2%
NEM	1,290.8	1,226.7	2,311.6	79.1%
NYX	211.8	1,211.5	1,157.4	446.4%
OIH	847.7	5,461.2	5,803.6	584.6%
PFE	121.8	212.4	680.4	458.5%
QCOM	222.3	1,161.6	2,098.6	843.9%
QQQQ	1,247.2	6,709.6	10,290.2	725.0%
RIMM	2,238.4	10,140.1	6,791.1	203.4%
RIO	752.3	1,400.4	1,498.6	99.2%
SBUX	195.0	529.3	644.6	230.6%
SMH	322.8	515.6	1,095.1	239.3%
SNDK	600.2	783.4	586.5	(2.3%)
SPY	3,284.3	23,425.1	22,411.8	582.4%
SUNW	111.7	194.5	207.3	85.6%
T	112.4	728.0	1,732.4	1441.6%
TGT	752.7	1,223.9	2,150.8	185.7%
TXN	326.5	533.5	601.0	84.1%
VLO	1,241.4	1,891.5	2,416.5	94.7%
VZ	425.1	529.4	1,125.3	164.7%
WFMI	411.8	621.9	583.9	41.8%
WM	524.2	661.6	279.2	(46.7%)
WMT	518.7	1,175.3	2,410.7	364.8%
XLE	890.2	8,038.4	14,985.3	1583.3%
XLF	89.9	1,610.3	2,136.1	2277.2%
XOM	961.8	1,556.9	3,241.9	237.1%
YHOO	111.7	642.6	616.6	451.8%
All	42,052.3	144,215.6	172,484.4	310.2%
Minimum	25.7	91.7	72.7	182.7%
Maximum	5,124.0	23,425.1	22,411.8	337.4%

Table A12b :: Average Daily Outbound PHLX Quotes :: Thousands

Symbol	(1) Before	(2) Post, to Jul08	(3) Aug08 - Jan09	Pct Change (1) - (3)
XLF	89.9	1,610.3	2,136.1	2277.2%
XLE	890.2	8,038.4	14,985.3	1583.3%
T	112.4	728.0	1,732.4	1441.6%
CSCO	99.4	951.2	1,375.1	1282.8%
AMGN	164.7	755.9	1,639.2	895.0%
QCOM	222.3	1,161.6	2,098.6	843.9%
QQQQ	1,247.2	6,709.6	10,290.2	725.0%
BMJ	80.8	317.6	635.4	686.2%
COP	418.5	1,669.9	3,082.6	636.7%
GE	226.5	663.0	1,608.4	610.3%
OIH	847.7	5,461.2	5,803.6	584.6%
SPY	3,284.3	23,425.1	22,411.8	582.4%
IWM	1,502.5	5,705.5	10,072.1	570.4%
C	234.7	1,296.1	1,500.5	539.3%
DIA	2,300.8	12,000.4	14,471.2	529.0%
MOT	33.3	313.8	202.0	507.4%
JPM	807.1	2,400.0	4,557.9	464.7%
PFE	121.8	212.4	680.4	458.5%
BAC	573.1	1,604.3	3,178.0	454.5%
YHOO	111.7	642.6	616.6	451.8%
NYX	211.8	1,211.5	1,157.4	446.4%
AMZN	604.4	3,406.7	3,277.5	442.3%
CAT	508.2	1,207.3	2,741.2	439.4%
A	95.5	318.0	462.0	383.6%
WMT	518.7	1,175.3	2,410.7	364.8%
HD	328.4	764.6	1,462.6	345.4%
DNDN	25.7	315.4	113.0	339.1%
MSFT	446.4	784.3	1,916.1	329.2%
MO	147.9	453.2	613.2	314.6%
SMH	322.8	515.6	1,095.1	239.3%
INTC	321.3	545.5	1,084.7	237.6%
XOM	961.8	1,556.9	3,241.9	237.1%
SBUX	195.0	529.3	644.6	230.6%
FCX	894.2	4,317.6	2,911.8	225.6%
RIMM	2,238.4	10,140.1	6,791.1	203.4%
EEM	722.3	1,441.0	2,183.2	202.3%
DELL	338.8	746.6	981.7	189.8%
AAPL	3,015.1	11,812.0	8,654.6	187.0%
TGT	752.7	1,223.9	2,150.8	185.7%
VZ	425.1	529.4	1,125.3	164.7%
EBAY	354.5	629.9	914.8	158.1%
HAL	607.8	1,314.2	1,473.9	142.5%
EMC	275.0	453.4	633.0	130.1%
RIO	752.3	1,400.4	1,498.6	99.2%
AA	366.6	924.3	726.6	98.2%
LEH	957.5	2,612.5	1,871.5	95.5%
VLO	1,241.4	1,891.5	2,416.5	94.7%
SUNW	111.7	194.5	207.3	85.6%
MER	992.8	1,991.1	1,831.0	84.4%
TXN	326.5	533.5	601.0	84.1%
NEM	1,290.8	1,226.7	2,311.6	79.1%
F	66.5	247.6	112.5	69.3%
WFMI	411.8	621.9	583.9	41.8%
GS	5,124.0	6,707.9	6,858.7	33.9%
GM	367.8	1,043.0	480.4	30.6%
FLEX	65.0	91.7	72.7	11.9%
SNDK	600.2	783.4	586.5	(2.3%)
AIG	798.4	1,914.0	765.1	(4.2%)
WM	524.2	661.6	279.2	(46.7%)
AMD	374.2	311.6	163.5	(56.3%)
All	42,052.3	144,215.6	172,484.4	310.2%
Minimum	25.7	91.7	72.7	182.7%
Maximum	5,124.0	23,425.1	22,411.8	337.4%