

**Table 1**

**Trade Weighted Exchange Average Quoted Spread**

Presented below is the trade weighted exchange average quoted spread. For each option series, OEA Staff used data obtained from OPRA to calculate the quoted spread, which is the difference between the exchange's disseminated ask price and bid price. The daily average quoted spread for a given series is then determined by taking a time weighted average of each quoted spread where the time weighting is the number of minutes between the current quote and the following quote of that exchange. The trade weighted exchange average quoted spread is calculated by averaging all series' daily average quoted spread and weighting that by the number of trades in the price range associated with that series bid. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000.

Time Period	Number of Daily Quoted Series	All Options Trade Weighted Exchange Average Quoted Spread (\$)	Options bid below \$20 Trade Weighted Exchange Average Quoted Spread (\$)
August, 1999	66,193	0.36	0.35
November, 1999	119,334	0.32	0.28
February, 2000	128,153	0.39	0.34
June, 2000	160,697	0.37	0.35
October, 2000	184,147	0.33	0.32

**Table 2**

**Trade-Weighted Average Consolidated BBO**

Presented below is the trade-weighted average consolidated BBO. For each option series, OEA Staff used data obtained from OPRA to calculate the consolidated BBO, which is the difference between the lowest ask price and highest bid price of all the available quotes from all the option exchanges issuing quotes in a series. The average daily consolidated BBO for a given series is then determined by taking a time weighted average of each quoted consolidated BBO where the time weighting is number of minutes between the current consolidated BBO quote and the following consolidated BBO quote. The trade weighted average consolidated BBO is calculated by averaging the average daily consolidated BBO of each series and weighting that by the number of trades in the price range associated with that series bid. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000.

Time Period	Number of Daily Quoted Series	All Options Trade Weighted Average NBBO (\$)	Options bid below \$20 Trade Weighted Average NBBO (\$)
August, 1999	33,465	0.30	0.29
November, 1999	34,100	0.20	0.18
February, 2000	35,376	0.22	0.19
June, 2000	43,331	0.21	0.20
October, 2000	42,231	0.18	0.18

**Table 3**

**Trade-Weighted Average Percentage of Quotes on Maximum**

Presented below is the trade-weighted average percentage of quotes on the maximum spread width. Exchange rules govern the maximum allowable quote spreads based on the bid price of an option series under normal market conditions. For each option series on each exchange, the OEA Staff used data obtained from OPRA to calculate the quoted spread, which is the difference between the exchange's disseminated ask price and bid price. The quoted spread is compared to the maximum spread of that bid price as set by exchange rules. The daily average percentage on the maximum for a given series is then determined by the percentage of the day where the quoted spread is at least as wide as the maximum set by the exchange. OEA Staff calculated the average percentage of quotes on the maximum by averaging the daily average percentage on the maximum for each series and weighting that by the number of trades in the price range associated with that series bid. Data was obtained for five one-week periods, one in each August and November 1999 and February, June, and October 2000.

Time Period	Number of Daily Quoted Series	All Options Trade Weighted Percentage on Maximum (%)	Options Bid Below \$20 Trade Weighted Percentage on Maximum (%)
August, 1999	66,193	56%	57%
November, 1999	119,334	22%	21%
February, 2000	128,153	39%	35%
June, 2000	160,697	44%	44%
October, 2000	184,147	34%	32%

**Table 4**

**Volume Weighted Exchange Average Quoted Spread, Consolidated BBO, and Percentage on Maximum by Bid Price Range**

Presented below are the volume weighted exchange average quoted spread, the volume weighted average consolidated BBO, and the volume trade weighted average percentage of quotes on the maximum spread width. OEA Staff used data obtained from OPRA in its calculations. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000.

For each option series on each exchange, the quoted spread is calculated as the difference between the exchange's disseminated ask price and bid price. The daily average quoted spread for a given series is then determined by taking a time weighted average of each quoted spread where the time weighting is number of minutes between the current quote by that exchange and the following quote of that exchange. The volume weighted exchange average quoted spread is calculated by averaging the daily average quoted spread for all series, weighted by the trading volume in that series.

For each option series, the consolidated BBO is calculated as the difference between the lowest ask price and highest bid price of all the available quotes from all the option exchanges issuing quotes in a series. The average daily consolidated BBO for a given series is then determined by taking a time weighted average of each quoted consolidated BBO where the time weighting is number of minutes between the current consolidated BBO quote and the following consolidated BBO quote. The volume weighted average consolidated BBO is calculated by averaging the average daily consolidated BBO for all series, weighted by the trading volume in that series.

Exchange rules govern the maximum allowable quoted spreads based on the bid price of an option series under normal market conditions. For each option series, on each exchange, the quoted spread is calculated as the difference between the exchange's disseminated ask price and bid price. The quoted spread is then compared to the maximum spread of that bid price as set by exchange rules. The daily average percentage on the maximum for a given series is then determined by the percentage of the day where the quoted spread is at least as wide as the maximum set by the exchange. The volume weighted exchange average percentage of quotes on the maximum is calculated by averaging the daily average percentage on the maximum for all series, weighted by the trading volume in that series.

Time Period	All Options Exchange Average Quoted Spread (\$)	All Options Average Consolidated BBO (\$)	All Options Average Percentage on Maximum (%)
<u>August, 1999</u>			
Bid < \$2	0.19	0.15	36%
\$2 ≤ Bid < \$5	0.30	0.23	41%
\$5 ≤ Bid < \$10	0.43	0.31	42%
\$10 ≤ Bid < \$20	0.65	0.46	44%
\$20 ≤ Bid	0.82	0.59	41%
All	0.35	0.25	40%
<u>November, 1999</u>			
Bid < \$2	0.16	0.09	17%
\$2 ≤ Bid < \$5	0.25	0.14	18%
\$5 ≤ Bid < \$10	0.34	0.19	18%
\$10 ≤ Bid < \$20	0.50	0.28	22%
\$20 ≤ Bid	0.85	0.46	45%
All	0.31	0.18	20%

<u>February, 2000</u>			
Bid < \$2	0.18	0.10	32%
\$2 ≤ Bid < \$5	0.28	0.15	31%
\$5 ≤ Bid < \$10	0.37	0.21	25%
\$10 ≤ Bid < \$20	0.58	0.32	30%
\$20 ≤ Bid	0.85	0.47	47%
All	0.35	0.20	31%
<u>June, 2000</u>			
Bid < \$2	0.19	0.11	36%
\$2 ≤ Bid < \$5	0.30	0.17	43%
\$5 ≤ Bid < \$10	0.42	0.24	37%
\$10 ≤ Bid < \$20	0.58	0.34	27%
\$20 ≤ Bid	0.85	0.49	38%
All	0.32	0.19	38%
<u>October, 2000</u>			
Bid < \$2	0.19	0.10	27%
\$2 ≤ Bid < \$5	0.29	0.15	28%
\$5 ≤ Bid < \$10	0.44	0.23	39%
\$10 ≤ Bid < \$20	0.65	0.35	43%
\$20 < Bid	0.87	0.50	52%
All	0.32	0.17	31%

**Table 5****Effective and Realized Spreads for all Options by Bid Price Range**

Presented below are the effective and realized spreads. OEA Staff calculated the results using OPRA data. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000. Effective spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread at the time the trade report occurs on the OPRA tape. Realized spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread five minutes after the trade report occurs on the OPRA tape.

Time Period	Number of Trades	All Options Average Effective Spread (\$)	All Options Average Realized Spread (\$)
<u>August, 1999</u>			
Bid < \$2	59,923	0.12	0.09
\$2 ≤ Bid < \$5	58,112	0.20	0.17
\$5 ≤ Bid < \$10	36,414	0.28	0.23
\$10 ≤ Bid < \$20	16,335	0.44	0.39
\$20 ≤ Bid	5,197	0.58	0.68
All	175,981	0.22	0.19
<u>November, 1999</u>			
Bid < \$2	69,899	0.09	0.07
\$2 ≤ Bid < \$5	69,126	0.15	0.10
\$5 ≤ Bid < \$10	48,039	0.21	0.15
\$10 ≤ Bid < \$20	29,696	0.34	0.25
\$20 ≤ Bid	19,942	0.68	0.53
All	236,702	0.21	0.16
<u>February, 2000</u>			
Bid < \$2	60,670	0.10	0.09
\$2 ≤ Bid < \$5	61,851	0.17	0.15
\$5 ≤ Bid < \$10	47,053	0.23	0.22
\$10 ≤ Bid < \$20	30,322	0.37	0.35
\$20 ≤ Bid	15,834	0.60	0.60
All	215,730	0.22	0.21
<u>June, 2000</u>			
Bid < \$2	52,680	0.10	0.08
\$2 ≤ Bid < \$5	51,671	0.17	0.13
\$5 ≤ Bid < \$10	30,702	0.24	0.23
\$10 ≤ Bid < \$20	12,286	0.34	0.32
\$20 ≤ Bid	4,332	0.53	0.52
All	151,671	0.18	0.16
<u>October, 2000</u>			
Bid < \$2	84,216	0.09	0.10
\$2 ≤ Bid < \$5	77,978	0.16	0.16
\$5 ≤ Bid < \$10	42,816	0.24	0.24
\$10 ≤ Bid < \$20	16,139	0.39	0.38
\$20 ≤ Bid	4,166	0.56	0.54
All	225,315	0.17	0.17

**Table 6****Effective and Realized Spreads for Non-Auto-ex Prints over 50 Contracts by Bid Price Range**

Presented below are the effective and realized spreads. OEA Staff calculated the results using OPRA data. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000. Effective spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread at the time the trade report occurs on the OPRA tape. Realized spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread five minutes after the trade report occurs on the OPRA tape.

Time Period	Number of Trades	Options Prints > 50 Contracts Average Effective Spread (\$)	Option Prints > 50 Contracts Average Realized Spread (\$)
<u>August, 1999</u>			
Bid < \$2	3,003	0.09	0.06
\$2 ≤ Bid < \$5	1,631	0.16	0.10
\$5 ≤ Bid < \$10	766	0.23	0.23
\$10 ≤ Bid < \$20	293	0.34	0.21
\$20 ≤ Bid	163	0.48	0.88
All	5,856	0.15	0.13
<u>November, 1999</u>			
Bid < \$2	3,775	0.08	0.06
\$2 ≤ Bid < \$5	2,180	0.14	0.08
\$5 ≤ Bid < \$10	1,128	0.21	0.13
\$10 ≤ Bid < \$20	563	0.32	0.35
\$20 ≤ Bid	266	0.55	0.36
All	7,912	0.15	0.11
<u>February, 2000</u>			
Bid < \$2	3,013	0.09	0.07
\$2 ≤ Bid < \$5	1,935	0.16	0.14
\$5 ≤ Bid < \$10	1,082	0.22	0.21
\$10 ≤ Bid < \$20	496	0.36	0.34
\$20 ≤ Bid	267	0.49	0.54
All	6,793	0.17	0.16
<u>June, 2000</u>			
Bid < \$2	2,589	0.09	0.09
\$2 ≤ Bid < \$5	1,726	0.16	0.10
\$5 ≤ Bid < \$10	846	0.24	0.26
\$10 ≤ Bid < \$20	293	0.32	0.47
\$20 ≤ Bid	195	0.46	0.68
All	5,649	0.16	0.16
<u>October, 2000</u>			
Bid < \$2	3,636	0.09	0.09
\$2 ≤ Bid < \$5	2,477	0.16	0.17
\$5 ≤ Bid < \$10	1,113	0.26	0.26
\$10 ≤ Bid < \$20	420	0.35	0.29
\$20 ≤ Bid	173	0.47	0.50
All	7,819	0.16	0.17

**Table 7****Effective and Realized Spreads for Non-Auto-ex Prints under 50 Contracts by Bid Price Range**

Presented below are the effective and realized spreads. OEA Staff calculated the results using OPRA data. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000. Effective spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread at the time the trade report occurs on the OPRA tape. Realized spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread five minutes after the trade report occurs on the OPRA tape

Time Period	Number of Trades	Options Prints < 50 Contracts Average Effective Spread (\$)	Option Prints < 50 Contracts Average Realized Spread (\$)
<u>August, 1999</u>			
Bid < \$2	42,544	0.10	0.08
\$2 ≤ Bid < \$5	39,495	0.18	0.14
\$5 ≤ Bid < \$10	23,967	0.25	0.20
\$10 ≤ Bid < \$20	11,373	0.42	0.37
\$20 ≤ Bid	3,457	0.57	0.66
All	120,836	0.20	0.17
<u>November, 1999</u>			
Bid < \$2	42,131	0.09	0.07
\$2 ≤ Bid < \$5	40,591	0.15	0.11
\$5 ≤ Bid < \$10	27,167	0.21	0.16
\$10 ≤ Bid < \$20	17,237	0.33	0.25
\$20 ≤ Bid	10,475	0.65	0.83
All	137,601	0.20	0.19
<u>February, 2000</u>			
Bid < \$2	34,131	0.10	0.10
\$2 ≤ Bid < \$5	33,262	0.17	0.15
\$5 ≤ Bid < \$10	24,364	0.24	0.22
\$10 ≤ Bid < \$20	17,513	0.39	0.34
\$20 ≤ Bid	9,572	0.66	0.59
All	118,842	0.24	0.22
<u>June, 2000</u>			
Bid < \$2	30,515	0.10	0.08
\$2 ≤ Bid < \$5	29,752	0.16	0.14
\$5 ≤ Bid < \$10	17,720	0.23	0.22
\$10 ≤ Bid < \$20	7,152	0.34	0.31
\$20 ≤ Bid	2,735	0.57	0.54
All	87,874	0.18	0.17
<u>October, 2000</u>			
Bid < \$2	47,636	0.09	0.10
\$2 ≤ Bid < \$5	44,645	0.15	0.16
\$5 ≤ Bid < \$10	24,493	0.24	0.26
\$10 ≤ Bid < \$20	9,465	0.41	0.41
\$20 ≤ Bid	2,338	0.57	0.58
All	128,577	0.18	0.18

**Table 8****Effective and Realized Spreads for Auto-ex Prints by Bid Price Range**

Presented below are the effective and realized spreads. OEA Staff calculated all results using OPRA data. Data was obtained for five one-week periods, one in each August and November 1999 and February, June and October 2000. Effective spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread at the time the trade report occurs on the OPRA tape. Realized spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread five minutes after the trade report occurs on the OPRA tape

Time Period	Number of Trades	Options Auto-ex Prints Average Effective Spread (\$)	Option Auto-ex Prints Average Realized Spread (\$)
<u>August, 1999</u>			
Bid < \$2	14,376	0.15	0.13
\$2 ≤ Bid < \$5	16,986	0.25	0.23
\$5 ≤ Bid < \$10	11,681	0.34	0.28
\$10 ≤ Bid < \$20	4,669	0.49	0.46
\$20 ≤ Bid	1,577	0.61	0.68
All	49,289	0.28	0.25
<u>November, 1999</u>			
Bid < \$2	23,993	0.09	0.07
\$2 ≤ Bid < \$5	26,355	0.15	0.10
\$5 ≤ Bid < \$10	19,744	0.22	0.14
\$10 ≤ Bid < \$20	11,896	0.35	0.25
\$20 ≤ Bid	9,201	0.71	0.20
All	91,189	0.23	0.13
<u>February, 2000</u>			
Bid < \$2	23,526	0.10	0.08
\$2 ≤ Bid < \$5	26,654	0.16	0.15
\$5 ≤ Bid < \$10	21,607	0.22	0.21
\$10 ≤ Bid < \$20	12,313	0.35	0.38
\$20 ≤ Bid	5,995	0.51	0.63
All	90,095	0.21	0.23
<u>June, 2000</u>			
Bid < \$2	19,561	0.10	0.08
\$2 ≤ Bid < \$5	20,177	0.17	0.13
\$5 ≤ Bid < \$10	12,135	0.25	0.24
\$10 ≤ Bid < \$20	4,841	0.34	0.31
\$20 ≤ Bid	1,402	0.46	0.48
All	58,116	0.18	0.16
<u>October, 2000</u>			
Bid < \$2	32,892	0.10	0.09
\$2 ≤ Bid < \$5	30,815	0.16	0.15
\$5 ≤ Bid < \$10	17,187	0.24	0.23
\$10 ≤ Bid < \$20	6,245	0.36	0.33
\$20 ≤ Bid	1,654	0.56	0.49
All	88,793	0.17	0.16

**Table 9**

**Average Quoted Spread, Classes Receiving Payment, Old and New Exchange**

Presented below is the exchange average quoted spread. Results are given separately for the predominant exchange ("old exchange") prior to widespread multiple-listing and for other exchanges where specialists paid for order flow ("new exchange"). If the specialist on the old exchange starts pay for order flow, both the old and new exchanges were dropped from the analysis for subsequent months. For each option series on each exchange, OEA Staff used OPRA data to calculate the quoted spread, which is the difference between the exchange's disseminated ask price and bid price. The daily average quoted spread for a given series is then determined by taking a time weighted average of each quoted spread where the time weighting is the number of minutes between the current quote by that exchange and the following quote of that exchange. The average quoted spread is calculated by averaging the daily average quoted spread for each series. Data was obtained for one five one-week periods, one in each August and November 1999 and February and June 2000. October 2000 is omitted from this analysis because by that date all classes were eligible to participate in exchange payment for order flow plans.

Time Period	Number of Weekly Quoted Series	New Exchange Average Quoted Spread (\$)	Old Exchange Average Quoted Spread (\$)
August, 1999	2,670	0.77	0.49
November, 1999	2,430	0.49	0.40
February, 2000	1,863	0.50	0.46
June, 2000	1,513	0.44	0.42

**Table 10**

**Average Percentage of Quotes on Maximum  
Classes Receiving Payment, Old and New Exchange**

Presented below is the average percentage of quotes on the maximum spread width. Results are given separately for the predominant exchange ("old exchange") prior to the multiple listing of previous singly listed classes and for other exchanges where the specialists paid for order flow ("new exchange"). If the specialist on the old exchange started to pay for order flow, both the old and new exchanges were dropped from the analysis for subsequent months. Exchange rules govern the maximum allowable quote spreads based on the bid price of an option series under normal market conditions. For each option series on each exchange, OEA Staff used OPRA data to calculate the quoted spread, which is the difference between the exchange's disseminated ask price and bid price. The quoted spread is then compared to the maximum spread of that bid price as set by exchange rules. The daily average percentage on the maximum for a given series is then determined by the percentage of the day where the quoted spread is at least as wide as the maximum set by the exchange. The average percentage of quotes on the maximum is calculated by averaging the daily average percentage on the maximum for each series. Data was obtained for five one-week periods, one in each August and November 1999 and February and June 2000. October 2000 is omitted from this analysis because by that date all classes were eligible to participate in exchange payment for order flow plans.

Time Period	Number of Daily Quoted Series	New Exchange Percentage on Maximum (%)	Old Exchange Percentage on Maximum (%)
August, 1999	2,670	91%	44%
November, 1999	2,430	46%	21%
February, 2000	1,863	44%	36%
June, 2000	1,513	36%	30%

**Table 11****Average Effective Spread  
Classes Receiving Payment, Old and New Exchange**

Presented below is the average effective spread. Results are given separately for the predominant exchange ("old exchange") prior to widespread multiple-listing and for other exchanges where specialists paid for order flow ("new exchange"). If the specialist on the old exchange began to pay for order flow, both the old and new exchanges were dropped from the analysis for subsequent months. Effective spreads are calculated as twice the difference between the trade price and mid-point of the consolidated BBO spread at the time the trade report occurs on the OPRA tape. The average effective spread is the cross-sectional average of the effective spreads of all trades occurring during the week. Data was obtained for five one-week periods, one in each August and November 1999, and February and June 2000. October 2000 is omitted from this analysis because by that date all classes were eligible to participate in exchange payment for order flow plans.

Time Period	Number of Trades on New Exchange	Number of Trades on Old Exchange	New Exchange Effective Spread (\$)	Old Exchange Effective Spread (\$)
August, 1999	2,539	67,107	0.41	0.21
November, 1999	17,381	67,094	0.18	0.18
February, 2000	13,844	32,388	0.19	0.21
June, 2000	4,371	11,683	0.16	0.17