

Memorandum

To: File

From: Office of Economic Analysis

Subject: October 2002 Analysis of QQQ Trading Before and After De Minimis

Date: February 24, 2004

This memo describes an analysis conducted by OEA in October 2002 of QQQ trading before and after the de minimis exemption. Under the temporary de minimis exemption, trades in certain ETFs executed at no more than three cents outside the best quote, are exempt from the ITS trade-through provisions. The de minimis exemption became effective September 4, 2002.

We looked at trade executions in the QQQs a day before the de minimis exemption, a day after the exemption before Island was dark, and a third day when Island was dark.¹ In summary, the data show that the percent of trades executed outside the NBBO did not increase after the de minimis exemption.² In addition, we find that less than 1% of total trades are executed more than three cents away from the NBBO after the de minimis exemption. Based on this analysis, we do not find evidence of a deterioration in execution quality, which might occur if the exemption were used to execute trades outside the quote more frequently.

Tables 1-3 present statistics on the percent of trades executed outside of the NBBO, distance of trade prices from the quote, as well as trade-through rates by market. Table 4 contains the number and percent of trades executed when the inside spread is crossed, locked, and at one, two, and three cents.

We find that 47.8% of trades on the pre-de minimis sample day were outside the NBBO compared to 46.8% and 41.2% in the post-de minimis sample days. Trades executed in crossed markets are excluded. Excluding trades in crossed *or* locked markets, we find 37.5% of trades were executed outside the NBBO on the pre-de minimis day compared to 36.3% and 33.0% in the post-de minimis days. The rate of trades outside the quote falls when locked markets are excluded because the frequency of trade-throughs in locked markets is higher than in non-locked markets. The ITS model rule includes a trade-through exception for locked markets, and permits trades through the bid or offer that caused the locked market (for those markets not involved in the lock).

¹ Island went dark on Monday September 23, 2002.

² Trade prices are compared to the NBBO at trade report time. Trades executed through 100 share quotes, and trades through own exchange quote when alone at the inside, are not counted as trade-throughs.

In Table 2 we look at how far outside the quote trades are executed. Amount outside the quote is equal to the difference between the trade price and the near side quote, calculated as a positive value. Of trades outside the quote, 62.6% were outside the quote by a penny or less on the pre-de minimis day, compared to 66.8% and 65.4% on the post-de minimis days. Trades away from the quote by two cents or less accounted for 88.1% of trades outside the quote on the pre-de minimis day and 92.8% and 90.7% of trades on the post-de minimis days. Under the de minimis exemption, QQQ trades should be within three cents of the quote to avoid violating the ITS trade-through rule. Of trades outside the quote, 97.9% were outside the quote by three cents or less on the pre-de minimis day, compared to 98.8% and 97.9% of trades on the post-de minimis days. This means that about 2% (or 1% on sample day two) of trades executed outside the quote were at prices more than three cents away from the quote. As a percent of *total trades*, executions more than three cents away accounted for 1% of trades on the pre-de minimis day, and 0.6% and 0.8% of total trades in the two post-de minimis days.

Locked and Crossed Markets

Executions in the QQQs frequently occur when markets are locked or crossed. Table 4 presents the number and percent of executed trades by size of the inside spread. More than one-third of trades execute when the market is either locked or crossed, and over 50% of trades execute when the inside spread is one cent. In total, nearly 95% of trades execute when the inside spread is one cent or less (includes locked and crossed markets).

Table 1
 QQQ Trades Executed Outside the NBBO Before and After the De Minimis Exemption

Before or After Exemption	NBBO Spread is GE 0 (Excludes Crossed Markets)			NBBO Spread GT 0 (Excludes Locked and Crossed Markets)		
	Total Number of Trades (a)	Trades Outside the NBBO (b)	% Outside (b/a)	Total Number of Trades (d)	Trades Outside the NBBO (e)	% Outside (e/d)
Before 8/19/02	37,480	17,910	47.8%	26,123	9,807	37.5%
After 9/18/02	39,283	18,372	46.8%	27,742	10,063	36.3%
9/25/02 (Island Dark)	37,075	15,266	41.2%	27,391	9,027	33.0%

Note: Trade prices are compared to quotes at report time. Trades that execute through a 100 share quotes, and trade through own exchange quote when alone at the inside, are not counted as trades outside the NBBO.

Table 2
 Per Share Amount that QQQ Trade Price Executes Outside the NBBO Before and After
 De Minimis Exemption
 (Excludes Trades in Crossed Markets)

Before or After Exemption	Number of Trades Outside	Percent of Trades Outside the NBBO by:			
		Less than 1 Cent	1 Cent or Less	2 Cents or Less	3 Cents or Less
Before 8/19/02	17,910	32.9%	62.6%	88.1%	97.9%
After 9/18/02	18,372	39.0%	66.8%	92.8%	98.8%
9/25/02 (Island Dark)	15,266	28.0%	65.4%	90.7%	97.9%

Note: Trade prices are compared to quotes at report time. Trades that execute through a 100 share quote and trades through own exchange when alone at the inside, are not counted as trades outside the quote.

Table 3
Percent of Own Market QQQ Trades Executed Outside the NBBO Before and After De
Minimis Exemption
(Excludes Trades in Crossed Markets)

	Amex	Boston	CSE	CHX	NYSE	PSE	Nasdaq*	PHLX
Before 8/19/02	42.4	20.1	6.7	37.4	43.4	12.0	74.6	39.0
After 9/18/02	42.2	28.4	5.2	37.5	48.2	11.9	72.9	43.4
9/25/02 (Island Dark)	39.9	27.3	5.7	38.9	51.4	4.4	62.4	43.6

*Includes trades of Nasdaq market-makers and those trades that Island reports to Nasdaq. Island reports QQQ trades to either the CSE or to Nasdaq.

Note: Trade prices are compared to quotes at report time. Trades through 100 share quotes and trades through own exchange quote when alone at the inside are not counted as trade-throughs.

Table 4
Distribution of QQQ Trades by Inside Spread

Trades Executed When Inside Spread is:	8/19/02		9/18/02		9/25/02	
	Percent	Trades	Percent	Trades	Percent	Trades
Crossed	13.0 %	5,605	13.4%	6,088	11.5%	4,799
Locked	26.4 %	11,357	25.4%	11,541	23.1%	9,684
1 cent	54.0 %	23,268	54.0%	24,491	60.3%	25,264
2 cents	6.1%	2,621	6.7%	3,026	4.9%	2,067
3 or more cents	0.5%	234	0.5%	225	0.1%	60
Total	100%	43,085	100%	45,371	100%	41,874

Note: Trade prices are compared to quotes at report time.