

Presentation Outline

JDM Introduction	1
Trade Throughs	2
Recap Budget Committee Meeting.....	2
FINRA Trade Through Report.....	3
Securrex Methodology.....	4
JDM Closing:.....	5
IQ Introduction:.....	Error! Bookmark not defined.

JDM Introduction

Good morning and thank you Chairman Metcalfe very much for the invitation for us to speak and present new data and new solutions on recovering money for the pension systems of Pennsylvania. Also, thank you to Representative Mustio for being the prime sponsor of the resolution 701 that affects so many families in a very material way. My name is John Marks and I am the managing director of Securrex based in the northern suburbs of Chicago. My background is almost 30 years in technology and specifically computer hardware and software. My most well known professional accomplishment is being one of the co- founders of Fortune 500 direct marketing powerhouse CDW. For those of you who watch golf on television, the leader board is powered by CDW and former 76ers great Charles Barkley is featured in many of their commercials.

I started Securrex as a market watchdog organization after I was made aware of the massive scale of fraud plaguing our financial markets and observing the interactions by our regulatory authorities when these frauds were reported. Investors are being ripped off daily and don't stand any chance at recovery without independent forensic evidence proving harm.

Securrex is a whistleblower bringing original information and technology to organizations we believe are being materially harmed. The evidence and

information we provide is through independent analysis not generally known or available to the public for which we are the sole and original source. Our repository is the result of really smart financial quants with the ability to take raw data and writing algorithms to give easily readable, usable reports.

We are here to help and as whistleblowers we typically receive a bounty on recoveries and indemnification from clients we select to engage with.

Securrex forensically uncovers Trade Thru Violations of the Order Protection Rule 611 of Regulation NMS.

Trade Throughs

A trade through is defined as.. and I quote:

“A trade that is not executed at the best possible price according to quoted prices at other exchanges. Passed in 2007, Rule 611, otherwise known as the Order Protection Rule, aims to ensure that both institutional and retail investors get the best possible price for a given trade by comparing quotes on multiple exchanges. If a better price is quoted elsewhere, the trade must be routed there for execution, and not "traded through" at its current exchange.” END QUOTE

The SEC Order Protection rules even gives broker/dealers a 1 second flickering quotation exemption to fill stock trades at ANY price EQUAL to or BETTER than the worst best bid or best offer of the preceding second.

In short, unless each trade execution is examined against the NBBO data from all market centers you would not know if there has been a trade through violation.

Recap Budget Committee Meeting

During the Budget Committee meeting last month, Representative Mustio asked the fiduciaries of SERS and PSERS some questions pertaining to trade thru violated trades. In the You Tube video, PSERS identified Zeno Consulting and SERS identified Abel-Noser as the firms that they engage for Best Execution analysis.

While the question was specific to trade thru analysis and not best execution services, it was no surprise hearing their answers. While both firms are highly respected, neither firm has the forensic capabilities and granular data to perform a true trade thru audit which WAS the question. Representative Mustio then asked, “Has Abel-Noser or Zeno Consulting identified any trade-through violations?” The answer was no or none that I know of.

In truth ladies and gentlemen, there are millions of dollars of investor harm every market day direct resulting from trade-throughs and many of these violated trades belong to the State of Pennsylvania.

Today, trade-through audits are not part of best execution regulatory compliance but they should be... because this is an invisible area to every public and private fund but a problem that can now be solved.

But we are not here to embarrass anyone – we are here to help solve a problem. The current managers of the Pennsylvania pension system should commended for embracing progressive measures that technology affords. In truth, Securrex has NOT been around long enough to inform states that their current best execution compliance programs needs to be updated to include trade through audits and recovery. Our solutions are very new to a problem that is very old. It was only recent that Securrex started opening up our repository to assist pension funds like SERS and PSERS. Our past work has been with trading firms who engage us to uncover trade thoughts in real time. We are however engaged with other states under non-disclosure.

FINRA Trade-Through Report

The Securrex data repository between 2008 and 2012 has identified over \$16 BILLION of Reg NMS NBBO trade thru harm. The question in Pennsylvania is not if you have been harmed... it is how much of that \$16 billion belongs to you?

When Representative Mustio asked about time stamped trading reports, both pension funds said they do not receive time stamped trading reports. Without time stamped reports, there is no possible way of monitoring broker/dealer

activities. Even FINRA's own Blue Sheets used for investigations and enforcement did not contain timestamps which are a critical piece of information needed to catch Reg NMS violated trades until after April 2013.

Trade-Through violations pose serious exposure, potential claims and sanctions to RIA/broker/dealers. With FINRA attempting to police the market with specific fines and sanctions for best execution failures, SEC Investigations and FINRA arbitrations are a process that all broker/dealers would certainly choose to avoid.

However, all broker/dealers do under the rules report all stock transactions to FINRA. In return, FINRA provides trade-through reports to all broker/dealer right on their broker compliance reporting system.

For every pension fund we have talked to we ask the same question. "Has your broker/dealer ever given you a credit for a trade-through violation?" The answer from each has been no and the fiduciary from each fund has stated that they had no knowledge that these FINRA trade-through reports even existed.

This is like going to the bank and depositing \$100 and bank only crediting your account only \$99. And after the bank caught the error, they never credited your account... instead ignoring the entire situation. The bank has a fiduciary duty to give you the dollar and broker/dealers have fiduciary duties to credit you on each and every trade-through.

Securrex Methodology

Here is a high level description of the Securrex process. Our repository captures each and every message that comes out of the National Market System from SIAC and NASDAQ. We capture all quote and trade messages from the 20,672 issuers across 16 reporting facilities in chronological order. We perform high frequency trade audits of each stock every 25ms or 40 times per second identifying trade throughs.

Our Quantitative processes filter out over 100 different RegNMS rule exceptions that classify the trade as exempt. What remains in our trade through repository are faceless trades violating the order protection rule of Reg NMS rule 611.

On page 4, I have given each of you the list of the top 30 most trade through stocks. Out of the top 30, SERS has held or holds 25 and PSERS 21 out of 30. I take your attention to page 7 to the right side of the page under TRO Rating. The TRO rating which is proprietary to Securrex is the percentage of 25ms examination bars that the Securrex repository has found to be violated by issuer. CITI for example is a 17% violated stock meaning that in 17% of all 25ms audited bars A violated trade or multiple trades were found. Between 2008 and 2012, there is over \$1.4 BILLION dollars of investor harm in CITI trades alone.

I am sure that everyone in the room is familiar with the Madoff scandal. Unfortunately I know someone who once worked for me who's entire family savings were invested at Madoff. If any one of those Madoff victims would have had their trade executions audited the entire Madoff scandal might have never happened. Our repository would have caught the fictitious trades and would have exposed the fraud. Your pension funds are exposed to these kinds of problems. As I said in my opening, innovation and technology solves business issues.

JDM Closing:

In closing, I again want to thank you for the opportunity to speak today and thank SERS and PSERS who while embracing technology are trailblazing the solution to a wide scale issue that affects many people not just in Pennsylvania but around the world. This should not be a left or right aisle issue. This is an issue that has no party or affiliation and affects almost everybody. Our hopes are that the Trustees of SERS and PSERS are thrilled to meet us. This is a financial problem that has been going on for years but can now be solved.

While we are not the silver bullet, Securrex can absolutely help make a material dent into underfunded pensions. We can also become an important part of future compliance programs making sure that your pension truly gets best execution and catching all future violated trades and potential schemes that expose PA funds to fraud.

I leave you with a quote from Winston Churchill. If you are passionate about making change to a system that is flawed. Hit the point once. Then come back and

hit it **again**. Then hit it a third time - a tremendous whack." Reg NMS violations are a systemic problem that CAN be solved. But only when large pension funds like SERS and PSERS stand up and tell broker/dealers, the SEC and FINRA that the lost money and exposure that reside in NMS trade-through violations are NOT acceptable. That is our mission – to solve the enormous financial harm of trade-through violations. We are here to help you recover funds and damages and hope that our presence and original information is welcomed in Pennsylvania.

Again, many thanks to Representative Mustio and others who support resolution 701 and our mission!!

Securrex

Trade-Through Presentation

Table of Contents

Securrex.....	1
Regulation National Market System (or Reg NMS).....	2
Definition of Trade-Through.....	2
Investment Advisers Act of 1940: Duty of Best Execution.....	2
FINRA Rule 5310: Best Execution and Interpositioning.....	2
SEC Rule 611 - Order Protection Rule.....	3
FINRA Reg NMS Trade-Through Report Card.....	5
FINRA Electronic Blue Sheet System.....	5
Trade-Through Violations.....	9
Forensic Trade-Through Evidence.....	10
Ticker Tape View.....	11
BATStream Data.....	12
Exchange and Trade Reporting Facilities.....	13

Table of Figures

Figure 1 - 30 Most Traded-Through Equities.....	4
Figure 2 - FINRA Reg NMS Trade Through Report Card.....	5
Figure 3 - Firm Transaction Data.....	5
Figure 4 - TRO Rating System.....	6
Figure 5 - TRO Rating Report.....	7
Figure 6 - TRO Rating Reference.....	8
Figure 7 - Comprehensive Trade Through Reporting.....	9
Figure 8 - Trade-Through Forensic Evidence.....	10
Figure 9 - Ticker Tape View.....	11
Figure 10 - BATStream Evidentiary Data.....	12



Presenter: **John D. Marks**
Managing Director

Securrex Services LLC
655 Deerfield Road
Suite 100-331
Deerfield, IL 60015
224-900-9999
jmarks@securrex.com

DISCLAIMER: The information presented is for educational purposes and does not constitute legal advice or legal opinions.

Regulation National Market System (or Reg NMS)

Regulation National Market System (or Reg NMS) is a US financial regulation promulgated and described by the United States Securities and Exchange Commission (SEC) as "a series of initiatives designed to modernize and strengthen the National Market System for equity securities." It was established in 2007. Its aim was to foster both "competition among individual markets and competition among individual orders" in order to promote efficient and fair price formation across securities markets. Some of the more notable rules include:

- Order Protection (or Trade Through) Rule - provides inter market price priority for quotations that are immediately and automatically accessible (Rule 611)
- Access Rule - addresses access to market data such as quotations (Rule 610)
- Sub-Penny Rule - establishes minimum pricing increments (Rule 612)
- Market Data Rules:
 - a) Allocation amendment – institutes a new Market Data Revenue Allocation Formula,
 - b) Governance amendment – creates advisory committees, c) Distribution and Display Rules – governing market data (Rule 600, 601 & 603).

Definition of Trade-Through

A stock market order that is not executed at the best possible price according to quoted prices at other exchanges. Regulations to protect against trade-throughs were first passed in the 1970s and were later upgraded via Rule 611 of Regulation NMS, which passed in 2007.

Rule 611, otherwise known as the Order Protection Rule, aims to ensure that both institutional and retail investors get the best possible price for a given trade by comparing quotes on multiple exchanges. If a better price is quoted elsewhere, the trade must be routed there for execution, and not "traded through" at its current exchange.

Investment Advisers Act of 1940: Duty of Best Execution

Investment Advisers Must Seek to Obtain the Best Price and Execution for Their Clients' Securities Transactions. As a fiduciary, you are required to act in the best interests of your advisory clients, and to seek to obtain the best price and execution for their securities transactions. The term best execution means seeking the best price for a security in the marketplace as well as ensuring that, in executing client transactions, clients do not incur unnecessary brokerage costs and charges.

FINRA Rule 5310: Best Execution and Inter-positioning

(a)(1) In any transaction for or with a customer or a customer of another broker-dealer, a member and persons associated with a member shall use reasonable diligence to ascertain the best market for the subject security and buy or sell in such market so that the resultant price to the customer is as favorable as possible under prevailing market conditions. Among the factors that will be considered in determining whether a member has used "reasonable diligence" are:

- (A) the character of the market for the security (e.g., price, volatility, relative liquidity, and pressure on available communications);
- (B) the size and type of transaction;
- (C) the number of markets checked;
- (D) accessibility of the quotation; and
- (E) the terms and conditions of the order which result in the transaction, as communicated to the member and persons associated with the member.

SEC Rule 611 - Order Protection Rule

- a) Reasonable policies and procedures.
 - 1. A trading center shall establish, maintain, and enforce written policies and procedures that are reasonably designed to prevent trade-throughs on that trading center of protected quotations in NMS stocks that do not fall within an exception set forth in paragraph (b) of this section and, if relying on such an exception, that are reasonably designed to assure compliance with the terms of the exception.
 - 2. A trading center shall regularly surveil to ascertain the effectiveness of the policies and procedures required by paragraph (a)(1) of this section and shall take prompt action to remedy deficiencies in such policies and procedures.
- b) Exceptions.
 - 1. The transaction that constituted the trade-through was effected when the trading center displaying the protected quotation that was traded through was experiencing a failure, material delay, or malfunction of its systems or equipment.
 - 2. The transaction that constituted the trade-through was not a "regular way" contract.
 - 3. The transaction that constituted the trade-through was a single-priced opening, reopening, or closing transaction by the trading center.
 - 4. The transaction that constituted the trade-through was executed at a time when a protected bid was priced higher than a protected offer in the NMS stock.
 - 5. The transaction that constituted the trade-through was the execution of an order identified as an inter-market sweep order.
 - 6. The transaction that constituted the trade-through was effected by a trading center that simultaneously routed an inter-market sweep order to execute against the full displayed size of any protected quotation in the NMS stock that was traded through.
 - 7. The transaction that constituted the trade-through was the execution of an order at a price that was not based, directly or indirectly, on the quoted price of the NMS stock at the time of execution and for which the material terms were not reasonably determinable at the time the commitment to execute the order was made.
 - 8. The trading center displaying the protected quotation that was traded through had displayed, within one second prior to execution of the transaction that constituted the trade-through, a best bid or best offer, as applicable, for the NMS stock with a price that was equal or inferior to the price of the trade-through transaction.
 - 9. The transaction that constituted the trade-through was the execution by a trading center of an order for which, at the time of receipt of the order, the trading center had guaranteed an execution at no worse than a specified price (a stopped order), where:
 - i. The stopped order was for the account of a customer;
 - ii. The customer agreed to the specified price on an order-by-order basis; and
 - iii. The price of the trade-through transaction was, for a stopped buy order, lower than the national best bid in the NMS stock at the time of execution or, for a stopped sell order, higher than the national best offer in the NMS stock at the time of execution.
- c) Intermarket sweep orders. The trading center, broker, or dealer responsible for the routing of an intermarket sweep order shall take reasonable steps to establish that such order meets the requirements set forth in Rule 242.600(b)(30).
- d) Exemptions. The Commission, by order, may exempt from the provisions of this section, either unconditionally or on specified terms and conditions, any person, security, transaction, quotation, or order, or any class or classes of persons, securities, quotations, or orders, if the Commission determines that such exemption is necessary or appropriate in the public interest, and is consistent with the protection of investors.



30 Most Traded Through Equities

RANK	SYMBOL	NAME	VOLUME	TRO RATE	INVESTOR HARM
1	C	CITIGROUP INC	367,661,004,171	17%	\$1,437,554,526.31
2	BAC	BANK of AMERICA CORP	254,660,556,536	18%	\$1,054,294,704.06
3	SPY	STANDARD & POORS DEPOSITARY	192,864,558,928	13%	\$576,665,031.19
4	GE	GENERAL ELECTRIC CO	95,426,368,341	19%	\$417,013,229.65
5	F	FORD MOTOR CO	89,801,535,036	15%	\$309,815,295.87
6	MSFT	MICROSOFT CORP	80,444,721,804	15%	\$277,534,290.22
7	WFC	WELLS FARGO & CO	63,748,369,745	17%	\$249,256,125.70
8	INTC	INTEL CORP	77,403,294,423	14%	\$249,238,608.04
9	CSCO	CISCO SYSTEMS INC	71,174,840,980	14%	\$229,182,987.96
10	JPM	JP MORGAN CHASE & CO	56,897,069,560	16%	\$209,381,215.98
11	S	SPRINT NEXTEL CORP	64,923,063,430	14%	\$209,052,264.24
12	XLF	SPDR FINANCIAL SECTOR ETF	109,006,589,653	8%	\$200,572,124.96
13	PFE	PFIZER INC	61,545,823,780	12%	\$169,866,473.63
14	SIRI	SIRIUS XM RADIO INC COMMON	79,739,321,018	8%	\$146,720,350.67
15	EEM	iShares MSCI EMERGING MK INC	79,504,317,954	8%	\$146,287,945.04
16	IWM	iShares TRUST RUSSELL 2000	84,090,959,256	7%	\$135,386,444.40
17	T	AT&T INC	36,542,200,957	14%	\$117,665,887.08
18	ORCL	ORACLE CORP	41,706,758,265	12%	\$115,110,652.81
19	AIG	AMERICAN INTL GROUP INC	41,186,892,313	10%	\$94,729,852.32
20	MS	MORGAN STANLEY	31,230,041,416	13%	\$93,377,823.83
21	DELL	DELL INC	32,052,501,858	12%	\$88,464,905.13
22	XOM	EXXONMOBIL	32,011,109,517	12%	\$88,350,662.27
23	YHOO	YAHOO! INC	31,789,253,504	12%	\$87,738,339.67
24	EMC	EMC CORP	31,496,431,477	12%	\$86,930,150.88
25	SDS	PROSHARES ULTRSHT S&P 500	34,123,106,771	11%	\$86,331,460.13
26	AA	ALCOA INC	34,073,267,009	10%	\$78,368,514.12
27	MU	MICRON TECH INC	25,397,134,171	13%	\$75,937,431.17
28	AMD	ADVANCED MICRO DEVICES	29,181,463,307	11%	\$73,829,102.17
29	FAS	DIREXION SHARE FINANCE BULL 3X	49,629,591,970	6%	\$68,488,836.92
30	RF	REGIONS FINANCIAL CORP	29,050,598,307	9%	\$60,134,738.50
Total					\$7,233,279,974.93

Best Execution—Failure to Comply With Requirements for Best Execution

FINRA Rule 2010 and NASD Rule 2320¹



Principal Considerations in Determining Sanctions	Monetary Sanction ¹	Suspension, Bar or Other Sanctions
<p><i>See Principal Considerations in Introductory Section</i></p> <ol style="list-style-type: none"> Nature of the best execution violation; i.e., whether the execution was at an inferior price or was untimely. While the respondents are responsible for the systems that they use and the third-party vendors that they employ, the appropriate level of sanctions will depend on whether the respondent diligently chose, installed and tested a system that nevertheless malfunctioned; the frequency and thoroughness with which the respondent ensured that the system was operating in compliance with applicable rules; and the care that the respondent exercised in undertaking all necessary steps to correct systems-related malfunctions. The same considerations apply to a respondent that has relied on a third-party vendor's products or services. 	<p>Negligent Misconduct</p> <p>First Action¹ Fine of \$5,000 to \$50,000.</p> <p>Second Action Fine of \$10,000 to \$100,000.</p> <p>Subsequent Actions Fine of \$10,000 to \$200,000.⁴</p> <p>Intentional or Reckless Misconduct</p> <p>Fine of \$20,000 to \$200,000.</p> <p>In egregious cases, consider a fine in excess of \$200,000.</p>	<p>Negligent Misconduct</p> <p>In egregious cases, consider suspending the responsible individual in any or all capacities and/or the firm with respect to any or all activities or functions for up to 30 business days.</p> <p>Intentional or Reckless Misconduct</p> <p>Suspend the responsible individual in any or all capacities and/or suspend firm with respect to any or all activities or functions for a period of 10 business days to two years.</p> <p>In egregious cases, consider barring the individual and/or expelling the firm.</p>

FIGURE 1 - 30 MOST TRADED-THROUGH EQUITIES

FINRA Reg NMS Trade-Through Report Card

The Reg NMS Trade-Through Report Card details the transactions in NMS securities that your firm reports to a Trade Reporting Facility or to FINRA's Alternative Display Facility at a price that traded through at least one protected best bid or offer at execution. The report card includes a rolling six months' worth of data, allowing firms to monitor trends of this activity over time. Video Tutorial: http://apps.finra.org/tutorials/Reg_NMS_Trade_Through_Report_Card_Online_Guide.htm

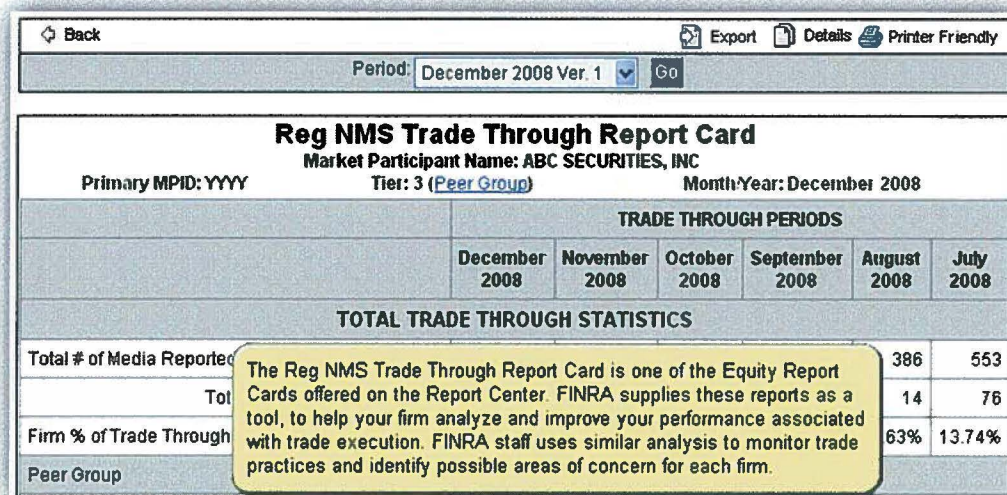


FIGURE 2 - FINRA REG NMS TRADE THROUGH REPORT CARD

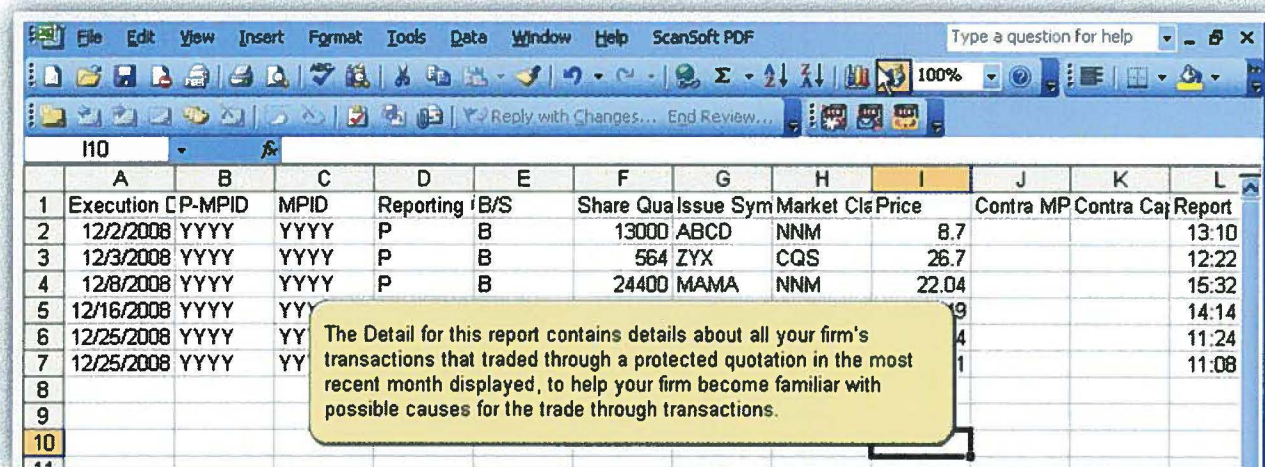


FIGURE 3 - FIRM TRANSACTION DATA

FINRA Electronic Blue Sheet System

SEC, FINRA and Intermarket Surveillance Group members utilize Electronic Blue Sheets (EBS) to analyze broker-dealers' trading activities. Blue sheets are records that are generated by firms at the request of regulators in connection with investigations of questionable trading. The blue sheets provide information such as the identity of an account holder for whom specific trades were executed and whether a transaction was a buy or a sell and long or short. Regulatory notice 12-47 enhanced the Blue Sheet format to require timestamps effective May 1, 2013. NO TIMESTAMPS ARE REQUIRED TO BE PROVIDED FOR ANY DATA REQUESTED PRIOR TO MAY 1, 2013.

US Equity Markets

US Equity Markets

20,672 Instruments listing on 6 Equity Exchanges and trading in 15 market centers.

National Best Bid Offer

50 Billion NBBO Top of the Order Book Quote Price Changes. Every Bid, Ask and Trade message from the NMS in sequence and time stamped with 25ms precision.

Trade Examinations

28 Billion Examinations in 25ms periods Identified 376,143,896 exams with Trade-Throughs.

BATStreams 2008 - 2012	
Symbol By Session	11,725,452
Symbol By Month	582,443
Trading Sessions	1,259
US Listed Equities	
Symbols	20,672
Listing Exchanges	6
Trading Centers	15
BATStream Stats	
Messages	752,749,581,872
NBBO Ask Changes	25,048,641,047
NBBO Bid Changes	24,942,235,267
NMS Trade Reports	38,348,537,116
Volume	10,604,064,351,457
Notational Value	\$ 306,952,561,820,805
Market Averages	
Share Price	\$ 28.95
Trade Size	277
Trade Price	\$ 8,004.28
TRO Examination Periods	
25ms Trade Exams	27,989,669,492
Exams with TRO	376,143,896
TRO / SESSION	298,764
TRO Losses	\$ 16,030,256,422.34
TRO Losses per Day	\$ 12,732,530.92

Historic Market Data

11,725,452 Bid-Ask-Trade Symbol Streams covering 1,259 Sessions consolidated into 582,443 Monthly Symbol BATStream Databases.

National Market System

\$300+ Trillion traded in 38+ Billion transactions of 10+ Trillion shares from 2008 through 2012.

Investor TRO Losses

\$16 Billion in Trade-Through losses based on SEC estimate of 2.3 cents per share.

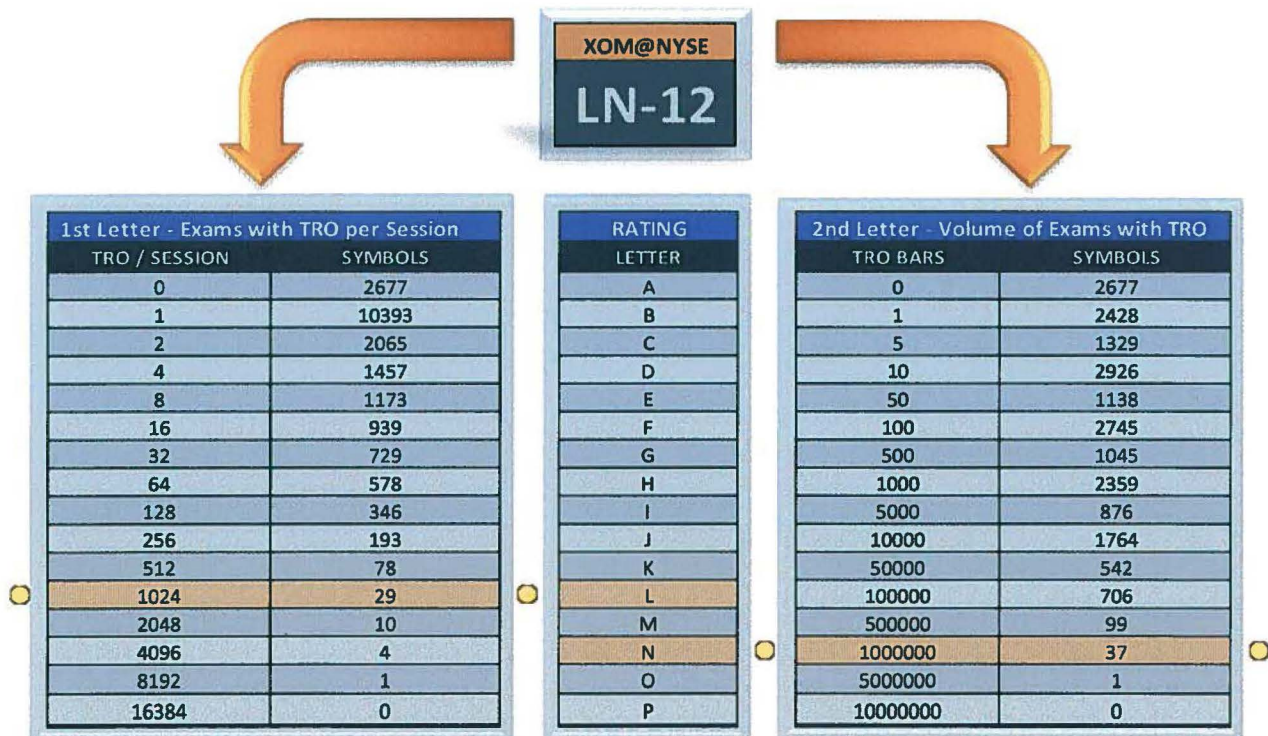


FIGURE 4 - TRO RATING SYSTEM

BATStreams 2008 - 2012	
Symbol By Session	11,725,452
Symbol By Month	582,443
Trading Sessions	1,259
US Listed Equities	
Symbols	20,672
Listing Exchanges	6
Trading Centers	15
BATStream Stats	
Messages	752,749,581,872
NBBO Ask Changes	25,048,641,047
NBBO Bid Changes	24,942,235,267
NMS Trade Reports	38,348,537,116
Volume	10,604,064,351,457
Notational Value	\$ 306,952,561,820,805
Market Averages	
Share Price	\$ 28.95
Trade Size	277
Trade Price	\$ 8,004.28
TRO Examination Periods	
25ms Trade Exams	27,989,669,492
Exams with TRO	376,143,896
TRO / SESSION	298,764
TRO Losses	\$ 16,030,256,422.34
TRO Losses per Day	\$ 12,732,530.92

@NYSE	
KM-17	
TRO RANKING	
104	
6 out of 247	
7 out of 1108	
Active	
HISTORIAN	
\$415,470	
MONTHLY	
\$6,875	

CITIGROUP INC	
Record ID	11
Listing Exchange	NYSE
Active Sessions	1,259
Symbol	C
CUSIP Code	172967424
SIC Code	6021
NAICS Code	522110
2008-01-02	2012-12-31
Messages	2,249,753,359
NBBO Ask Changes	3,902,500
NBBO Bid Changes	3,888,615
NMS Trade Reports	276,955,102
Volume	367,661,004,171
Notational Value	\$ 2,414,959,394,209
Instrument Averages	
Share Price	\$ 6.57
Trade Size	1328
Trade Price	\$ 8,719.68
TRO Rating	KM
25ms Trade Exams	4,050,719
Exams with TRO	668,390
TRO / SESSION	531
TRO Rate	17%
TRO Losses	\$ 1,437,554,526.31

TRO
 Trades Reported Outside of NBBO

1st Letter - Exams with TRO per Session	
TRO / SESSION	SYMBOLS
0	2677
1	10393
2	2065
4	1457
8	1173
16	939
32	729
64	578
128	346
256	193
512	78
1024	29
2048	10
4096	4
8192	1
16384	0

RATING LETTER	
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	
O	
P	

2nd Letter - Volume of Exams with TRO	
TRO BARS	SYMBOLS
0	2677
1	2428
5	1329
10	2926
50	1138
100	2745
500	1045
1000	2359
5000	876
10000	1764
50000	542
100000	706
500000	99
1000000	37
5000000	1
10000000	0

Symbol TRO Rate 17%	
RATE	SYMBOLS
0%	2677
1%	13870
2%	2194
3%	790
4%	401
5% +	740

TRO Ranking in Listed Exchange: # 66			
EXCHANGE	ID	SYMBOLS	TRO
NYSE	3	4773	239,952,605
AMEX	4	1990	17,087,845
PACF	7	2024	37,706,947
NQNM	12	3750	79,946,266
NQSC	13	1240	1,302,112
NQBB	14	6895	148,121

FIGURE 5 - TRO RATING REPORT

SECURREX

Trade Through Recoveries

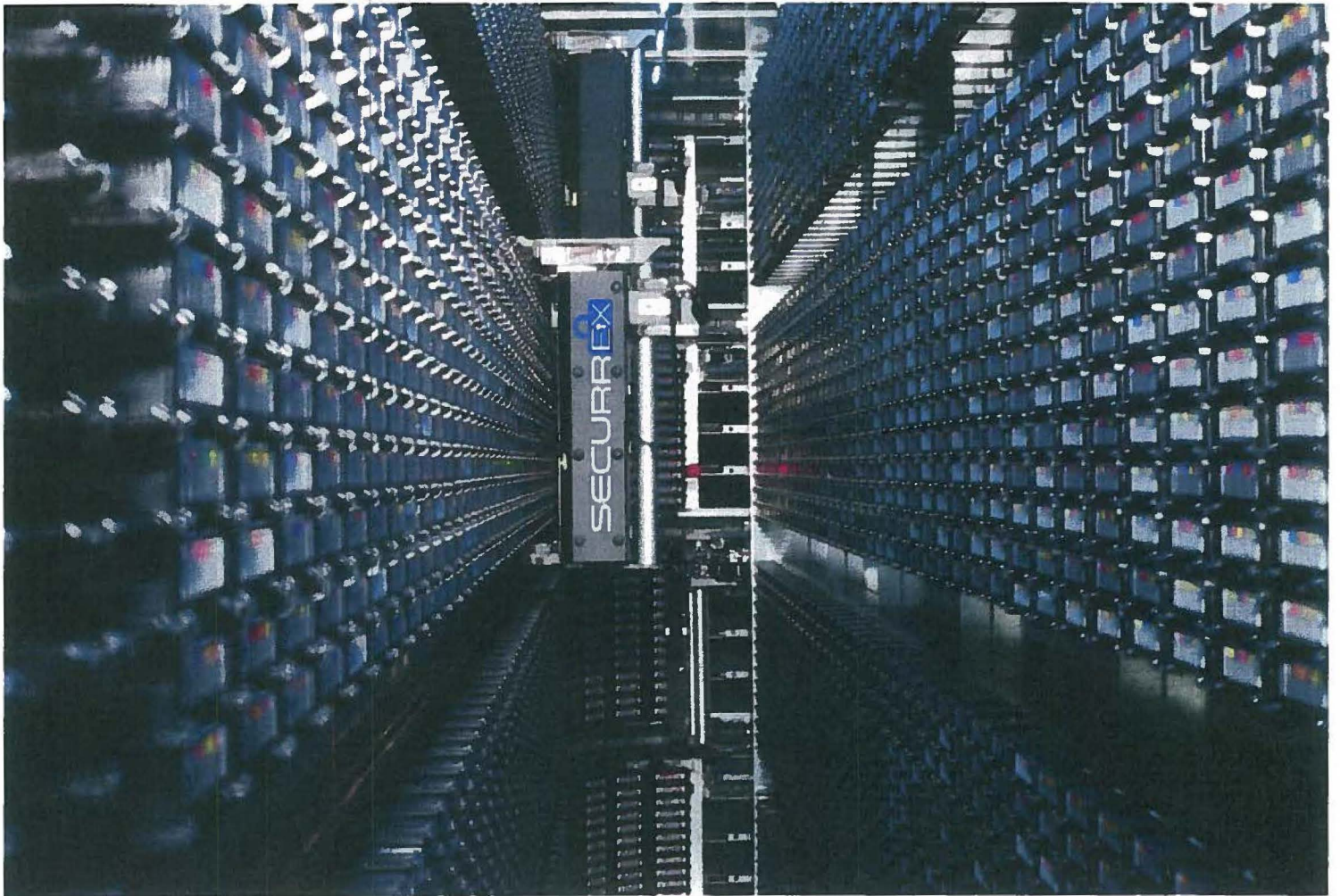


Table of Contents

- SECURREX**..... 1
- Disclosure:** 3
- INTRODUCTION:**..... 4
 - DEFINITIONS** 4
 - Securrex Proprietary Analysis** 5
- RECOVERY PROCESS**..... 5
- FINRA**..... 6
 - FINRA Equity Report Cards** 6
- Trade-Through Reporting**..... 7
 - Forensic Evidence**..... 8
 - Ticker Tape View** 9
 - BATStream Data** 10
- TRO Rating System**..... 11
- Trade-Through Violations**..... 15
 - Trade-Through - Exempt** 15
 - Trade-Through - Non Exempt**..... 15
 - Trade-Through Violations**..... 15
- Appendix**..... 16
 - Market Data**..... 16
 - BATStreams**..... 17
 - Exchange Identifier** 18
 - US Equities Exchanges** 18
 - US Options Exchanges** 18
 - Quote Condition Codes** 19
 - Trade Condition Codes** 20

Disclosure:

This is a password protected and tracked document containing proprietary data, schema and original analysis used to identify and communicate information under Section 922 of the Dodd Frank Wall Street Reform and Consumer Protection Act, Section 21 F, "Securities Whistleblower Incentives and Protection."

Companion password protected and tracked proprietary MS Excel™ XLDB Compiled Workbooks are provided as additional data supplements with specific tabs referenced throughout this document using the imagery below.



The information contained herein is voluntarily provided through independent analysis not generally known or available to the public and is the original source of information derived from independent knowledge not generally known or available to the public.

All materials are exempt from disclosure under the Freedom of Information Act.

Freedom of Information Act (FOIA) exemption established in Section 21 F(h)(2)(A) of the Securities and Exchange Act of 1934, as added by the Dodd Frank Act Exemption 3, 5 U.S.C. Section 552(b)(3)(B). Except as provided in subparagraphs (B) and (C), the Commission and any officer or employee of the Commission shall not disclose any information, including information provided by a whistleblower to the Commission, which could reasonably be expected to reveal the identity of a whistleblower, except in accordance with the provisions of section 552 a of title 5, unless and until required to be disclosed to a defendant or respondent in connection with a public proceeding instituted by the Commission or any entity described in subparagraph (C). For purposes of section 552 of title 5, this paragraph shall be considered a statute described in subsection (b) (3) (B) of such section.

U.S. Government Restricted Rights and Use.

Any tools, materials, data or any application derived therefrom provided to the U.S. Government pursuant to Section 922 of the Dodd Frank Wall Street Reform and Consumer Protection Act, Section 21 F, "Securities Whistleblower Incentives and Protection." is provided with restricted commercial license rights and use limited for communicating information for purposes of receiving whistleblower awards. All rights not expressly granted are reserved.

Commercial Enterprise Restricted Rights and Use.

Any tools, materials, data or any application derived therefrom provided to any Commercial Enterprise is provided with restricted commercial license rights and use limited for communicating information for purposes of investigating and recovering material harm for whistleblower awards. All rights not expressly granted are reserved.

INTRODUCTION:

Securrex is a whistleblowing firm that identifies NMS stock trade through violations affecting US Equity transactions. In the financial world, these violations are covered under § 242.611 Order protection rule of Regulation NMS.

Securrex data repository is a comprehensive history of the stock market containing each message transmitted from Securities Industry Automation Corporation (SIAC) and Nasdaq (CQS) in message sequence order. Securrex has identified over \$20 billion of Best Execution NBBO violated trades from 2008-present across 20,672 publicly held issuers.

DEFINITIONS

Definition of 'National Best Bid and Offer - NBBO'

The best (lowest) available ask price and the best (highest) available bid price to investors when they buy and sell securities. National Best Bid and Offer is the bid and ask price the average person will see. The Securities and Exchange Commission's Regulation NMS requires that brokers must guarantee customers this price.

The Reg NMS regulatory ruling is comprised of four main components:

- *The Order Protection Rule aims to ensure that investors receive the best price when their order is executed by removing the ability to have orders traded through (executed at a worse price).*
- *The Access Rule, aims to improve access to quotations from trading centers in the National Market System by requiring greater linking and lower access fees.*
- *The Sub-Penny Rule, which sets the lowers quotation increment of all stocks over \$1.00 per share to at least \$0.01.*
- *Market Data Rules, which allocate revenue to self-regulator organizations that promote and improve market data access*

SEC rule on speed on which auto executed stock trades need to be executed for investor.

<https://www.sec.gov/rules/final/34-51808.pdf>

§ 242.611 (B) 8 - Order protection rule of Regulation NMS

The trading center displaying the protected quotation that was traded through had displayed, within one second prior to execution of the transaction that constituted the trade-through, a best bid or best offer, as applicable, for the NMS stock with a price that was equal or inferior to the price of the trade-through transaction.

Securrex Proprietary Analysis

Now knowing that Securrex captures every message out of the National Market System, we are able to identify every stock trade for all 20,672 issuers. For example, Securrex is able to supply every Reg NMS violated stock trade for Alcoa (NYSE: AA) . Securrex is able to supply "faceless trades thru's" meaning every possible piece of information about a violated trade EXCEPT THE IDENTITY OF THE HARMED PARTY. In our example below (page 7), line 1 is a "faceless trade" where the investor auto executed a stock trade at 9:30:45:850 that was filled 2 cents outside the NBBO. The bid/ask at that instant of time was \$11.51/\$11.53 and this trade was filled at \$11.55. This "faceless trade" has a Reg NMS trade thru violation of 2 cents or \$7,106.00.

This is where you become an important element of the Securrex solution. Knowing that Securrex can identify every "faceless trade thru" from 20,672 issuers, the trading reports that you would supply would put your face on the trades where your fund received a violated trades. The more shares traded by your broker/dealers, the more trade- throughs our repository will uncover... for every stock in your portfolio

RECOVERY PROCESS

Once Securrex put your funds face on the thousands of violated trades, the recovery process begins. Because of the documents that broker/dealers have signed, the venue is not state court unless your State Attorney General would like to file additional charges against fiduciaries. The "fast track" for retribution is serving demand on brokers and filing a FINRA Arbitration Complaint. Just like court, the FINRA arbitration will look at the evidence, you are able to supply an expert witness and the decision is binding. FINRA arbitration takes between 3-12 months from start to finish and is a quicker way of resolving the issue.

Broker/dealers don't want to be brought into FINRA arbitration because of potential fines and suspensions that could be handed down by FINRA. FINRA sanctions are severe for these violations, negligent misconduct with fines of \$5K - \$50K for first actions and up to \$200K per subsequent actions.

FINRA

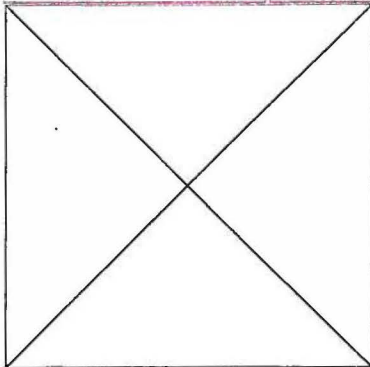
Best Execution—Failure to Comply With Requirements for Best Execution

FINRA Rule 2010 and NASD Rule 2320¹

Principal Considerations in Determining Sanctions	Monetary Sanction ²	Suspension, Bar or Other Sanctions
<p><i>See Principal Considerations in Introductory Section</i></p> <ol style="list-style-type: none"> 1. Nature of the best execution violation; <i>i.e.</i>, whether the execution was at an inferior price or was untimely. 2. While the respondents are responsible for the systems that they use and the third party vendors that they employ, the appropriate level of sanctions will depend on whether the respondent diligently chose, installed and tested a system that nevertheless malfunctioned; the frequency and thoroughness with which the respondent ensured that the system was operating in compliance with applicable rules; and the care that the respondent exercised in undertaking all necessary steps to correct systems-related malfunctions. The same considerations apply to a respondent that has relied on a third-party vendor's products or services. 	<p>Negligent Misconduct</p> <p>First Action³ Fine of \$5,000 to \$50,000.</p> <p>Second Action Fine of \$10,000 to \$100,000</p> <p>Subsequent Actions Fine of \$10,000 to \$200,000.⁴</p> <p>Intentional or Reckless Misconduct</p> <p>Fine of \$20,000 to \$200,000</p> <p>In egregious cases, consider a fine in excess of \$200,000.</p>	<p>Negligent Misconduct</p> <p>In egregious cases, consider suspending the responsible individual in any or all capacities and/or the firm with respect to any or all activities or functions for up to 30 business days.</p> <p>Intentional or Reckless Misconduct</p> <p>Suspend the responsible individual in any or all capacities and/or suspend firm with respect to any or all activities or functions for a period of 10 business days to two years.</p> <p>In egregious cases, consider barring the individual and/or expelling the firm.</p>

FINRA Equity Report Cards

<p>Reg NMS Trade Through Report Card</p>	<p>The Reg NMS Trade Through Report Card details the transactions in NMS securities that your firm reports to a Trade Reporting Facility or to FINRA's Alternative Display Facility at a price that traded through at least one protected best bid or offer at execution. The report card includes a rolling six months' worth of data, allowing firms to monitor trends of this activity over time. View the tutorial.</p>
---	---



Trade-Through Reporting

Comprehensive Trade-Through Reporting by Instrument and Exchange.

Trade Through Violations Summary by Exchange													
Symbol: AA - Alcoa													
Period: 2009-2012 CUSIP: 013817101													
Control		All Trade Throughs				Non-Exempt Trade Throughs				Trade Through Violations			
TRADELEN	EXCHMARK	MESSGRT	QTY TRD	VAL TRD	QTY TRD	VAL TRD	KEY	TRADES	QTY TRD	BUY/SID	SELL/SID	KEY	VAL TRD
1	NQEX	1,005	915,478	912,297,753	661,919	557,377,566	\$ (15,127,220.76)	143,385	167,132,685	71,300	72,085	\$ (4,418,277.91)	
2	NQAD	227	6,510	2,209,448	1,238	381,246	\$ (3,841.89)	17	7,200	6	11	\$ (69.50)	
3	NYSE	985	99,307	397,285,770	62,470	97,765,699	\$ (2,197,973.28)	22,090	45,482,175	10,782	11,308	\$ (1,076,137.46)	
5	CBOE	541	1,765	4,500,368	1,512	4,455,928	\$ (236,393.35)	525	3,732,700	314	211	\$ (150,293.80)	
6	ISEX	386	15,025	6,554,368	2,027	931,438	\$ (10,364.04)	47	50,900	28	19	\$ (511.00)	
7	PACF	1,004	198,528	60,283,454	80,077	27,172,068	\$ (465,114.96)	12,149	3,986,074	6,007	6,142	\$ (52,087.05)	
8	CINC	836	9,319	3,850,658	3,128	840,333	\$ (7,638.29)	40	8,640	25	15	\$ (179.60)	
9	PHIL	428	9,016	2,375,552	3,145	652,179	\$ (6,586.81)	1,885	401,226	967	918	\$ (4,012.26)	
11	BDST	971	103,419	16,434,424	33,849	5,328,243	\$ (59,445.01)	24,360	3,680,988	12,022	12,338	\$ (36,864.38)	
17	CHIC	595	1,533	65,219,555	268	11,848,383	\$ (1,433,583.19)	7	504,450	5	2	\$ (5,044.50)	
57	NQNX	91	18,210	25,513,582	14,279	7,777,616	\$ (112,609.30)	1,518	689,561	643	875	\$ (7,203.18)	
59	NTRF	962	60,874	27,009,039	60,556	26,922,421	\$ (156,013.86)	2,741	736,811	905	1,836	\$ (12,002.68)	
60	BATS	1,003	205,855	41,358,022	97,285	18,493,899	\$ (177,624.91)	54,552	9,692,213	26,669	27,883	\$ (93,818.50)	
63	BATY	538	19,175	3,813,892	4,763	850,029	\$ (8,269.71)	3,061	556,220	1,587	1,474	\$ (5,538.95)	
64	EDGE	593	33,503	6,580,358	3,894	837,900	\$ (7,351.88)	63	10,652	37	26	\$ (107.02)	
65	EDGX	611	26,388	9,028,362	9,841	3,360,720	\$ (37,722.31)	67	13,735	20	47	\$ (134.85)	
Total		16			1,040,251	764,995,668	\$ (20,047,753.54)	266,507	236,686,230	131,317	135,190	-\$5,862,222.59	

Generate Summary Reports of Trade-Through Claims by Broker or by Instrument.

Trade Through Violations														
Symbol: AA - Alcoa														
Period: 2009-2012 CUSIP: 013817101														
Control		NBBO AT TIME OF TRADE MESSAGE RECEIPT				TRADE REPORT				Examination				
TRFID	TRFIDTIME	BUY	SELL	TRFIDTIME	TRFID	TRFID	TRFIDTIME	TRFID	TRFIDTIME	BUY	SELL	TRFIDTIME	TRFID	
V901021004000000657	2009-01-02 09:30:45.850	\$ 11.51	\$ 11.53	2009-01-02 09:30:45	\$ 11.5500	355300	3	21340	2700	\$ 11.39	\$ 11.53	BUY	\$ (0.02)	\$ (7,106.00)
V901051003930120543	2009-01-05 16:00:32.575	\$ 11.88	\$ 11.89	2009-01-05 16:00:32	\$ 11.8600	68500	3	11685832	2275	\$ 11.88	\$ 11.89	SELL	\$ (0.02)	\$ (2,370.00)
V901051003930120546	2009-01-05 16:00:34.775	\$ 11.88	\$ 11.89	2009-01-05 16:00:34	\$ 11.8600	807000	3	11685850	1990	\$ 11.88	\$ 11.89	SELL	\$ (0.02)	\$ (16,140.00)
V901061003920057675	2009-01-06 13:51:51.800	\$ 12.08	\$ 12.07	2009-01-06 13:51:51	\$ 12.0500	170000	1	7894890	2575	\$ 12.06	\$ 12.07	SELL	\$ (0.01)	\$ (1,700.00)
V901071003990003416	2009-01-07 09:31:05.225	\$ 10.85	\$ 10.86	2009-01-07 09:31:05	\$ 11.0000	12000	1	41450	1375	\$ 10.85	\$ 10.86	BUY	\$ (0.14)	\$ (1,680.00)
V901071003990003309	2009-01-07 09:31:08.750	\$ 10.81	\$ 10.82	2009-01-07 09:31:08	\$ 11.0100	10000	1	43141	1850	\$ 10.81	\$ 10.84	BUY	\$ (0.19)	\$ (1,900.00)
V901071003990004308	2009-01-07 09:31:27.750	\$ 10.99	\$ 11.00	2009-01-07 09:31:27	\$ 10.9100	20000	1	51998	1800	\$ 10.98	\$ 11.00	SELL	\$ (0.08)	\$ (1,600.00)
V9010710039900039051	2009-01-07 10:11:55.725	\$ 11.19	\$ 11.20	2009-01-07 10:11:55	\$ 11.3000	120000	1	1713018	2475	\$ 11.19	\$ 11.20	BUY	\$ (0.10)	\$ (12,000.00)
V9010710039900052751	2009-01-07 10:46:09.250	\$ 11.17	\$ 11.18	2009-01-07 10:46:09	\$ 11.1000	20000	5	3037453	1325	\$ 11.17	\$ 11.18	SELL	\$ (0.07)	\$ (1,400.00)
V901081003950000403	2009-01-08 09:30:39.875	\$ 10.68	\$ 10.70	2009-01-08 09:30:39	\$ 10.7100	213000	3	26019	2850	\$ 10.53	\$ 10.70	BUY	\$ (0.01)	\$ (2,130.00)
V901121004020010734	2009-01-12 09:44:00.975	\$ 10.03	\$ 10.03	2009-01-12 09:44:00	\$ 10.2500	5000	1	535081	2025	\$ 10.03	\$ 10.03	BUY	\$ (0.22)	\$ (1,100.00)
V901121004020013864	2009-01-12 09:50:39.975	\$ 10.14	\$ 10.15	2009-01-12 09:50:39	\$ 9.9250	11600	1	785230	2050	\$ 10.13	\$ 10.15	SELL	\$ (0.22)	\$ (2,484.00)
V9011410038900000292	2009-01-14 09:30:02.325	\$ 9.29	\$ 9.30	2009-01-14 09:30:02	\$ 9.3700	177700	3	40790	1475	\$ 9.21	\$ 9.30	BUY	\$ (0.07)	\$ (12,439.00)

Forensic Evidence

Forensic Evidence supplied for each Trade-Through including Record Detail, BatStream Data and Ticker Tape view.

Instrument Identifier	SYMBOL	CSCO
	NAME	CISCO SYSTEMS
	CUSIP	17275R102
	SIC	3577
	NAICS	334119
	LISTING EXCHANGE	NASDAQ
Message Control Identifiers	VIOLATION ID	V1311141266390098487
	TIMESTAMP	2013-11-14 09:39:02.400
	SESSION ID	S1311140000055845432
	MESSAGE ID	M1311141266390407735
	QUOTE ID	Q1311141266390098441
	TRADE ID	T1311141266390090166
Trade Thru Investor Loss	EXAM PERIOD	2700 ms
	NBBO BID LOW	\$ 20.90
	NBBO ASK HIGH	\$ 20.91
	VIOLATED PARTY	Sell Side
	LOSS PER SHARE	\$ (0.0200)
	INVESTOR LOSS	\$ (200.0000)
NMS Trade Execution Report	NMS TRADE REPORT	157047
	TRADE TIME	2013-11-14 09:39:02
	TRADE PRICE	\$ 20.8800
	TRADE SIZE	10000
	TRADE EXCHANGE	NSX TRF
	TRADE CODE	Regular
NBBO at Time of Trade Report	BEST BID	\$ 20.90
	BID SIZE	10900
	BID EXCHANGE	Nasdaq Exchange
	BID CODE	Regular
	BEST ASK	\$ 20.91
	ASK SIZE	14100
ASK EXCHANGE	Nasdaq Exchange	
ASK CODE	Regular	


Time Stamped with 25ms Precision in Message Sequence Order.

55,845,432 Session Messages, 90,166 Trade Report and 407,735 Message for CSCO

NMS Trade Identifier is used to Blue Sheet regulatory records. Blue Sheets prior to April 2013 do not have time stamps. Forensic data supplements EBS providing time stamps from message sequence.

Ticker Tape View

Provides graphical representation of Top of the Book NBBO Quote changes and NMS Trade execution reports in message sequence order over the Trade-Through examination Look Back time period.



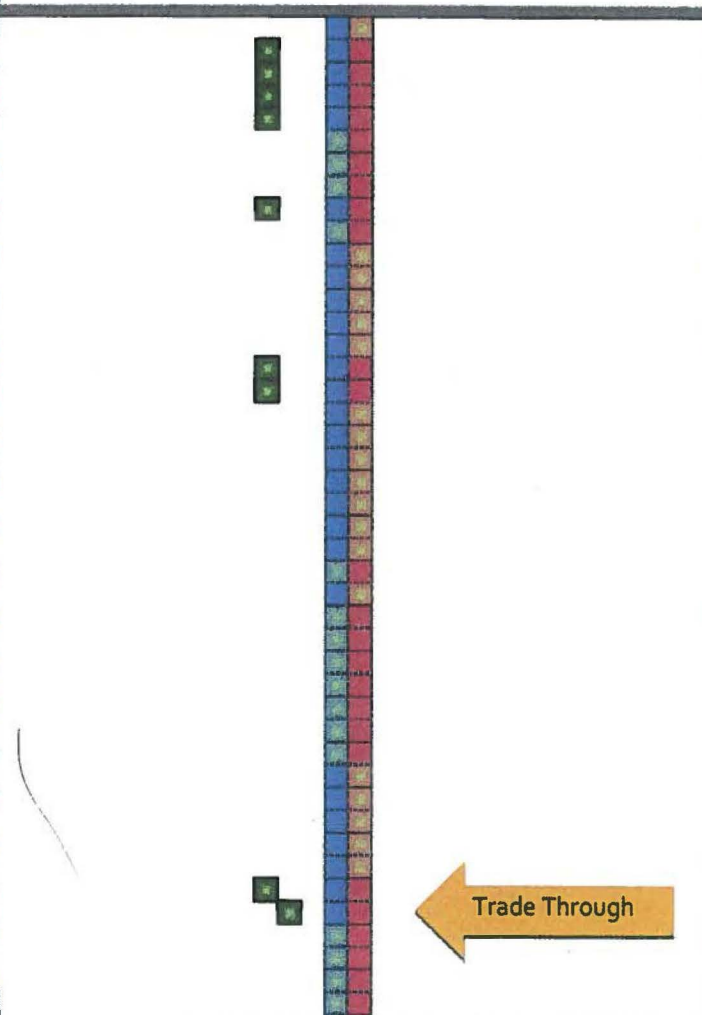
Tape View

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

CONTR/CI
NMS TRADE CONTROL

LEGEND
BEST BID
BEST ASK
Locked
Trade
TRO

RECORD	TIMESTAMP	NMS ID	TROCHECK	TROLOSS
1311141266390098448	2013-11-14 09:39:01.975	156976		
1311141266390098449	2013-11-14 09:39:02.000	156977 TRO SELLSIDE	\$	(2.50)
1311141266390098450	2013-11-14 09:39:02.000	156978 TRO SELLSIDE	\$	(2.50)
1311141266390098451	2013-11-14 09:39:02.000	156979 TRO SELLSIDE	\$	(17.50)
1311141266390098452	2013-11-14 09:39:02.000	156980 TRO SELLSIDE	\$	(2.30)
1311141266390098453	2013-11-14 09:39:02.000	156981		
1311141266390098454	2013-11-14 09:39:02.025	156983		
1311141266390098455	2013-11-14 09:39:02.025	156984		
1311141266390098456	2013-11-14 09:39:02.050	156986 TRO SELLSIDE	\$	(24.00)
1311141266390098457	2013-11-14 09:39:02.150	156991		
1311141266390098458	2013-11-14 09:39:02.175	156996		
1311141266390098459	2013-11-14 09:39:02.175	156997		
1311141266390098460	2013-11-14 09:39:02.200	156998		
1311141266390098461	2013-11-14 09:39:02.200	156999		
1311141266390098462	2013-11-14 09:39:02.200	157000		
1311141266390098463	2013-11-14 09:39:02.200	157001 TRO SELLSIDE	\$	(24.00)
1311141266390098464	2013-11-14 09:39:02.200	157002 TRO SELLSIDE	\$	(3.00)
1311141266390098465	2013-11-14 09:39:02.200	157004		
1311141266390098466	2013-11-14 09:39:02.225	157005		
1311141266390098467	2013-11-14 09:39:02.225	157006		
1311141266390098468	2013-11-14 09:39:02.225	157007		
1311141266390098469	2013-11-14 09:39:02.225	157008		
1311141266390098470	2013-11-14 09:39:02.225	157009		
1311141266390098471	2013-11-14 09:39:02.225	157010		
1311141266390098472	2013-11-14 09:39:02.225	157011		
1311141266390098473	2013-11-14 09:39:02.225	157012		
1311141266390098474	2013-11-14 09:39:02.225	157022		
1311141266390098475	2013-11-14 09:39:02.225	157023		
1311141266390098476	2013-11-14 09:39:02.225	157026		
1311141266390098477	2013-11-14 09:39:02.225	157027		
1311141266390098478	2013-11-14 09:39:02.250	157028		
1311141266390098479	2013-11-14 09:39:02.250	157029		
1311141266390098480	2013-11-14 09:39:02.250	157030		
1311141266390098481	2013-11-14 09:39:02.275	157031		
1311141266390098482	2013-11-14 09:39:02.275	157032		
1311141266390098483	2013-11-14 09:39:02.275	157033		
1311141266390098484	2013-11-14 09:39:02.275	157034		
1311141266390098485	2013-11-14 09:39:02.275	157035		
1311141266390098486	2013-11-14 09:39:02.400	157046 TRO SELLSIDE	\$	(14.50)
1311141266390098487	2013-11-14 09:39:02.400	157047 TRO SELLSIDE	\$	(200.00)
1311141266390098488	2013-11-14 09:39:02.575	157066		
1311141266390098489	2013-11-14 09:39:02.700	157088		
1311141266390098490	2013-11-14 09:39:02.725	157091		
1311141266390098491	2013-11-14 09:39:02.825	157111		



BATStream Data

Provides tabular data supporting Trade-Through claims.

SECURREX		BATStream													
CONTROL		BIDSTREAM			ASKSTREAM			TRADESTREAM			FINRA				
RECORD	TIMESTAMP	BESTOFF	BIDSZ	INDEX	BESTASK	ASKSZ	ASKEX	TRADETIME	PRICE	SIZE	EXCH	CODE	MARKID	FRONTID	PRICE5
1311141266390098448	2013-11-14 09:39:01.975	20.90	11100	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.91	100	EDGE	0	156976		
1311141266390098449	2013-11-14 09:39:02.000	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.875	100	NTRF	0	156977	SELL	\$ (2.50)
1311141266390098450	2013-11-14 09:39:02.000	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.875	100	NTRF	0	156978	SELL	\$ (2.50)
1311141266390098451	2013-11-14 09:39:02.000	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.875	700	NTRF	0	156979	SELL	\$ (17.50)
1311141266390098452	2013-11-14 09:39:02.000	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.877	100	NTRF	0	156980	SELL	\$ (2.30)
1311141266390098453	2013-11-14 09:39:02.000	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.9099	300	NQNX	0	156981		
1311141266390098454	2013-11-14 09:39:02.025	20.90	11500	NQEX	20.91	6500	NQEX	2013-11-14 09:39:01	20.9	400	NQNX	0	156983		
1311141266390098455	2013-11-14 09:39:02.025	20.90	11500	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.9	100	NQNX	0	156984		
1311141266390098456	2013-11-14 09:39:02.050	20.90	10700	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.87	800	NQNX	0	156986	SELL	\$ (24.00)
1311141266390098457	2013-11-14 09:39:02.150	20.90	10500	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.9075	1250	NQNX	0	156991		
1311141266390098458	2013-11-14 09:39:02.175	20.90	10500	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	100	PACF	0	156996		
1311141266390098459	2013-11-14 09:39:02.175	20.90	10500	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	300	PACF	0	156997		
1311141266390098460	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	200	PACF	0	156998		
1311141266390098461	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	300	PACF	95	156999		
1311141266390098462	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	600	PACF	0	157000		
1311141266390098463	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.87	800	NQNX	0	157001	SELL	\$ (24.00)
1311141266390098464	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.87	100	NQNX	0	157002	SELL	\$ (3.00)
1311141266390098465	2013-11-14 09:39:02.200	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	1000	PACF	0	157004		
1311141266390098466	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	200	BOST	0	157005		
1311141266390098467	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	100	BOST	0	157006		
1311141266390098468	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	400	PACF	0	157007		
1311141266390098469	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	300	PACF	95	157008		
1311141266390098470	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	100	PACF	0	157009		
1311141266390098471	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	300	PACF	0	157010		
1311141266390098472	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.905	100	BATY	0	157011		
1311141266390098473	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.91	200	PACF	0	157012		
1311141266390098474	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157022		
1311141266390098475	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	13500	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157023		
1311141266390098476	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157026		
1311141266390098477	2013-11-14 09:39:02.225	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157027		
1311141266390098478	2013-11-14 09:39:02.250	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157028		
1311141266390098479	2013-11-14 09:39:02.250	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.9	200	BOST	0	157029		
1311141266390098480	2013-11-14 09:39:02.250	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.9	100	NQNX	0	157030		
1311141266390098481	2013-11-14 09:39:02.275	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.91	300	PACF	0	157031		
1311141266390098482	2013-11-14 09:39:02.275	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.91	200	PACF	0	157032		
1311141266390098483	2013-11-14 09:39:02.275	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.91	100	PACF	0	157033		
1311141266390098484	2013-11-14 09:39:02.275	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.91	300	PACF	0	157034		
1311141266390098485	2013-11-14 09:39:02.275	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.91	100	PACF	0	157035		
1311141266390098486	2013-11-14 09:39:02.400	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.871	500	NQNX	0	157046	SELL	\$ (14.50)
1311141266390098487	2013-11-14 09:39:02.400	20.90	10900	NQEX	20.91	14100	NQEX	2013-11-14 09:39:02	20.88	10000	NQNX	0	157047	SELL	\$ (200.00)
1311141266390098488	2013-11-14 09:39:02.575	20.90	10900	NQEX	20.91	15500	NQEX	2013-11-14 09:39:02	20.905	100	NQNX	0	157056		
1311141266390098489	2013-11-14 09:39:02.700	20.90	10900	NQEX	20.91	14500	NQEX	2013-11-14 09:39:02	20.905	100	EDGX	0	157088		



TRO Rating System

A proprietary measurement system identifying 25 ms time periods during which Regular Trades Reported Outside of NBBO (TRO). High level TRO Reports and rating tables present statistics used for analyzing, prioritizing and comparing Symbols.



TRO RATINGS
2008 - 2012

TRO Rating	TRO Report	Submission Format
2008 – 2012 20,672 US Equities By SIC, NAICS, NV, Ranking	BATStream Statistics Comparative Ranking TRO Statistics	MS Excel™ XLDB Application Encrypted Database Comprehensive Reports with Evidentiary BATStream Data

SECURREX

30 Most Traded Through Equities

RANK	SYMBOL	NAME	VOLUME	TRO RATE	INVESTOR HARM
1	C	CITIGROUP INC	367,661,004,171	17%	\$1,437,554,526.31
2	BAC	BANK of AMERICA CORP	254,660,556,536	18%	\$1,054,294,704.06
3	SPY	STANDARD & POORS DEPOSITARY	192,864,558,928	13%	\$576,665,031.19
4	GE	GENERAL ELECTRIC CO	95,426,368,341	19%	\$417,013,229.65
5	F	FORD MOTOR CO	89,801,535,036	15%	\$309,815,295.87
6	MSFT	MICROSOFT CORP	80,444,721,804	15%	\$277,534,290.22
7	WFC	WELLS FARGO & CO	63,748,369,745	17%	\$249,256,125.70
8	INTC	INTEL CORP	77,403,294,423	14%	\$249,238,608.04
9	CSCO	CISCO SYSTEMS INC	71,174,840,980	14%	\$229,182,987.96
10	JPM	JP MORGAN CHASE & CO	56,897,069,560	16%	\$209,381,215.98
11	S	SPRINT NEXTEL CORP	64,923,063,430	14%	\$209,052,264.24
12	XLF	SPDR FINANCIAL SECTOR ETF	109,006,589,653	8%	\$200,572,124.96
13	PFE	PFIZER INC	61,545,823,780	12%	\$169,866,473.63
14	SIRI	SIRIUS XM RADIO INC COMMON	79,739,321,018	8%	\$146,720,350.67
15	EEM	IShares MSCI EMERGING MK INC	79,504,317,954	8%	\$146,287,945.04
16	IWM	IShares TRUST RUSSELL 2000	84,090,959,256	7%	\$135,386,444.40
17	T	AT&T INC	36,542,200,957	14%	\$117,665,887.08
18	ORCL	ORACLE CORP	41,706,758,265	12%	\$115,110,652.81
19	AIG	AMERICAN INTL GROUP INC	41,186,892,313	10%	\$94,729,852.32
20	MS	MORGAN STANLEY	31,230,041,416	13%	\$93,377,823.83
21	DELL	DELL INC	32,052,501,858	12%	\$88,464,905.13
22	XOM	EXXONMOBIL	32,011,109,517	12%	\$88,350,662.27
23	YHOO	YAHOO! INC	31,789,253,504	12%	\$87,738,339.67
24	EMC	EMC CORP	31,496,431,477	12%	\$86,930,150.88
25	SDS	PROSHARES ULTRSHT S&P 500	34,123,106,771	11%	\$86,331,460.13
26	AA	ALCOA INC	34,073,267,009	10%	\$78,368,514.12
27	MU	MICRON TECH INC	25,397,134,171	13%	\$75,937,431.17
28	AMD	ADVANCED MICRO DEVICES	29,181,463,307	11%	\$73,829,102.17
29	FAS	DIREXION SHARE FINANCE BULL 3X	49,629,591,970	6%	\$68,488,836.92
30	RF	REGIONS FINANCIAL CORP	29,050,598,307	9%	\$60,134,738.50
Total					\$7,233,279,974.93

BATStreams 2008 - 2012	
Symbol By Session	11,725,452
Symbol By Month	582,443
Trading Sessions	1,259
US Listed Equities	
Symbols	20,672
Listing Exchanges	6
Trading Centers	15
BATStream Stats	
Messages	752,749,581,872
NBBO Ask Changes	25,048,641,047
NBBO Bid Changes	24,942,235,267
NMS Trade Reports	38,348,537,116
Volume	10,604,064,351,457
Notational Value	\$ 306,952,561,820,805
Market Averages	
Share Price	\$ 28.95
Trade Size	277
Trade Price	\$ 8,004.28
TRO Examination Periods	
25ms Trade Exams	27,989,669,492
Exams with TRO	376,143,896
TRO / SESSION	298,764
TRO Losses	\$ 16,030,256,422.34
TRO Losses per Day	\$ 12,732,530.92

SPY@PACF	
LN-13	
TRO RANKING	
	17
	12 out of 1801
	12 out of 2268
	Active
HISTORIAN	
	\$349,200
MONTHLY	
	\$7,500

STANDARD & POORS DEPOSITORY	
Record ID	1
Listing Exchange	PACF
Active Sessions	970
Symbol	SPY
CUSIP Code	78462F103
SIC Code	6726
NAICS Code	525990
2009-02-25	2012-12-31
Messages	5,537,444,481
NBBO Ask Changes	15,883,827
NBBO Bid Changes	15,861,415
NMS Trade Reports	459,079,205
Volume	192,864,558,928
Notational Value	\$ 22,381,265,815,559
Instrument Averages	
Share Price	\$ 116.05
Trade Size	420
Trade Price	\$ 48,752.51
TRO Rating	LN
25ms Trade Exams	15,068,680
Exams with TRO	1,887,114
TRO / SESSION	1,946
TRO Rate	13%
TRO Losses	\$ 576,665,031.19

TRO	
Trades Reported Outside of NBBO	

1st Letter - Exams with TRO per Session	
TRO / SESSION	SYMBOLS
0	2677
1	10393
2	2065
4	1457
8	1173
16	939
32	729
64	578
128	346
256	193
512	78
1024	29
2048	10
4096	4
8192	1
16384	0

RATING LETTER	
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	
O	
P	

2nd Letter - Volume of Exams with TRO	
TRO BARS	SYMBOLS
0	2677
1	2428
5	1329
10	2926
50	1138
100	2745
500	1045
1000	2359
5000	876
10000	1764
50000	542
100000	706
500000	99
1000000	37
5000000	1
10000000	0

Symbol TRO Rate 13%	
RATE	SYMBOLS
0%	2677
1%	13870
2%	2194
3%	790
4%	401
5% +	740

TRO Ranking in Listed Exchange: # 3			
EXCHANGE	ID	SYMBOLS	TRO
NYSE	3	4773	239,952,605
AMEX	4	1990	17,087,845
PACF	7	2024	37,706,947
NQNM	12	3750	79,946,266
NQSC	13	1240	1,302,112
NQBB	14	6895	148,121

TRO Rating Report

STANDARD & POORS DEPOSITARY	
Record ID	1
Listing Exchange	PACF
Active Sessions	970
Symbol	SPY
CUSIP Code	78462F103
SIC Code	6726
NAICS Code	525990
2009-02-25	2012-12-31
Messages	5,537,444,481
NBBO Ask Changes	15,883,827
NBBO Bid Changes	15,861,415
NMS Trade Reports	459,079,205
Volume	192,864,558,928
Notational Value	\$ 22,381,265,815,559
Instrument Averages	
Share Price	\$ 116.05
Trade Size	420
Trade Price	\$ 48,752.51
TRO Rating	LN
25ms Trade Exams	15,068,680
Exams with TRO	1,887,114
TRO / SESSION	1,946
TRO Rate	13%
TRO Losses	\$ 576,665,031.19

National Market System

National Best Bid Offer (NBBO) quotes and NMS Trade Reports.

Equity Symbol Identifier

Street Name, Listing Exchange, Trading Symbol, CUSIP, SIC and NAICS codes

Trade Examinations

Examined in 25ms intervals identifying exam periods with Trades reporting outside NBBO.

Investor TRO Loss

Trade-Through losses based on SEC estimate of 2.3 cents per share at TRO rate.

TRO RATING

1st Letter - Exams with TRO per Session
2nd Letter - Volume of Exams with TRO
Number - TRO Rate % of Exams with TRO

SPY@PACF

LN-13

TRO RANKING

17

12 out of 1801

12 out of 2268

Active

HISTORIAN

\$349,200

MONTHLY

\$7,500

TRO Ranking

All Symbols
SIC Code
NAICS Class

Market Historian Service

Historic Archive License
Monthly Subscription

TRO Rate

Symbol TRO Rate	13%
RATE	SYMBOLS
0%	2677
1%	13870
2%	2194
3%	790
4%	401
5% +	740

Exchange TRO Ranking

TRO Ranking in Listed Exchange:				# 3
EXCHANGE	ID	SYMBOLS	TRO	
NYSE	3	4773	239,952,605	
AMEX	4	1990	17,087,845	
PACF	7	2024	37,706,947	
NQNM	12	3750	79,946,266	
NQSC	13	1240	1,302,112	
NQBB	14	6895	148,121	



US Equity Markets

US Equite Markets
 20,672 Instruments listing on 6 Equity Exchanges and trading in 15 market centers.

National Best Bid Offer
 50 Billion NBBO Top of the Order Book Quote Price Changes. Every Bid, Ask and Trade message from the NMS in sequence and time stamped with 25ms precision.

Trade Examinations
 28 Billion Examinations in 25ms periods identified 376,143,896 exams with Trade Throughs.

BATStreams 2008 - 2012	
Symbol By Session	11,725,452
Symbol By Month	582,443
Trading Sessions	1,259
US Listed Equities	
Symbols	20,672
Listing Exchanges	6
Trading Centers	15
BATStream Stats	
Messages	752,749,581,872
NBBO Ask Changes	25,048,641,047
NBBO Bid Changes	24,942,235,267
NMS Trade Reports	38,348,537,116
Volume	10,604,064,351,457
Notational Value	\$ 306,952,561,820,805
Market Averages	
Share Price	\$ 28.95
Trade Size	277
Trade Price	\$ 8,004.28
TRO Examination Periods	
25ms Trade Exams	27,989,669,492
Exams with TRO	376,143,896
TRO / SESSION	298,764
TRO Losses	\$ 16,030,236,422.34
TRO Losses per Day	\$ 12,732,530.92

Historic Market Data
 11,725,452 Bid-Ask-Trade Symbol Streams covering 1,259 Sessions consolidated into 582,443 Monthly Symbol BATStream Databases.

National Market System
 \$300+ Trillion traded in 38+ Billion transactions of 10+ Trillion shares from 2008 through 2012.

Investor TRO Losses
 \$16 Billion in Trade Through losses based on SEC estimate of 2.3 cents per share.



1st Letter - Exams with TRO per Session	
TRO / SESSION	SYMBOLS
0	2677
1	10393
2	2065
4	1457
8	1173
16	939
32	729
64	578
128	346
256	193
512	78
1024	29
2048	10
4096	4
8192	1
16384	0

RATING LETTER	
A	
B	
C	
D	
E	
F	
G	
H	
I	
J	
K	
L	
M	
N	
O	
P	

2nd Letter - Volume of Exams with TRO	
TRO BARS	SYMBOLS
0	2677
1	2428
5	1329
10	2926
50	1138
100	2745
500	1045
1000	2359
5000	876
10000	1764
50000	542
100000	706
500000	99
1000000	37
5000000	1
10000000	0

Trade-Through Violations

Trades reporting outside of the *National Best Bid and Offers (NBBO)* as determined by the *National Market System (NMS)* were examined for Trade-Through Violations.



Trade-Through - Exempt	Trade-Through - Non Exempt	Trade-Through Violations
(TRADEPRICE<BESTBID or TRADEPRICE>BESTASK) And TRADE CODED EXEMPT	(TRADEPRICE<BESTBID or TRADEPRICE>BESTASK) And TRADE CODED NON-EXEMPT	Flicker Violations: Trades Reported Outside NBBO Examination Range of 1 Second.

Trade-Through Violations are alleged to violate § 242.611 Order protection rule of Regulation NMS and Failure to Comply with Requirements for Best Execution FINRA Rule 2010 and NASD Rule 2320.

METHODOLOGY

1. TRADES REPORTED OUTSIDE (TRO) OF THEIR INSTANT NBBO QUOTE (TRADEPRICE<NMSBESTBID OR TRADEPRICE>NMSBESTASK) WERE COLLECTED AND DIVIDED INTO EXEMPT AND NON-EXEMPT CODED TRADES.
2. NON-EXEMPT TRO TRADES WERE ANALYZED USING AN NBBO EXAMINATION RANGE (LOWEST BEST BID AND HIGHEST BEST ASK) OF A MINIMUM OF 1 SECOND PRECEDING THE TRADE TIME STAMP (IN SECONDS) UP TO THE TRADE MESSAGE SEQUENCE ID.
3. BECAUSE EXCHANGE TRADE TIME IS REPORTED IN SECONDS AND NOT MILLISECONDS THE MINIMUM EXAMINATION PERIOD RANGES FROM 1025 MS TO 1975 MS.
4. TRADES REPORTING OUTSIDE OF THE NBBO EXAMINATION RANGE ARE MARKED AS TRADE THROUGH VIOLATIONS AND FURTHER PROCESSED TO DETERMINE THE SIDE OF THE MARKET THAT WAS BREACHED, INVESTOR LOSS AND THE NBBO QUOTE STATUS AT THE INSTANT OF THE TRADE THROUGH.
5. TRADE THROUGH VIOLATION RECORDS AND REPORTS ARE SUBMITTED WITH THE NBBO EXAMINATION RANGE MESSAGE STREAM AS EVIDENCE.

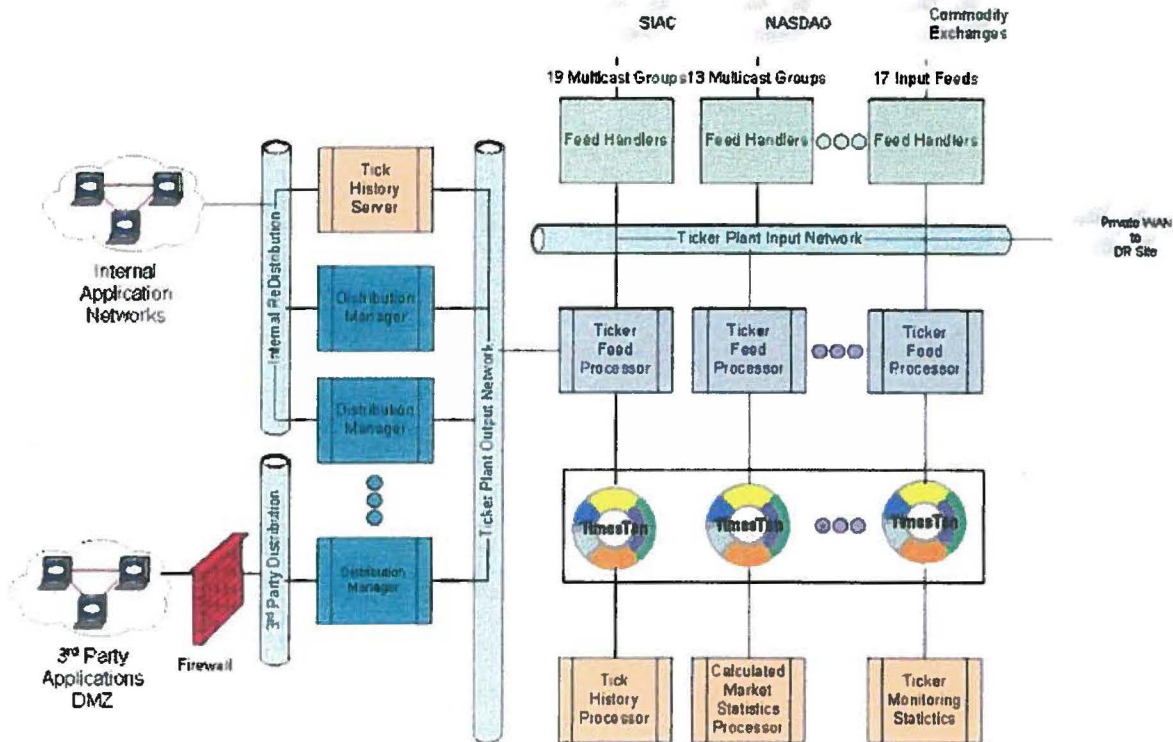
THE NMS TRADE SEQUENCE IDENTIFIER IS PROVIDED FOR BLUE SHEETING RECORDS IN ORDER TO IDENTIFY THE PARTIES INVOLVED IN THE TRADE.



Appendix

Market Data

All message streams are aggregated, recorded and time stamped with 25 ms precision in the exact order received. Meinberg NTP Time Server monitors are utilized to synchronize machine time every minute.



NMS messages are processed into consolidated Bid-Ask-Trade data streams (BATStreams) stored in standalone integer optimized XLDB database files. BATStreams contains every Bid price change, Ask price change and Trade report in message sequence order and time stamped with 25 ms precision.

BATStreams are served by a proprietary cluster of GPU optimized SQL appliances. The Data repository currently consists of approximately 160TB of BATStream Data and various derived special purpose data structures. The Data repository is accessed by Quants via HyperV and VMWARE virtualization and through specially compiled and secured MS Excel™ XLDB Applications.

BATStreams

Proprietary synchronized and consolidated data structure of trade reports and quote price changes.

Type	Field	Description	Example
Control	VID	Unique Record Identifier:	201212316321341754312
	MID	Message Identifier for each message received by Symbol.	201212316321341754312
	QID	Quote Identifier - NBBO Top of the Book Price Change	201212316321341754312
	TID	Trade Identifier - Trades Reported	201212316321341754312
	SID	Session Message Identifier	201212316321341754312
	EXCH	Listing Exchange Identifier Code	99
	SYMBOL	Trading Symbol with asset class prefix	EXAMPLE
	TIMESTAMP	MilliePOCH Time Stamp (ms since 1970-01-01)	1356968415300
NBBO BID	BESTBIDPRICE	NBBO Best BID Price * 1000000	990000
	BIDSIZE	BID Size at instant of BID Price Change (x 100 for equities)	25
	BIDEXCH	Best Bid Exchange Identifier Code	1
	BIDCODE	Best Bid Quote Condition Code	1
	BIDZERO	Zeroed out Bid Quotes	0
NBBO ASK	BESTASKPRICE	NBBO Best ASK Price * 1000000	10100000
	ASKSIZE	ASK Size at instant of ASK Price Change (x 100 for equities)	14
	ASKEXCH	Exchange Identifier Code for Best ASK	12
	ASKCODE	Quotation Code for Best ASK	1
	ASKZERO	Zeroed out Ask Quotes	0
TRADE	TRADETIME	Exchange Time Stamp of Trade Report (Seconds)	1356968415000
	TRADEPRICE	Traded Price * 1000000	10000000
	TRADESIZE	Traded Size	500
	TRADEEXCH	Exchange Identifier Code Reporting Trade	65
	TRADECODE	Trade Code	95
	TRADEMSID	Trade Report NMS Sequence Identifier	143267
	TRADECORRECT	Trade Correction	0
REGIONAL	REGQID	Regional Exchange Quote Identifier	12
	REGMID	Regional Exchange Message Identifier	201212316321341754312
For Each EXCH	REGBID	Regional Bid Price * 1000000	9800000
	REGBIDSIZE	Regional Bid Size (x 100 for equities)	100
	REGBIDCODE	Regional Bid Quote Condition	0
	REGBIDZERO	Regional Zeroed Out Bid Quotes	0
	REGASK	Regional Ask Price * 1000000	10200000
	REGASKSIZE	Regional Ask Size (x 100 for equities)	20
	REGASKCODE	Regional Ask Quote Condition	0
	REGASKZERO	Regional Zeroed Out Ask Quotes	0
MARKET	MMQID	Market Maker Quote Identifier	ABNA
	MMMID	Market Maker Message Identifier	201212316321341754312
For Each MM	MMBID	Market Maker Bid Price * 1000000	7000000
	MMBIDSIZE	Market Maker Bid Size (x 100 for equities)	100
	MMBIDCODE	Market Maker Bid Quote Condition	1
	MMBIDZERO	Market Maker Zeroed Out Bid Quotes	12
	MMASK	Market Maker Ask Price * 1000000	13000000
	MMASKSIZE	Market Maker Ask Size (x 100 for equities)	100
	MMASKCODE	Market Maker Ask Quote Condition	0
MMASKZERO	Market Maker Zeroed Out Ask Quotes	0	

Exchange Identifier

ID	SHORT	EXCHANGE	EBS
1	NQEX	Nasdaq Exchange	D
2	NQAD	Nasdaq Alternative Display Facility	D
3	NYSE	New York Stock Exchange	A
4	AMEX	American Stock Exchange	B
5	CBOE	Chicago Board Options Exchange	K
6	ISEX	International Securities Exchange	I
7	PACF	NYSE ARCA (Pacific)	E
8	CINC	National Stock Exchange (Cincinnati)	G
9	PHIL	Philadelphia Stock Exchange	D
10	OPRA	Options Pricing Reporting Authority	Z
11	BOST	Boston Stock/Options Exchange	U
12	NQNM	Nasdaq Global+Select Market (NMS)	D
13	NQSC	Nasdaq Capital Market (SmallCap)	D
14	NQBB	Nasdaq Bulletin Board	D
15	NQPK	Nasdaq OTC	D
16	NQAG	Nasdaq Aggregate Quote	D
17	CHIC	Chicago Stock Exchange	C
18	TSE	Toronto Stock Exchange	O
19	CDNX	Canadian Venture Exchange	Z
20	CME	Chicago Mercantile Exchange	Z
21	NYBT	New York Board of Trade	I
22	NYBA	New York Board of Trade Alternate	I
23	COMX	COMEX (division of NYMEX)	Z
24	CBOT	Chicago Board of Trade	Z
25	NYMX	New York Mercantile Exchange	Z
26	KCBT	Kansas City Board of Trade	Z
27	MGEX	Minneapolis Grain Exchange	Z
28	WCE	Winnipeg Commodity Exchange	I
29	ONEC	OneChicago Exchange	Z
30	DOWJ	Dow Jones Indices	Z
31	NNEX	Nanex	Z
32	SIMX	Singapore International Monetary Exch	Z
33	FTSE	London Stock Exchange	Z

ID	SHORT	EXCHANGE	EBS
34	EURX	Eurex	Z
35	ENXT	EuroNext	Z
36	DTN	Data Transmission Network	Z
37	LMT	London Metals Exchange Matched Trades	Z
38	LME	London Metals Exchange	Z
39	IPEX	Intercontinental Exchange (IPE)	I
40	MX	Montreal Stock Exchange	N
41	WSE	Winnipeg Stock Exchange	I
42	C2	CBOE C2 Option Exchange	K
43	MDAM	Mid-America Commodity Exchange	Z
44	CLRP	NYMEX Clearport	Z
45	BARK	Barclays	Z
46	TEN4	TenFore	Z
47	NOBX	OMXBX	F
48	HOTS	HotSpot Eurex US	Z
49	EUUS	Eurex US	Z
50	EUEU	Eurex EU	Z
51	ENCM	Euronext Commodities	Z
52	ENID	Euronext Index Derivatives	Z
53	ENIR	Euronext Interest Rates	Z
54	CFE	CBOE Futures Exchange	Z
55	PBOT	Philadelphia Board of Trade	D
56	HWTB	Hannover WTB Exchange	Z
57	NQNX	NSX Trade Reporting Facility	D
58	BTRF	BSE Trade Reporting Facility	Z
59	NTRF	NYSE Trade Reporting Facility	A
60	BATS	BATS Trading	H
61	NYLF	NYSE LIFFE metals contracts	A
62	PINK	Pink Sheets	S
63	BATY	BATS Trading	Y
64	EDGE	Direct Edge	P
65	EDGX	Direct Edge	V
66	RUSL	Russell Indexes	I

US Equities Exchanges

Exchange	API Specs	Market Structure	Fees	Rules	Rule Filings
NASDAQ	NASDAQ Specs	NASDAQ Order Types	NASDAQ Fees	NASDAQ Rules	NASDAQ Rule Filings
ARCA	ARCA Specs	ARCA Order Types	ARCA Fees	ARCA Rules	ARCA Rule Filings
NYSE	NYSE Specs	NYSE Order Types	NYSE Fees	NYSE Rules	NYSE Rule Filings
BATS (BZX)	BZX Specs	BATS User Manual	BZX Fees	BZX Rules	BZX Rule Filings
Direct Edge (EDGX)	EDGX Specs	EDGX Order Types	EDGX Fees	EDGX Rules	EDGX Rule Filings
Direct Edge (EDGA)	EDGA Specs	EDGA Order Types	EDGA Fees	EDGA Rules	EDGA Rule Filings
BATS (BYX)	BYX Specs	BATS User Manual	BYX Fees	BYX Rules	BYX Rule Filings
NASDAQ BX	NASDAQ BX Specs	NASDAQ BX Order Types	NASDAQ BX Fees	NASDAQ BX Rules	NASDAQ BX Rule Filings
NASDAQ PSX	NASDAQ PSX Specs	NASDAQ PSX Order Types	NASDAQ PSX Fees	NASDAQ PSX Rules	NASDAQ PSX Rule Filings
NSX	NSX Specs	NSX FAQ	NSX Fees	NSX Rules	NSX Rule Filings
NYSE AMEX	NYSE AMEX Specs	NYSE AMEX Fact Sheet	NYSE AMEX Fees	NYSE AMEX Rules	NYSE AMEX Rule Filings
CHX	CHX Specs	CHX Order Types	CHX Fees	CHX Rules	CHX Rule Filings
CBSX	CBSX Specs (login required)	CBSX Order Types	CBSX Fees	CBSX Rules	CBSX Rule Filings

US Options Exchanges

Exchange	API Specs	Market Structure	Fees	Rules	Rule Filings
PHLX	PHLX Specs	PHLX Contact Info	PHLX Pricing	PHLX Rules	PHLX Rule Filings
CBOE	CBOE Specs (login required)	CBOE Contact Form	CBOE Pricing	CBOE Rules	CBOE Rule Filings
ISE	ISE Specs (login required)	ISE Contact Form	ISE Pricing	ISE Rules	ISE Rule Filings
ARCA	ARCA Specs	ARCA Order Types	ARCA Pricing	ARCA Rules	ARCA Rule Filings
AMEX	AMEX Specs	AMEX Guide	AMEX Pricing	AMEX Rules	AMEX Rule Filings
NASDAQ	NASDAQ Specs	NASDAQ Order Types	NASDAQ Pricing	NASDAQ Rules	NASDAQ Rule Filings
BOX	BOX Specs (email for access)	BOX PIP	BOX Pricing	BOX Rules	BOX Rule Filings
BATS	BATS Specs	BATS Market Guide	BATS Pricing	BATS Rules	BATS Rule Filings
C2	C2 Specs (login required)	C2 Contact Form	C2 Pricing	C2 Rules	C2 Rule Filings

Quote Condition Codes

Code	Name	HALTED FIRM	Quote Condition	NYSE	NASDAQ
0	Regular	x	Regular Quote.	R	R
1	BidAskAutoExec	x	Bid and Ask eligible for Execution		
2	Rotation		Quote at the open of options trading indicating opening valuation.		
3	SpecialistAsk	x	Ask is from specialist (floor broker).		
4	SpecialistBid	x	Bid is from specialist (floor broker).		
5	Locked	x	Bid price from one market equals ask price from another market.		
6	FastMarket		Indicates very active trading and may not reflect current prices (late).	F	F
7	SpecialistBidAsk	x	Bid and Ask are from specialist		
8	OneSide	x	Only one side of quote is valid.		
9	OpeningQuote		Official opening quote of session.	O	O
10	ClosingQuote		Official closing quote of trading session.	C	C
11	MarketMakerClosed		Market Maker is closed.		L
12	DepthOnAsk	x	There is more size than shown in the ask size field.	A	A
13	DepthOnBid	x	There is more size than shown in the bid size field.	B	B
14	DepthOnBidAsk	x	There is more size than shown in the bid and ask size fields.	H	H
15	Tier3	x	Used in Canadian markets		
16	Crossed	x	Bid price from one market is higher than ask price on another market.		
17	Halted	x	General halt condition.		
18	OperationalHalt	x	Equipment problems.	X	X
19	NewsOut	x	News released.	D	D
20	NewsPending	x	News anticipated.	P	P
21	NonFirm	x	General non-firm quote.	N	N
22	DueToRelated	x	Related security has been halted	S	S
23	Resume		Trading now resumed.	T	T
24	NoMarketMakers	x	No market makers making a quote.		
25	OrderImbalance	x	Offers exceed bids or visa-versa.	I	I
26	OrderInflux	x	Large number of orders pending	E	E
27	Indicated	x	Quote indicating opening range.	G	G
28	PreOpen		Quote indicating opening range before opening bell.		
29	InViewOfCommon	x	Preferred or class/series halted because of an unusual event occurring in common stock.	V	V
30	RelatedNewsPending	x	News pending release in a related security.	K	K

Code	Name	HALTED FIRM	Quote Condition	NYSE	NASDAQ
31	RelatedNewsOut	x	News released in a related security.	J	J
32	Additional info	x	Pending receipt of additional information requested by exchange	M	M
33	RelatedAddlInfo	x	Related security halted from Additional Info condition.	Q	Q
34	NoOpenResume	x	Halted and not expected to resume trading.	Z	Z
35	Deleted	x	Deleted from exchange listing.		
36	RegulatoryHalt	x	Halted due to regulations.		
37	SECSuspension	x	Trading suspended by SEC.		
38	NonCompliance	x	Non-compliance with SEC regulations.		
39	FilingsNotCurrent	x	Not current in required filings		
40	CATS_Halted	x	CATS system halted (Toronto)		
41	CATS		CATS quoted stock (Toronto)		
42	ExDivOrSplit	x	Quote price ex-dividend or ex-split.		
43	Unassigned		Condition not assigned.		
44	InsideOpen		Inside Open		
45	InsideClosed		inside Closed		
46	OfferWanted		Request for Offer		
47	BidWanted		Request for Bid		
48	Cash	x	Quote represents cash price.		
49	Inactive	x	Inactive security.		
50	NationalBBO	x	A placeholder for quote condition		
51	Nominal	x	Nominal pricing – used when no trades have occurred to provide a price for settlement purposes.		
52	Cabinet	x	The lowest possible tradable price as determined by the Clearing System.		
53	NominalCabinet	x	Combination of nominal and cabinet conditions.		
54	BlankPrice	x	Blank or zero the bid and/or ask.		
55	SlowBidAsk		Bid and Offer are quoted outside the LRP or no trade at a LRP.	U	
56	SlowList	x	The security has been set slow and will only trade in a slow market ode.	W	
57	SlowBid		Bid is quoted outside the LRP or no trade at a LRP.	E	
58	SlowAsk		Offer is quoted outside the LRP or no trade at a LRP.	F	
59	BidOfferWanted				
60	Subpenny				
61	NonBBO				

Trade Condition Codes

		CANCEL	LATE	REPORT	AUTOEXEC	OPEN	VOLUME	HIGH	LOW	LAST	Trade Conditions				NYSE	NASD	OPRA	CAN
Code	Name	Properties									Comment	Exchange						
0	Regular					X	X	X	X	X	Regular Trade	@	@					
1	FormT					X					Form T. Before and After Regular Hours. Note: NYSE/AMEX previously used code 'T' for Burst Basket.	T	T	T				
2	OutOfSeq	X				X	X	X	*		Report was sent Out Of Sequence. Updates last if it becomes only trade (if the trade reports before it are canceled, for example).	Z	Z	B				
3	AvgPrc					X					Average Price for a trade. NYSE/AMEX stocks. Nasdaq uses AvgPrc_Nasdaq— main difference is NYSE/AMEX does not conditionally set high/low/last.	W						
4	AvgPrc Nasdaq					X					Average Price. Nasdaq stocks. Similar to AvgPrc, but does not set high/low/last.		W					
5	OpenReportLate	X				X	X	X	*		NYSE/AMEX. Market opened Late. Here is the report. It may not be in sequence. Nasdaq uses OpenReportOutOfSeq. *update last if only trade.	O						
6	OpenReportOutOfSeq	X				X	X	X			Report is out of sequence. Market was open, and now this report is just getting to us.		O	F				
7	OpenReportInSeq	X				X	X	X	X		Opening report. This is the first price.			H				
8	PriorReferencePrice	X				X	X	X	*		Trade references price established earlier. *Update last if this is the only trade report.		P					
9	NextDaySale					X					NYSE/AMEX: Next Day Clearing. Nasdaq: Delivery of Securities and payment one to four days later.	N	N					
10	Bunched					X	X	X	X		Aggregate of 2 or more Regular trades at same price within 60 seconds and each trade size not greater than 10,000.		B					
11	CashSale					X					Delivery of securities and payment on the same day.	C	C	C				
12	Seller					X					Stock can be delivered up to 60 days later as specified by the seller. After 1995, the number of days can be greater than 60. Note: delivery of 3 days would be considered a regular trade.	R	R					
13	SoldLast	X				X	X	X	*		Late Reporting. *Sets Consolidated Last if no other qualifying Last, or same Exchange set previous Trade, or Exchange is Listed Exchange.	L						
14	Rule127					X	X	X	X		NYSE only. Rule 127 basically denotes the trade was executed as a block trade.	J						
15	BunchedSold	X				X	X	X	*		Several trades were bunched into one trade report, and the report is late. *Update last if this is first trade.		G					
16	NonBoardLot					X					Size of trade is less than a board lot (odd lot). A board lot is usually 100 shares. Note this is Canadian markets.					E		
17	POSIT					X	X	X			POSIT Canada is an electronic order matching system that prices trades at the mid-point of the bid and ask in the continuous market.					P		
18	AutoExecution		X			X	X	X	X		Transaction executed electronically. Solely for information. Only found in OPRA — options trades, and quite common.					I		
19	Halt										Temporary halt in trading in a particular security for one or more participants.							
20	Delayed					X					Indicates a delayed opening						?	
21	Reopen					X	X	X	X		Reopening of a contract that was previously halted.	X		J				
22	Acquisition					X	X	X	X		Transaction on exchange as a result of an Exchange Acquisition		A					
23	CashMarket					X	X	X	X		Cash only Market. All trade reports for this session will be settled in cash.	A					?	

		CANCEL	LATE	OPEN	VOLUME	HIGH	LOW	LAST	Trade Conditions	NYSE	NASD	OPRA	CAN
Code	Name	Properties						Comment	Exchange				
									Note: differs from Cash Sale in that the trade marked as Cash Sale is an exception -- that is, most trades are settled using regular conditions.				
24	NextDayMarket				X	X	X	X	Next Day Only Market. All trades reports for this session will be settled the next day. Note: differs from NextDay in that the trade marked as NextDay is an exception -- that is, most trades are settled using regular conditions.	D			
25	BurstBasket				X	X	X	X	Specialist bought or sold this stock as part of an execution of a specific basket of stocks.	F			
26	OpenDetail	X							This trade is one of several trades that made up the open report trade. Often the open report has a large size which was made up of orders placed overnight. After trading has commenced, the individual trades of the open report trade are sent with this condition. Note it doesn't update volume, high, low, or last because it's already been accounted for in the open report.	G			
27	IntraDetail	X							This trade is one of several trades that made up a previous trade. Similar to OpenDetail but refers to a trade report that was not the opening trade report.	H			
28	BasketOnClose	X			X				A trade consisting of a paired basket order to be executed based on the closing value of an index. These trades are reported after the close when the index closing value is known.	I			
29	Rule 155				X	X	X	X	AMEX only rule 155. Sale of block at one "clean-up" price.	K			
30	Distribution				X	X	X	X	Sale of a large block of stock in a way that price is not adversely affected.	D			
31	Split				X	X	X	X	Execution in 2 markets when the specialist or MM in the market first receiving the order agrees to execute a portion of it at whatever price is realized in another market to which the balance of the order is forwarded for execution.	S			
32	Reserved				X	X	X	*	Does not set Consolidated Last. *Sets Exchange Last if this is the only trade.	S			
33	CustomBasketCross					X			One of two types: 2 paired but separate orders in which a market maker or member facilitates both sides of a remaining portion of a basket. A split basket plus an entire basket where the market maker or member facilitates the remaining shares of the split basket.	t			
34	AdjTerms				X	X	X	X	Terms have been adjusted to reflect stock split/dividend or similar event.			K	
35	Spread				X	X	X	X	Spread between 2 options in the same options class.			L	
36	Straddle				X	X	X	X	Straddle between 2 options in the same options class.			M	
37	BuyWrite				X	X	X	X	This is the option part of a covered call.			P	
38	Combo				X	X	X	X	A buy and a sell in 2 or more options in the same class.			Q	
39	STPD				X	X	X	X	Traded at price agreed upon by the floor following a non-stopped trade of the same series at the same price.			N	
40	CANC	X							Cancel a previously reported trade -- it will not be the first or last trade record. Note: if the most recent report is Out of seq, SoldLast, or a type that does not qualify to set the last, that report can be considered in processing the cancel.			A	
41	CANCLAST	X							Cancel the most recent trade report that is qualified to set the last.			C	
42	CANCOPEN	X							Cancel the opening trade report.			E	
43	CANONLY	X							Cancel the only trade report. There is only one trade report, cancel it.			G	
44	CANCSTPD	X							Cancel the trade report that has the condition STPD.			O	

		CANCEL	INTERPT	AUTOEXEC	OPENREPT	VOLUME	HIGH	LOW	LAST	Trade Conditions				NYSE	NASD	OPRA	CAN			
Code	Name	Properties							Comment							Exchange				
45	MatchCross					X	X	X	X											
46	FastMarket					X	X	X	X	Term used to define unusually hectic market conditions.										
47	Nominal					X	X	X	X	Nominal price. A calculated price primarily generated to represent the fair market value of an inactive instrument for the purpose of determining margin requirements and evaluating position risk. Common in futures and futures options.										
48	Cabinet			X						A trade in a deep out-of-the-money option priced at one-half the tick value. Used by options traders to liquidate positions.										
49	BlankPrice									Sent by an exchange to blank out the associated price (bid, ask or trade).										
50	NotSpecified									An unspecified (generalized) condition.										?
51	MCOfficialClose									The "Official" closing value as determined by a Market Center.								?		
52	SpecialTerms					X	X	X	X	Indicates that all trades executed will be settled in other than the regular manner.								?		
53	ContingentOrder					X	X	X	X	The result of an order placed by a Participating Organization on behalf of a client for one security and contingent on the execution of a second order placed by the same client for an offsetting volume of a related security.										
54	InternalCross					X	X	X	X	A cross between two client accounts of a Participating Organization which are managed by a single firm acting as portfolio manager with discretionary authority to manage the investment portfolio granted by each of the clients.										
55	StoppedRegular					X	X	X	X	Stopped Stock – Regular Trade.									1	
56	StoppedSoldLast					X	X	X		Stopped Stock – SoldLast Trade									2	
57	StoppedOutOfSeq	X				X	X			Stopped Stock – Out of Sequence.									3	
58	Basis					X	X	X	X	A transaction involving a basket of securities or an index participation unit that is transacted at prices achieved through the execution of related exchange-traded derivative instruments, which may include index futures, index options and index participation units in an amount that will correspond to an equivalent market exposure.										
59	VWAP					X				Volume Weighted Average Price. A transaction for the purpose of executing trades at a volume-weighted average price of the security traded for a continuous period on or during a trading day on the exchange.										
60	SpecialSession					X				Occurs when an order is placed by a purchase order on behalf of a client for execution in the Special Trading Session at the last sale price.										
61	Admin									Used to make volume and price corrections to match official exchange values.										
62	OpenReport					X	X	X		Indicates an opening trade report.										
63	MarketOnClose					X	X	X	X	The "Official" opening value as determined by a Market Center.										
64	Not Defined									Undefined, not used.										
65	OutOfSeqPreMkt	X				X				An out of sequence trade that executed in pre or post market – a combination of FormT and OutOfSeq.									U	
66	MCOfficialOpen									The "Official" opening value as determined by a Market Center.										
67	FuturesSpread					X	X	X	X	Execution was part of a spread with another futures contract.										
68	OpenRange					X	X			Two trade prices are used to indicate an opening range representing the high and low prices during the first 30 seconds or so of trading.										
69	CloseRange					X	X			Two trade prices are used to indicate an opening range representing the high and low										

		CANCEL	LATE	REJECT	AUTOEXEC	OPEN	VOLUME	HIGH	LOW	LAST	Trade Conditions				NYSE	NASD	OPRA	CAN
Code	Name	Properties									Comment	Exchange						
											prices during the last 30 seconds or so of trading.							
70	NominalCabinet										Nominal Cabinet							
71	ChangingTrans					X	X	X	X		Changing Transaction							
72	ChangingTransCab										Changing Cabinet Transaction							
73	NominalUpdate										Nominal price update							
74	PitSettlement										Sent with a "pit session" settlement price to the electronic session, for the purpose of computing net change from the next day electronic session and the prior session settlement price.							
75	BlockTrade					X	X	X	X		An executed trade of a large number of shares, typically 10,000 shares or more.							
76	ExgForPhysical					X	X	X	X		Exchange Future for Physical							
77	VolumeAdjustment					X					An adjustment made to the cumulative trading volume for a trading session.							
78	VolatilityTrade					X	X	X	X		Volatility trade							
79	YellowFlag					X	X	X	X		Appears when reporting exchange may be experiencing technical difficulties.					Y		
80	FloorPrice					X	X	X	X		Distinguishes a floor Bid/Ask from a member Bid Ask on LME							
81	OfficialPrice					X	X	X	X		Official bid/ask price used by LME.							
82	UnofficialPrice					X	X	X	X		Unofficial bid/ask price used by LME.							
83	MidBidAskPrice					X	X	X	X		A price halfway between the bid and ask on LME.							
84	EndSessionHigh						X				End of Session High Price.							
85	EndSessionLow							X			End of Session Low Price.							
86	Backwardation					X	X	X	X		A condition where the immediate delivery price is higher than the future delivery price. Opposite of Contango.							
87	Contango					X	X	X	X		A condition where the future delivery price is higher than the immediate delivery price. Opposite of Backwardation.							
88	Holiday					X	X	X	X		In Development							
89	PreOpening					X					The period of time prior to the market opening time (7:00 A.M. - 9:30 A.M.) during which orders are entered into the market for the Opening.							
90	PostFull																	
91	PostRestricted																	
92	ClosingAuction																	
93	Batch																	
94	Trading																	
95	IntermarketSweep					X	X	X	X		A trade resulting from an Intermarket Sweep Order Execution due to a better price found on another market.			F				
96	Derivative					X	X	X	*		Derivatively priced.			4	4			
97	Reopening					X	X	X	X		Market center re-opening prints.			5	5			
98	Closing					X	X	X	*		Market center closing prints.			6	6			

FILED
COURT SERVICES
2011 AUG 11 PM 3:57
JOHN T. FREY
CLERK, CIRCUIT COURT
FAIRFAX, VA

VIRGINIA:

IN THE CIRCUIT COURT FOR THE COUNTY OF FAIRFAX

COMMONWEALTH OF VIRGINIA, *et al.*)
ex rel. FX ANALYTICS,)
)
 Plaintiffs/Relator,)
)
 v.)
)
 THE BANK OF NEW YORK MELLON)
 CORPORATION,)
)
 Defendant.)

Civil Case No.: CL-2009-15377

COMPLAINT IN INTERVENTION

Plaintiff, the Commonwealth of Virginia (the “Commonwealth”), on its own behalf and on behalf of the Virginia Retirement System (“VRS”), the Fairfax County Employees’ Retirement System, the Fairfax County Police Officers Retirement System, the Fairfax County Uniformed Retirement System (collectively, the “Fairfax County Funds”), the Educational Employees’ Supplemental Retirement System of Fairfax County (“ERFC”), and the Arlington County Employees’ Retirement System (“ACERS”),¹ by and through the Attorney General of the Commonwealth of Virginia (the “Attorney General”) and its designated undersigned counsel, against Defendant Bank of New York Mellon Corporation (“BNYM,” the “Bank,” or “Defendant”),² hereby allege the following as their Complaint-in-Intervention pursuant to Va. Code Ann. § 8.01-216.1 *et. seq.*

¹ The Virginia Fraud Against Taxpayers Act defines the “Commonwealth” as the Commonwealth of Virginia, any agency of state government, and any political subdivision of the Commonwealth. Va. Code Ann. § 8.01-216.2. VRS, the Fairfax County Funds, ERFC, and ACERS are referred to collectively herein as the “Virginia Funds” or the “Funds.”

² All references to BNYM include BNYM’s predecessors and subsidiaries including, but not limited to, Bank of New York (“BNY”) and Mellon Bank, N.A. (“Mellon”).

I. STATEMENT OF THE CASE

1. This Complaint-in-Intervention alleges the facts concerning BNYM's scheme to charge undisclosed markups on foreign currency exchange ("FX") trades to its custodial banking clients, including the Virginia Funds.

2. Public pension funds such as the Virginia Funds regularly buy and sell securities of non-U.S. companies as part of their overall investment strategies.³ Public pension funds, including the Virginia Funds, need to engage in FX trading because the purchases, sales, dividends, and interest payments on non-U.S. securities are transacted in the national currency of the exchanges on which the securities trade.

3. These public pension funds also commonly retain custodian banks, such as BNYM, to hold and safeguard their assets, to execute and settle securities transactions on the funds' behalf, to generate periodic reports to the funds regarding holdings and transactions, and to perform other services such as conducting FX trading on the funds' behalf.

4. BNYM, as custodian bank for the Virginia Funds knowingly and systematically earned hundreds of millions of dollars by falsely presenting to those clients reported exchange rates for certain "standing-instruction" FX transfers of foreign currencies conducted internally between BNYM's own FX trading desks and its transaction desks.

5. The FX rates that BNYM reported to the Virginia Funds for such "standing-instruction" transfers bore no relation to (i) the rate BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the

³ Public pension funds, including the Virginia Funds, may opt to conduct their investments in whole or in part through outside agents known as investment managers ("Outside IMs"). Such pension funds, and, in this case in particular, VRS, sometimes have their own employees act as internal investment managers ("Internal IMs"). As used in this Complaint-in-Intervention, the Virginia Funds' investments and FX transactions may have been conducted by the Virginia Funds directly or through their Outside or Internal IMs, acting on the funds' behalf. For clarity, and unless the context requires distinction, all references to Outside or Internal IMs will be to "IMs."

time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts. In reality, BNYM assigned to the Virginia Funds, at *the end* of the trading day, self-selected FX rates at the very extremes of the range of FX trades for that day.⁴

6. In addition to pricing FX at the extremes of the range of the day, BNYM's scheme also involved a procedure to ensure that the Virginia Funds would not discover that the Bank assigned fictitious FX rates to them at the end of the day. Specifically, BNYM's internal policy was to assign those false FX prices so that they fell within an artificial range of FX prices that the Bank established each day before 9:00 a.m. BNYM offered this artificial, pre-determined range only to the Virginia Funds' Outside IMs, but not the Funds themselves. The Virginia Funds were unaware that their Outside IMs received this pre-determined range, and were therefore entirely unaware of its existence.

7. Moreover, because BNYM established this artificial range of FX prices shortly after the outset of the trading day, neither the Bank nor the IMs could know what the FX rates for the day would be, nor what any particular custodial client's standing-instruction FX trading requirements for that day might be. Unsurprisingly, BNYM set the range in such a way that it, absent highly unusual circumstances, would be much broader than the eventual, actual range of the day. This virtually assured BNYM that the FX rates it assigned to its custodial clients at the extremes of the actual range of the day would nonetheless fit within the artificial, pre-determined range.

8. By assigning these false FX rates, BNYM earned unwarranted income at the Commonwealth's expense. BNYM simply charged those clients more for FX purchases, and credited them less for FX sales, than (i) BNYM paid or received for the foreign currency, (ii) the

⁴ "Range of the day," discussed in greater detail below, is a recognized industry term describing the difference between the high rate and low rate for the exchange of a given currency pair during the course of the FX trading day.

FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts.

9. In order to hide its self-serving acts, BNYM presented to its custodial clients, including the Virginia Funds, false records, reports, and statements. These reflected falsified FX rates that BNYM assigned to the Virginia Funds at the extremes of the range of the day. Notwithstanding the fictitious nature of the assigned FX rates, BNYM reported to the Virginia Funds that those rates instead represented "Local Base Price," "Local Base Cost," "Local Base Amount," "Book Value Base," "Base Market Value," "Settle Price," "Rate," "Base Cost," "Currency Cost in Base," "Base Exchange Rate," "Cost of Base Currency," or "Cost of Local Currency."

10. These terms presented to the Commonwealth as the prices for each standing-instruction FX trade performed by BNYM were false because of the material information they did not convey. Indeed, those terms did not mean, and could not have meant, that BNYM had assigned prices to FX transactions (i) at the extremes of the actual range of the day, and (ii) within an artificial, pre-determined range of FX prices, of which the Virginia Funds were unaware.

11. Rather, those terms gave recipients the impression that the FX prices presented for standing-instruction trades were reasonably related to either (i) the price BNYM paid or received for the particular foreign currency, (ii) the FX rate at the time a standing-instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts.

12. These deceptive practices reflected a well thought-out scheme emanating from the highest reaches of BNYM's senior management. Internal BNYM communications reveal that high-ranking officers at the Bank were aware of and participated in the deception.

13. One e-mail, dated February 8, 2008, from Jorge Rodriguez, BNYM's Executive Vice President of Global Sales and a Managing Director at the Bank's New York City offices, explained to a number of other high-ranking New York-based BNYM executives, including Richard Mahoney, Executive Vice President of Global Markets, that the "pricing advantages" of BNYM's FX pricing scheme would "disappear" if the Bank's custodial clients achieved "full transparency."

14. Such "full transparency" would permit custodial banking clients to understand the difference between what BNYM reported and (i) what BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts.

15. Specifically, Mr. Rodriguez noted that if BNYM were required to provide "full transparency" in its reports to its custodial clients, their increased "ability to carefully monitor each and every trade at the time of execution" would "reduce[] margins dramatically."

16. BNYM's scheme guaranteed that its custodial clients, including the Virginia Funds, were unable to monitor any aspects of the Bank's practice of assigning false FX rates. In fact, the procedures under which BNYM stated that it would conduct these standing-instruction FX trades by assigning FX rates within a pre-determined range were instituted through undisclosed side "contracts" executed with the Virginia Funds' Outside IMs. Nothing, however, in BNYM's agreements with the Virginia Funds permitted it to enter into such "contracts."

17. These side “contracts” unilaterally changed the nature of the relationships between BNYM and the Virginia Funds. Despite the fact that none of the Virginia Funds’ agreements contained any language naming BNYM as a “principal” in standing-instruction FX trading, the side contracts that BNYM executed with the Outside IMs purported to create just such an undisclosed “principal” relationship between BNYM and the Virginia Funds in connection with standing-instruction FX trades.

18. As set forth in greater detail below, BNYM had a fiduciary relationship with the Fairfax County Funds, ERFC, and ACERS pursuant to the terms of their custodian contracts. With respect to VRS, BNYM had a contractual duty to act with “care, skill, prudence and diligence under the circumstances then prevailing that a prudent [custodian bank] and familiar with such matters would use in the conduct of an enterprise of like character and with like aims and responsibilities.” In VRS’ case, BNYM’s role as a prudent custodial bank included management of billions of dollars of taxpayer-funded cash and securities, and possession of highly confidential financial information.

19. Despite the very high standard of care imposed upon BNYM by its various contracts with the Virginia Funds, BNYM attempted to alter its duties to the Virginia Funds without disclosure of the terms, substance, or existence of these side agreements.

20. In standing-instruction trades, the custodian bank controls all aspects of the transaction on its clients’ behalf, including the time and price of thereof. Because, by definition, the client relinquishes all control over the transaction, the custodian bank is in a superior position to the client, and the client must rely on and trust its custodian bank to act in its best interests. In fact, the bank is in total control of (i) the timing and structure of the transaction that results in

what it pays for the FX, (ii) what the custodial client is charged, and (iii) the client funds that are used to pay the custodial bank.

21. Here, BNYM had actual custody of cash and securities belonging to the Virginia Funds and, with respect to the false FX charges at issue, it debited or credited the Virginia Funds' accounts, and then reported the transactions to the Virginia Funds after the false transactions were completed.

22. BNYM capitalized on its position of trust and reliance to carry out its deceptive scheme. The Bank's method was relatively simple:

(a) Throughout the course of the trading day, BNYM executed FX trades for its own account and/or the account of its spot traders on its own trading desks on the interbank market.

(b) When custodial clients, such as the Virginia Funds, required a standing-instruction FX trade, BNYM would not necessarily conduct a trade. Instead, BNYM would aggregate, on a currency-by-currency basis, the standing-instruction trades of all of its custodial clients.

(c) Subsequently, BNYM would arrange an internal currency transfer between its FX trading desk and its transaction group. An internal accounting entry, sometimes known as a "CMS Offset," would be recorded based upon the price of the currency at issue at the time of the internal currency transfer.

(d) BNYM presented to its custodial clients, including the Virginia Funds, a price that it assigned at the extremes of the actual range of the day. This assigned price was different from the price (i) actually paid or received for FX trades, (ii) of the currency at issue at the time of the internal currency transfer, and

(iii) at the time that the transaction group learned of a custodial client's FX trade requirement.

(e) Those false, assigned prices reported to custodial clients, including the Virginia Funds, were always to BNYM's exclusive benefit, at the expense of its custodial banking clients.

23. The spread between the false FX rates BNYM reported to the Virginia Funds and the price (i) actually paid or received for FX trades, (ii) of the currency at issue at the time of the internal currency transfer, or (iii) the price at the time that the transaction group learned of a custodial client's FX trade requirement, generated for BNYM greater amounts of income than it was entitled to pursuant to its negotiated agreements with the Virginia Funds. BNYM earned this excessive income entirely at the expense of the Virginia Funds.

24. Additionally, by (i) assigning and reporting a false FX rate that fell at the extremes of the range of the day, but (ii) choosing not to report the actual price at which it executed standing-instruction FX transactions, (iii) choosing not to report that it conducted an internal currency transfer, and (iv) failing to report the time of day that it executed any particular FX transaction, BNYM was able to hide its conduct from scrutiny by the Virginia Funds. Through this deception, BNYM was therefore able to present a false price to the Commonwealth for each of the more than 73,000 standing-instruction trades at issue in this case.

25. Further compounding the harm was BNYM's presentment of flat-rate fees to the Virginia Funds. The Bank made false representations that standing-instruction FX trades were either free of charge, or were included within the flat-rate custodial fees it charged to the Funds. In some instances (discussed in greater detail below), the contracts between BNYM and the

Virginia Funds went so far as to state expressly that there would be no charge for standing-instruction FX trading conducted through BNYM.

26. Moreover, BNYM used its company website to represent to all of its custodial banking clients, including the Virginia Funds, that standing-instruction FX trading was conducted “free of charge,” and the statements on its website confirm other non-written representations made by BNYM officials.

27. Accordingly, and because the assigned and reported false standing-instruction FX rates always appeared to be within the *actual* range of FX prices for the day (albeit at the extreme end), there was no way for the Virginia Funds to reasonably determine, or even suspect, that BNYM was secretly assigning and reporting more than what (i) BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM’s internal transfer of currency to or from its inventory to or from the Virginia Funds’ accounts.

28. Therefore, the Virginia Funds could not reasonably have discovered BNYM’s deceptive acts and practices concerning FX trading. BNYM executed hundreds, if not thousands, of FX trades on behalf of the Virginia Funds every month. The reports BNYM presented to the Virginia Funds did not distinguish between standing-instruction and negotiated trades and showed only the rates that BNYM charged for its FX trades. Moreover, the reports did not include any indication of the actual time of the day that the trade was executed (known as “time-stamps”).

29. Every time BNYM completed a deceptive standing-instruction FX transaction, presenting to the Commonwealth either a falsely inflated charge (for FX purchases), or a falsely deflated credit (for FX sales), it thereby submitted a false claim to the Commonwealth, in

violation of the Commonwealth's Fraud Against Taxpayers Act, Va. Code Ann. § 8.01-216.1 *et seq.* ("FATA").

II. PARTIES

A. Plaintiff Commonwealth of Virginia

30. The Commonwealth, pursuant to Va. Code Ann. § 8.01-216.2, brings this Complaint-in-Intervention on its own behalf and on behalf of those agencies of state government, political subdivisions, and divisions of political subdivisions, as more fully set forth herein.

B. Defendant Bank of New York Mellon Corp.

31. The Bank of New York Mellon Corporation is the parent corporation resulting from the July 1, 2007 merger of the Bank of New York Company, Inc. with Mellon Financial Corporation.⁵ BNYM's corporate headquarters is located at One Wall Street, New York, New York 10286. As of the second quarter of 2011, the BNYM maintained \$26.3 trillion under custody and administration, with \$1.2 trillion under management.

32. In 2010, BNYM's FX and other trading activity revenue totaled \$886 million. The totals for the same activities in the immediately preceding years were \$1.0 billion in 2009 and a record \$1.5 billion in 2008. For the years 2002 to 2010, BNYM and its predecessor entities have reported approximately \$7 billion in FX trading revenue. The great majority of these revenues came directly at the expense of public pension funds such as the Virginia Funds.

33. At all relevant times, BNYM transacted business in the Commonwealth of Virginia by, among other things, entering into contracts in the Commonwealth to serve custodial

⁵ By July 1, 2008, the Bank had consolidated and renamed its principal bank and trust company into two banks: The Bank of New York Mellon, and BNYM, National Association. These entities, along with many others, are primary subsidiaries of the parent corporation, The Bank of New York Corporation. BNYM assumed the liabilities of the corporations merged into it. N.Y. Banking Law § 602(2) (Consol.). As referred to herein, therefore, general references to BNYM include the merged corporation as well as its constituent, individual predecessor corporations and subsidiaries unless otherwise noted. Bank of New York and Mellon Bank merged to form BNYM. The effective date of the merger was July 1, 2007. References to "Mellon legacy" and "BNY legacy" herein refer to the specific post-merger operations of the individual subsidiaries of the new parent, BNYM.

banking clients, including the Virginia Funds, as custodian bank and by controlling property of the Commonwealth.

34. Prior to changing the substance of the message on its website following the filing of the California Action on October 20, 2009, BNYM represented to all of its custodial banking clients within the Commonwealth, including the Virginia Funds, that standing-instruction FX trades were conducted “free of charge.”

III. THE VIRGINIA FUNDS

A. Virginia Retirement System

35. VRS is a body corporate and political subdivision of the Commonwealth of Virginia, pursuant to Va. Code Ann. §§ 51.1-124.3 and -124.4, and is headquartered in Richmond, Virginia.

36. VRS administers a defined benefit plan, a group life insurance plan, a deferred compensation plan, and a cash match plan for the Commonwealth’s public sector employees, as well as an optional retirement plan for selected employees, and the Virginia Sickness and Disability Program for state employees.

37. VRS currently administers benefits and services for approximately 600,000 members, retirees and beneficiaries. As of March 31, 2011, VRS’s investment portfolio totaled \$54.3 billion, including approximately \$17 billion of which was invested in non-United States markets, or 31% of its total portfolio.

38. VRS has been a custodian banking client of BNYM, or its predecessor entities, pursuant to custodian banking agreements, since 1988.

B. The Fairfax County Funds

39. Fairfax County, Virginia is a political sub-division of the Commonwealth of Virginia.

1. The Fairfax County Employees' Retirement System

40. As authorized and required by state law, the governing body of Fairfax County, its Board of Supervisors, by ordinance, has established its Employees' Retirement System to provide retirement benefits for the classes of employees set forth in the ordinance. The Board of Supervisors, by ordinance, has created a Board of Trustees for the Fairfax County Employees' Retirement System and has vested in it the general administration and responsibility for the proper operation of the Fairfax County Employees' Retirement System and for making effective the provisions of the ordinance, including, but not limited to, the employment and paying out of the System's funds for all services, as shall be required, including, but not limited to custodial bank services, and the investment and re-investment of the funds of the Fairfax County Employees' Retirement System.

41. The Fairfax County Employees' Retirement System is a cost-sharing, multiple-employer, public employee retirement system providing defined benefit pension plan coverage to full-time and certain part-time Fairfax County and Fairfax County public schools' employees not covered by the Fairfax County Police Officers Retirement System, the Fairfax County Uniformed Retirement System, the ERFC or VRS.

42. Established in 1955, as of July 1, 2010, the System's membership consisted of 20,859 active and retiree members. As of June 30, 2010, the System had \$2.5 billion in net assets. As of June 30, 2010, the System had a total of \$243 million invested in securities denominated in foreign currencies, constituting 9.8% of the System's total investments.

2. The Fairfax County Police Officers Retirement System

43. As authorized and required by state law, the governing body of Fairfax County, its Board of Supervisors, by ordinance, has established its Police Officers Retirement System to provide retirement benefits for the classes of employees set forth in the ordinance. The Board of

Supervisors, by ordinance, has created a Board of Trustees for the Fairfax County Police Officers Retirement System and has vested in it the general administration and responsibility for the proper operation of the Fairfax County Police Officers Retirement System and for making effective the provisions of the ordinance, including, but not limited to, the employment and paying out of the System's funds for all services, as shall be required, including, but not limited to custodial bank services, and the investment and re-investment of the funds of the Fairfax County Police Officers Retirement System.

44. The Fairfax County Police Officers Retirement System was created under authority granted by Chapter 303 of the Acts of Assembly in 1944 to provide defined benefit pension plan coverage for sworn full-time law enforcement officers of the Fairfax County Police Department.

45. As of July 1, 2010, membership in the System consisted of 2,187 active and retiree members. As of June 30, 2010, the System held \$836 million in net assets, including \$64 million invested in securities denominated in foreign currencies, constituting 7.6% of the System's total investments.

3. The Fairfax County Uniformed Retirement System

46. As authorized and required by state law, the governing body of Fairfax County, its Board of Supervisors, by ordinance, has established its Uniformed Retirement System to provide retirement benefits for the classes of employees set forth in the ordinance. The Board of Supervisors, by ordinance, has created a Board of Trustees for the Fairfax County Uniformed Retirement System and has vested in it the general administration and responsibility for the proper operation of the Fairfax County Uniformed Retirement System and for making effective the provisions of the ordinance, including, but not limited to, the employment and paying out of the System's funds for all services, as shall be required, including, but not limited to custodial

bank services, and the investment and re-investment of the funds of the Fairfax County Uniformed Retirement System.

47. The Fairfax County Uniformed Retirement System was established in 1974 as a public employee retirement system providing defined benefit pension plan coverage for uniformed or sworn employees of the Fire and Rescue Department, helicopter pilots, the Sheriff's Department, the animal control division, and certain park police officers. In 2005, membership was extended to employees in non-administrative positions of the Department of Public Safety Communications, formerly included in the Fairfax County Employees' Retirement System.

48. As of July 1, 2010, the System consisted of 3,016 active and retiree members. Also as of June 30, 2010, the System's net assets totaled \$991 million, including \$170 million invested in securities denominated in foreign currencies, or 17.2% of the System's total investments.

49. The Fairfax County Employees' Retirement System, the Fairfax County Police Officers Retirement System, and the Fairfax County Uniformed Retirement System (collectively, the "Fairfax County Funds") have been custodial banking clients of BNYM, or its predecessor entities, pursuant to custodian banking contracts, since 2002.

C. The Educational Employees' Supplemental Retirement System of Fairfax County

50. The ERFC is a retirement system established by the Fairfax County Board of Supervisors in Fairfax County Code § 3-4-1, pursuant to what is now Va. Code Ann. § 51.1-801.

51. In creating the system, the Fairfax County Board of Supervisors delegated its authority to administer the system to a Board of Trustees, Fairfax County Code § 3-4-2. That delegation specifically included "the right to prosecute, defend, compromise, settle, abandon, or

adjust by arbitration or otherwise any actions, suits, proceedings, disputes, or claims relating to the retirement system.” *Id.* § 3-4-6(a)(4).

52. The ERFC is a defined benefit plan qualified under 401(a) of the Internal Revenue Code. Funding is provided in part by employer and member contributions to the plan; income earned through investment of the plan’s assets provides the majority of funding. Established in 1973, the ERFC’s membership includes retirees, deferred vested and active Fairfax County Public Schools personnel who are employed full-time in monthly paid educational, administrative, and support staff positions.

53. As of December 31, 2010, the ERFC had 31,941 members. As of June 30, 2010, ERFC held \$1.6 billion in net assets, approximately \$219 million, or 14% of which are invested in securities denominated in foreign currencies.

54. The ERFC has been a custodial banking client of BNYM, or its predecessor entities, pursuant to custodian banking contracts, since 1995.

D. The Arlington County Employees Retirement System

55. ACERS is a political subdivision of the Commonwealth of Virginia based in Arlington, Virginia.

56. ACERS manages the investment of Arlington County’s retirement fund and distributes fund assets in the form of benefits to retired county employees. ACERS was established as a defined benefit plan under authority of an act of the General Assembly of Virginia, and its provisions are memorialized in Chapters 21, 35, and 46 of the Arlington County Code. As of July 1, 2009, the System’s membership consisted of 7,361 members, and by the end of the fiscal year 2010, ACERS had \$1.3 billion net assets. A significant percentage of ACERS net assets are invested in securities denominated in foreign currencies.

57. ACERS has been a custodial banking client of BNYM, or its predecessor entities, pursuant to custodian banking contracts, since 1995.

IV. THE RELATOR

58. Much of the conduct in question was brought to the Commonwealth's attention by FX Analytics, the named Relator in *Commonwealth of Virginia, ex rel. FX Analytics v. The Bank Of New York Mellon Corporation*, Case No. CL-2009-15377 (the "Qui Tam Action" or "Qui Tam Complaint").

59. The Relator possesses deep and sophisticated knowledge and personal experience in BNYM's businesses, particularly regarding FX. In addition, the Relator has had extensive personal contact with the employees and executives of BNYM who have committed the alleged FATA offenses, as presented below. Furthermore, the Relator possesses first-hand knowledge to support and establish the charges asserted herein.

60. The Relator was employed in the FX trading department at BNYM in Pittsburgh, Pennsylvania. The Relator has more than 20 years of experience in foreign exchange currency trading.

61. The Relator worked at BNYM (and previously at Mellon Bank) for more than 10 years. Throughout that time, the Relator dealt directly with spot traders. The Relator observed or participated in reporting on interbank issues and developments and broader foreign exchange matters to the executive level of the Bank.

62. The Relator observed BNYM's FX trading for its custodial clients and learned directly that the FX scheme described herein was orchestrated and demanded by the senior executive staff of the Bank.

V. JURISDICTION AND VENUE

63. BNYM entered into contracts with the Commonwealth, and its state agencies, including political subdivisions and departments of political subdivisions located in Fairfax County.

64. Pursuant to its contractual relationships, and for the reasons stated herein, BNYM engaged in conduct directed at the Commonwealth and residents of the Commonwealth, and performed a substantial portion of its duties under the contracts at issue in Fairfax County.

65. Thus, a part of this cause of action arose in Fairfax County, in accordance with Va. Code Ann. § 8.01-262.

66. This Court has jurisdiction over the subject matter and parties to this action and is a proper venue for this action.

VI. SUBSTANTIVE ALLEGATIONS

A. The Nature of FX Trading

1. The Increasing Necessity of FX Trading in a Global Investment Portfolio

67. During the past decade, in order to meet their investment and funding objectives, U.S.-based institutional investors, including public pension funds such as the Virginia Funds, have found it increasingly necessary to enter the overseas securities markets and expand the global scope of their investment portfolios.

68. Institutional investors that buy and sell foreign securities, such as the Virginia Funds, must engage in FX trading because the purchases, sales, dividends, and interest payments are all transacted in the national currency of the exchange on which the foreign security traded.

69. If, for example, a public pension fund wishes to buy shares of stock in a German company that trades on a German securities exchange, that fund must sell U.S. dollars and

purchase euros in order to buy those shares. Further, any cash dividends paid on that German stock will be denominated in euros. To “repatriate” those dividends, the public pension fund must sell the euros received and purchase dollars. Accordingly, FX transactions are the means for converting U.S. dollars into foreign currency and vice versa.

2. The FX Trading Day

70. FX trading takes place around the world on a nearly 24-hour cycle, five-and-a-half days a week. The official FX trading week begins at 7:00 a.m. New Zealand time on Monday, with each subsequent trading day ending at 5:00 p.m. New York City time.

71. For each currency bought and sold during the course of the FX trading day, there will necessarily be a high trade and a low trade, with all other trades falling somewhere in between. This information is determined through trade data monitored and tracked by proprietary services such as the Electronic Brokerage System (“EBS”) and Reuters.

72. The difference between the high trade and the low trade is called the “range of the day.” By way of example, assume 100 FX trades in euros-for-dollars (EUR-USD) during the course of one trading day. If the lowest rate trade occurred at \$1.33 to buy €1.00, and the highest rate trade occurred at \$1.35 to buy €1.00, the range of the day would be \$1.33-\$1.35.

3. Negotiated vs. Non-Negotiated FX Trades

73. BNYM gave its custodial banking clients, including the Virginia Funds, a choice with respect to the manner in which FX trades would be conducted. In a “negotiated” FX trade made through BNYM, a custodial client or its Outside IM personally communicates the trade information to a BNYM FX trader. The BNYM FX trader then quotes a rate, which is either accepted or rejected. If accepted, BNYM executes the FX trade at the agreed-upon price, which could include a modest mark-up; one that is clearly disclosed and agreed to by the client (hence, the term “negotiated” trade).

74. A non-negotiated or “standing-instruction” FX trade, however, is essentially the opposite of a negotiated trade. There is no arm’s-length negotiation of the price between the parties to the transaction. With standing-instruction trades, custodial clients do not negotiate rates with BNYM, nor does BNYM quote rates. Instead, as the name “standing-instruction” suggests, custodial clients may not even need to request an FX trade. Especially in circumstances of smaller trades, such as small dividend or interest repatriations, BNYM simply executes the necessary trade on the custodial banking client’s behalf.

75. In other words, the Bank sits on both sides of the transaction when executing and pricing standing-instruction trades. BNYM remains in total control of both the transaction and the custodial banking client. The Virginia Funds often requested that BNYM handle certain FX transactions through standing-instruction and, therefore, had to trust and rely upon BNYM to engage in those transactions fairly and accurately.

76. BNYM had procedures to conduct standing-instruction FX trades that were unknown to the Virginia Funds, although communicated to some of their Outside IMs. These procedures explained that BNYM would assign FX rates that fell within a pre-determined range, set before 9:00 am each day, when no one could know what the FX prices for the day would be, nor what FX trading requirements would arise as the day progressed.

77. Moreover, at no time did BNYM inform the Virginia Funds or their Outside IMs that while the Bank assigned FX rates to the Virginia Funds that fell *within* the artificial range, these FX rates always fell at the very *extremes* of the actual range of the day.

78. Most importantly, BNYM never informed the Virginia Funds of side agreements that it made with some of their Outside IMs. Nor did BNYM inform the Virginia Funds that

these side agreements purported to change the nature of its relationship with the Funds to one in which BNYM would be a “principal.”

79. Additionally, the Virginia Funds reasonably expected that standing-instruction FX trades would have no mark-ups or fees. That expectation was based upon, among other things, (i) the significant annual fees the Virginia Funds paid BNYM to compensate the Bank for its services as custodian for the Virginia Funds’ assets, which, (ii) pursuant to contract, did not include standing-instruction FX trading as a service for which BNYM was permitted to charge a fee or mark-up above the agreed-to flat annual fee; and (iii) statements by BNYM in formal responses to certain RFPs that there would be no charge for FX transactions executed internally by BNYM.

80. Furthermore, prior to October 2009—when BNYM changed the substance of its representations on its website following the California Attorney General’s intervention in *California v. State Street*, a *qui tam* action against another large custodian bank, State Street Bank—BNYM’s website represented that it conducted standing-instruction FX trading for its custodial customers “*free of charge.*” (emphasis added).

81. Indeed, each contract between BNYM and any of the Virginia Funds contained a schedule of permissible fees, none of which included fees for standing-instruction FX trades.

B. BNYM’s Deceptive Scheme Overcharged the Virginia Funds and the Commonwealth for Standing-Instruction FX Trades

1. The Particulars of BNYM’s Custodial Banking Relationship With Each of its Clients Was Based in Part on the Potential Income Standing-Instruction FX Trading Would Generate

82. According to the Relator, standing-instruction FX trading provided a constant stream of revenue BNYM “credit” which was shared between the Bank’s “FX Group” and “Custody Group.”

83. When competing for custodial banking clients, BNYM management consulted with the FX group to estimate the income that could be earned if Defendants were retained to execute the prospective client's FX trades. Among the factors BNYM considered when making its pricing proposals to clients were the amount of international investments it would have under management with the client, and the percentage of trades it would conduct for the client by means of standing-instruction. After the FX group formulated a conservative estimate of the FX income potential of each prospective custodial banking client, the BNYM executives responsible for custodial banking incorporated that estimate into the flat fee pricing structure. None of this was known to the Virginia Funds.

2. BNYM Manipulated its Custodial Banking Clients' Standing-Instruction FX Trades for its Own Profit

84. BNYM generated undisclosed income from its standing-instruction FX trades by assigning and reporting to its clients an exchange rate significantly higher (for purchases) or lower (for sales) than the actual rate at the time of the internal currency transfers referred to in ¶¶ 4, 22, and which had no relationship to any particular FX trade in the interbank market.

85. This deception was a zero-sum game. BNYM's undisclosed income in these standing-instruction FX transactions mirrored commensurately undisclosed expenses for its custodial banking clients, including the Virginia Funds. That is, any income that BNYM obtained by charging its clients an amount higher or lower than what (i) BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts represented an equivalent expense to those clients—and thus an extra fee or charge that had not been negotiated or disclosed.

86. Contrary to what the Virginia Funds believed, BNYM's FX traders rarely, if ever, assigned to its custodial banking clients the FX rate actually obtained by BNYM at the time of a trade on behalf of that client. Instead, the FX trade orders were generally filled once a day out of the Bank's "inventory" of currencies, and BNYM assigned the rates that it ultimately reported to, and charged or credited its standing-instruction FX trade clients.

87. These assigned rates corresponded to the extreme high or extreme low prices of the day without regard to the price BNYM actually paid (or received) for foreign currency, the price at the moment of the internal currency transfer, or the FX rate of the time of the standing-instruction trade request.

88. As will be discussed in greater detail below, this deception hinged on four general procedures:

(a) First, because BNYM aggregated many clients' trade requests when it conducted standing-instruction FX transactions, BNYM's transaction desk disregarded the actual time of its standing-instruction custodial clients' FX trade requests (and therefore, the actual exchange rate at that time), and instead allowed all requests for particular currencies to accumulate in their respective currency pair groupings.

(b) Second, once reaching an arbitrary cut-off time (usually 1:30 p.m. Eastern time), BNYM's transaction desk executed one internal currency transfer with the bank's FX trading desk for that one particular currency (this step was repeated for all relevant currencies on every FX trading day). The true cost to BNYM for that FX transaction was whatever rate the FX trader received or

paid—at whatever time the trader actually executed the purchase or sale of the relevant currency.

(c) Third, notwithstanding the true rate for any particular currency, or the rate at the time that the BNYM transaction desk learned of the custodial client's FX trade requirement, BNYM's transaction desk then waited until the end of the FX trading day to determine the point when the actual range of the day was widest, thus offering the bank the greatest possible margin. Almost without exception, these extremes of the range of the day fell within the pre-determined, artificial range of FX prices offered to custodial clients' Outside IMs each day before 9:00 a.m.

(d) Fourth, and finally, after making that determination, BNYM's transaction desk personnel then chose and assigned to its clients the most profitable FX rate to report, regardless of what (i) BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts. Because BNYM looked for the point at which that particular currency reached its high or low point of the actual range of the day, the Bank maximally increased the spread between the true exchange rate and the rate BNYM reported to its custodial banking clients.

89. It was that spread between the false FX rates BNYM assigned and reported to its custodial banking clients (the high end of the range for purchases, or the low end of the range for sales) and the actual FX rate at which BNYM executed the internal accounting transfer that

generated the tremendous amount of undisclosed income to BNYM and expense to the Virginia Funds from the deceptive scheme.

3. A Step-by-Step Description of How BNYM's Transaction Desks Assigned The FX Rates the Bank Charged or Credited to its Custodial Banking Clients

90. According to the Relator, the following paragraphs describe step-by-step how standing-instruction FX transactions were processed and executed at BNYM.

91. A custodial banking client, or that client's IM, initiated a foreign asset transaction. Nearly all were purchases or sales of securities or repatriations of dividend or interest payments.

92. Upon learning of the custodial banking client's need for that foreign asset transaction, BNYM's Asset Servicing Group ("ASG") processed the transaction, thereby generating the need to buy or sell foreign currency to complete the transaction.

93. The ASG then communicated the resulting FX trading requirement to BNYM's FX department, in the form of an Electronic Trade Delivery notice ("ETD"), though this communication could also have been via fax or e-mail.

94. The ASG entered the ETD communication into an electronic pipeline known as CMS, believed to be an abbreviation for the "Cash Management System."⁶

95. CMS then sent the standing-instruction FX trade order to BNYM's FX Trading System, known as "Charlie." Charlie aggregate trades as they are entered into their respective currency pairs. At or about 1:30 p.m. each day, the Transaction Desk looked at the aggregate data from Charlie and determined the need to buy or sell a particular currency.

96. At the legacy Mellon desk in Pittsburgh, the Transaction Desk was manned by Sue Pfister, Paul Park, and Phyllis Bertok. They were responsible, respectively, for (i) Euro (Ms. Pfister); (ii) Swiss Francs, British Pounds, South African Rand, and Scandinavian currencies

⁶ The equivalent system at BNY was called "GSP." This name is still used at legacy BNY.

(Mr. Park); and (iii) Canadian Dollar, Japanese Yen, Australian Dollar, New Zealand Dollar, and minor Asian currencies (Ms. Bertok). The Pittsburgh Transaction Desk handled emerging market currencies as a group.

97. BNYM's Pittsburgh Transaction Desk usually set 1:30 p.m. Eastern time as a cut-off for its FX trade order accumulation. Once the FX trade order accumulation deadline had passed, Pittsburgh Transaction Desk personnel would view the aggregate total and print out all of the trades.

98. Then, the Pittsburgh Transaction Desk conducted an internal currency transfer⁷ with whichever of its FX traders conducted the intrabank transactions for that particular currency.

99. Well after BNYM's FX traders executed that internal currency transfer, Pittsburgh Transaction Desk personnel then assigned a false FX trade rate (higher rates for buy orders, or lower rates for sales) that they chose by looking back to the extremes of the range of the day. With very few exceptions, the *only* limitation BNYM's Pittsburgh Transaction Desk ever placed on this false assigning of prices was the high and low rates for the day.

100. The New York Transaction Desk did not employ the same strict cut-off time of 1:30 p.m. that Pittsburgh's Transaction Desk used, but instead often randomly priced FX deals as they came in. If standing-instruction FX trade requests remained unexecuted late in the trading day, William Samela, a Managing Director who also functioned as BNYM's New York office's chief FX dealer, often walked around the New York Transaction Desk telling FX traders what currency exchanges needed to be executed.

⁷ These internal currency transfers were sometimes referred-to as "trades," but in reality they were mere accounting notations on the Bank's books.

101. According to the Relator, at times the New York Transaction Desk also applied false FX rates that fell completely outside the actual range of the day.

102. Every day, at or around 2:30 p.m., when BNYM began to choose the FX rates it would falsely report to its standing-instruction FX trade clients, the Pittsburgh Transaction Desk called the New York Transaction Desk to synchronize the high and low ranges for each currency pair. BNYM conducted this call to prevent discrepancies between each Transaction Desk's operations so that clients would not be suspicious should they see two different transaction rates for the same currency pairs.

103. An April 1, 2009 e-mail from A.J. Quitadamo, BNYM Senior Vice President of New Business Development, to Kevin Lawrie, the Senior Vice President of Foreign Exchange Trading at BNYM's Pittsburgh desk; John Cipriani, Managing Director of Foreign Exchange Planning and Execution; and Mr. Samela, explained these procedures:

Nothing in our procedure (attached) precludes *late day pricing* of [standing-instruction] trades. Pricing is however subject to following:

- Rates must be within morning band posted on-line;⁸
- *Client [standing-instruction] trades must be priced similarly in NY and Pitts[burgh];*
- Rates must be within +/- 3% of "current" interbank market rates (NY and Pitts need to measure this similarly)

(Emphasis added.)

104. Standing-instruction FX trade clients, including the Virginia Funds, were presented with and received from BNYM reports listing the FX trades by trade date, trade amount, and the falsified trade price. Furthermore, in order to hide from the Virginia Funds the falsity of the rates, these reports never contained time-stamps, a statement of the income earned

⁸ The Commonwealth infers that the reference to the "morning band" is to the artificial range of the day set each morning before 9:00 a.m.

by BNYM, the actual FX price, the internal currency transfer rate, or any other fact or data point that would lead standing-instruction FX trade clients to understand the true amount of income to BNYM and the true amount of expense to the client.

105. For example, in the transaction reports that BNYM made available to VRS, the tens of thousands of reported FX rates fell under category heads such as “Local Base,” “Amount Local,” “Book Value Base,” “Base Exchange Rate,” “Cost of Base Currency,” and “Cost of Local Currency.”

106. BNYM’s reports to the Fairfax County Funds similarly described the FX trade rates under the terms “price,” “cost” and “amount,” all three of which were measured in “Local Base,” as well as “Amount Local,” “Book Value Base,” “Base Market Value,” and “Settle Price.”

107. ERFC received from BNYM reports showing FX rates that used the terms “Base Cost” and “Currency Cost in Base.”

108. The reports ACERS received from BNYM purported to set forth only the “Rate” for FX trades.

109. When presented with these reports, none of the Virginia Funds had any reason to conclude that every one of the approximately 73,000 FX rates contained on the reports were assigned at the end of the day, at the extremes of the range of the day, without any regard for actual cost. Indeed, based upon the terms BNYM used to represent FX prices, the Virginia Funds thought that the rates presented reflected the market at the time of the requested FX trade, or the price that BNYM actually paid or received.

4. Standing-Instruction FX Trade Example

110. The Relator offered the following example of an actual trade to illustrate the profit earned by BNYM on standing-instruction FX trades:

(a) On October 1, 2009, CMS indicated that BNYM's standing-instruction clients would be selling approximately \$12,500,000 in exchange for Canadian dollars (CAD).

(b) The USD/CAD opened at 7:00 a.m. in New York at 1.0730 (*i.e.*, 1.0730 CAD to buy \$1.00). The rates fluctuated throughout the day, hitting the eventual low of 1.0682 at 9:00 a.m. The eventual high, of 1.0847, occurred later that day, in the afternoon.

(c) The Pittsburgh Transaction Desk learned no later than 9:30 a.m. of these \$12,500,000 in accumulated standing-instruction client requests that it would need to execute by the end of the day.

(d) The Pittsburgh Transaction Desk conducted an internal currency transfer of \$12,500,000 worth of Canadian dollars with Pittsburgh-based FX trader, Pat O'Brien, at 1.0795.

(e) The rate BNYM reported and credited to its standing-instruction FX clients, however, was the very lowest rate of the day: 1.0682.

(f) Therefore, BNYM earned an undisclosed profit of US\$130,847.61, based on the rate of 1.0682 reported to its custodial banking clients for the sale of \$12,500,000 worth of Canadian dollars, when the Pittsburgh Transaction Desk actually conducted its internal currency transfer for US dollars at the much higher rate of 1.0795.

(g) BNYM earned this undisclosed income completely at the expense of its standing-instruction clients, including the Virginia Funds.

111. Indeed at least one of the Virginia Funds was involved in this particular transaction. On October 1, 2009 BNYM assigned to the Fairfax County Funds a sale of Canadian Dollars at the rate of *exactly* 1.0682.

5. BNYM's Accounting System Shows Enormous Income Generated by its Deceptive Standing-Instruction FX Trades

112. The Relator reports that six-figure income, as shown in the example above, was a routine consequence of standing-instruction trades at BNYM. In fact, the majority of the BNYM's FX income was derived from the execution of standing-instruction trades.

113. BNYM's profits from each completed trade were immediately tabulated by its Profit/Loss accounting system, the Wall Street System. The Transaction Desks in both New York and Pittsburgh maintained a running Profit/Loss report that could be generated at any time.

114. FX traders reviewed this document to keep track of their personal Profit/Loss as well as the Bank's Profit/Loss. In addition, monthly reports were also generated. Both the monthly and daily reports also showed year-to-date reporting.

115. These profits represented the difference between the false high (or low) price that BNYM assigned and reported to its standing-instruction FX trade clients, and the price for BNYM's internal accounting entry. The bank's internal accounting maintained a separate profit/loss line solely for standing-instruction internal currency transfers, called a "CMS offset" or "CMSOFF."

116. In 2008, for example, as tracked on BNYM's internal FX accounting system, known as "Charlie," BNYM's Pittsburgh office produced \$417,331,504 in FX income. The portion of that income directly attributable to standing-instruction internal currency transfers was \$298,055,320, or 71.4% of the total. For 2009, as of October 15, the standing-instruction FX

income accounted for \$201,356,865 of a total of \$263,623,344, or 76.4%.⁹ As of August 28, 2009, the analogous numbers for the New York FX desk were approximately \$130 million out of total income of \$164 million, or 79.3%.

C. Internal BNYM Documents Show That Senior Management Was Aware of and Encouraged the Deceptive Scheme

117. Internal BNYM communications demonstrate that high-ranking members of Bank management were aware of the deceptive standing-instruction FX trading scheme, and of its importance to the profitability of the Bank. Indeed, these communications show high-ranking BNYM officers who were not only aware of the deceptive scheme, but who openly supported it, and its purpose to profit from the lack of knowledge of the Bank's customers.

118. As alleged in ¶¶ 12-15, on February 8, 2008, Jorge Rodriguez, BNYM's Executive Vice President of Global Sales and a Managing Director at the Bank's New York City offices, e-mailed the Bank's Executive Vice President of Global Markets, Richard Mahoney, and a number of other high-ranking New York City-based BNYM executives. In that e-mail, Mr. Rodriguez warned that BNYM would lose its "pricing advantages" if its custodial banking clients, including the Virginia Funds, no longer agreed to, and migrated away from, "standing-instruction" trading:

(a) Mr. Rodriguez explained to his fellow BNYM executives that

"Standing instruction FX is *the most profitable form of business.*"

(b) Mr. Rodriguez further highlighted the bank's "free intra-day option

⁹ Specifically, there was a Charlie report known as "CMS Internal Transaction Summary Report" that contained this information in summary form. These transactions were also recorded in the CMS Internal Transaction reports, which illustrated where each FX deal was done and how close BNYM's buys and sells were to the high and low of the daily FX ranges.

to *time its currency execution* in the marketplace knowing it *does not have to get back to the customer immediately* with the deal price.”

(c) Custodial banking services “of this type,” he continued, “also allow[] us to take advantage of increased market volatility and wide intra-day trading ranges. All these *pricing advantages disappear when a client trades via an e-commerce platform and full transparency is achieved.*”

(d) Mr. Rodriguez concluded by noting that when these “ultra friendly” clients decide not to utilize BNYM’s standing-instruction FX trading service, “margins greatly decline as the free intra-day option feature previously enjoyed disappears . . . and *the client’s ability to carefully monitor each and every trade at the time of execution reduces margins dramatically.*”

(Emphasis added.)

119. As this e-mail demonstrates, BNYM senior management knew, and approved of, FX traders’ assignment of optimum prices to present to its clients, including the Virginia Funds, to inappropriately and deceptively maximize the Bank’s own profits. Indeed, the email acknowledges that if custodial banking clients were presented accurate information (*i.e.*, “full transparency”), the Bank’s profitability would suffer.

120. This internal awareness, and approval, continued well past October 2009, when the California Attorney General intervened in the *California v. State Street*. Specifically, as late as July 2010, BNYM management admitted in internal communications that the Bank was still not transparent in what it reported to its custodial banking clients regarding the actual pricing of FX trades. Additionally, these communications demonstrate management’s belief that this lack of transparency was a leading cause of BNYM’s profitability.

121. In fact, on July 21, 2010, Robert Near, Managing Director and head of North American FX Sales, emailed Mr. Rodriguez and others, informing them that in the months following the revelations of *California v. State Street*, BNYM “has been more successful in maintaining spreads in the [standing-instruction] space compared to these peers [State Street and Northern Trust]. Another way to say this is [BNYM] is ‘late’ to the transparency space. We are hearing from our clients that our competitors are offering time stamping and fixed spreads across all currencies.”

D. BNYM Owed a High Standard of Care to the Virginia Funds

1. The Fairfax County Funds

122. BNYM acted as custodian to Fairfax County’s retirement funds pursuant to two separate Custody Agreements.

123. In connection with negotiations leading to the final terms of the Custody Agreements, on November 16, 2001, Mellon Trust Vice President Richard A. Rollins sent a letter to Jeffrey A. Willison of the Fairfax County Retirement Systems which included a certification that “all services and systems described are available, deliverable and performed by professionals *abiding to the highest fiduciary standards.*”

124. The Fairfax County Employees’ Retirement System, the Fairfax County Police Officers Retirement System, and the Fairfax County Uniformed Retirement System collectively entered into a formal, written “Custody Agreement” with Mellon Bank, N.A., dated May 1, 2002, pursuant to which Mellon Bank, N.A. would act as custodian to the Fairfax County Funds and provide certain custodian-related services thereunder.

2. ERFC

125. ERFC separately entered into a formal, written “Custody Agreement” with Mellon Bank, N.A., dated December 30, 2002, pursuant to which Mellon Bank, N.A. would act

as custodian to ERFC and provide certain custodian-related services thereunder. As part of the negotiation leading to entering into the Custody Agreement, Susan G. Testa, Vice President of Defendant stated in part, that “all services and systems described herein are available, deliverable and performed by professionals abiding to the highest fiduciary standards.”

126. Among other things, the Custody Agreement provided, in part, that the Defendant would act as a “fiduciary” and, “[i]n performing its duties under this Agreement, the Custodian shall exercise the same care and diligence that it would devote to its own property in like circumstances.”

3. ACERS

127. ACERS entered into a Global Custody Agreement with Bank of New York (“BNY”), dated April 1, 2002, pursuant to which BNY would act as custodian to the System and provide certain custodian-related services thereunder. The Global Custody Agreement provided that ACERS entrusted its property to the Custodian for its “custody and safekeeping” and set forth certain duties and responsibilities of the Custodian.

128. The April 1, 2002 Global Custody Agreement was silent as to a fiduciary duty. When ACERS entered into a new Custody Agreement with BNYM on June 29, 2010, however (pursuant to which BNYM would continue to act as custodian to ACERS and provide custodian-related services), the Bank expressly disclaimed any fiduciary duty. This disclaimer was inserted because prior thereto it was the intent of the parties that BNYM have the standard of care of a fiduciary.

4. VRS

129. VRS entered into a formal, written “Custodian Agreement” with Boston Safe Deposit and Trust Company (“Boston Safe”) dated June 1, 1988, pursuant to which Boston Safe was to act as custodian to VRS, and perform certain custodian-related services thereunder.¹⁰

130. The Custodian Agreement provided, in part, that “Boston Safe shall discharge its duties under this Agreement with the care, skill, prudence and diligence under the circumstances then prevailing that a prudent man acting in a like capacity and familiar with such matters would use in the conduct of an enterprise of a like character and with like aims and responsibilities.”

131. The “care, skill, prudence and diligence” of a custodial bank, paid millions of dollars in annual fees to maintain custody and control over billions of dollars of a public pension fund’s assets (taxpayers’ money) and in possession of highly confidential financial information of that public pension funds includes, among others, duties of honesty, loyalty, trust, and candor including, but not limited to, the duty to accurately and completely account for all income and expenses credited to and charged from the custodial property, without exception.

132. By its entry into side agreements with certain of the Virginia Funds’ Outside IMs, BNYM attempted to change the nature of its relationships as set forth in the various contracts to one in which BNYM would be a “principal” dealing at arms length with each of the Virginia Funds. However, nothing in the various Custodian Agreements referred to above authorized or permitted BNYM to alter the scope of its duties to the Virginia Funds without the agreement of the particular funds.

133. The Virginia Funds did not learn until recently, after beginning to discuss the claims herein with BNYM, that BNYM had apparently entered into side agreements with some of the Virginia Funds’ Outside IMs. These side agreements purported to change the nature of the

¹⁰ In 2003, Mellon Bank acquired Boston Safe, which then became Mellon Trust of New England, N.A.

duties BNYM owed to the Virginia Funds and to permit BNYM to conduct standing-instruction FX trades pursuant to the procedures referred to in ¶¶ 6-7, 16-17, 76-78, 87, 102, 131.

5. BNYM Was a Fiduciary to the Virginia Funds by Virtue of Their Reasonable Reliance on BNYM's Expertise, Trust, and Loyalty

134. Each of the Virginia Funds reposed a high degree of trust in BNYM to execute standing-instruction FX transactions, and the Bank understood that to be the case. In conducting standing-instruction FX transactions on the Virginia Funds' behalf, BNYM occupied a superior position to the Funds due to the Bank's control over all aspects of the FX trades, including the timing of the trades, the price at which the trades were executed, access to the Virginia Funds' cash used to pay for purchases of currencies, and access to the Virginia Funds' accounts to which cash received for sales of currencies would be credited.

135. The Virginia Funds further depended upon BNYM not only to execute the trades, but also to accurately and honestly account with respect to each transaction conducted on their behalf.

136. Additionally, throughout the many years that it served as their custodian bank, BNYM relationship personnel consistently referred to the Bank as the Virginia Funds' "strategic partner." The Virginia Funds' personnel took this reference seriously, never imagining that its strategic partner was earning secret income at their expense.

137. BNYM's reference to itself as a "partner" and worthy of "trust" was intentional. Indeed, internal BNYM documents establish that the Bank knew its clients considered it to be a trusted expert, guarding their money with the utmost fidelity.

138. For example, BNYM's CEO Bob Kelly maintained a blog—named "Bob's Blog"—hosted on the Bank's internal intranet. In one of his blog posts during the autumn of 2009, Mr. Kelly emphasized "what our clients said we do really well: execute superbly and

honor the trust our clients place in us. We asked our client panelists to describe us in one word.

The words we heard were ‘*trust,*’ ‘*dedicated,*’ and ‘*partner.*’” (emphasis added.)

E. BNYM’s Custodian Banking Agreements With the Virginia Funds Contemplated and Promised No-Cost FX Trading

139. The Virginia Funds relied on BNYM’s representations that standing-instruction FX trades were provided without cost beyond agreed upon fees and expenses.

1. The Fairfax County Funds

140. The Custody Agreement acknowledged that the Fairfax County Funds and the Custodian “desire to establish a custody account to provide for the safekeeping and recordkeeping of certain property of each Retirement System.” Among the duties of the Custodian was to hold the property of the Fairfax County Funds for its safekeeping, to collect income earned by, and distributions due to the property, to collect all proceeds from securities, certificates of deposit or other investment which may mature or be called, to submit to the Fairfax County Funds information the Custodian received regarding ownership rights pertaining to the property held in the account, to attend to any involuntary corporate actions, and to render periodic statements with respect to the property held under the Custody Agreement.

141. Among the directed powers of the Custodian was to settle purchases and sales and engage in other transactions with respect to the securities in the account, to execute proxies for any of those securities, to lend the assets of the account in accordance with the terms of a separate lending agreement, to invest available cash in an interest bearing account, and to “[t]ake any and all actions necessary to settle transactions in futures and/or options contracts, short-selling programs, foreign exchange or foreign exchange contracts, swaps and other derivative investments . . .”

142. The Custody Agreement further provided that the compensation to which the custodian was entitled was that set forth in an RFP, and including a fee letter dated March 14, 2002, all of which were incorporated into the Custody Agreement by reference.

143. The March 14, 2002 fee letter provided that Mellon Bank, N.A. would be paid a flat fee of \$465,000 per year for “all of the services that have been identified in our RFP response . . .”

144. In addition, Mellon Trust’s response to the referred to RFP specifically stated that *there will be no additional charge for FX trades executed by the Custodian.*

145. The following question was posed in the Request for Proposal and answered by Mellon Trust at page 178 of its response:

What is the fee for processing foreign currency trades executed internally or by a third party? Is there a penalty for any FX trades externally executed? Specify the costs in the *Business Proposal*.

Mellon Trust does not charge for FX trades executed internally. External FX trades are charged at \$50 per trade. This fee has been included in the *Business Proposal*.¹¹

146. Standing-instruction FX transactions were not among the services for which BNYM was permitted to charge an additional fee or any other cost above the fees set forth in the contract.

147. The Custody Agreement was amended as of both May 1, 2005, and May 28, 2008 to change the amount of the yearly flat fee payable by the Systems to \$490,000 and \$400,000 respectively to compensate the Custodian for the same services set forth in the letter dated March 14, 2002 and the RFP.

¹¹ The *Business Proposal* set forth a flat, asset-based annual fee for services required.

2. ERFC

148. Among the duties of the Custodian was to hold the property of the ERFC in safekeeping, to collect income earned by, and distributions due to the property, to collect all proceeds from securities, certificates of deposit or other investment which may mature or be called, to submit to the ERFC information the Custodian received regarding ownership rights pertaining to the property held in the account, to attend to any involuntary corporate actions, and to keep accurate and detailed records and render periodic statements with respect to the property held under the Custody Agreement.

149. The Custody Agreement integrated by reference the provisions of BNYM's RFP response, which included among its "General Terms and Conditions" that "[n]o services for which an additional cost or fee will be charged by the offeror shall be furnished without the prior written authorization of the ERFC."

150. Under "Special Provisions, Business Proposal Instructions", the Request for Proposal specifically stated that:

NOTE: Offerors shall prepare and submit proposals that are **all inclusive** of all costs related to the scope of service contained herein, except where otherwise noted.

(Bold and underline in original.)

151. The Custody Agreement was amended as of May 21, 2004 to extend the Agreement for an additional period of twenty months until June 30, 2007 with the option to extend for an additional two-year period subject to payment of consideration set forth in a letter from Todd Bailey to Alan Belstock, dated April 15, 2004. None of the documents set forth any additional amounts the Custodian was permitted to charge ERFC above the fees set forth therein for standing-instruction FX trades.

152. ERFC entered into a new Fee Schedule, effective July 1, 2008, for a three-year period, one that provided that the Custodian would be paid a flat fee of \$200,000 per year and all other fees would be waived, including any transaction fees for FX not executed at BNYM Asset Servicing. None of the documents set forth any additional amounts the Custodian was permitted to charge ERFC any amounts in addition to the fees set forth in the Fee Schedule for standing-instruction FX trades.

3. ACERS

153. Among BNYM's duties and responsibilities under the Global Custody Agreement were to receive and deliver the property of ACERS, to settle the purchase and sale of securities transactions, and to render periodic accountings with respect to the property held under the Custodian Agreement.

154. The Global Custody Agreement provided that the compensation to which the custodian was entitled was "in accordance with and pursuant to the Fee Schedule annexed hereto as Schedule B . . ."

155. Schedule B provided that "[t]he following fees will apply from April 1, 2002 through December 31st, 2004." The Schedule provided at point I., for an all inclusive domestic and international asset based fee of 1.0 basis point per annum charge on total asset value. The Schedule further stated:

There is no charge for Foreign Exchange transactions executed through The Bank of New York. A charge of \$50.00 will be assessed for each foreign exchange executed through a third party.

(Emphasis added.)

156. ACERS entered into a new Global Securities Fee Schedule with BNY, dated July 26, 2005, providing for an increase to \$70 for Foreign Exchange transactions undertaken through

a third party. It did not provide for any charge to ACERS for standing-instruction FX trades executed through the Custodian.

157. Pursuant to a letter dated October 27, 2005 from BNY to ACERS, BNY acknowledged that it granted ACERS a “most favored nation custody fee price for a comparative Public Fund” of 0.75 basis points on the total U.S. asset value per annum, and referenced international fees per “the attached schedule,” none of which included a fee for standing-instruction FX traded through the Custodian.

158. Pursuant to a letter, dated March 25, 2010, from BNYM Asset Servicing to the System BNYM enclosed a new Fee Schedule, effective July 1, 2009 through June 30, 2011. The Fee Schedule provided for certain categories of fees based on both asset-based and transactional charges. The Fee Schedule did not provide for any charge to ACERS for standing-instruction FX trades executed through the Custodian.

159. The new Custody Agreement provided that the Fee Schedule in effect at the time of the execution of this Agreement was attached thereto as Exhibit F. The attached Fee Schedule set forth a charge only for FX *not* executed by BNYM and did not set forth any charge to ACERS for standing-instruction FX trades executed through the Custodian.

4. VRS

160. The Custodian Agreement provided that the compensation to which the custodian was entitled would be set forth in “a fee schedule agreed upon by the Client and Boston Safe. This fee schedule shall be provided in Exhibit A and in no other provision of this Agreement.”

161. The Fee Schedule provided for a flat fee of \$166,250 per quarter for “Domestic Custody” for up to 50 manager accounts, and for “Global Custody”:

12 Basis Points annually on total non-pooled assets charged quarterly based upon quarter-end market value.

1 Basis Point annually on total pooled assets charged quarterly based upon quarter-end market value.

\$20 per non-pooled transaction plus \$15 for each F/X contract not executed with a Hub manager.

162. The Fee Schedule did not list standing-instruction FX transactions among the services for which BNYM was permitted to charge an additional fee or any other cost above the fees set forth above.

163. The Fee Schedule further provided that “the fees stated herein are guaranteed for a period of three years from the commencement of the contract . . .”

164. By Addendum to the Custody Agreement, the parties entered into a new Fee Schedule effective July 1, 1991, for a period of three years that continued to provide for a flat fee for domestic custody, now provided a flat fee for global custody, and continued to provide a fee of \$20 per non-pooled transaction plus \$15 for each F/X contract not executed with Boston Safe. Standing-instruction FX transactions executed with BNYM were not listed among the services for which BNYM was permitted to charge an additional fee or any other cost above the fees set forth above.

165. The parties entered into new Fee Schedules approximately every three years thereafter including on July 1, 1994; July 1, 1997; June 26, 2001 (effective April 1, 2001); September 30, 2004; and July 1, 2007 (amended effective January 1, 2009), that provided for flat fees for domestic and global custody, but no longer included a charge for FX not executed with the custodian.

166. Significantly, each time the parties contemplated any change in fee or additional fee for a service for which the custodian was entitled to be paid, they did so in a written

agreement executed by the parties specifically describing the change or additional service, and the additional fee the custodian was entitled to charge.

167. There was no written agreement between the parties providing for standing-instruction FX transactions as a service for which BNYM was permitted to charge an additional fee or any other cost above the fees set forth in the contract. Thus, for over twenty-two years, VRS's Custodian Agreement with BNYM did not list standing-instruction FX transactions as one of the services for which BNYM was permitted to charge additional fees.

168. In June 2010, the parties again entered into a new Fee Schedule, effective July 1, 2010 through June 30, 2015. The July 1, 2010 Fee Schedule provided for an Annual Domestic Trust and Custody Flat Fee of \$4.5 million per year for among other services, domestic and global structural charges, domestic and global administration charges, and domestic and global transaction charges.

F. BNYM Publicly Represented that Standing-Instruction FX Trading Was Free of Charge

169. As part of its deception, BNYM also marketed and represented through its website and other marketing materials the various foreign exchange services offered to its standing-instruction FX trade custodial clients¹²:

- “Standing Instruction [FX] trading provides a simple, flexible, and complete service solution that automates the capture of all types of custody-related foreign exchange Operationally simple, *free of charge* and integrated with the client’s activity on the various securities markets, FX standing instruction [trading] is designed to help clients minimize risks and costs related to the foreign exchange and concentrate on their core business.”
- “Standing Instruction Foreign Exchange Clients benefit from: execution according to *best execution standards* . . .”¹³

¹² These excerpts are all taken from BNYM’s website as they appeared prior to the unsealing of the California v. State Street complaint.

¹³ The duty of best execution requires that a custodian obtain for its client the most favorable terms reasonably available under the circumstances.

(Emphasis added.)

170. As described above, BNYM's representations had little or nothing to do with its actual practices. Nothing in these public representations came close to revealing the truth regarding BNYM's deceptive FX trading practices, whereby it assigned to its custodial banking clients, including the Virginia Funds, rates for standing-instruction trades that always, and without disclosure, maximized the Bank's income at those clients' expense. Moreover, after the *California v. State Street* case was announced, the language of the webpage was changed, so that no reference to "free of charge" standing-instruction FX trading remained.

G. BNYM's False Claims and Deceptive Acts and Practices Could Not Reasonably Have Been Detected by the Virginia Funds

1. BNYM Knowingly Deceived its Custodial Banking Clients About its Standing-Instruction FX Trading Practices

171. Standing-instruction FX trades involve the custodian, rather than the client or Outside IM, overseeing the trade process from start to completion. Clients have no input into the process and, absent a complete, honest, and candid accounting have no way of knowing how much income BNYM earns or what expenses it incurs.

172. Indeed, the Virginia Funds did not know, and had no reason to suspect, that BNYM was carrying on this deception. BNYM executed thousands of FX trades on behalf of the Virginia Funds every month. The reports the Virginia Funds received from BNYM showed only the rate that the Bank assigned for its FX trades. The reports did not include the price paid or received for foreign currency, the price charged or received in the internal transfer of currency, the range of the day, or the time of the day that a trade or internal currency transfer was executed.

173. Furthermore, it was reasonable for the Virginia Funds to presume that the accounting of transactions presented to them by BNYM was honest and reliable in accordance with the high duties and standards imposed upon it.

2. BNYM's Direct Communications With VRS Personnel Demonstrate a Willful Effort to Deceive its Clients

174. In late 2008, in the context of renegotiating the January 2009 Fee Schedule amendment, VRS communicated directly with BNYM to ascertain the specific sources of revenue the Bank was receiving from the pension fund. VRS asked Georgia Phillips, ASG First Vice President, to set forth all services from which BNYM was earning money from VRS.

175. In her response, Ms. Phillips identified a number of sources of revenue, including securities lending, cash management, and custodial fees. Despite the huge amount of income BNYM received as a consequence of VRS standing-instruction trades each year, Ms. Phillips did not include FX among these items.

176. A January 15, 2010 internal BNYM email confirmed VRS's request, as well as BNYM's incomplete and misleading response which had the effect of continuing the deception it had carried on for years. On that date, Ms. Phillips emailed Bruce Shain, BNYM's Managing Director of Asset Servicing, to update him on many of the ongoing communications between VRS and BNYM in the months following the revelations of *California v. State Street*. Among other topics, Ms. Phillips acknowledged not only that VRS previously requested all of BNYM's custodial services fee sources, but that the Bank did not include standing-instruction FX trading markups among those set forth in its response:

[VRS personnel] are upset that when they asked us to share all sources of revenue, we did not include FX, especially in light of the fact that they [now] know that FX revenue is used to help offset our trust and custody fees. [T]hey would have preferred that we had full disclosure on fees. They would have accepted a higher custody fee if we did not factor in FX.

177. Direct communications between VRS personnel and BNYM officers and executives *after* October 20, 2009 also demonstrate that the bank had long engaged in a willful effort to conceal from its custodial banking client the deceptive FX rates it charged for standing-instruction FX trades.

178. These post-October 20, 2009 communications are best understood through the efforts of the members of the VRS investment team to contact BNYM within hours of learning about *California v. State Street* in order to inquire about its own custodian bank's FX practices. What followed were months of painstaking efforts by VRS to understand the true nature of BNYM's standing-instruction methods and to make sure that ongoing fee schedule amendments protected it from any further undisclosed mark-ups or fees in connection with VRS' standing-instruction FX trades.

179. For example, on October 21, 2009, shortly after learning of *California v. State Street* (but before the Qui Tam Complaint in this action was filed), Steve Henderson, VRS's Director of Fixed Income, asked Ms. Phillips, in essence, if BNYM was engaging in the same practices that were the subject of *California v. State Street* and, if so what was the nature of those practices. Ms. Phillips did not deny that BNYM marked up standing-instruction FX transactions, a fact that the Bank had never before disclosed.

180. On a subsequent phone call during the winter of 2009-10, Ms. Phillips' direct superior, Vincent Sands, acknowledged to Charles Grant, VRS's Chief Investment Officer and other personnel that he thought BNYM should have told VRS earlier about its revenues earned off of VRS's standing-instruction charges. When Mr. Grant asked why BNYM had never previously told VRS what it was charging the fund for its FX trading, Mr. Sands' only explanation was that revenue totals were so "variable" from year to year.

181. In another discussion during the same time period, Mr. Sands told Mr. Henderson and Larry Kicher, VRS's Chief Operating Officer, that with the benefit of hindsight, it would have been better had BNYM made VRS aware in or before January 2009 that standing-instruction FX charges were among the sources of revenue for BNYM in connection with its custodial banking services.

VII. BNYM' VIOLATED THE VIRGINIA FRAUD AGAINST TAXPAYERS ACT, VA. CODE ANN § 8.01-216.3(A)(1), (2), (4) AND (7)

182. The Commonwealth of Virginia repeats and realleges, as if fully set forth herein at length, each and every allegation contained in the above paragraphs.

183. BNYM had an obligation to render true and accurate records with respect to the property of the Commonwealth held by BNYM.

184. BNYM did render records with respect to the property of the Commonwealth held by BNYM.

185. BNYM, as part of its contractual duties as custodian of Commonwealth cash and other property, provided records and/or other reports to the Commonwealth in order to allow officers and agents of the Commonwealth to monitor the Virginia Funds' transactions, including FX transactions.

186. BNYM knowingly submitted these false and/or fraudulent claims regarding the standing-instruction FX costs in order to get the claims approved.

187. It was the knowing practice of BNYM to charge or credit, and then report, to the Commonwealth a higher or lower FX rate for every single standing-instruction trade BNYM executed as custodian for the Virginia Funds.

188. In the vast majority of cases of credits or debits arising as a result of standing-instruction FX transactions, BNYM debited more than the Commonwealth should have

paid for a standing-instruction FX purchase, and credited less than the Commonwealth should have received for a standing-instruction FX sale.

189. If the transaction was a “buy” of a foreign currency, BNYM would wait until the end of the FX trading day, at which time it would assign to the Commonwealth FX rates at or near the highest rate of the day (requiring the Commonwealth to purchase more currency than it otherwise would have had to purchase), in the process assigning and reporting to the Commonwealth a higher FX rate than (i) the rate that BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM’s internal transfer of currency to or from its inventory to or from the Virginia Funds’ accounts.

190. On the other hand, if the transaction was a sale of a foreign currency, BNYM would wait until the end of the FX trading day before falsely assigning and reporting to the Commonwealth FX rates at or near the lowest FX rate of the day (returning less currency to the Commonwealth than it otherwise would have received) rather than (i) the rate that BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM’s internal transfer of currency to or from its inventory to or from the Virginia Funds’ accounts.

191. BNYM would then keep for itself the difference between (i) the rate that BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM’s internal transfer of currency to or from its inventory to or from the Virginia Funds’ accounts and the fictitious or false assigned FX rate BNYM claimed to have paid on behalf of the Commonwealth.

192. As such, BNYM delivered, or caused to be delivered, less than all such money or property over which BNYM had possession, custody, or control.

193. BNYM also remitted to the cash accounts of the Commonwealth an amount less than (i) the rate that BNYM paid or received for the foreign currency, (ii) the FX rate at the time an instruction was given, or (iii) the FX rate at the time of BNYM's internal transfer of currency to or from its inventory to or from the Virginia Funds' accounts.

194. Therefore, based upon the foregoing, BNYM knowingly:

- (a) presented false claims for the Commonwealth's approval;
- (b) made, used, and presented to the Commonwealth false records and statements material to false claims;
- (c) delivered to the Commonwealth less than the total amount of the Commonwealth's property and money used by the Commonwealth over which BNYM had possession, custody, and control;
- (d) made, used, and presented to the Commonwealth false records and statements material to its obligation to pay and transmit money or property to the Commonwealth; and
- (e) concealed and improperly avoided and decreased its obligations to pay and transmit money and property to the Commonwealth.

195. As a result of the knowing acts of BNYM, the Commonwealth has been damaged.

VIII. PRAYER FOR RELIEF

WHEREFORE, Plaintiffs demand:

- (a) Pursuant to Va. Code Ann. § 8.01-216.3, BNYM shall pay at least \$120,000,000, plus interest earned thereon, an amount equal to three times the Commonwealth's actual damages, estimated to be in excess of \$40,000,000, based on the

Virginia Funds' standing-instruction FX trades, the rates of which BNYM falsely reported to the Commonwealth;


(b) Pursuant to Va. Code Ann. § 8.01-216.3, BNYM shall pay civil penalties of at least \$811,624,000, based on a civil penalty of \$11,000 for each of the 73,784 falsely reported standing-instruction FX trades conducted on behalf of the Virginia Funds;

(c) BNYM shall pay the Commonwealth's attorneys fees and litigation expenses; and

(d) BNYM shall pay for any such other relief as the Court may deem appropriate.

August 11, 2011

COMMONWEALTH OF VIRGINIA

By:  _____
Of Counsel

Stephen E. Baril, Esq. (VSB# 19604)
Kelly B. LaPar, Esq. (VSB# 76041)
Sands Anderson PC
1111 East Main Street
P.O. Box 1998
Richmond, Virginia 23218-1998
Telephone: (804) 648-1636
Facsimile: (804) 783-7291
E-mail: sbaril@sandsanderson.com
klapar@sandsanderson.com

Jonathan J. Schraub, Esq. (VSB# 17366)
Brian Scotti, Esq. (VSB# 74510)
Sands Anderson PC
1497 Chain Bridge Road, Suite 202
McLean, Virginia 22101
Telephone: (703) 893-3600
Facsimile: (703) 893-8484
E-mail: jschraub@sandsanderson.com
bscotti@sandsanderson.com

Joel H. Bernstein, Esq.
Eric J. Belfi, Esq.
Ira A. Schochet, Esq.
David J. Goldsmith, Esq.
Paul J. Scarlato, Esq.
Michael H. Rogers, Esq.
Labaton Sucharow LLP
140 Broadway
New York, New York 10005
Telephone: (212) 907-0700
Facsimile: (212) 818-0477
E-mail: jbernstein@labaton.com
ebelfi@labaton.com
ischochet@labaton.com
dgoldsmith@labaton.com
pscarlato@labaton.com
mrogers@labaton.com

Kenneth T. Cuccinelli, II
Attorney General
Charles E. James, Jr.
Chief Deputy Attorney General
Wesley G. Russell, Jr.
Deputy Attorney General
Sydney E. Rab, Esq. (VSB# 15105)
Sr. Assistant Attorney General
Counsel for the Commonwealth of Virginia
Office of the Attorney General
900 East Main Street
Richmond, Virginia 23219
Telephone: (804) 786-1109
Facsimile: (804) 371-2087
E-mail: srab@oag.state.va.us