



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 8

MEETING DATE: February 20, 2019

SUBJECT: Trading Activity Report – Fourth Quarter 2018

SUBMITTED FOR: Consent Deliberation and Action Receive and File

RECOMMENDATION

Staff recommends the Board receive and file the Quarterly Trading Activity Report for the quarter ending December 31, 2018.

PURPOSE

This agenda item does not specifically support the 2018-19 Strategic Management Plan, but complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

DISCUSSION

SCERS engages Elkins / McSherry (E/M), a State Street company, to track SCERS' equity and fixed income trading activity and to monitor manager trade execution. E/M analyzes a manager's trade activity against like managers across E/M's universe of approximately 1,400 institutional investors.

E/M's trade analysis report will highlight potential manager trading issues and, if they occur over two or more quarters, Staff will discuss compliance with the manager. The E/M trading cost reports will analyze and compare the following:

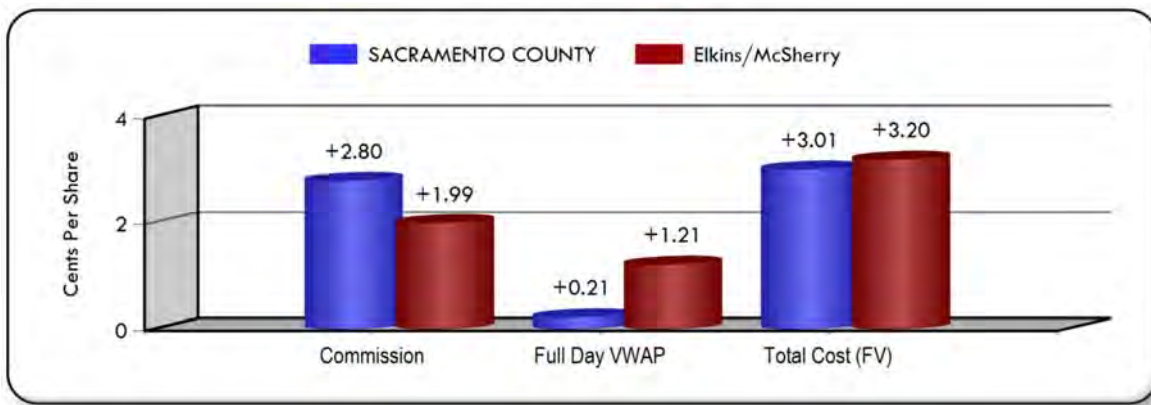
1. Commission costs, trade costs, and any soft dollar amounts.
2. Market Impact Cost, an industry performance metric, which measures the difference between a manager's trade price and the market's volume weighted average price (VWAP). VWAP is the average security price weighted by the share volume trade that day.
3. Total trading costs.

Industry metrics used to measure trade performance include "cps" (cents per share) and "bps" (basis points = 1/100th of one percent).

SCERS TRADE COST SUMMARY

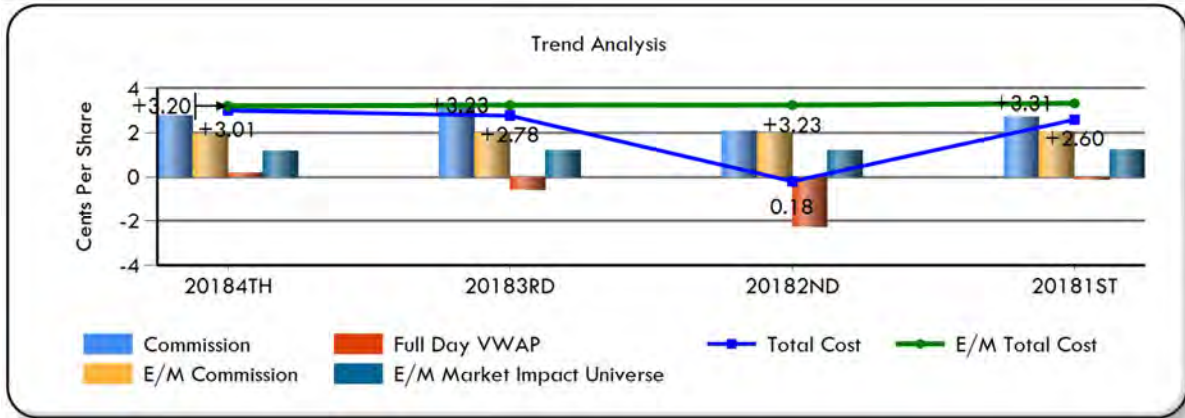
U.S. EQUITY

- SCERS’ U.S. equity managers traded 2.1 million shares across the AMEX, NASDAQ, and NYSE exchanges totaling \$98.8 million in principal, and ranked in the 60th percentile, as measured by the E-Score rank¹ among the E/M U.S. Equity universe.
- SCERS’ total trading costs equaled +3.01 cps, which is 0.19 cps lower than the peer group at +3.20 cps, as follows:
 - Commission cost of +2.80 cps versus +1.99 cps
 - Market impact cost of +0.21 cps versus +1.21 cps



- SCERS’ total trading costs were better than 54% of the peer group.
- A majority of SCERS’ U.S. Equity managers experienced unfavorable commission costs compared to the U.S. Equity peer group. Managers with commission costs greater than the average peer group cost of +1.99 cps include:
 - Weatherbie at +3.60 cps
 - DGHM at +3.52 cps
 - Eagle Capital at +2.21 cps
- As illustrated below, SCERS’ managers generally generate higher commission costs than the peer group.
- SCERS’ total trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 1.10 cps over the past four quarters.

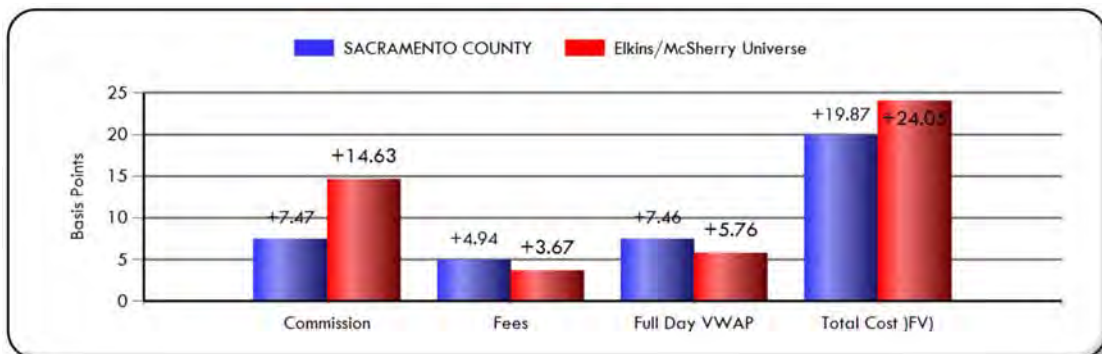
¹ Elkins/McSherry E-Score Rank evaluates transaction cost analysis, including stock specific trading ranges, to provide an assessment of execution quality compared to other market participants in the Elkins/McSherry universe.



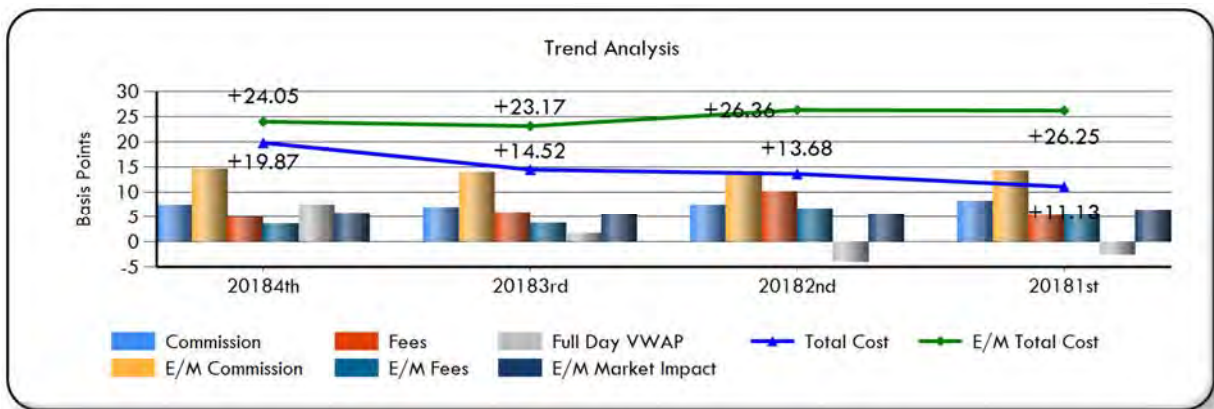
- The U.S. small cap managers (Weatherbie and DGHM) will typically incur additional commission costs in the form of a soft dollar relationship where, in return for conducting trades through a brokerage firm, the manager receives the brokerage firm’s research, generally an additional +2.0 cps.
- According to Elkins / McSherry, the average commission for the Bundled (Research Dollars) commission universe is +3.80 cps, which is higher than all of SCERS’ U.S. Small Cap managers in the fourth quarter.
- The following SCERS’ U.S. Equity managers experienced market impact costs that were greater than the peer group cost of +1.21 cps:
 - Alliance Bernstein at +17.76 cps
 - Weatherbie at +4.04 cps

INTERNATIONAL EQUITY

- SCERS’ International Equity managers traded 7.8 million shares totaling \$132.3 million in principal across 26 countries.
- Total trading cost equaled +19.87 bps, which is 4.18 bps lower than the peer group at +24.05 bps, as follows:
 - Commission cost of +7.47 bps versus +14.63 bps
 - Fees (country taxes, tariffs) of +4.94 bps versus +3.67 bps
 - Market impact cost of +7.46 bps versus +5.76 bps



- All of SCERS' International Equity managers analyzed generated commission costs (ranging from +4.01 bps to +8.86 bps), significantly less than the E/M peer group (ranging from +14.28 bps to +14.75 bps). This result is consistent with the previous quarters' lower trade costs versus the peer group, as illustrated below (commission vs. E/M commission).
- All of SCERS' International Equity managers experienced unfavorable market impact cost versus the peer group during the quarter (full day VWAP vs. E/M market impact):
 - William Blair at +8.85 bps vs. +6.30 bps
 - LSV at +8.11 bps vs. +4.52 bps
 - Lazard at +6.85 bps vs. +5.91 bps
- SCERS' total international trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 10.16 bps over the past four quarters.



U.S. FIXED INCOME

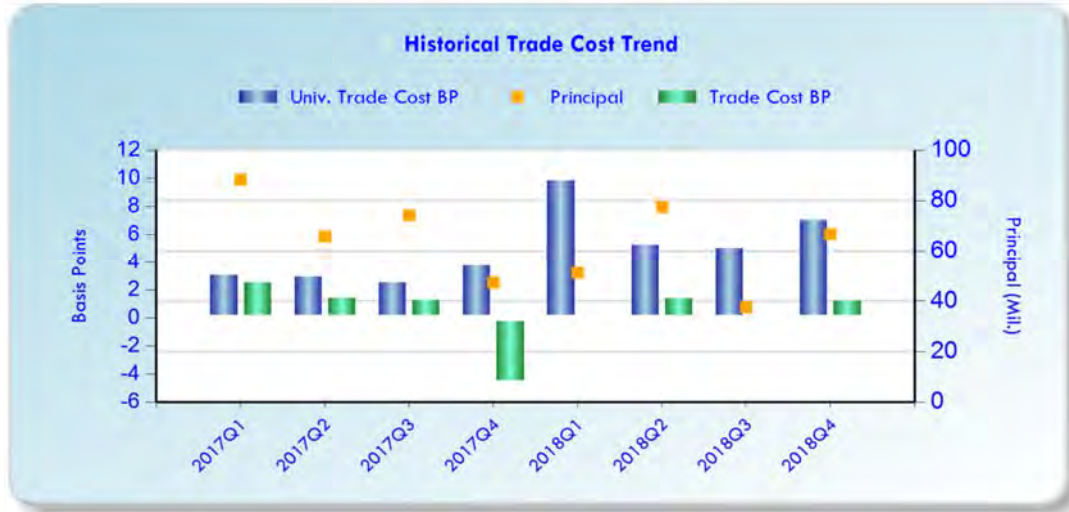
- SCERS' U.S. Fixed Income managers conducted 364 trades totaling \$714 million in principal, as follows:
 - Governments: 254 trades totaling \$538 million
 - Mortgages: 62 trades totaling \$155 million
 - Corporates: 48 trades totaling \$21 million
- Total trading cost equaled +0.33 bps, which is 8.42 bps lower than the E/M peer group cost of +8.75 bps, as follows:
 - Governments at -0.29 bps versus +8.40 bps
 - Mortgages at +2.32 bps versus +9.26 bps
 - Corporates at +1.54 bps versus +14.14 bps
- As illustrated below, the total trade cost (in basis points) is consistent with previous quarters' trade costs versus the peer group. SCERS' overall trading volume (in Principal) is consistent with previous quarters, with the exception of first quarter 2018, which was higher due to rebalancing performed across the fixed income portfolio.



- Comparing SCERS’ U.S. Fixed Income Core Plus and Treasury managers trade costs versus their peer group is as follows:
 - TCW / MetWest (Core Plus) at +0.28 bps versus +9.08 bps
 - NeubergerBerman (Treasury) at +1.09 bps versus +8.18 bps

INTERNATIONAL FIXED INCOME

- SCERS is invested with Brandywine Global Fixed Income’s commingled fund; therefore, trading activity is not tracked.
- Prudential, SCERS’ Core Plus Fixed Income manager, is permitted up to a 20% allocation in international bonds or non-U.S. denominated bonds, which is reported as follows:
 - Prudential conducted 146 international trades totaling \$67 million in principal as follows:
 - Governments: 87 trades totaling \$47 million
 - Corporates: 57 trades totaling \$19 million
 - Mortgages: 2 trades totaling less than \$1 million
 - Total trading cost was +1.45 bps, which was 5.79 bps lower than the E/M peer group cost of +7.24 bps, as follows:
 - Governments at +2.78 bps versus +7.92 bps
 - Corporates at -1.30 bps versus +5.60 bps
 - Mortgages at -20.02 bps versus +5.60 bps
 - Trading costs were in line with previous quarters’ results, as illustrated below.



COMMISSION RECAPTURE

- SCERS’ commission recapture program, administered by State Street, instructs investment managers to trade with the program’s brokerage partners but only if the trade cost is lower and is the best execution.
- For the fourth quarter of 2018, SCERS’ brokerage partners provided a rebate back to SCERS for approximately 50% of the commissions paid.
 - For the quarter ending December 31, 2018, the commission rebate totaled \$5,588.
 - Year to date through December 31, 2018, the commission rebate totaled \$37,766.
 - For comparison, the commission rebate for the year to date through December 31, 2017 totaled \$45,749.

ATTACHMENTS

1. Elkins / McSherry Trading Cost Summary report for the quarter ending December 31, 2018 for U.S. equity, international equity, U.S. fixed income, and global fixed income.

Prepared by:

/S/

 Brian Miller
 Investment Officer

Reviewed by:

/S/

 Steve Davis
 Chief Investment Officer

/S/

 Eric Stern
 Chief Executive Officer



SACRAMENTO COUNTY

Trade Cost Summary - U.S. Equity Trading

Period End December 31, 2018



REPORT CONTENTS

Tab 1 : Executive Summary

- **Results / Methodology**
- **Performance vs. Universe / Trading Components**
- **Short Term Alpha**
- **Market Capitalization Performance**
- **Order Size Performance**
- **Commission Review**

Tab 2 : Trade Detail

- **Manager Performance**
- **Broker Performance**

Tab 3 : High / Low Cost Trades

- **Trade Contributions**
- **Most Active Stocks**
- **10 High / Low Cost Trades**
- **10 High Cost Trade Graphs**
- **10 Low Cost Trade Graphs**



(+) = Cost

EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analysis to institutional investors since 1991, serving many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global equity market and Universe data, Elkins/McSherry has produced a Trading Cost Analysis on behalf of SACRAMENTO COUNTY. This study evaluates U.S. equity executions from October 1 , 2018 to December 31, 2018. The analysis included trading of 2,069,518 shares representing \$98.82 million in principal.

Methodology :

The Elkins/McSherry analysis measures trading efficiency by quantifying the cost of brokerage commission and execution quality versus a Full Day VWAP benchmark for each of the securities traded. These data have been aggregated to summarize results by Buy/Sell, Commissions, Market Impact, Short Term Alpha, Market Cap, Trade Difficulty and Trade Detail. These results are quantified in USD as well as being displayed graphically to highlight the outcomes.

Results :

BENCHMARK PERFORMANCE

Commission	Full Day VWAP	E - Score
<ul style="list-style-type: none"> Your commission cost was +2.80 cps (+5.86 bp) or +\$57,892 (+0.81 cps (+1.69 bp) worse than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact cost was +0.21 cps (+0.45 bp) or 0.99 cps (2.08 bp) better than the Elkins/McSherry Universe Your overall trading cost of +3.01 cps (+6.31 bp) was 0.18 cps (0.39 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 69% Total Cost Universe Rank: 54% 	<ul style="list-style-type: none"> E-Score Rank : 60 E-Score : 0.53

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program		Full Day VWAP
+3.80	+1.99	+0.99	+1.50	Median	+1.21
				75 %	0.23
				25 %	+3.16



(+) = Cost

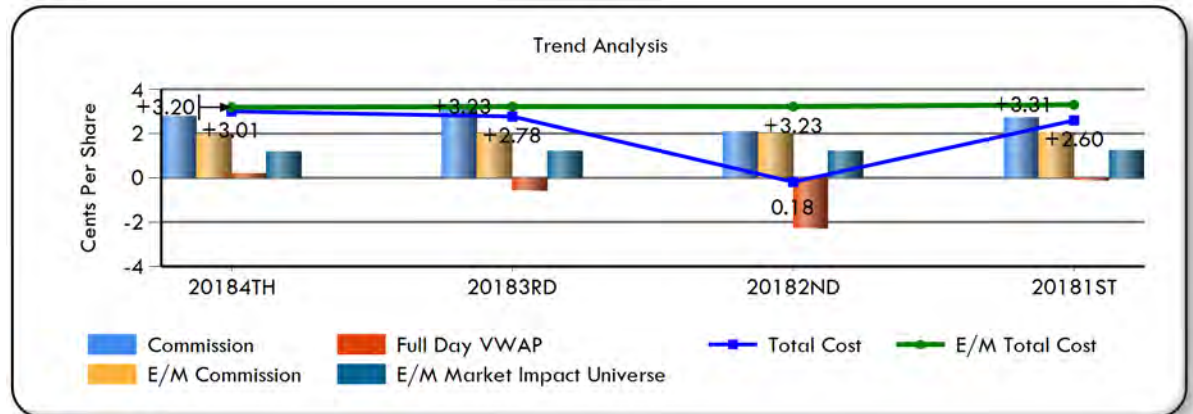
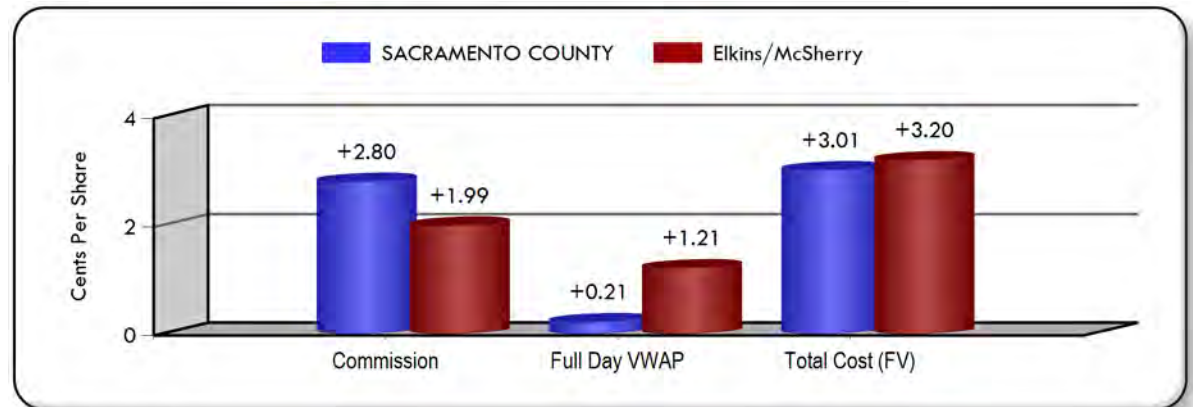
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E - Score (Rank)	E -Score
	Your Avg. Commission (cps)	All Trading Universe (cps)	Bundled Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	(cps)	Commission+ Full Day VWAP (cps)		
Sells	+2.85	+1.99	+3.80	4.53	+1.21	1.69	4.88	53	0.63
Buys	+2.76	+1.99	+3.80	+4.29	+1.21	+7.04	+3.85	66	0.44
Total	+2.80	+1.99	+3.80	+0.21	+1.21	+3.01	0.18	60	0.53

TRADING COMPONENTS

	Buys	Sells
Trade Principal	52,331,629	46,484,644
Shares	1,113,832	955,686
Unique Names	444	168
Liquidity (% ADV)	0.037	0.072
Avg. Execution Size	1,638	2,522
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	680	379



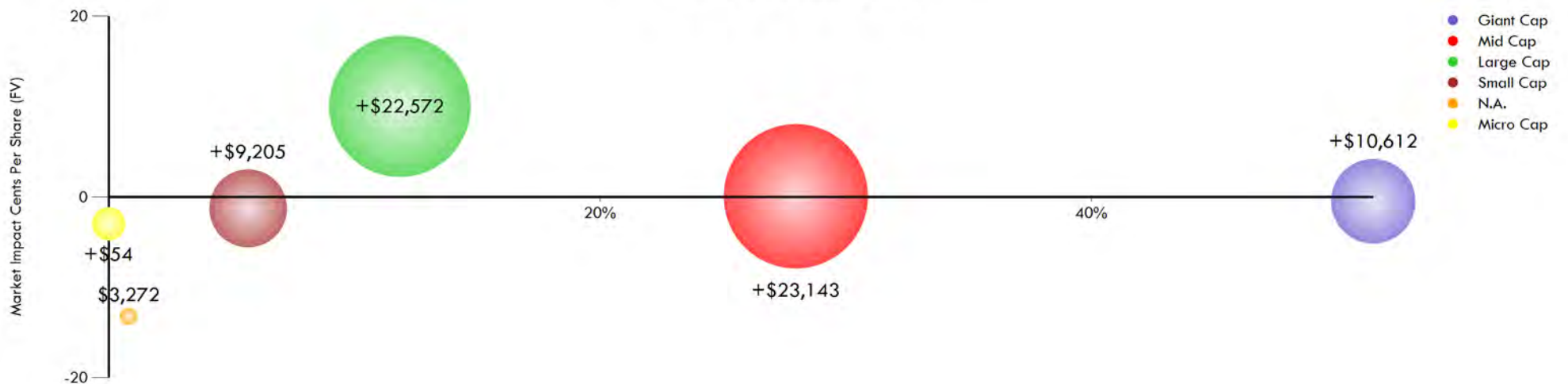
(+) = Cost

EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded (\$)	Avg. Shares Per Order	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score (Rank)	E - Score	Market Cap Definition
			Your Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	Rank Full Day VWAP (%)	(cps)	Commission+ Full Day VWAP Vs. Universe (cps)			
Giant Cap	51.84 %	3,546	+2.04	+1.99	0.49	+1.36	66 %	+1.55	1.80	59	0.54	Over \$25 B
Mid Cap	28.34 %	1,566	+3.61	+1.99	+0.07	+0.94	70 %	+3.68	+0.75	62	0.49	\$1 B To \$5 B
Large Cap	12.22 %	625	+1.95	+1.99	+10.01	+1.58	8 %	+11.97	+8.39	55	0.60	\$5 B To \$25 B
Small Cap	6.05 %	3,296	+3.22	+1.99	1.28	+0.69	79 %	+1.94	0.74	63	0.48	\$250 M To \$1 B
N.A.	1.18 %	8,900	+0.99	+1.99	13.24	+1.21	99 %	12.25	15.45	64	0.47	
Micro Cap	0.37 %	4,372	+3.04	+1.99	2.96	+0.50	92 %	+0.08	2.40	53	0.62	Under \$250 M

Total Cost by Market Cap: (USD)

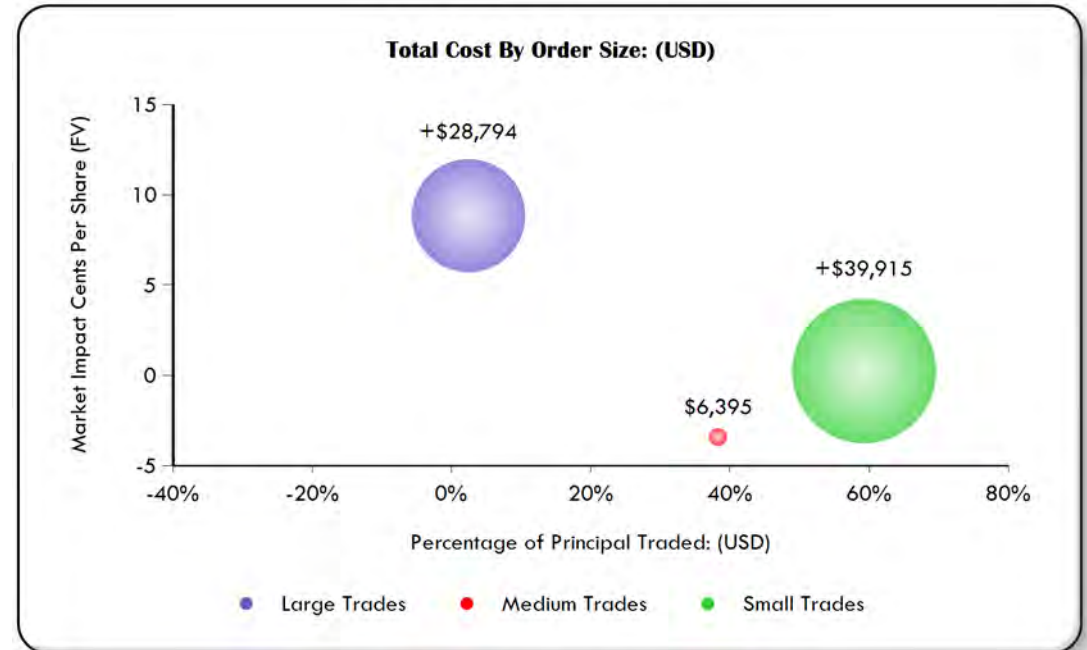
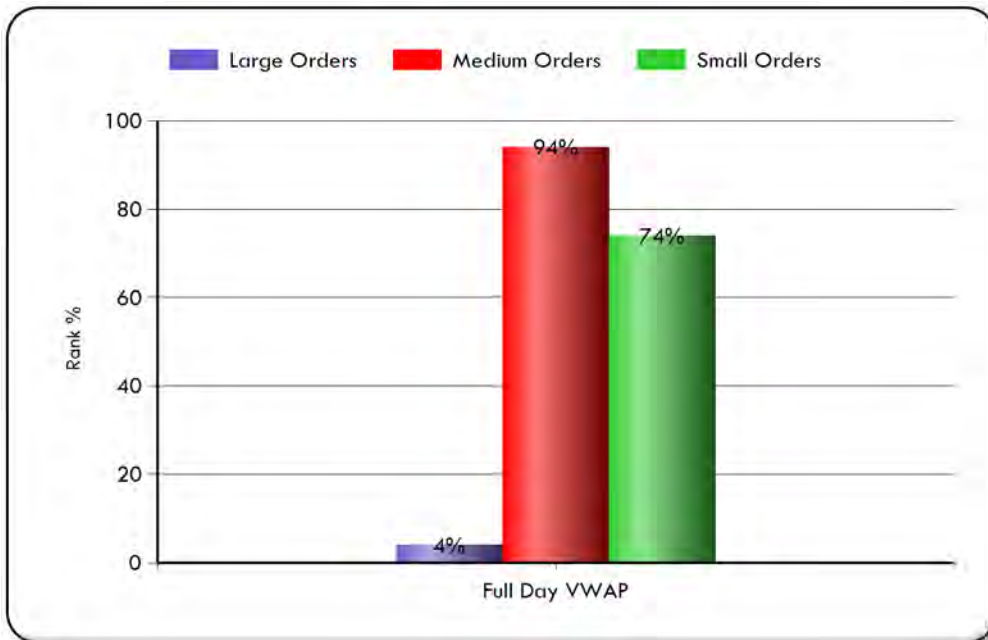


(+) = Cost

EXECUTIVE SUMMARY

ORDER SIZE EVALUATION

Order Size	Total # Of Orders	Avg. Shares Per Order	Avg. Order Completion Time (min)	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score (Rank)	E - Score	Absolute Size (Shares)
				Your Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	Rank Full Day VWAP	(cps)	Commission+Full Day VWAP Vs. Universe (cps)			
Large Orders	2	124,991	N/A	+2.68	+1.99	+8.84	+1.21	4 %	+11.52	+8.32	85	0.19	50K Or More
Med. Orders	31	19,101	N/A	+2.34	+1.99	2.79	+1.21	94 %	0.45	3.64	56	0.59	10K-50K
Small Orders	1,026	1,196	N/A	+3.04	+1.99	0.10	+1.21	74 %	+2.95	0.25	61	0.51	10K Or Less





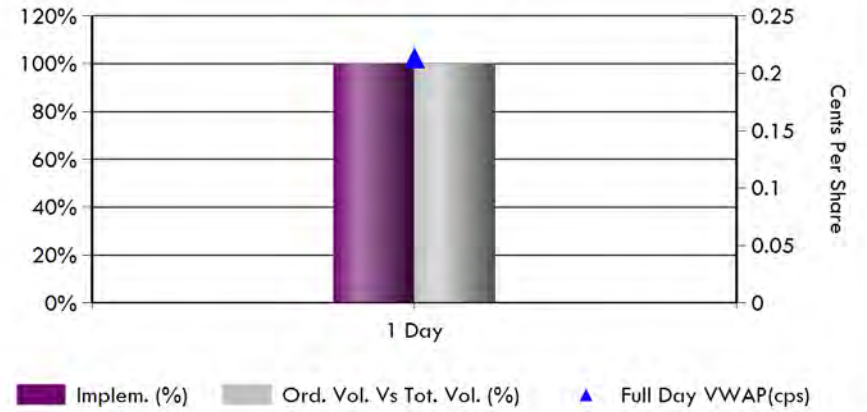
(+) = Cost

EXECUTIVE SUMMARY

IMPLEMENTATION DAYS BY TRADE

Period	Percent Traded (%)	Order Vol. Vs Total Vol. (%)	Full Day VWAP (cps)	E - Score (Rank)	E - Score
1 Day	100.00	100%	+0.21	60	0.53

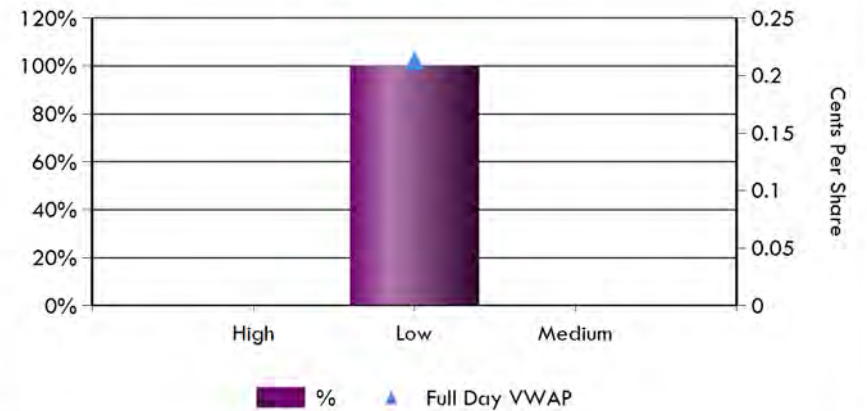
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (cps)	E - Score (Rank)	E - Score
0%~20% of daily vol.	L	100%	+0.21	60	0.53

Avg. % of Daily Volume





(+) = Cost

EXECUTIVE SUMMARY

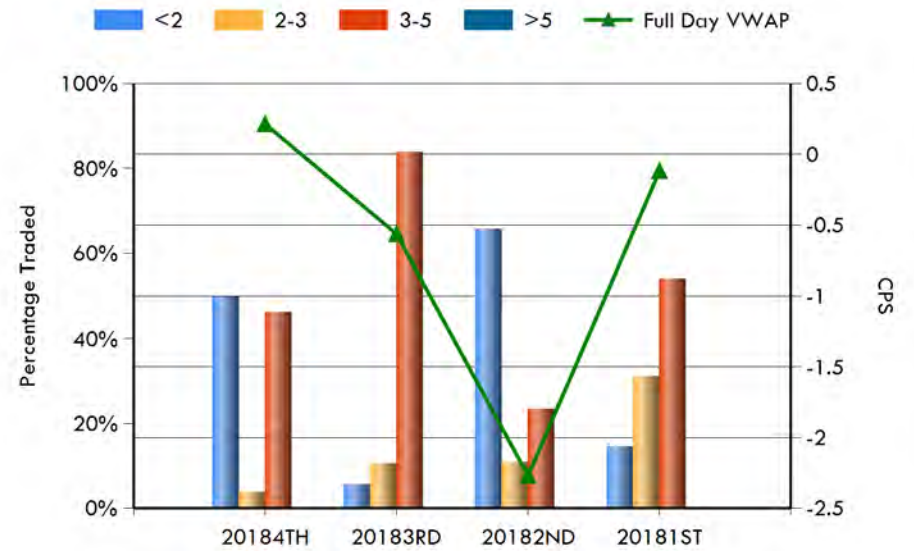
COMMISSION REVIEW

Top 10 Broker

Commission Trends

Broker	Total Commission (\$)	Commission 20184th (cps)	All Trading Universe (cps)	Bundled Universe (cps)	20183RD (cps)	20182ND (cps)	20181ST (cps)
COWEN & CO	8,460	+3.65	+1.99	+3.80	+3.78	+3.89	+3.27
ITG	6,975	+3.46	+1.99	+3.80	+3.60	+2.56	+3.42
LIQUIDNET	6,003	+3.51	+1.99	+3.80	+3.20	+2.26	+2.64
DOWLING &	4,720	+4.00	+1.99	+3.80	N.A	N.A	N.A
THEMIS TRA	3,984	+3.60	+1.99	+3.80	+3.60	+3.60	+3.32
CAPITAL IN	3,540	+3.79	+1.99	+3.80	+3.31	+3.08	+2.99
CONVERGEX	3,200	+1.50	+1.99	+3.80	+1.50	+3.93	+4.65
GOLDMAN SA	2,164	+0.83	+1.99	+3.80	+2.64	+2.14	+1.46
INSTINET	1,777	+3.00	+1.99	+3.80	+3.00	+2.38	+1.36
STRATEGASS	1,619	+4.00	+1.99	+3.80	N.A	N.A	N.A

Commission Category Trend




NOTES

(+) = Cost

TRADE CYCLE DETAIL

Manager Performance (Full Day VWAP)



Manager	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION		MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
EAGLE CAPITAL MANAGE	48	17,710	672,983	56	0.58	+2.21	+1.99	3.48	96 %	4.47	98	97	97
WEATHERBIE	25	1,416	511,183	63	0.47	+3.60	+1.99	+4.04	18 %	+4.44	18	4	32
DALTON, GREINER, HAR	13	4,271	666,215	61	0.51	+3.52	+1.99	4.76	99 %	4.43	92	93	95
ALLIANCE R 3000 CAPI	13	435	219,137	62	0.49	+0.51	+1.99	+17.76	1 %	+15.07	1	99	93

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.80	+1.99	+0.99	+1.50	+1.21

NOTES

--

(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score	E - Score Rank	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP		20183RD (%)	20182ND (%)	20181ST (%)
MERRILL LYNCH	17	13,284	132,838	64	0.46	1,383	+1.04	+1.99	27.11	99 %	29.26	99	75	2
GOLDMAN SACHS	16	517	261,079	60	0.53	2,164	+0.83	+1.99	+19.51	1 %	+17.14	1	84	97
CONVERGEX	12	26,669	213,355	55	0.60	3,200	+1.50	+1.99	+10.93	1 %	+9.23	12	98	98
ITG	10	1,327	201,700	66	0.43	6,975	+3.46	+1.99	+5.10	14 %	+5.36	1	99	35
MORGAN STANLEY	6	9,931	59,583	82	0.22	1,017	+1.71	+1.99	9.62	99 %	11.11	13	89	96
THEMIS TRADING LLC	6	1,243	110,662	68	0.41	3,984	+3.60	+1.99	+15.28	1 %	+15.68	20	1	6
COWEN & CO	6	3,362	232,011	65	0.46	8,460	+3.65	+1.99	1.31	87 %	0.86	92	40	60
LIQUIDNET	5	2,409	171,019	60	0.52	6,003	+3.51	+1.99	2.12	93 %	1.80	92	96	94
STRATEGASSECURITIES	4	40,475	40,475	12	1.52	1,619	+4.00	+1.99	55.18	99 %	54.38	-	-	-
CAPITAL INSTL SVCS	2	9,330	93,298	51	0.65	3,540	+3.79	+1.99	6.99	99 %	6.39	99	33	95

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.80	+1.99	+0.99	+1.50	+1.21

NOTES

--

(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
CRAIG - HALLUM	1	2,098	35,669	68	0.41	1,284	+3.60	+1.99	7.06	99 %	6.66	21	99	-
STEPHENS & CO INC	1	2,820	39,479	71	0.38	1,275	+3.23	+1.99	15.41	99 %	15.37	98	1	15
DOWLING & PARTNERS	1	118,000	118,000	67	0.42	4,720	+4.00	+1.99	+8.21	6 %	+9.01	-	-	-
SOUTHWEST SECURITIES	1	16,100	16,100	63	0.48	805	+5.00	+1.99	28.81	99 %	27.00	-	-	-
CANACCORD GENUITY	<1	2,119	19,073	54	0.61	687	+3.60	+1.99	+19.25	1 %	+19.66	-	-	6
WILLIAM BLAIR	<1	1,606	17,665	78	0.29	636	+3.60	+1.99	13.19	99 %	12.79	99	98	93
RAYMOND JAMES	<1	1,153	16,143	47	0.72	589	+3.65	+1.99	+23.11	1 %	+23.57	1	77	86
UBS	<1	4,086	12,257	31	0.99	158	+1.29	+1.99	29.79	99 %	31.70	99	95	52
CITIGROUP	<1	2,923	11,693	56	0.58	421	+3.60	+1.99	+23.20	1 %	+23.60	63	99	60
JP MORGAN CHASE	<1	4,416	17,663	65	0.45	666	+3.77	+1.99	+11.38	1 %	+11.96	99	30	1

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.80	+1.99	+0.99	+1.50	+1.21

NOTES

--

(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
PIPER JAFFRAY	<1	2,262	11,308	57	0.57	407	+3.60	+1.99	+5.75	10 %	+6.15	99	1	89
STIFEL NICOLAUS & CO	<1	1,841	12,885	45	0.74	493	+3.83	+1.99	29.50	99 %	28.87	99	1	22
INSTINET	<1	7,404	59,230	57	0.56	1,777	+3.00	+1.99	10.77	99 %	10.97	32	1	6
WEEDEN & CO	<1	4,489	44,890	85	0.18	1,571	+3.50	+1.99	0.58	80 %	0.28	95	83	38
KEYBANC	<1	3,853	15,410	69	0.40	693	+4.50	+1.99	3.79	96 %	2.49	88	1	91
OPPENHEIMER & CO INC	<1	3,299	9,897	74	0.33	356	+3.60	+1.99	4.33	97 %	3.93	1	3	45
CJS SECURITIES	<1	2,900	8,700	25	1.11	348	+4.00	+1.99	23.70	99 %	22.89	-	99	-
CREDIT SUISSE	<1	4,075	4,075	72	0.36	163	+4.00	+1.99	+7.94	6 %	+8.74	93	99	92
ISI GROUP INC	<1	11,173	22,346	36	0.89	626	+2.80	+1.99	20.10	99 %	20.50	92	99	99
LEERINK SWANN	<1	2,280	2,280	51	0.65	82	+3.60	+1.99	43.56	99 %	43.16	-	-	-

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.80	+1.99	+0.99	+1.50	+1.21

NOTES

--

(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP		Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)
NEEDHAM & CO INC	<1	2,349	7,047	51	0.66	254	+3.60	+1.99	27.87	99 %	27.47	10	7	12
SEAPORT GROUP SECS	<1	17,751	17,751	72	0.36	533	+3.00	+1.99	+4.00	18 %	+3.80	-	82	24
NORTHLAND SECURITIES	<1	3,928	3,928	50	0.66	177	+4.50	+1.99	31.71	99 %	30.40	-	99	-
BAIRD, ROBERT W	<1	2,150	4,300	70	0.39	172	+4.00	+1.99	+1.95	39 %	+2.76	17	84	99
JEFFERIES & CO	<1	2,643	2,643	55	0.59	95	+3.60	+1.99	70.81	99 %	70.40	5	62	84
WOLFE TRAHAN SECS	<1	2,933	8,800	72	0.36	264	+3.00	+1.99	0.70	81 %	0.89	88	99	90
JNK SECURITIES	<1	2,900	8,700	19	1.28	261	+3.00	+1.99	8.39	99 %	8.59	-	-	-
DEUTSCHE BANK	<1	2,783	5,566	9	1.64	33	+0.60	+1.99	+13.82	1 %	+11.22	1	-	94

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.80	+1.99	+0.99	+1.50	+1.21

NOTES

--



(+) = Cost

TRADE CYCLE DETAIL

ALLIANCE R 3000 CAPITAL MANAGEM Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
GOLDMAN SACHS	11	392	195,359	58	0.55	977	+0.50	+1.99	+18.54	1 %	+15.84	1	-	4
MORGAN STANLEY	2	13,274	13,274	90	0.13	80	+0.60	+1.99	+8.02	6 %	+5.42	18	1	99
JP MORGAN CHASE	<1	1,646	4,938	32	0.97	30	+0.60	+1.99	+17.45	1 %	+14.86	99	18	-
DEUTSCHE BANK	<1	2,783	5,566	9	1.64	33	+0.60	+1.99	+13.82	1 %	+11.22	1	-	91
Grand Total	13	435	219,137	62	0.49	1,119	+0.51	+1.99	+17.76	1 %	+15.07	1	99	93



(+) = Cost

TRADE CYCLE DETAIL

DALTON, GREINER, HARTMAN, MAHER Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
COWEN & CO	6	3,362	232,011	65	0.46	8,460	+3.65	+1.99	1.31	87 %	0.86	92	66	92
LIQUIDNET	3	3,572	117,878	66	0.44	4,126	+3.50	+1.99	3.89	97 %	3.59	68	99	99
CAPITAL INSTL SVCS	2	9,330	93,298	51	0.65	3,540	+3.79	+1.99	6.99	99 %	6.39	99	27	74
INSTINET	<1	7,404	59,230	57	0.56	1,777	+3.00	+1.99	10.77	99 %	10.97	32	2	98
WEEDEN & CO	<1	4,489	44,890	85	0.18	1,571	+3.50	+1.99	0.58	80 %	0.28	95	90	1
KEYBANC	<1	3,853	15,410	69	0.40	693	+4.50	+1.99	3.79	96 %	2.49	88	1	96
CJS SECURITIES	<1	2,900	8,700	25	1.11	348	+4.00	+1.99	23.70	99 %	22.89	-	99	-
ISI GROUP INC	<1	11,173	22,346	36	0.89	626	+2.80	+1.99	20.10	99 %	20.50	-	99	37
STIFEL NICOLAUS & CO	<1	2,375	7,126	23	1.16	286	+4.01	+1.99	21.97	99 %	21.15	-	98	98
SEAPORT GROUP SECS	<1	17,751	17,751	72	0.36	533	+3.00	+1.99	+4.00	18 %	+3.80	-	82	24
STEPHENS & CO INC	<1	6,982	20,947	49	0.69	608	+2.90	+1.99	5.43	99 %	5.72	80	17	98
NORTHLAND SECURITIES	<1	3,928	3,928	50	0.66	177	+4.50	+1.99	31.71	99 %	30.40	-	99	-
BAIRD, ROBERT W	<1	2,150	4,300	70	0.39	172	+4.00	+1.99	+1.95	39 %	+2.76	17	99	34
WOLFE TRAHAN SECS	<1	2,933	8,800	72	0.36	264	+3.00	+1.99	0.70	81 %	0.89	88	99	90
JNK SECURITIES	<1	2,900	8,700	19	1.28	261	+3.00	+1.99	8.39	99 %	8.59	-	-	-
RAYMOND JAMES	<1	900	900	50	0.67	41	+4.50	+1.99	+21.31	1 %	+22.61	-	79	-
Grand Total	13	4,271	666,215	61	0.51	23,482	+3.52	+1.99	4.76	99 %	4.43	92	93	95



(+) = Cost

TRADE CYCLE DETAIL

EAGLE CAPITAL MANAGEMENT Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
MERRILL LYNCH	17	13,284	132,838	64	0.46	1,383	+1.04	+1.99	27.11	99 %	29.26	99	90	-
CONVERGEX	12	26,669	213,355	55	0.60	3,200	+1.50	+1.99	+10.93	1 %	+9.23	12	-	-
GOLDMAN SACHS	5	10,803	64,818	64	0.47	1,155	+1.78	+1.99	+22.12	1 %	+20.71	1	1	-
STRATEGASSECURITIES	4	40,475	40,475	12	1.52	1,619	+4.00	+1.99	55.18	99 %	54.38	-	-	-
MORGAN STANLEY	4	11,402	45,609	80	0.26	912	+2.00	+1.99	12.58	99 %	13.77	10	77	-
ITG	2	11,000	11,000	85	0.19	110	+1.00	+1.99	23.67	99 %	25.87	-	99	-
DOWLING & PARTNERS	1	118,000	118,000	67	0.42	4,720	+4.00	+1.99	+8.21	6 %	+9.01	-	-	-
SOUTHWEST SECURITIES	1	16,100	16,100	63	0.48	805	+5.00	+1.99	28.81	99 %	27.00	-	-	-
UBS	<1	4,086	12,257	31	0.99	158	+1.29	+1.99	29.79	99 %	31.70	99	89	94
JP MORGAN CHASE	<1	12,725	12,725	75	0.32	636	+5.00	+1.99	+9.03	4 %	+10.83	99	-	-
LIQUIDNET	<1	1,731	1,731	16	1.34	27	+1.55	+1.99	+158.00	1 %	+156.35	23	98	99
CREDIT SUISSE	<1	4,075	4,075	72	0.36	163	+4.00	+1.99	+7.94	6 %	+8.74	93	-	-
Grand Total	48	17,710	672,983	56	0.58	14,889	+2.21	+1.99	3.48	96 %	4.47	98	97	97



(+) = Cost

TRADE CYCLE DETAIL

WEATHERBIE Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20183RD (%)	20182ND (%)	20181ST (%)
ITG	9	1,263	190,700	63	0.48	6,865	+3.60	+1.99	+6.76	8 %	+7.16	1	42	25
THEMIS TRADING LLC	6	1,243	110,662	68	0.41	3,984	+3.60	+1.99	+15.28	1 %	+15.68	20	1	6
LIQUIDNET	2	1,389	51,410	60	0.52	1,851	+3.60	+1.99	3.43	96 %	3.03	99	1	20
CRAIG - HALLUM	1	2,098	35,669	68	0.41	1,284	+3.60	+1.99	7.06	99 %	6.66	21	99	-
STEPHENS & CO INC	1	1,685	18,532	73	0.34	667	+3.60	+1.99	26.69	99 %	26.28	99	1	13
CANACCORD GENUITY	<1	2,119	19,073	54	0.61	687	+3.60	+1.99	+19.25	1 %	+19.66	-	-	6
WILLIAM BLAIR	<1	1,606	17,665	78	0.29	636	+3.60	+1.99	13.19	99 %	12.79	99	98	98
CITIGROUP	<1	2,923	11,693	56	0.58	421	+3.60	+1.99	+23.20	1 %	+23.60	-	-	-
RAYMOND JAMES	<1	1,173	15,243	47	0.72	549	+3.60	+1.99	+23.22	1 %	+23.62	1	21	87
PIPER JAFFRAY	<1	2,262	11,308	57	0.57	407	+3.60	+1.99	+5.75	10 %	+6.15	99	1	1
STIFEL NICOLAUS & CO	<1	1,440	5,759	56	0.58	207	+3.60	+1.99	38.82	99 %	38.41	99	1	-
OPPENHEIMER & CO INC	<1	3,299	9,897	74	0.33	356	+3.60	+1.99	4.33	97 %	3.93	1	95	45
LEERINK SWANN	<1	2,280	2,280	51	0.65	82	+3.60	+1.99	43.56	99 %	43.16	-	-	-
NEEDHAM & CO INC	<1	2,349	7,047	51	0.66	254	+3.60	+1.99	27.87	99 %	27.47	10	1	12
JEFFERIES & CO	<1	2,643	2,643	55	0.59	95	+3.60	+1.99	70.81	99 %	70.40	5	18	92
MORGAN STANLEY	<1	700	700	21	1.21	25	+3.60	+1.99	151.35	99 %	150.95	-	-	-
GOLDMAN SACHS	<1	902	902	48	0.69	32	+3.60	+1.99	+41.33	1 %	+41.74	1	99	-
Grand Total	25	1,416	511,183	63	0.47	18,402	+3.60	+1.99	+4.04	18 %	+4.44	18	4	32



(+) = Cost

TRADE DETAIL ANALYSIS

Largest Shares Volume Traded

							Market Impact
Security	# Orders	Shares	US Dollars	Commission (cps)	% of Volume	E - Score	Full Day VWAP (cps)
GE	3	252,581	2,436,570	+2.66	0.04%	0.20	+8.83
CHS	10	168,073	935,645	+2.77	0.18%	0.50	+1.58
ACCO	23	112,051	909,468	+3.22	0.60%	0.38	3.90
IVC	15	65,581	366,209	+3.04	0.42%	0.62	2.96
STAG	17	62,167	1,634,839	+4.31	0.57%	0.47	6.66
JPM	3	58,075	6,057,762	+3.08	0.09%	1.18	44.63
UPS	3	48,175	5,285,512	+1.23	0.52%	0.19	8.66
ENSG	13	37,553	1,434,148	+3.50	0.95%	0.49	8.33
LASR	17	36,000	657,140	+3.60	0.49%	0.51	5.00
NVRO	25	34,874	1,551,171	+3.60	0.16%	0.59	+25.05

Names Most Traded - Total Orders

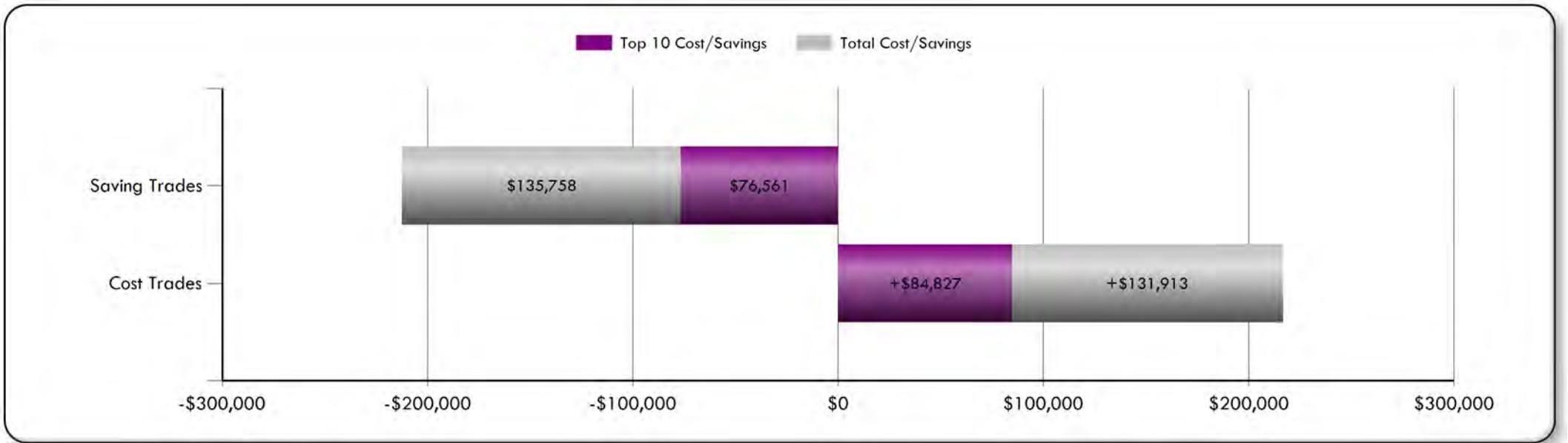
							Market Impact
Security	# Orders	Shares	US Dollars	Commission (cps)	% of Volume	E - Score	Full Day VWAP (cps)
MAR	6	25,561	2,880,389	+1.95	0.20%	0.34	20.58
JPM	3	58,075	6,057,762	+3.08	0.09%	1.18	44.63
HLT	3	34,774	2,413,209	+1.77	0.26%	0.51	+7.27
AON	3	22,245	3,569,641	+1.34	0.84%	0.57	42.96
UPS	3	48,175	5,285,512	+1.23	0.52%	0.19	8.66
TMO	3	28,470	6,814,038	+1.27	0.67%	0.84	+12.26
GE	3	252,581	2,436,570	+2.66	0.04%	0.20	+8.83
C	3	33,300	2,205,045	+3.17	0.05%	0.60	1.71
GS	3	26,248	5,184,611	+1.31	0.12%	0.29	+25.45
MSFT	2	23,355	2,583,307	+0.95	0.03%	0.67	64.01



(+) = Cost

TRADE CONTRIBUTIONS

Cost\Savings Performance				
Category	Principal USD	# of Trades	Avg. Market Impact (cps)	Percentage of all Cost\Savings
10 High Cost Trades	10,349,139	10	+96.05	39.14%
Cost Trades	43,695,319	572	+31.18	100.00%
Saving Trades	55,120,954	487	27.13	100.00%
10 Low Cost Trades	15,278,143	10	137.74	36.06%





(+) = Cost

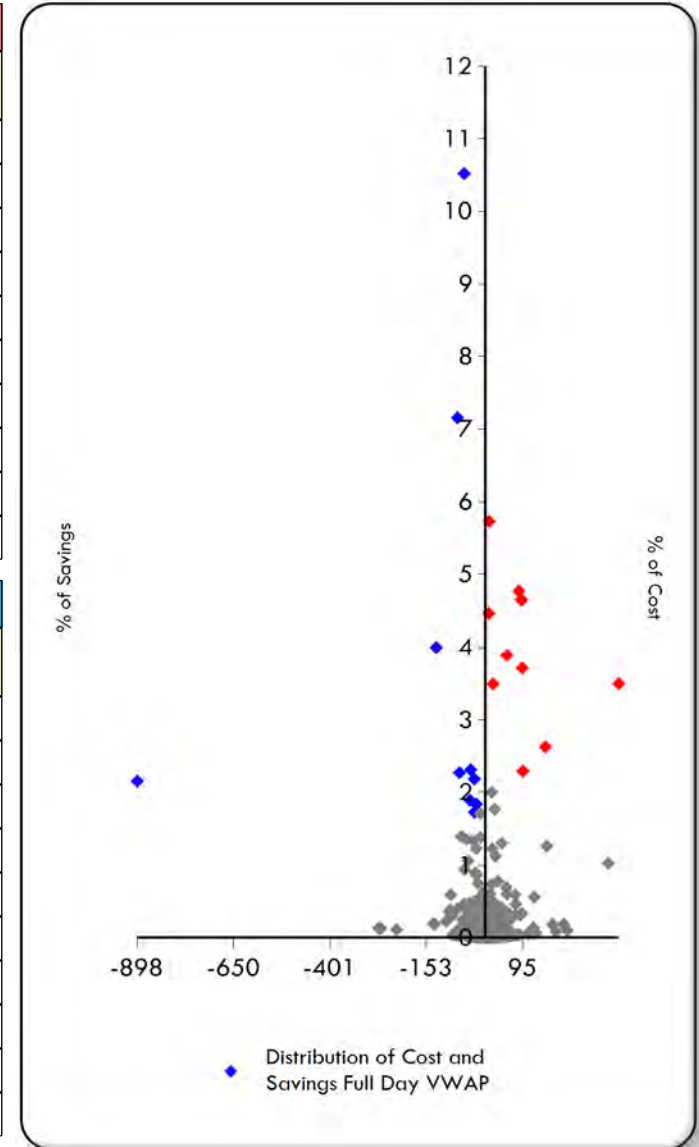
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Cost (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Buy	GE	2018/11/01	131,981	5.73	0.00	+9.40	EAGLE CAPI	CONVERGEX
Sell	QCOM	2018/12/21	12,027	4.77	1.16	+85.91	ALLIANCE R	GOLDMAN SA
Sell	ORCL	2018/12/21	10,826	4.65	1.44	+93.07	ALLIANCE R	GOLDMAN SA
Buy	GE	2018/11/02	118,000	4.47	0.42	+8.21	EAGLE CAPI	DOWLING &
Sell	TMO	2018/10/09	15,438	3.89	1.21	+54.64	EAGLE CAPI	CONVERGEX
Buy	GS	2018/11/13	8,511	3.72	0.68	+94.64	EAGLE CAPI	MERRILL LY
Sell	AAPL	2018/12/21	2,206	3.50	1.22	+343.84	ALLIANCE R	GOLDMAN SA
Sell	CHS	2018/11/29	38,604	3.50	0.85	+19.63	DALTON, GR	COWEN & CO
Buy	MHK	2018/10/09	3,684	2.63	1.32	+154.69	EAGLE CAPI	GOLDMAN SA
Buy	NVRO	2018/11/07	5,151	2.29	1.05	+96.52	WEATHERBIE	CANACCORD

10 Low Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Savings (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Sell	JPM	2018/10/26	40,475	10.52	1.52	55.18	EAGLE CAPI	STRATEGASS
Sell	MSFT	2018/10/16	21,055	7.15	0.73	72.15	EAGLE CAPI	MERRILL LY
Sell	AON	2018/11/14	6,700	4.00	1.30	126.65	EAGLE CAPI	MERRILL LY
Sell	TMO	2018/10/08	12,932	2.31	0.41	37.98	EAGLE CAPI	MERRILL LY
Buy	MAR	2018/12/19	7,222	2.27	0.69	66.81	EAGLE CAPI	MORGAN STA
Buy	C	2018/11/08	16,100	2.18	0.48	28.81	EAGLE CAPI	SOUTHWEST
Buy	GOOG	2018/12/07	510	2.16	0.79	897.91	EAGLE CAPI	MERRILL LY
Sell	ACCO	2018/10/30	10,000	1.89	1.56	40.19	DALTON, GR	ISI GROUP
Sell	JPM	2018/10/24	16,600	1.84	0.41	23.53	EAGLE CAPI	MERRILL LY
Sell	FTDR	2018/11/06	13,000	1.73	0.43	28.24	DALTON, GR	CAPITAL IN





(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

GE - 2018/11/01

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	CONVERGEX	11/01/2018 09:30:00	11/01/2018 16:00:00	131,981	9.9590	9.8650	+12,413	+9.40	0.00	0.06



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 5.73% of your market impact cost.

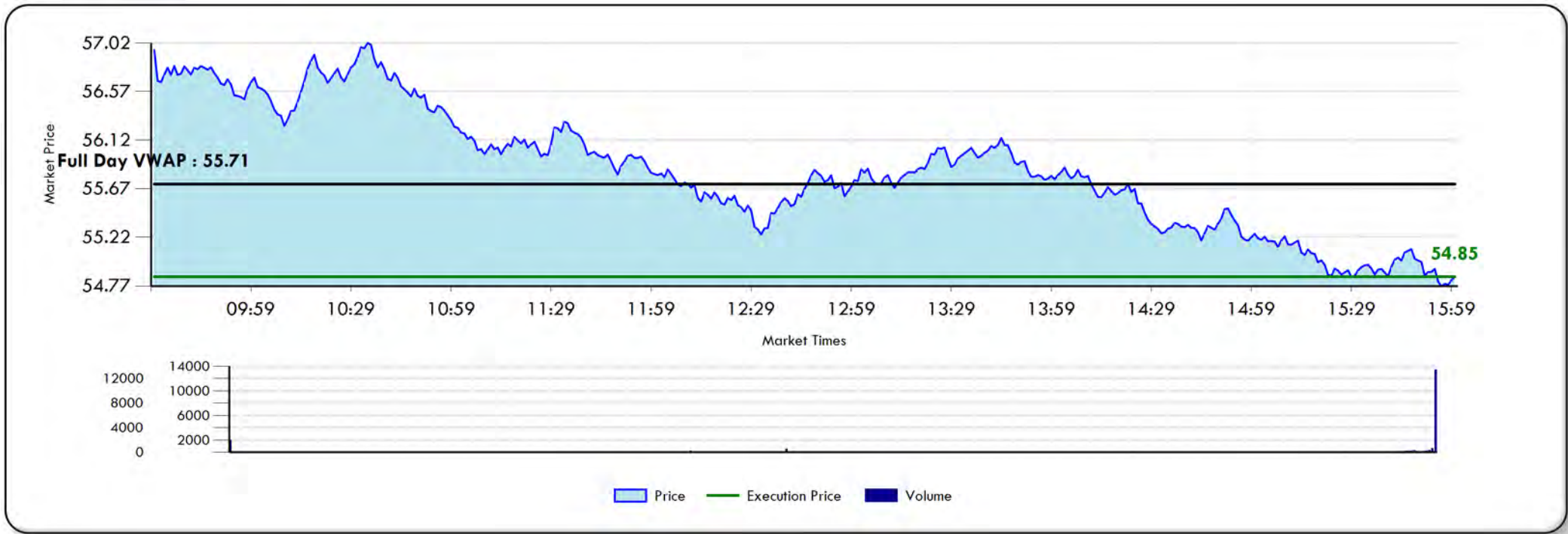


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

QCOM - 2018/12/21

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	ALLIANCE R 3000 CAPITAL MANAGEM	GOLDMAN SACHS	12/21/2018 09:30:00	12/21/2018 16:00:00	12,027	54.8500	55.7091	+10,333	+85.91	1.16	0.03



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 4.77% of your market impact cost.

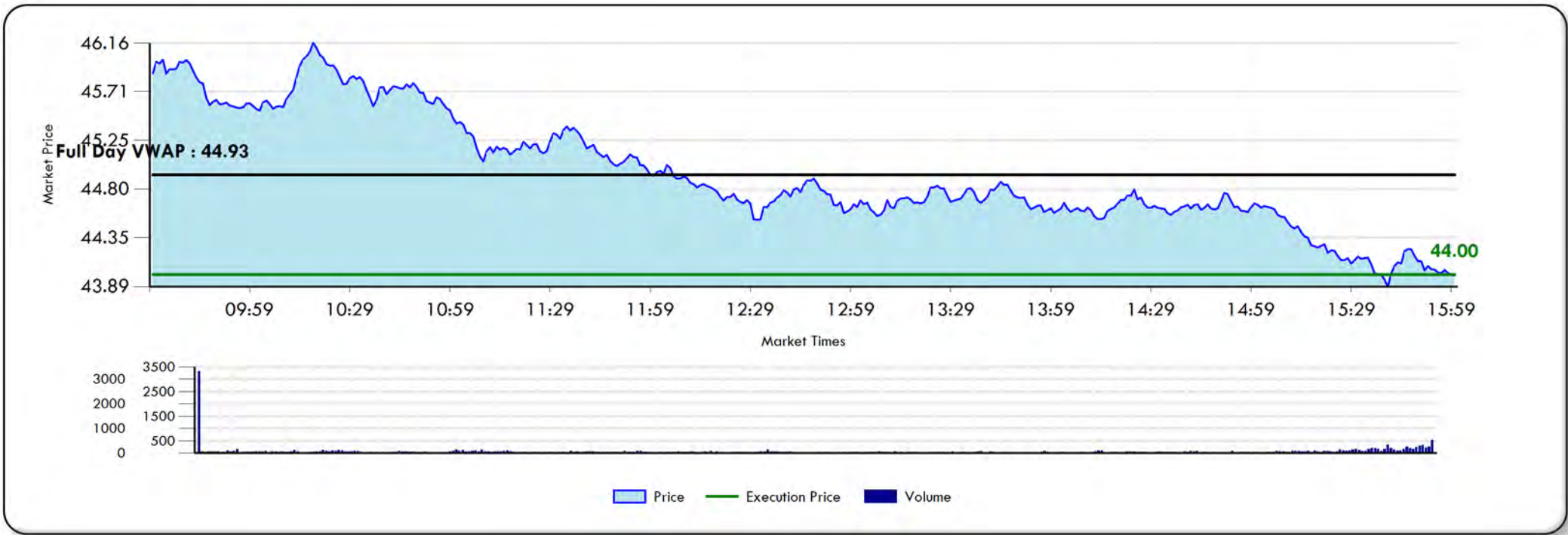


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

ORCL - 2018/12/21

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	ALLIANCE R 3000 CAPITAL MANAGEM	GOLDMAN SACHS	12/21/2018 09:30:00	12/21/2018 16:00:00	10,826	44.0000	44.9307	+10,076	+93.07	1.44	0.02



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 4.65% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

GE - 2018/11/02

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	DOWLING & PARTNERS	11/02/2018 09:30:00	11/02/2018 16:00:00	118,000	9.3507	9.2687	+9,682	+8.21	0.42	0.04



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 4.47% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

TMO - 2018/10/09

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CONVERGEX	10/09/2018 09:30:00	10/09/2018 16:00:00	15,438	239.3700	239.9164	+8,435	+54.64	1.21	1.10



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.89% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

GS - 2018/11/13

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	11/13/2018 09:30:00	11/13/2018 16:00:00	8,511	206.7893	205.8429	+8,054	+94.64	0.68	0.12



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.72% of your market impact cost.

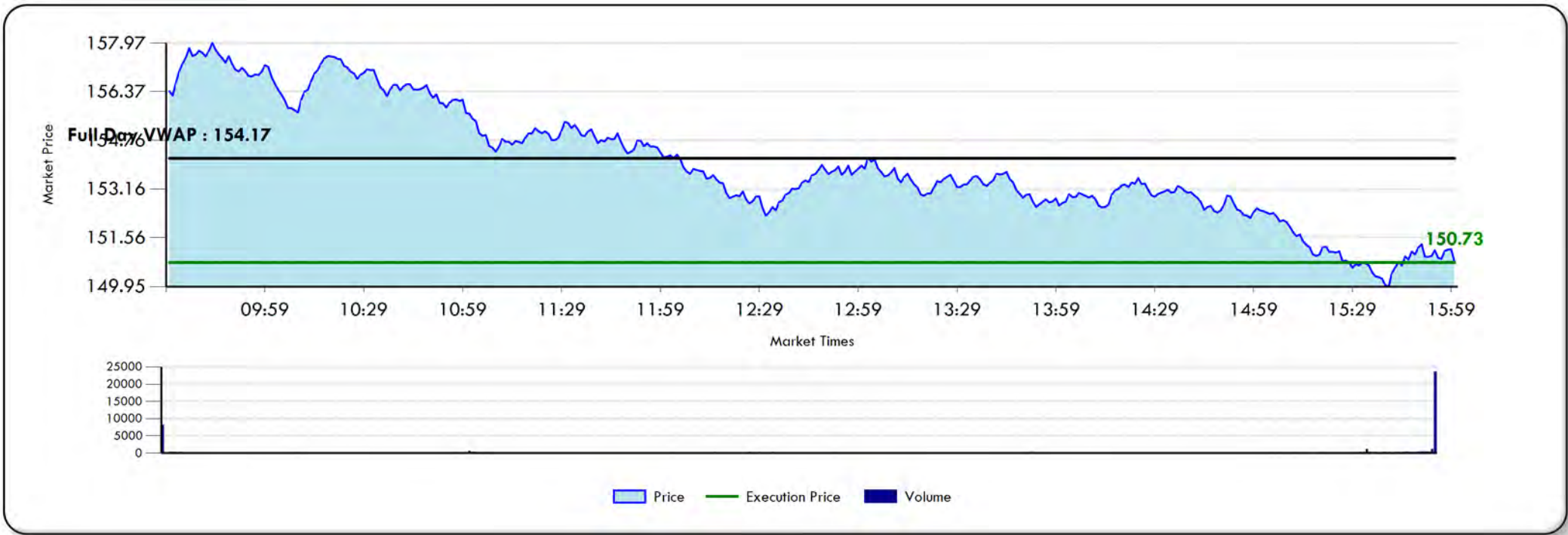


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

AAPL - 2018/12/21

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	ALLIANCE R 3000 CAPITAL MANAGEM	GOLDMAN SACHS	12/21/2018 09:30:00	12/21/2018 16:00:00	2,206	150.7300	154.1684	+7,585	+343.84	1.22	0.00



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.50% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

CHS - 2018/11/29

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	DALTON, GREINER, HARTMAN, MAHER	COWEN & CO	11/29/2018 09:30:00	11/29/2018 16:00:00	38,604	4.8811	5.0774	+7,580	+19.63	0.85	0.25



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.50% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

MHK - 2018/10/09

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	GOLDMAN SACHS	10/09/2018 09:30:00	10/09/2018 16:00:00	3,684	163.4629	161.9160	+5,699	+154.69	1.32	0.28



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.63% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

NVRO - 2018/11/07

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	WEATHERBIE	CANACCORD GENUITY	11/07/2018 09:30:00	11/07/2018 16:00:00	5,151	42.0922	41.1270	+4,972	+96.52	1.05	0.21



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.29% of your market impact cost.

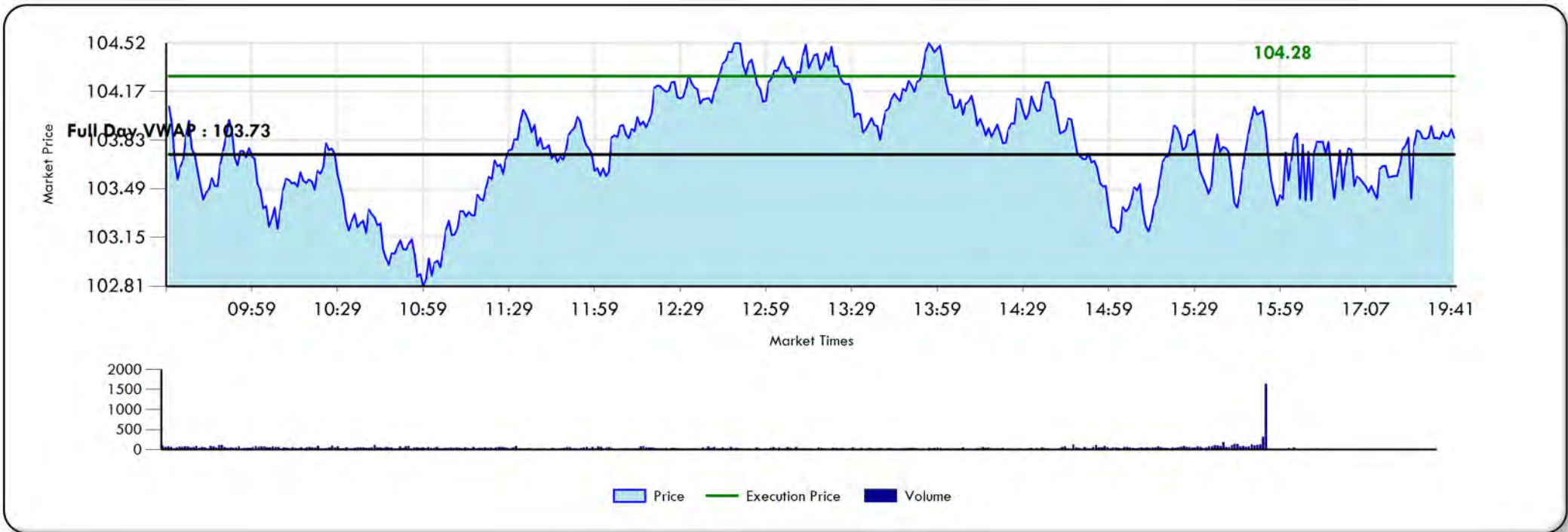


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

JPM - 2018/10/26

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	STRATEGASSECUR ITIES	10/26/2018 09:30:00	10/26/2018 16:00:00	40,475	104.2834	103.7316	22,335	55.18	1.52	0.21



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 10.52% of your market impact savings.

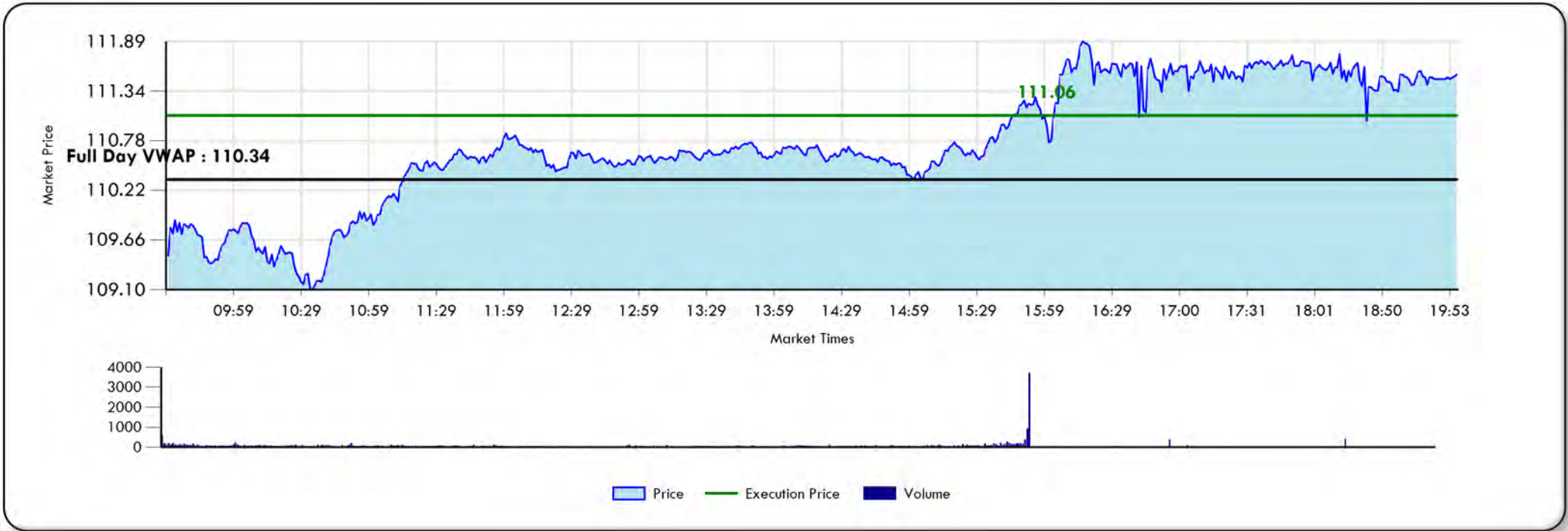


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

MSFT - 2018/10/16

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	10/16/2018 09:30:00	10/16/2018 16:00:00	21,055	111.0608	110.3393	15,190	72.15	0.73	0.07



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 7.15% of your market impact savings.

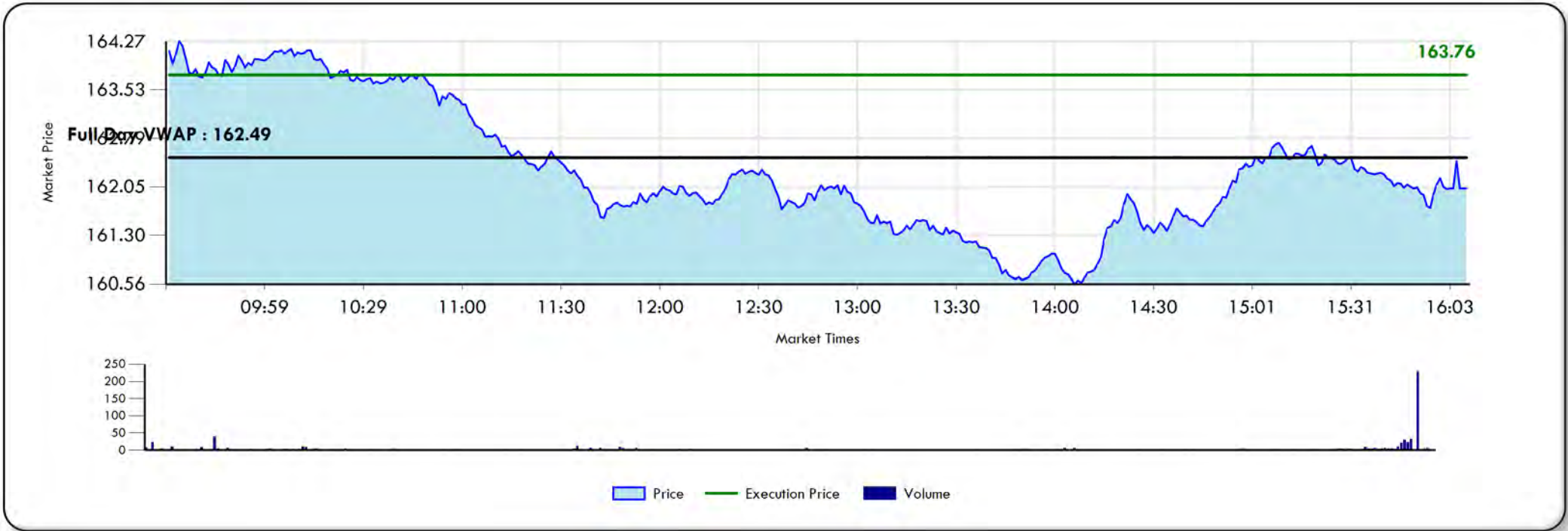


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

AON - 2018/11/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	11/14/2018 09:30:00	11/14/2018 16:00:00	6,700	163.7581	162.4916	8,485	126.65	1.30	0.69



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 4.00% of your market impact savings.

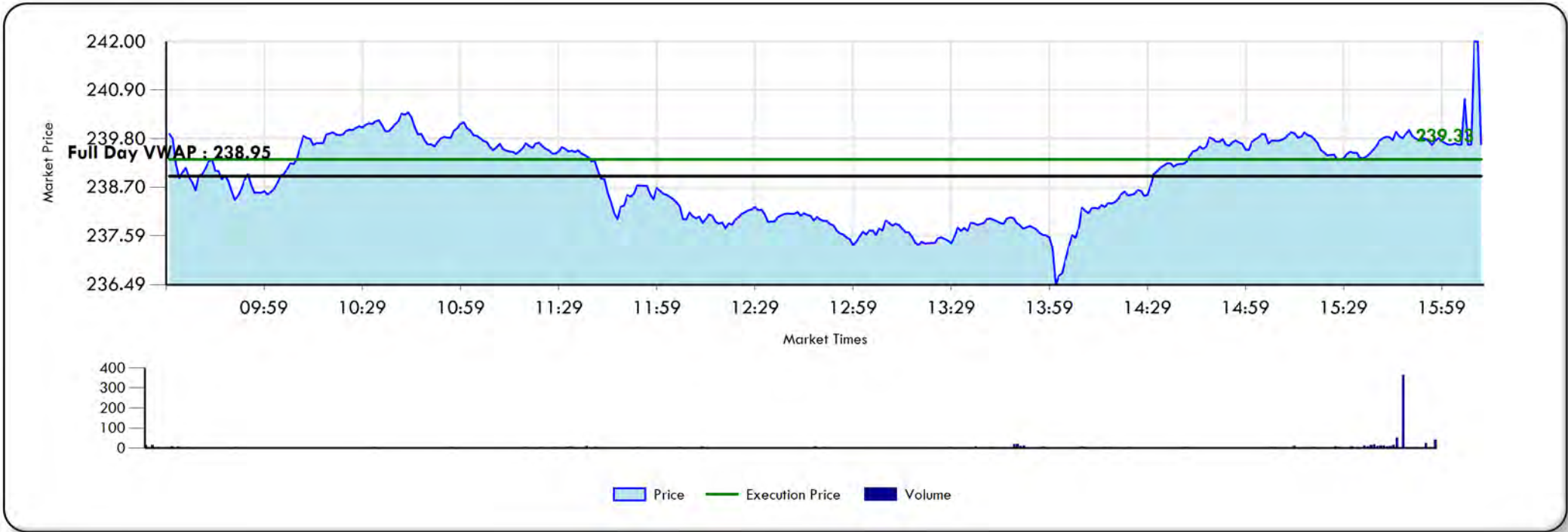


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

TMO - 2018/10/08

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	10/08/2018 09:30:00	10/08/2018 16:00:00	12,932	239.3258	238.9460	4,912	37.98	0.41	1.01



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.31% of your market impact savings.

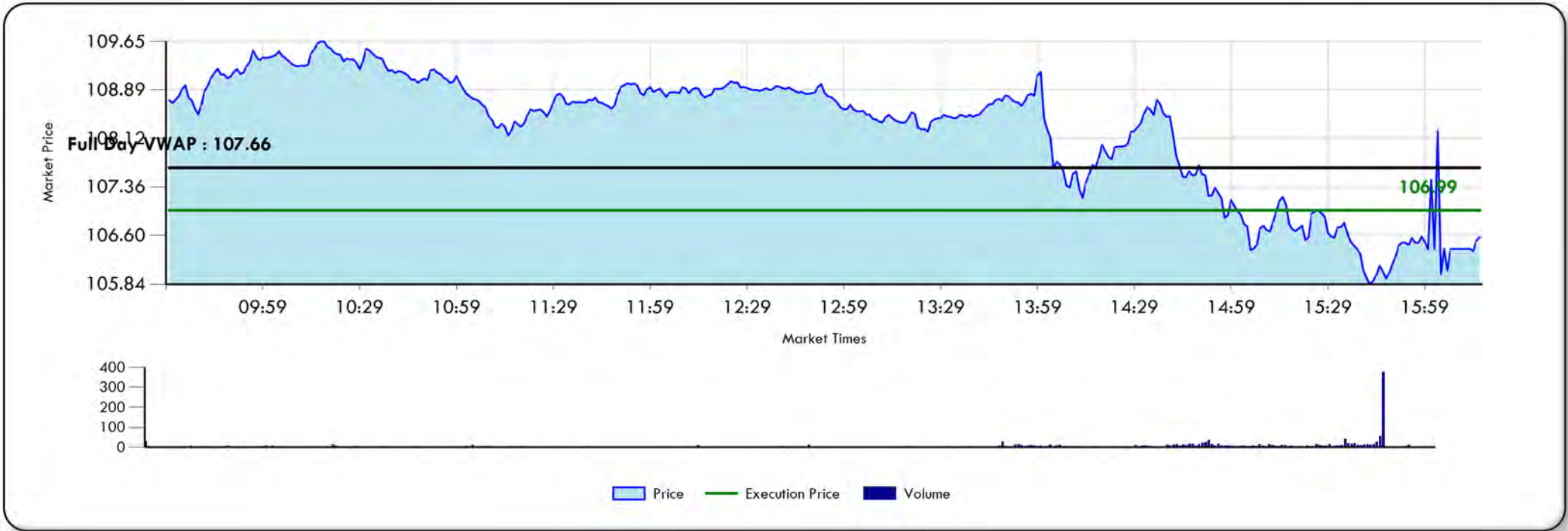


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

MAR - 2018/12/19

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	MORGAN STANLEY	12/19/2018 09:30:00	12/19/2018 16:00:00	7,222	106.9947	107.6628	4,825	66.81	0.69	0.32



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.27% of your market impact savings.

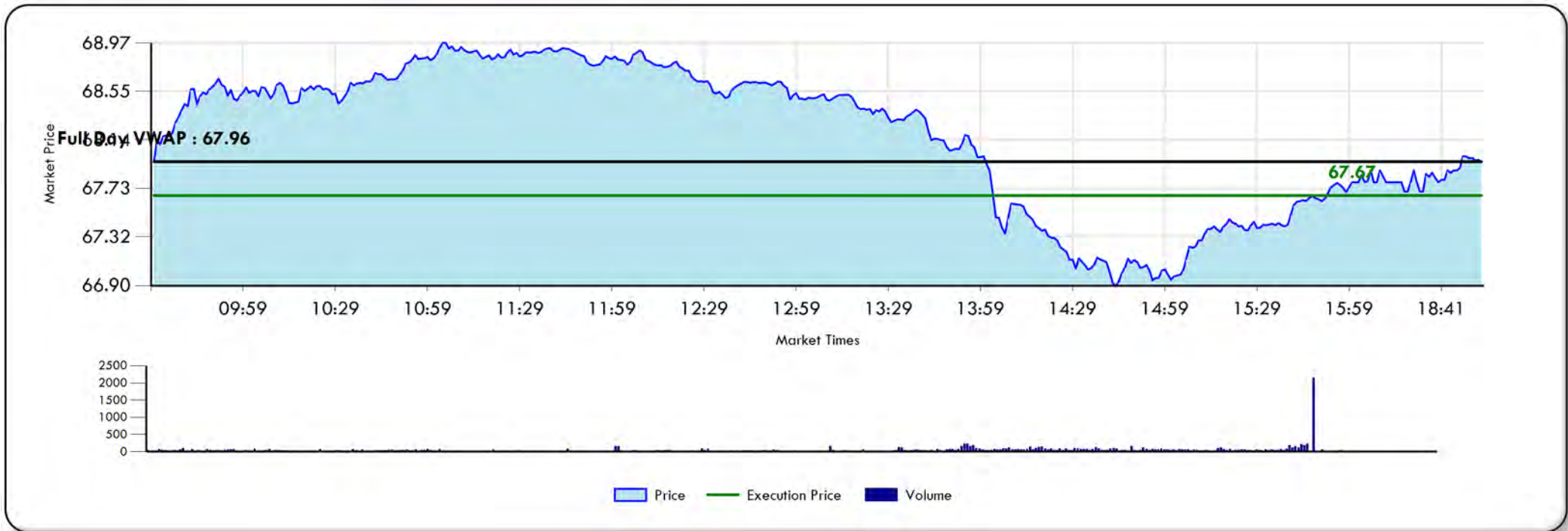


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

C - 2018/11/08

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	SOUTHWEST SECURITIES	11/08/2018 09:30:00	11/08/2018 16:00:00	16,100	67.6670	67.9551	4,638	28.81	0.48	0.09



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.18% of your market impact savings.

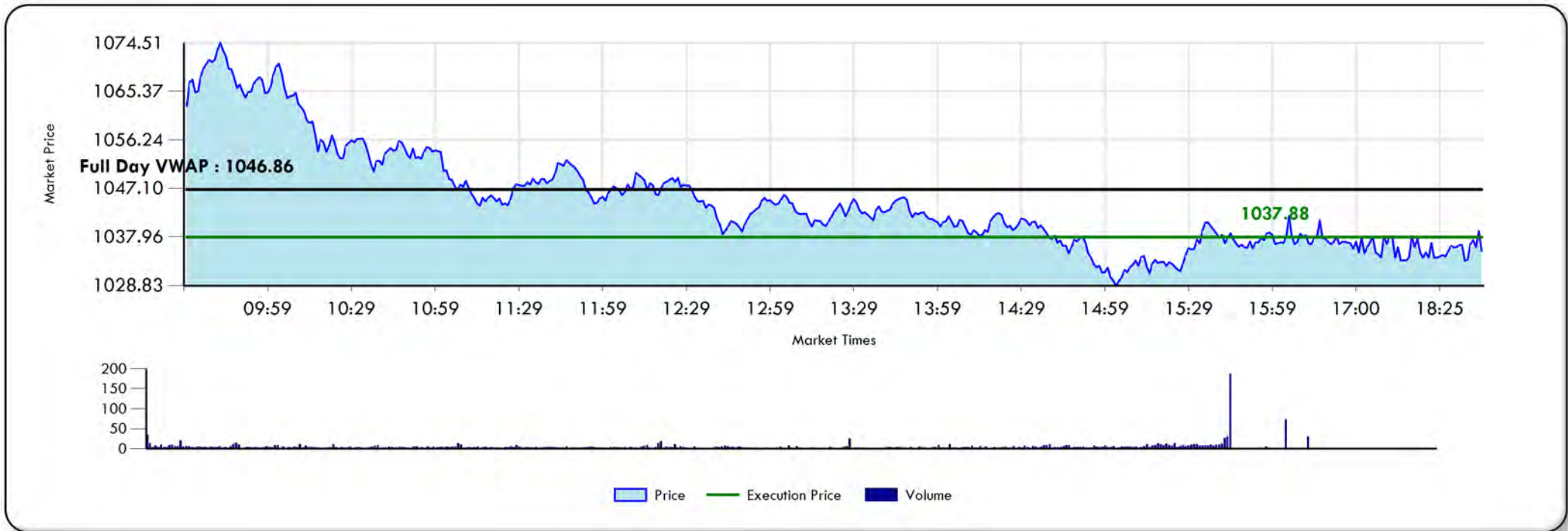


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

GOOG - 2018/12/07

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	12/07/2018 09:30:00	12/07/2018 16:00:00	510	1037.8825	1046.8616	4,579	897.91	0.79	0.02



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.16% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

ACCO - 2018/10/30

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	DALTON, GREINER, HARTMAN, MAHER	ISI GROUP INC	10/30/2018 09:30:00	10/30/2018 16:00:00	10,000	8.1572	7.7553	4,019	40.19	1.56	0.33



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.89% of your market impact savings.

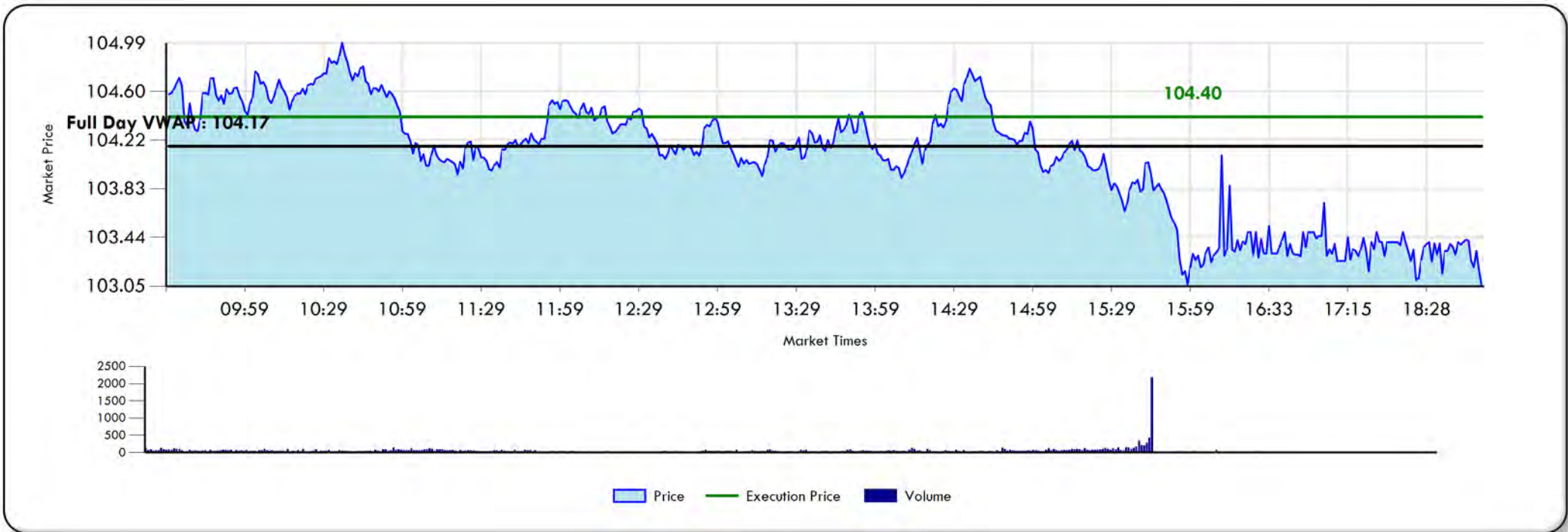


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

JPM - 2018/10/24

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	MERRILL LYNCH	10/24/2018 09:30:00	10/24/2018 16:00:00	16,600	104.4018	104.1665	3,906	23.53	0.41	0.07



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.84% of your market impact savings.

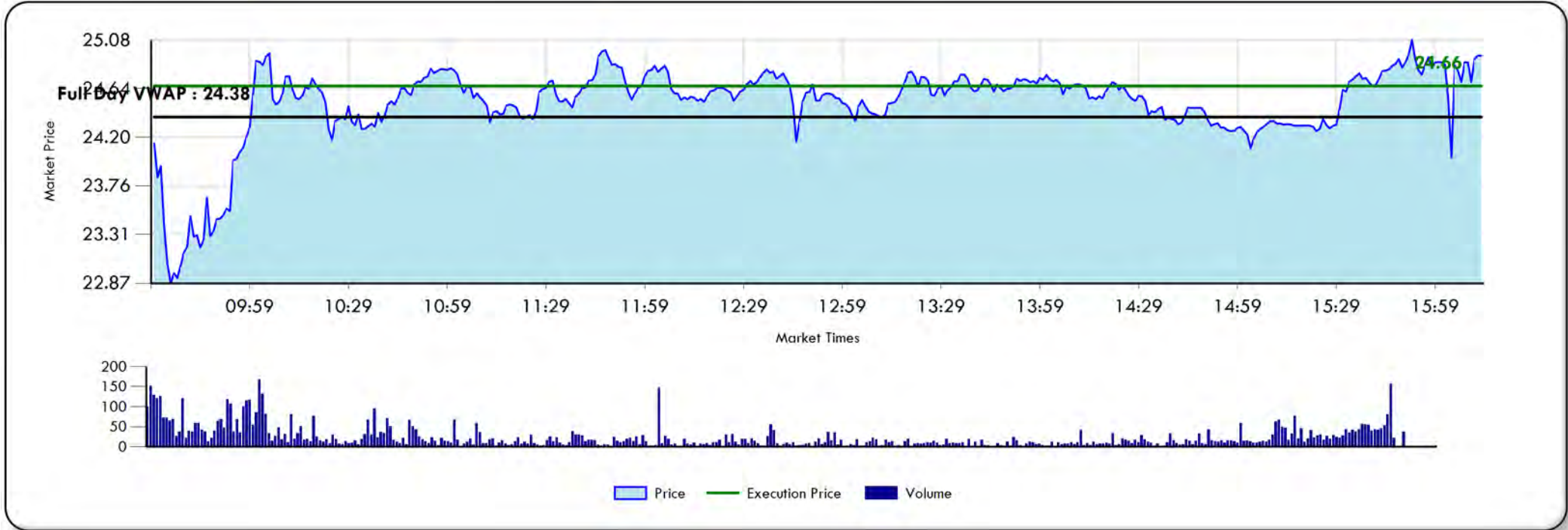


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

FTDR - 2018/11/06

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	DALTON, GREINER, HARTMAN, MAHER	CAPITAL INSTL SVCS	11/06/2018 09:30:00	11/06/2018 16:00:00	13,000	24.6639	24.3815	3,671	28.24	0.43	0.14



NOTES

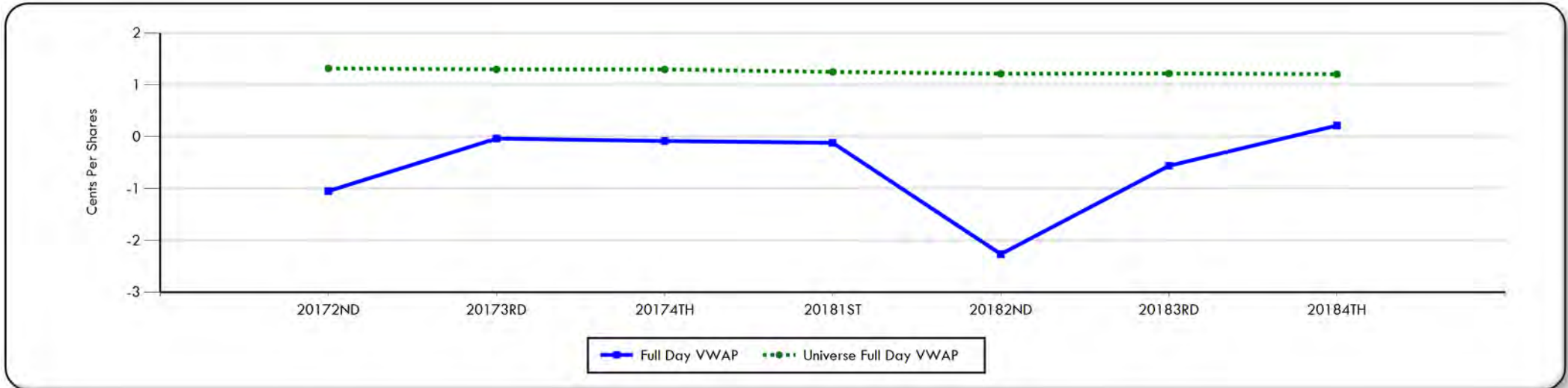
- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.73% of your market impact savings.



(+) = Cost

TRADE HISTORY

Trade History						
Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP	Full Day VWAP Universe Rank
			(cps)	(\$)	(cps)	(%)
20172ND	5,271,800	199,346,650	+2.32	122,417	1.05	91
20173RD	3,933,837	136,419,896	+2.71	106,661	0.04	82
20174TH	4,135,427	144,811,996	+2.63	108,628	0.09	80
20181ST	3,617,136	158,343,996	+2.72	98,459	0.12	81
20182ND	4,581,935	191,343,600	+2.09	95,937	2.27	93
20183RD	1,200,559	52,564,669	+3.35	40,162	0.56	80
20184TH	2,069,518	98,816,273	+2.80	57,892	+0.21	69



Note on Universes:

Universes constructed of preferred securities are exclusive of fixed income transactions such as convertible bonds

DISCLAIMER

State Street Corporation and its subsidiaries and affiliates, including Elkins/McSherry, LLC (“State Street”), provide products and services to professional and institutional clients and this report and information (“Report”) is provided solely for general, marketing and/or informational purposes and is subject to these terms and conditions, including that the Report does not constitute investment research or investment, legal, regulatory, or tax advice. Nothing herein is an offer or solicitation to buy or sell any product, service or securities or any financial instrument and this does not create or constitute any binding contractual commitment or obligations for State Street of any kind. Not all products and features a may be available in all jurisdictions. Any opinions expressed or other information in the Report are subject to change without notice. The Report has been prepared and obtained from sources believed to be reliable at the time of preparation, however, it is provided “as-is” and State Street makes no guarantee, representation, or warranty of any kind including but not limited to its accuracy, suitability, timeliness, merchantability, fitness for a particular purpose, non-infringement of third-party rights, etc. This Report is not intended to be relied upon by any person or entity. State Street disclaims all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs arising, either direct or consequential, from or in connection with the use of the Report. No permission is granted to reprint, sell, copy, distribute, or modify any of the Report, in any form or by any means without the prior written consent of State Street. The Report may contain certain statements that may be deemed forward-looking statements. Please note that any such statements or forecasted information are not guarantees or reliable indicators for future performance and actual results or developments may differ materially from those depicted or projected. Investing involves risk, including the risk of loss of principal. Diversification does not ensure a profit or guarantee against loss. The Report does not take into account any client’s particular investment objectives, strategies, or tax and legal status, relevant regulations, nor does it purport to be comprehensive or intended to replace the exercise of a client’s or investor’s own careful independent review regarding any corresponding investment decision or related analysis.

Copyright © 2019 State Street Corporation, All rights reserved.



SACRAMENTO COUNTY

Trade Cost Summary - Global Equity Trading

Period End December 31, 2018





REPORT CONTENTS

Tab 1 : Executive Summary

- **Results / Methodology**
- **Performance vs. Universe / Trading Components**
- **Short Term Alpha**
- **Market Capitalization Performance**
- **Order Size Performance**
- **Implementation days / Liquidity By Trade Performance**
- **Country Performance**
- **High / Low Cost Managers**
- **Commission Review**

Tab 2 : Trade Detail

- **Manager Performance**
- **Broker Performance**

Tab 3 : High / Low Cost Trades

- **Trade Contributions**
- **10 High / Low Cost Trades**
- **10 High Cost Data Graphs**
- **10 Low Cost Data Graphs**



(+) = Cost

EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analysis to institutional investors since 1991, serving many of the world's largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an unmatched collection of global equity market and Universe data, Elkins/McSherry has produced a Trading Cost Analysis on behalf of SACRAMENTO COUNTY. This study evaluates global equity executions from October 1, 2018 to December 31, 2018. The analysis included trading of 7,761,186 shares representing \$132.28 million in principal across 26 countries.

Methodology :

The Elkins/McSherry analysis measures trading efficiency by quantifying the cost of brokerage commission, fees, and execution quality versus an Full Day VWAP benchmark for each of the securities traded. These data have been separated to summarize results, by Buy/Sell, Commissions, Market Impact, Short Term Alpha, Market Cap, Country, Trade Difficulty, and Highest and Lowest Cost Trades. These results are quantified in \$ and Basis Points (BP) as well as being displayed graphically to highlight the outcomes.

Results :

BENCHMARK PERFORMANCE			E - Score
Commission	Fees	Full Day VWAP	
<ul style="list-style-type: none"> Your commission cost was +7.47 bp or \$ +\$98,780 (7.16 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +4.94 bp or \$ +65,412 (+1.28 bp worse than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact cost was +7.46 bp or \$+98,611 (+1.69 bp worse than the Elkins/McSherry Universe) Your overall trading cost of +19.87 bp was 4.18 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 12 countries and lower than the Elkins/McSherry Universe in 18 countries. 17 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 36 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : 0.08



(+) = Cost

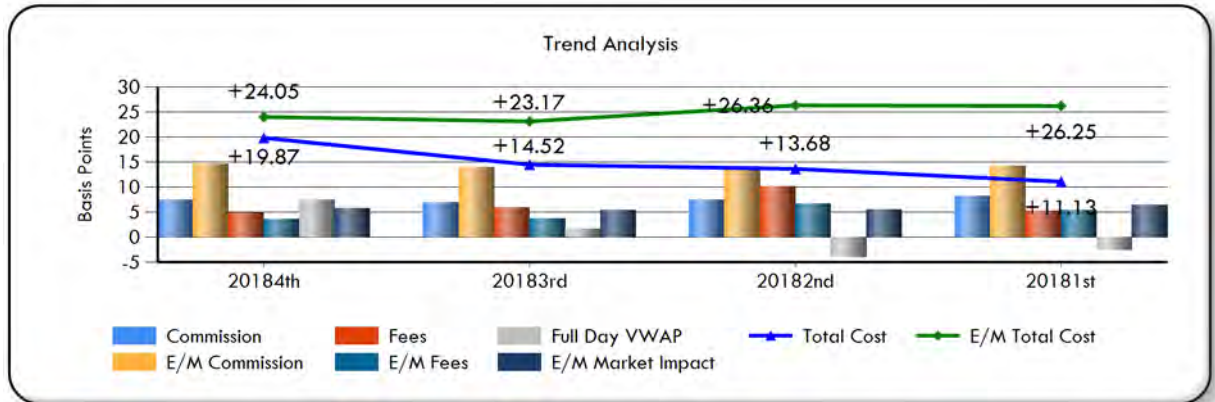
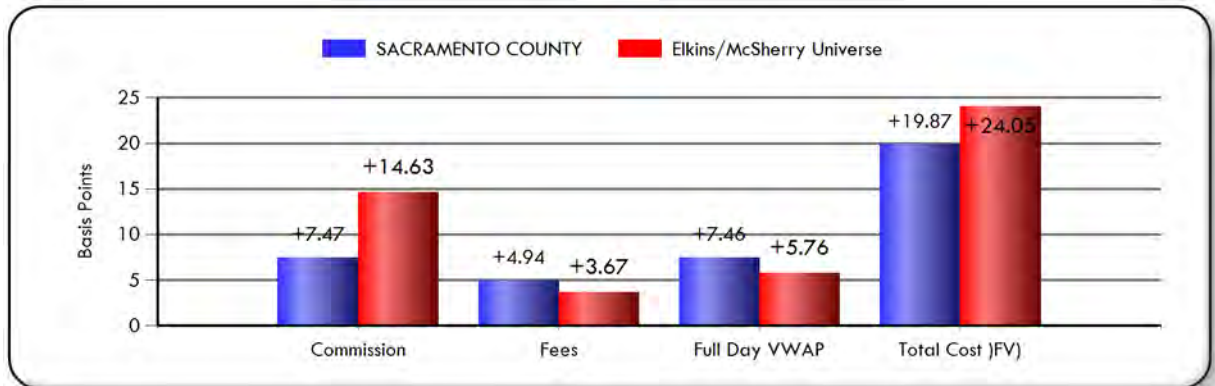
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			Fees		MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E - Score
	Your Avg. Commission	Bundled Universe	All Trading Universe	Fees	Universe	Full Day VWAP	Universe Full Day VWAP		Commission+Fees Full Day VWAP	
	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	
Sell	+8.49	+14.26	+3.96	+0.50	+0.46	+3.32	+7.97	+12.31	10.38	-0.01
Buy	+6.45	+14.99	+4.02	+9.37	+6.87	+11.59	+3.55	+27.41	+2.00	0.17
Total	+7.47	+14.63	+3.99	+4.94	+3.67	+7.46	+5.76	+19.87	4.18	0.08

TRADING COMPONENTS

	Buys	Sells
Trade Principal	66,230,825	66,051,478
Shares	3,966,410	3,794,776
Unique Names	108	77
Liquidity (% POV)	0.259	0.401
Avg. Order Size	6,065	6,043
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	654	628





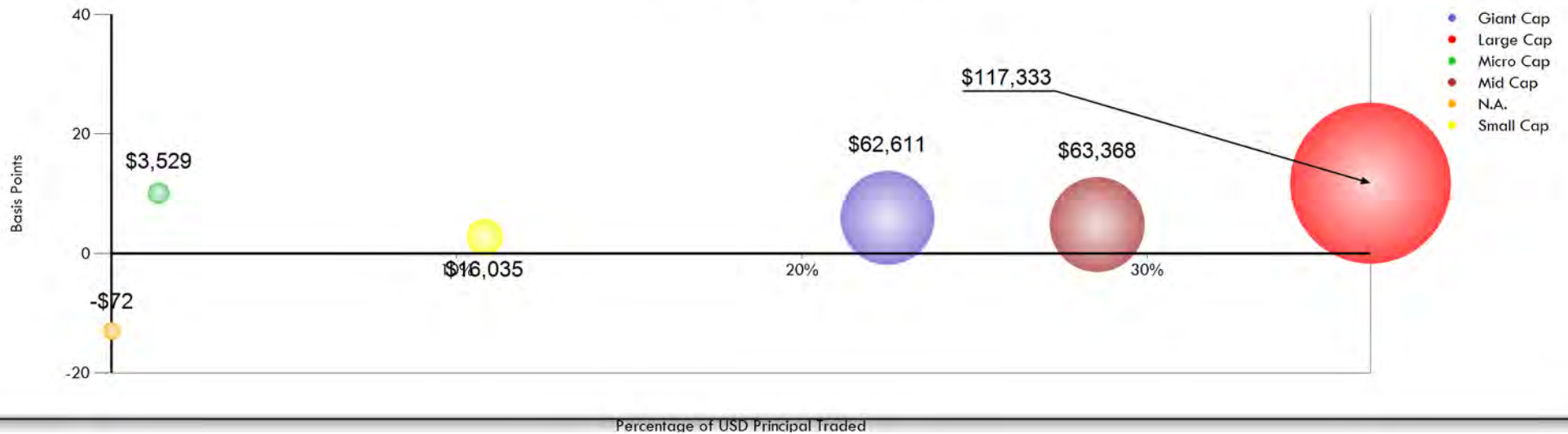
(+) = Cost

EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded	Avg. Principal Per Order	COMMISSION		MARKET IMPACT		Total Cost	Total Cost/Savings	E - Score	Market Cap Definition
			Your Commission	Bundled Universe	Full Day VWAP	Universe Full Day VWAP				
	(%)	(\$)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)		
Large Cap	36.52 %	143,787	+8.00	+14.53	+11.77	+6.80	+24.29	0.35	0.14	\$5 Billion To \$25 Billion
Mid Cap	28.61 %	77,543	+6.76	+14.53	+4.84	+5.15	+16.75	6.84	0.00	\$1 Billion To \$5 Billion
Giant Cap	22.53 %	219,147	+8.01	+15.23	+5.95	+4.41	+21.01	3.62	0.07	Over \$25 Billion
Small Cap	10.86 %	50,593	+6.64	+14.01	+2.73	+6.29	+11.16	10.83	0.12	\$250 Million To \$1 Billion
Micro Cap	1.42 %	78,446	+6.09	+14.29	+10.10	+8.15	+18.74	5.99	0.36	Under \$250 Million
N.A.	0.06 %	5,278	+3.00	+14.53	12.98	+14.01	9.81	38.35	0.00	

Total Cost by Market Cap: (USD)





(+) = Cost

EXECUTIVE SUMMARY

ORDER SIZE EVALUATION

Order Size	Total # Of Orders	Avg. Principal Per Order (\$)	Avg. Order Completion Time (min)	COMMISSION		MARKET IMPACT		Total Cost	Total Cost/Savings	E - Score	Absolute Size (Principal)
				Your Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	(bp)	Commission+Fees +Full Day VWAP Vs. Universe (bp)		
Large Orders	10	1,361,921	N/A	+10.24	+14.55	2.31	+5.58	+8.72	12.19	0.03	1M or Greater
Medium Orders	33	667,336	N/A	+7.66	+14.93	+20.55	+7.15	+33.72	+7.84	0.25	Between 500k - 1M
Small Orders	1,239	77,999	N/A	+7.03	+14.57	+5.86	+5.47	+18.27	5.81	0.05	500K or Less

Total Cost By Order Size: (USD)





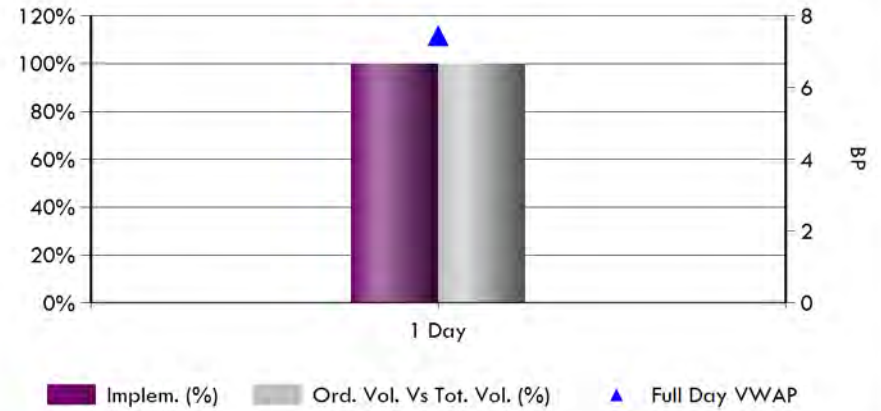
(+) = Cost

EXECUTIVE SUMMARY

IMPLEMENTATION DAYS BY TRADE

Period	Percent Traded (%)	Order Vol. Vs Total Vol. (%)	Full Day VWAP (bp)	E - Score
1 Day	100.00	100%	+7.46	0.08

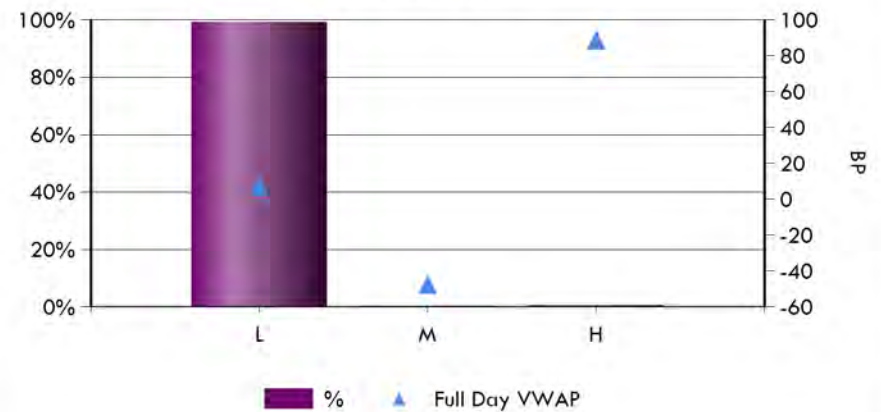
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (bp)	E - Score
50%+ of daily vol.	H	1%	+88.81	2.29
0%~20% of daily vol.	L	99%	+7.08	0.07
20%~50% of daily vol.	M	0%	47.42	-0.38

Avg. % of Daily Volume



EXECUTIVE SUMMARY

COUNTRY PERFORMANCE

Country	Principal (\$ Millions)	Total Principal Traded (%)	COMMISSION		FEES		MARKET IMPACT		Total Cost Diff. From Universe (bp)	E - Score
			Commission (bp)	Bundled Universe Commission (bp)	Fees (bp)	Universe Fees (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)		
HIGHEST COST COUNTRIES - Total Cost Universe Difference										
IRELAND - BUYS	<1	0.18%	+3.00	+15.66	+100.21	+100.00	+95.63	+2.95	+80.24	1.39
CANADA	9	6.69%	+10.68	+14.07	+0.00	+0.03	+49.85	+4.18	+42.25	0.37
NEW ZEALAND	1	1.02%	+12.58	+14.47	+0.00	+0.00	+44.37	+6.46	+36.01	1.41
SOUTH AFRICA - BUYS	<1	0.41%	+5.81	+13.65	+20.62	+23.53	+34.25	+5.15	+18.35	0.47
ITALY - BUYS	<1	0.09%	+4.27	+13.76	+10.00	+12.00	+29.54	+2.72	+15.33	0.91
U.K. - BUYS	10	7.48%	+6.41	+16.74	+49.32	+31.51	+9.38	+2.18	+14.68	0.33
KOREA - SELLS	<1	0.12%	+9.26	+16.75	+30.00	+28.78	+23.01	+3.21	+13.53	-0.04
FRANCE - BUYS	1	1.10%	+6.81	+13.91	+23.27	+30.00	+25.56	+3.28	+8.44	0.72
SINGAPORE	<1	0.34%	+6.57	+16.72	+4.00	+3.57	+20.32	+2.17	+8.43	0.34
GERMANY	9	6.77%	+7.43	+13.84	+0.00	+0.03	+16.00	+4.13	+5.43	0.16
DENMARK	1	1.00%	+5.60	+14.69	+0.00	+0.00	+18.16	+6.10	+2.97	0.28
SWITZERLAND	8	5.77%	+9.96	+13.78	+0.00	+0.02	+8.11	+3.75	+0.52	-0.07

EXECUTIVE SUMMARY

COUNTRY PERFORMANCE

Country	Principal (\$ Millions)	Total Principal Traded (%)	COMMISSION		FEES		MARKET IMPACT		Total Cost Diff. From Universe (bp)	E - Score
			Commission (bp)	Bundled Universe Commission (bp)	Fees (bp)	Universe Fees (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)		
LOWEST COST COUNTRIES - Total Cost Universe Difference										
AUSTRIA	<1	0.49%	+4.83	+14.00	+0.00	+0.03	56.36	+7.04	72.60	-0.64
IRELAND - SELLS	1	0.84%	+6.80	+14.29	+0.13	+0.00	43.68	+17.76	68.80	-0.22
MEXICO	<1	0.44%	+17.35	+14.25	+0.00	+0.00	69.87	+1.49	68.27	-1.21
SPAIN	3	2.25%	+8.52	+13.90	+0.00	+0.00	42.41	+3.84	51.63	-0.38
ITALY - SELLS	2	1.28%	+4.48	+13.95	+0.00	+0.00	18.83	+7.85	36.16	-0.18
FRANCE - SELLS	3	2.58%	+6.13	+14.85	+0.00	+0.00	11.84	+3.38	23.94	0.01
AUSTRALIA	<1	0.67%	+4.94	+13.93	+0.00	+1.07	3.45	+3.82	17.33	-0.24
SWEDEN	5	3.63%	+4.48	+13.98	+0.00	+0.02	4.38	+1.42	15.32	-0.11
JAPAN	25	19.14%	+7.26	+13.89	+0.00	+0.02	0.89	+5.66	13.20	-0.12
NORWAY	3	2.50%	+5.53	+12.88	+0.00	+0.06	+2.25	+6.55	11.71	0.02
ISRAEL	4	2.85%	+14.02	+14.35	+0.00	+0.09	5.97	+4.10	10.50	-0.15
BELGIUM	1	1.07%	+3.41	+13.66	+0.00	+0.01	+4.53	+4.15	9.88	0.19
FINLAND	1	0.89%	+4.75	+13.94	+0.00	+0.00	+7.67	+6.78	8.30	0.13
INDIA	2	1.18%	+11.49	+14.64	+11.98	+10.73	2.48	+2.71	7.09	0.06
U.K. - SELLS	21	16.07%	+6.99	+14.53	+0.07	+0.00	+14.59	+14.01	6.89	0.25
U.S.	7	5.09%	+2.22	+15.46	+0.02	+0.10	+8.93	+2.42	6.81	0.13
NETHERLANDS	4	3.20%	+8.45	+14.12	+0.00	+0.11	+4.92	+3.95	4.81	-0.02
HONG KONG	6	4.86%	+9.48	+19.51	+10.78	+10.11	+7.96	+1.53	2.93	0.19



(+) = Cost

TRADE CYCLE DETAIL

3 LOWEST COST MANAGER (Full Day VWAP)



Manager	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION		MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
LAZARD ASSET MANAGEM	84	491	63.65%	171,487	0.08	+8.68	+14.75	+6.85	+5.91	3.45	+1.71	5.39	13.25
WILLIAM BLAIR & COMP	26	427	19.99%	61,942	0.12	+6.44	+14.51	+8.85	+6.30	5.07	7.29	17.99	14.73
LSV ASSET MANAGEMENT	22	364	16.35%	59,431	0.08	+4.01	+14.28	+8.11	+4.52	5.96	16.52	17.28	21.78

NOTES

- Manager above made up 100.00 % of principal traded.



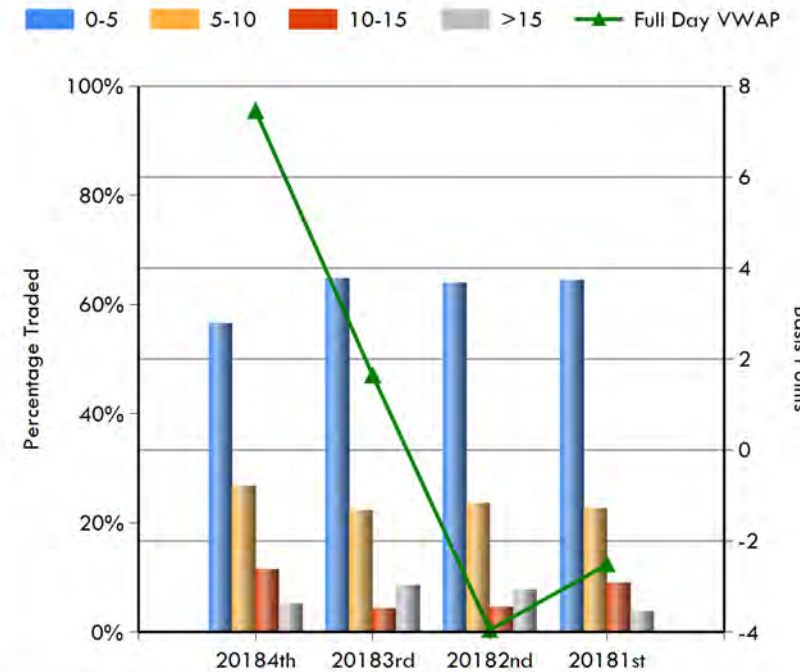
(+) = Cost

COMMISSION REVIEW

COMMISSION REVIEW - Top 20 Brokers (Commission \$)

Broker	Total Commission	Commission Trends					
		Commission (bp)	Bundled Universe (bp)	All Trading Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
MERRILL LY	18,499	+7.86	+14.42	+3.96	+6.91	+8.45	+6.37
UBS	8,957	+8.70	+14.61	+3.92	+6.61	+7.60	+9.17
RBC DOMINI	7,764	+24.39	+14.07	+5.51	+8.27	+4.47	+10.36
CITIGROUP	6,571	+10.47	+14.59	+4.73	+6.51	+7.04	+6.88
JP MORGAN	6,079	+7.28	+15.12	+3.70	+11.04	+9.53	+10.71
BARCLAYS	5,443	+5.21	+14.81	+3.77	+5.51	+3.48	+3.68
CREDIT SUI	4,815	+7.06	+14.39	+3.91	+8.08	+6.94	+9.12
SOCIETE GE	4,721	+4.59	+14.58	+3.72	+4.33	+4.67	+5.11
DEUTSCHE B	4,407	+7.34	+15.03	+3.80	+7.32	+9.24	+8.03
CREDIT AGR	3,797	+10.37	+14.20	+4.09	+12.04	+8.14	+9.70
MORGAN STA	2,886	+5.52	+14.09	+4.44	+6.87	+10.67	+20.18
ITG	2,705	+4.67	+14.31	+3.83	+4.69	+5.71	+6.52
SC BERNSTE	2,371	+13.06	+17.48	+3.71	+4.03	+3.08	+4.81
PERSHING	2,305	+11.63	+14.12	+3.81	-	+12.00	+12.00
JEFFERIES	2,014	+5.07	+14.58	+3.94	+3.57	+6.81	+7.25
BNP PARIBA	1,938	+8.23	+15.46	+4.17	+7.42	+9.28	+7.75
ROYAL BANK	1,286	+6.87	+16.74	+3.65	-	+7.77	-
SMBC SECUR	1,219	+10.75	+13.89	+4.10	+9.16	+8.50	+7.17
DAIWA SECU	1,204	+9.45	+13.89	+4.10	+7.64	+7.37	+8.93
GOLDMAN SA	1,168	+8.20	+15.83	+3.57	+7.08	+12.71	+6.90

Commission Category Trend





(+) = Cost

TRADE CYCLE DETAIL

MANAGER PERFORMANCE (FULL DAY VWAP)



Manager	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION		MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
LAZARD ASSET MANAGEM	84	491	63.65%	171,487	0.08	+8.68	+14.75	+6.85	+5.91	3.45	+1.71	5.39	13.25
WILLIAM BLAIR & COMP	26	427	19.99%	61,942	0.12	+6.44	+14.51	+8.85	+6.31	5.07	7.29	17.99	14.73
LSV ASSET MANAGEMENT	22	364	16.35%	59,431	0.08	+4.01	+14.28	+8.11	+4.52	5.96	16.52	17.28	21.78

NOTES

- Manager above made up 100.00 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
MERRILL LYNCH	24	103	17.80%	228,636	-0.07	18,499	+7.86	+14.42	+0.36	+5.57	11.57	4.39	21.37	22.31
BARCLAYS	10	81	7.90%	129,085	0.55	5,443	+5.21	+14.81	+26.79	+3.52	+17.05	21.25	19.86	48.23
UBS	10	118	7.78%	87,256	0.27	8,957	+8.70	+14.61	+11.17	+6.75	1.42	11.24	19.26	18.64
SOCIETE GENERALE	10	144	7.78%	71,477	-0.03	4,721	+4.59	+14.58	+0.28	+8.95	16.55	26.56	15.47	24.04
JP MORGAN CHASE	8	46	6.31%	181,584	0.26	6,079	+7.28	+15.12	+15.51	+6.49	+4.20	14.92	+1.91	3.86
CREDIT SUISSE	7	97	5.15%	70,297	0.13	4,815	+7.06	+14.39	+2.08	+6.75	11.98	2.02	8.08	14.02
CITIGROUP	6	64	4.74%	98,039	-0.19	6,571	+10.47	+14.59	4.78	+3.99	12.99	8.80	7.16	13.67
DEUTSCHE BANK	6	66	4.54%	90,985	-0.04	4,407	+7.34	+15.03	7.71	+4.41	15.78	1.40	+2.57	20.07
ITG	6	62	4.37%	93,328	-0.32	2,705	+4.67	+14.31	+10.76	+8.55	7.24	21.76	9.03	8.16
MORGAN STANLEY	5	79	3.96%	66,226	-0.10	2,886	+5.52	+14.09	1.92	+3.62	13.79	+14.41	+6.42	+9.36

NOTES

- Brokers above made up 70.35 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
JEFFERIES & CO	4	55	3.00%	72,235	0.03	2,014	+5.07	+14.58	12.26	+6.02	27.79	+16.48	20.44	+0.98
CREDIT AGRICOLE	4	20	2.77%	183,027	-0.14	3,797	+10.37	+14.20	7.26	+5.39	16.45	5.38	16.99	22.29
RBC DOMINION SECS	3	36	2.41%	88,410	0.28	7,764	+24.39	+14.07	+69.79	+4.18	+75.90	11.24	22.33	6.83
HSBC BANK	2	46	1.83%	52,548	-0.15	1,000	+4.14	+15.37	9.84	+6.09	21.64	31.30	17.39	25.63
BNP PARIBAS	2	38	1.78%	61,943	-0.40	1,938	+8.23	+15.46	21.22	+3.84	31.96	34.30	13.93	7.01
INSTINET	2	36	1.68%	61,826	0.48	808	+3.63	+14.01	+18.18	+5.48	+2.32	11.80	23.48	23.31
REDBURN PARTNERS LLP	2	4	1.53%	505,694	0.50	1,011	+5.00	+14.53	+9.94	+14.01	13.58	-	-	24.64
PERSHING	2	3	1.50%	660,530	0.03	2,305	+11.63	+14.12	+1.10	+3.95	5.45	-	+44.39	+3.12
LIQUIDNET	2	21	1.46%	91,678	0.09	675	+3.51	+14.85	5.51	+3.09	20.01	52.88	11.47	29.48
ROYAL BANK OF CANADA	2	14	1.42%	133,709	0.83	1,286	+6.87	+16.74	+56.41	+2.18	+62.96	-	65.94	-

NOTES

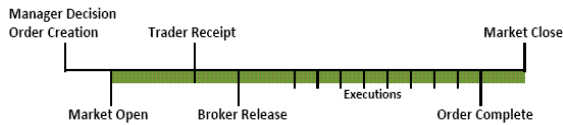
- Brokers above made up 19.36 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
SC BERNSTEIN	2	12	1.37%	151,333	0.34	2,371	+13.06	+17.48	+26.35	+2.74	+19.54	+5.34	9.74	17.82
MACQUARIE	2	19	1.30%	90,548	0.02	1,149	+6.68	+13.95	+2.73	+6.40	10.94	50.89	19.44	7.89
GOLDMAN SACHS	1	11	1.08%	129,483	0.59	1,168	+8.20	+15.83	+17.10	+5.75	+14.04	13.23	36.48	14.07
DAIWA SECURITIES	1	8	0.96%	159,186	-0.41	1,204	+9.45	+13.89	13.16	+5.66	23.28	+28.04	4.54	11.80
SMBC SECURITIES INC	1	8	0.86%	141,771	-0.25	1,219	+10.75	+13.89	2.68	+5.66	11.50	12.06	15.72	15.49
AUTREPAT-DISTRIBUT	<1	2	0.56%	367,946	1.72	0	+0.00	+14.02	+248.73	+4.31	+227.32	-	-	-
MIZUHO	<1	4	0.48%	159,051	-0.04	718	+11.29	+14.58	+12.77	+5.16	+4.39	10.16	10.73	3.44
CARNEGIE	<1	12	0.38%	42,013	-0.16	353	+7.00	+13.62	2.40	+6.71	15.75	-	-	-
SVENSKA HANDELSBANKE	<1	7	0.36%	67,211	-0.03	329	+7.00	+12.88	13.96	+6.55	26.45	10.95	2.04	-
CANTOR FITZGERALD	<1	5	0.30%	79,264	-0.50	128	+3.24	+15.46	8.36	+2.42	23.10	-	29.73	-

NOTES

- Brokers above made up 7.64 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
EXANE	<1	6	0.30%	65,319	-0.17	261	+6.67	+14.10	24.57	+4.19	56.62	11.61	21.32	21.27
NUMIS SECURITIES	<1	4	0.26%	86,604	N/A	242	+7.00	+14.53	+10.51	+14.01	10.89	-	1.25	-
NOMURA	<1	5	0.24%	62,760	0.51	356	+11.36	+14.64	+20.70	+2.71	+15.84	-	33.27	17.15
GOODBODY STOCKBROKER	<1	3	0.22%	99,171	1.01	225	+7.57	+14.29	+56.13	+17.76	+31.79	-	-	3.52
CLSA AMERICAS	<1	3	0.22%	97,329	0.14	176	+6.02	+15.46	+0.52	+2.42	11.44	-	-	-
D CARNEGIE AG	<1	5	0.20%	52,115	-0.11	182	+7.00	+13.98	22.72	+1.42	31.14	-	25.85	+16.40
CIBC WORLD MARKETS	<1	2	0.18%	119,964	-0.56	106	+4.43	+14.07	13.72	+4.18	27.57	43.85	18.69	+19.72
AXIS CAPITAL LTD	<1	3	0.15%	67,277	0.63	242	+12.00	+14.64	+34.32	+2.71	+30.40	-	-	-
SCOTIA CAPITAL	<1	7	0.14%	27,243	-0.90	14	+0.74	+14.07	106.48	+4.18	124.03	27.06	23.58	27.21
STANDARD BANK	<1	2	0.13%	85,987	-0.04	138	+8.00	+13.65	+6.69	+5.15	2.61	-	-	-

NOTES

- Brokers above made up 2.05 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
ODDO SECS	<1	3	0.10%	43,866	0.40	92	+7.00	+13.91	+23.29	+3.28	+13.10	-	-	-
INVESTEC BANK	<1	2	0.07%	48,704	-0.77	68	+7.00	+14.53	41.26	+14.01	62.54	-	33.72	46.11
BMO CAPITAL MARKETS	<1	1	0.07%	91,830	0.39	15	+1.63	+15.46	+17.90	+2.42	+1.56	-	-	-
DANSKE BANK	<1	1	0.07%	90,281	-0.46	63	+7.00	+13.94	31.99	+6.78	45.71	-	+15.59	29.04
EDELWEISS SECURITIES	<1	3	0.06%	26,621	-0.58	96	+12.00	+14.64	+1.69	+2.71	2.23	-	34.13	31.22
KEPLER EQUITIES	<1	2	0.06%	37,697	0.68	46	+6.11	+13.91	+83.90	+3.28	+72.82	11.91	22.83	5.59
CITATION FINL GROUP	<1	2	0.05%	31,893	-0.55	12	+1.88	+15.46	53.17	+2.42	69.27	-	-	-
BANK J. VONTOBEL	<1	1	0.04%	53,112	-0.32	37	+7.00	+13.78	+0.76	+3.75	9.79	-	+8.31	-
TOKYO MITSUBISHI	<1	1	0.03%	43,106	0.07	52	+12.00	+13.89	+22.10	+5.66	+14.53	-	13.95	-
LIBERUM CAPITAL LTD	<1	1	0.03%	39,852	N/A	28	+7.00	+14.53	26.36	+14.01	47.57	37.56	25.84	10.60

NOTES

- Brokers above made up 0.58 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
TD WATERHOUSE	<1	2	0.01%	4,159	-0.77	1	+1.29	+14.07	49.28	+4.18	66.28	27.52	15.69	+47.73
BTIG LLC	<1	1	0.00%	6,197	0.23	2	+3.29	+15.46	+42.73	+2.42	+28.19	-	12.38	14.70
JOH BERENBERG GOSSLE	<1	1	0.00%	5,449	N/A	4	+7.00	+14.53	61.03	+14.01	82.52	+20.10	18.38	-

NOTES

- Brokers above made up 0.02 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

LAZARD ASSET MANAGEMENT PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission + Fees + Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
GRAND TOTAL	84	491	63.65%	171,487	0.08	73,072	+8.68	+14.75	+6.85	+5.91	3.45	+1.71	5.39	13.25
MERRILL LYNCH	20	78	14.90%	252,763	-0.12	16,547	+8.39	+14.48	1.16	+5.74	12.73	28.10	1.00	27.07
BARCLAYS	10	65	7.59%	154,485	0.62	5,309	+5.29	+14.75	+30.21	+3.45	+20.23	-	17.78	32.07
JP MORGAN CHASE	8	34	5.84%	227,072	0.25	5,635	+7.30	+15.18	+10.90	+6.66	0.43	19.41	+2.50	12.26
UBS	6	35	4.21%	159,227	0.03	5,531	+9.92	+15.10	+5.41	+9.22	8.89	+3.79	26.66	65.26
SOCIETE GENERALE	4	35	3.04%	114,962	-0.14	2,110	+5.25	+14.52	23.74	+7.97	38.71	46.70	4.88	31.28
CREDIT AGRICOLE	3	12	2.56%	282,484	-0.20	3,610	+10.65	+14.20	9.79	+5.39	18.71	21.97	15.20	20.68
ITG	3	26	2.52%	128,374	-0.48	1,589	+4.76	+14.37	+7.59	+8.95	10.68	48.49	17.21	25.57
CITIGROUP	3	20	2.40%	159,045	-0.24	4,685	+14.73	+14.35	8.35	+4.12	12.18	-	5.34	+2.14
DEUTSCHE BANK	3	25	2.37%	125,581	-0.09	3,105	+9.89	+16.08	15.26	+4.33	18.04	+22.92	+13.30	23.04
MORGAN STANLEY	3	30	2.07%	91,316	-0.16	1,697	+6.20	+14.18	4.90	+3.98	16.89	18.02	0.84	+78.67



(+) = Cost

TRADE CYCLE DETAIL

LSV ASSET MANAGEMENT PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission + Fees + Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
GRAND TOTAL	22	364	16.35%	59,431	0.08	8,669	+4.01	+14.28	+8.11	+4.52	5.96	16.52	17.28	21.78
CREDIT SUISSE	3	75	2.56%	45,100	-0.23	1,691	+5.00	+14.34	13.78	+5.15	28.23	19.09	11.37	17.33
MERRILL LYNCH	3	11	2.18%	262,712	0.12	1,409	+4.88	+13.86	2.12	+4.91	16.03	5.68	34.85	46.33
UBS	2	44	1.79%	53,876	0.16	1,185	+5.00	+13.88	+8.60	+2.68	2.99	16.77	19.68	20.30
CITIGROUP	2	38	1.78%	62,112	0.15	776	+3.29	+14.87	+18.96	+3.91	+3.27	10.12	9.96	17.74
DEUTSCHE BANK	2	34	1.68%	65,512	-0.03	891	+4.00	+13.84	0.71	+4.13	14.71	20.53	39.95	27.55
HSBC BANK	2	43	1.57%	48,151	-0.12	621	+3.00	+15.27	7.35	+6.71	20.08	32.66	21.54	38.24
MORGAN STANLEY	2	42	1.50%	47,101	-0.13	799	+4.04	+13.73	4.93	+2.71	17.36	9.06	+1.42	11.38
INSTINET	1	11	0.93%	111,483	0.88	368	+3.00	+13.90	+40.83	+5.56	+24.35	6.94	22.87	20.16
JEFFERIES & CO	<1	18	0.70%	51,678	0.03	279	+3.00	+13.68	3.29	+4.32	18.30	6.14	-	+2.31
AUTREPAT-DISTRIBUT	<1	2	0.56%	367,946	1.72	0	+0.00	+14.02	+248.73	+4.31	+227.32	-	-	-



(+) = Cost

TRADE CYCLE DETAIL

WILLIAM BLAIR & COMPANY PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission + Fees + Full Day VWAP Vs. Universe (bp)	20183rd (bp)	20182nd (bp)	20181st (bp)
GRAND TOTAL	26	427	19.99%	61,942	0.12	17,039	+6.44	+14.51	+8.85	+6.31	5.07	7.29	17.99	14.73
SOCIETE GENERALE	6	93	4.42%	62,801	0.12	2,390	+4.09	+14.60	+16.84	+10.03	1.54	25.47	18.84	11.67
UBS	2	39	1.78%	60,324	0.92	2,241	+9.53	+14.17	+27.47	+5.01	+17.90	4.39	10.13	28.82
ITG	2	31	1.64%	69,866	-0.10	979	+4.52	+14.20	+15.34	+7.45	1.75	22.34	+2.64	5.70
JEFFERIES & CO	2	31	1.42%	60,632	-0.14	657	+3.50	+15.15	6.85	+3.42	21.95	+19.81	20.44	+11.76
BNP PARIBAS	1	25	0.78%	41,317	-0.04	983	+9.52	+14.93	3.71	+3.38	12.05	37.35	20.52	12.02
INSTINET	<1	25	0.76%	39,977	-0.02	440	+4.40	+14.14	9.49	+5.38	24.59	16.17	23.60	20.15
MERRILL LYNCH	<1	14	0.71%	67,437	0.44	543	+5.75	+15.00	+39.50	+4.25	+26.35	+12.32	13.12	2.97
LIQUIDNET	<1	13	0.71%	72,106	0.15	399	+4.26	+14.54	10.45	+3.45	24.23	60.07	7.30	+5.91
CREDIT SUISSE	<1	13	0.57%	57,739	0.23	573	+7.63	+14.93	+10.75	+5.77	2.25	5.27	1.62	21.98
CITIGROUP	<1	6	0.55%	122,227	-1.08	1,111	+15.15	+14.72	65.56	+3.64	68.70	6.93	+0.61	17.04



(+) = Cost

TRADE DETAIL ANALYSIS

Largest Principal Volume Traded

							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Principal (\$)	% of Volume	E - Score	Full Day VWAP (bp)
NOVARTIS AG REG COMMON STOCK C	9	74,193	-6,475,824	6,475,824	0.24%	-0.18	+4.76
PRUDENTIAL PLC COMMON STOCK GB	11	315,968	6,312,326	6,450,636	0.72%	0.39	+11.50
DON QUIJOTE HOLDINGS CO LTD CO	46	106,900	6,182,757	6,381,254	0.14%	-0.51	8.46
SHIRE PLC COMMON STOCK GBP.05	13	98,173	5,367,320	5,688,272	0.50%	0.21	+7.91
AIA GROUP LTD COMMON STOCK	20	596,000	-4,739,810	4,739,810	0.14%	0.20	+8.55
VOLKSWAGEN AG PREF PREFERENCE	10	20,406	-3,469,571	3,469,571	0.17%	0.29	+26.30
ISRAEL DISCOUNT BANK A COMMON	22	935,173	2,834,431	3,225,099	1.53%	-0.24	8.70
FRESENIUS SE + CO KGAA COMMON	11	46,871	2,771,339	2,979,693	0.22%	0.07	+2.91
FANUC CORP COMMON STOCK	2	15,900	2,721,342	2,721,342	0.32%	-0.25	20.51
ARCELORMITTAL COMMON STOCK	4	95,366	2,706,659	2,706,659	0.55%	-0.14	4.72

Names Most Traded - Total Orders (\$)

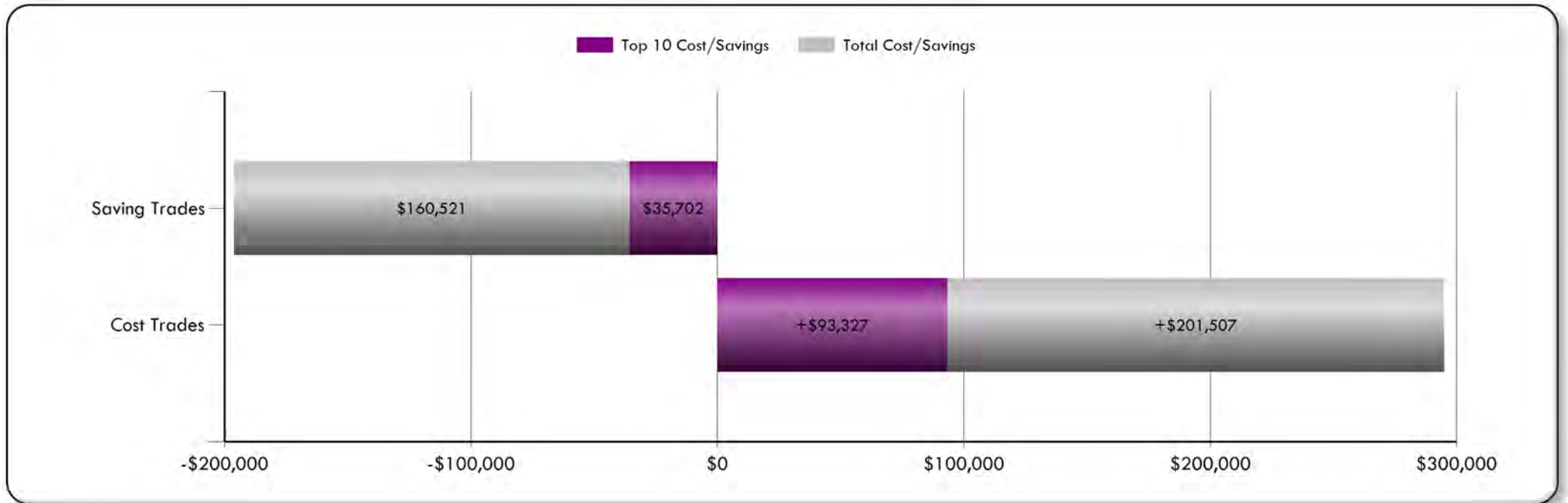
							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Commission (bp)	% of Volume	E - Score	Full Day VWAP (bp)
DON QUIJOTE HOLDINGS CO LTD CO	46	106,900	6,182,757	+8.08	0.14%	-0.51	8.46
ROGERS COMMUNICATIONS INC B CO	40	44,000	-2,252,967	+1.90	0.10%	0.07	+2.96
SKF AB B SHARES COMMON STOCK S	31	84,300	-1,392,687	+4.20	0.13%	-0.31	7.63
TOHO HOLDINGS CO LTD COMMON ST	26	16,900	437,042	+4.68	0.27%	-0.03	1.84
RYANAIR HOLDINGS PLC SP ADR AD	23	26,490	-2,145,295	+2.34	0.06%	-0.11	4.35
RELX PLC COMMON STOCK GBP.1443	23	106,495	-2,106,087	+9.68	0.10%	0.16	+3.21
ISRAEL DISCOUNT BANK A COMMON	22	935,173	2,834,431	+14.70	1.53%	-0.24	8.70
D IETEREN SA/NV COMMON STOCK	22	24,000	986,115	+3.15	6.49%	0.03	2.90
WEIR GROUP PLC/THE COMMON STOC	22	100,773	-2,281,028	+6.54	0.59%	0.57	+36.94
AIA GROUP LTD COMMON STOCK	20	596,000	-4,739,810	+10.70	0.14%	0.20	+8.55



(+) = Cost

TRADE CONTRIBUTIONS

Cost/Savings Performance				
Category	Principal USD	# of Trades	Avg. Market Impact (bp)	Percentage of all Cost/Savings
10 High Cost Trades	6,113,800	10	+174.79	31.65%
Cost Trades	69,128,076	609	+43.66	100.00%
Saving Trades	63,154,227	673	40.07	100.00%
10 Low Cost Trades	6,136,949	10	98.60	18.19%





(+) = Cost

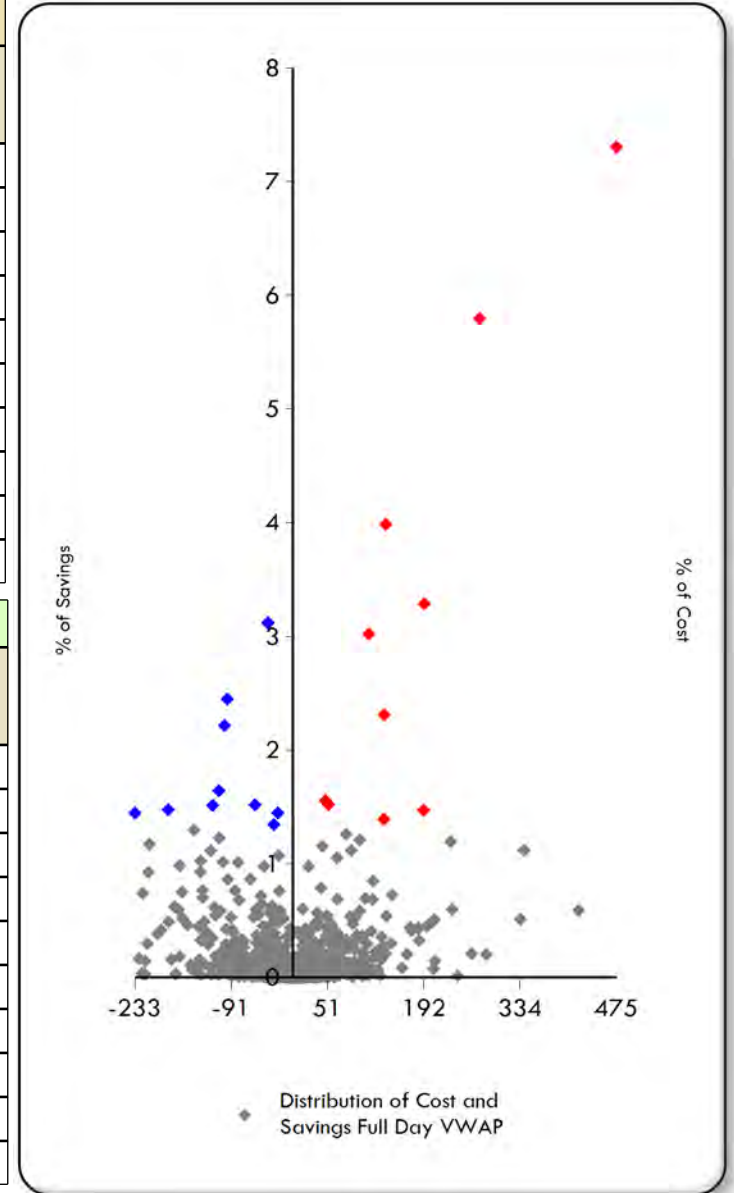
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Cost (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Sell	CAN	BOMBARDIER	20181108	431,734	7.31%	0.75	+475.23	LAZAR	RBC D
Buy	CAN	WESTON (GE	20181102	640,236	5.80%	1.79	+274.21	LSV A	AUTRE
Buy	UK	WEIR GROUP	20181003	873,906	3.98%	1.74	+136.24	LAZAR	ROYAL
Sell	UK	SPIRAX SAR	20181016	492,688	3.28%	N/A	+192.78	WILLI	SOCIE
Sell	UK	PRUDENTIAL	20181011	792,588	3.02%	2.75	+111.25	LAZAR	JP MO
Buy	NZL	RYMAN HEAL	20181002	516,721	2.31%	3.32	+133.74	WILLI	UBS
Sell	CAN	BRP INC/CA	20181129	961,261	1.56%	0.52	+47.55	LSV A	CITIG
Sell	JAP	DON QUIJOT	20181011	861,794	1.52%	0.09	+51.83	LAZAR	MERRI
Buy	GER	VOLKSWAGEN	20181019	230,651	1.47%	2.00	+191.72	LAZAR	ITG
Buy	SWI	NOVARTIS A	20181105	312,221	1.39%	N/A	+133.39	LAZAR	CREDI

10 Low Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Savings (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Sell	JAP	FANUC CORP	20181011	1,656,253	3.12%	-0.32	37.09	LAZAR	CREDI
Sell	JAP	DON QUIJOT	20181010	501,611	2.45%	-1.96	96.84	LAZAR	MERRI
Buy	MEX	GRUPO AERO	20181009	427,346	2.22%	-1.53	100.88	WILLI	CITIG
Buy	AUS	LENZING AG	20181205	292,388	1.65%	-1.29	109.21	LSV A	CREDI
Sell	ITA	MEDIOBANCA	20181015	534,556	1.52%	-0.69	56.11	LSV A	MERRI
Sell	SPA	BANKIA SA	20181018	254,176	1.52%	0.00	118.40	LAZAR	JEFFE
Sell	SPA	BANKIA SA	20181019	160,815	1.48%	-1.30	183.67	LAZAR	CREDI
Sell	NTH	ARCELORMIT	20181012	1,261,740	1.45%	-0.36	22.59	LAZAR	PERSH
Buy	CAN	TOROMONT I	20181022	119,374	1.45%	-2.12	232.64	WILLI	LIQUI
Sell	UK	SHIRE PLC	20181105	928,690	1.35%	-1.43	28.54	LAZAR	ITG





(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

BOMBARDIER INC B COMMON STOCK - 20181108

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	RBC DOMINION SECS	CAN	CAD	2109723	11/08/2018 09:30:00	11/08/2018 16:00:00	431,734	2.53	2.65	+21,541	+475.22	0.75	0.40



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 7.31% of your market impact cost.

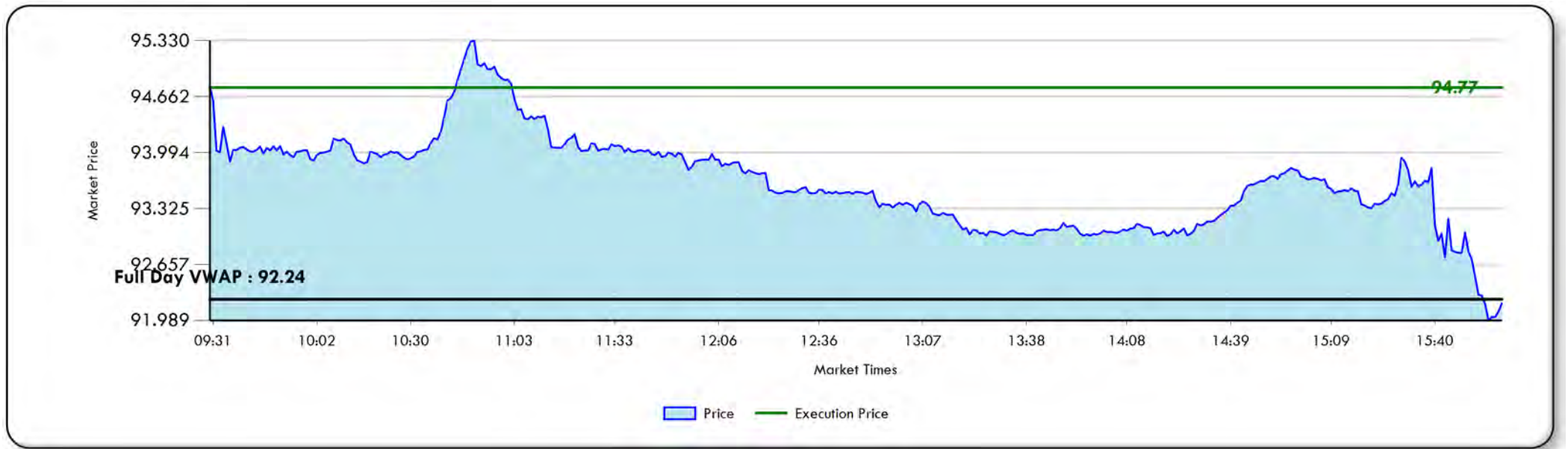


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

WESTON (GEORGE) LTD COMMON STO - 20181102

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LSV ASSET MANAGEMENT	AUTREPAT-DISTRIBUT	CAN	CAD	2956662	11/02/2018 09:30:00	11/02/2018 16:00:00	640,236	94.77	92.24	+17,088	+274.21	1.79	0.61



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 5.80% of your market impact cost.

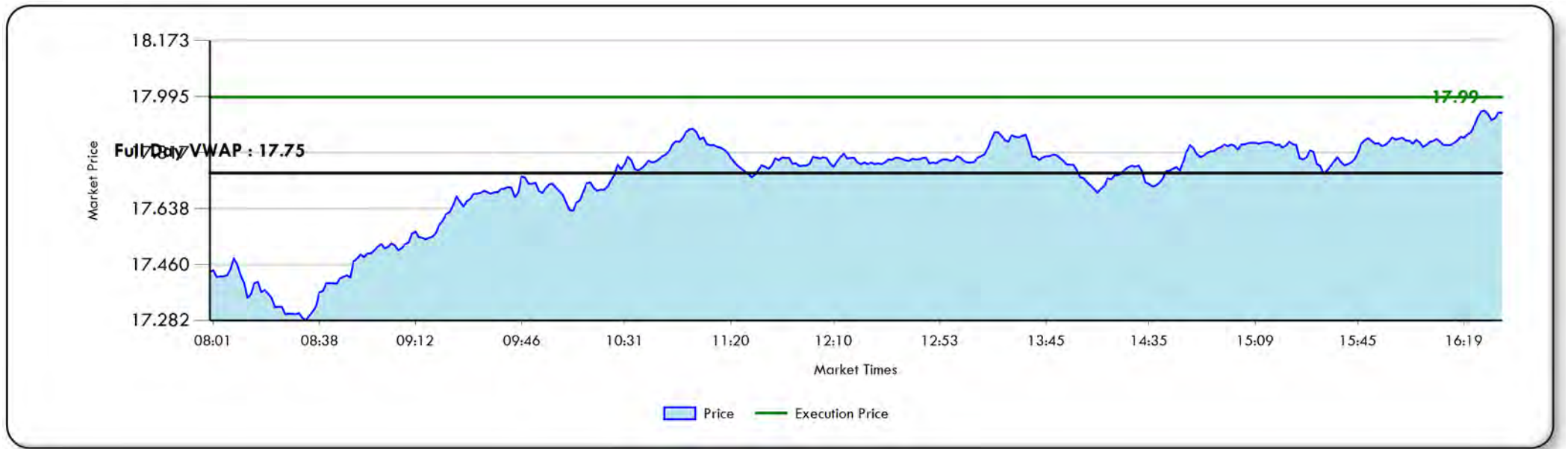


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

WEIR GROUP PLC/THE COMMON STOC - 20181003

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LAZARD ASSET MANAGEMENT	ROYAL BANK OF CANADA	UK	GBP	0946580	10/03/2018 08:00:00	10/03/2018 16:30:00	873,906	17.99	17.75	+11,746	+136.24	1.74	3.68



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.98% of your market impact cost.

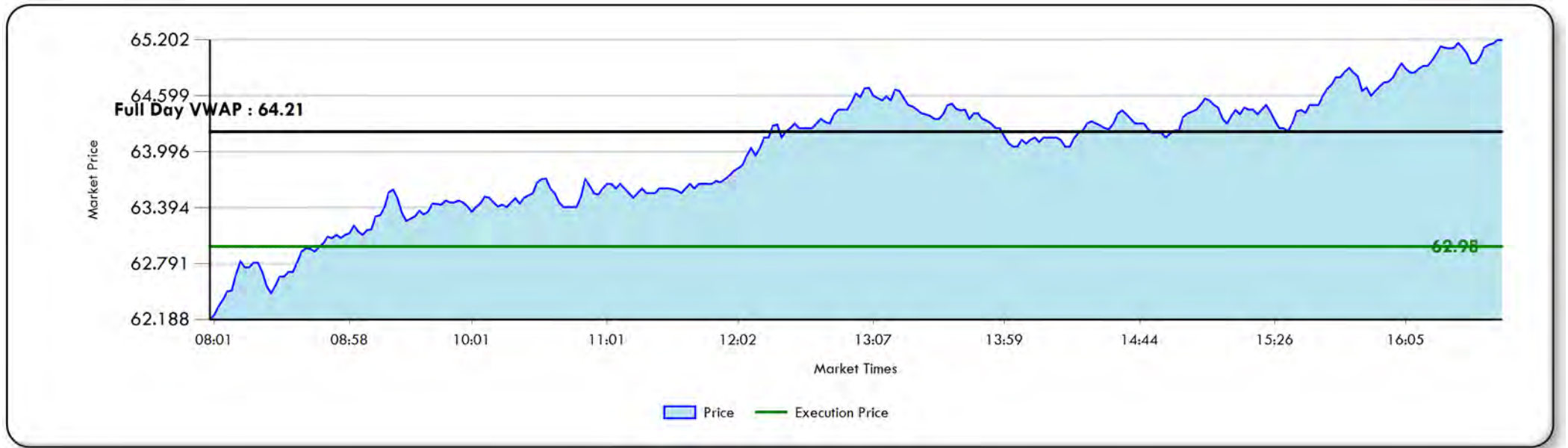


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

SPIRAX SARCO ENGINEERING PLC C - 20181016

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	WILLIAM BLAIR & COMPANY	SOCIETE GENERALE	UK	GBP	BWFGQN 1	10/16/2018 08:00:00	10/16/2018 16:30:00	492,688	62.98	64.21	+9,685	+192.78	N/A	4.16



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.28% of your market impact cost.

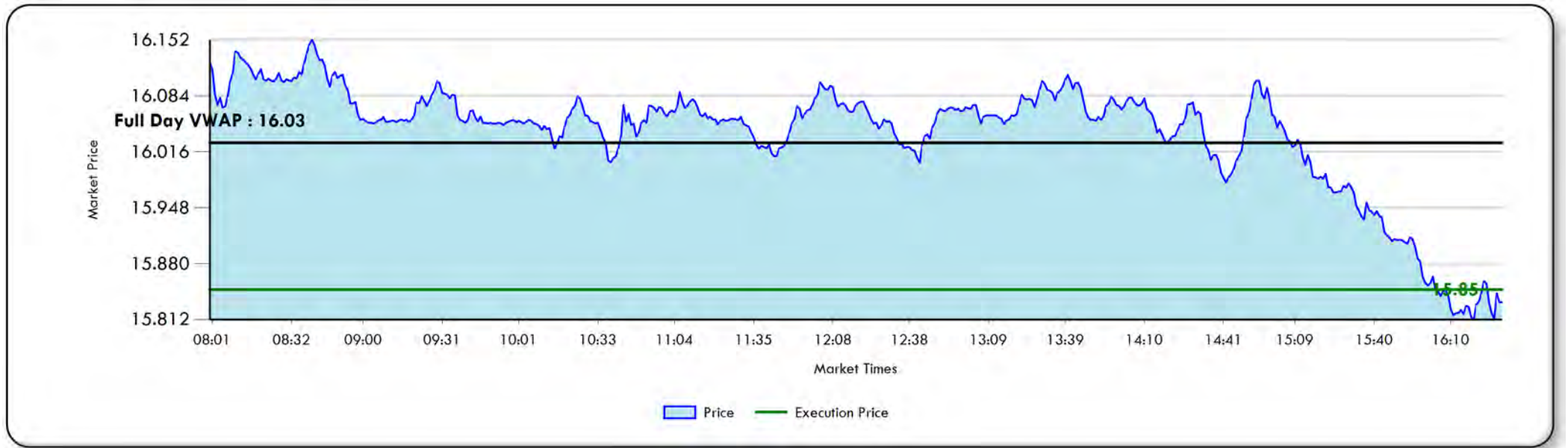


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

PRUDENTIAL PLC COMMON STOCK GB - 20181011

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	JP MORGAN CHASE	UK	GBP	0709954	10/11/2018 08:00:00	10/11/2018 16:30:00	792,588	15.85	16.03	+8,917	+111.24	2.75	0.77



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.02% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

RYMAN HEALTHCARE LTD COMMON ST - 20181002

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	WILLIAM BLAIR & COMPANY	UBS	NZL	NZD	6161525	10/02/2018 10:00:00	10/02/2018 16:45:00	516,721	13.75	13.57	+6,820	+133.74	3.32	57.40



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.31% of your market impact cost.

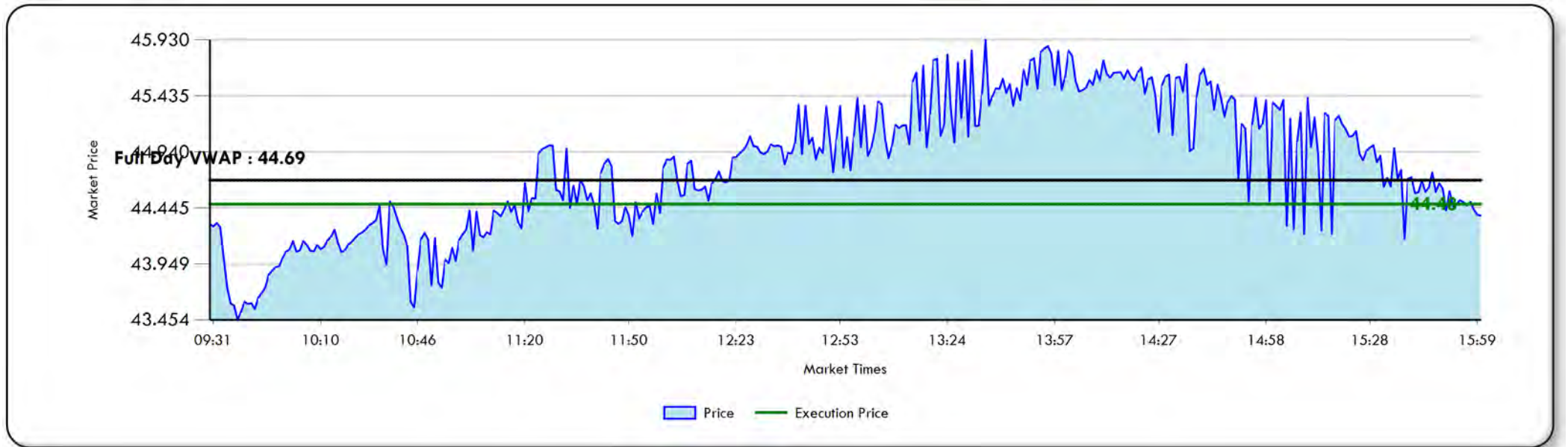


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

BRP INC/CA SUB VOTING COMMON - 20181129

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LSV ASSET MANAGEMENT	CITIGROUP	CAN	CAD	B9B3FG1	11/29/2018 09:30:00	11/29/2018 16:00:00	961,261	44.48	44.69	+4,593	+47.54	0.52	6.51



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.56% of your market impact cost.

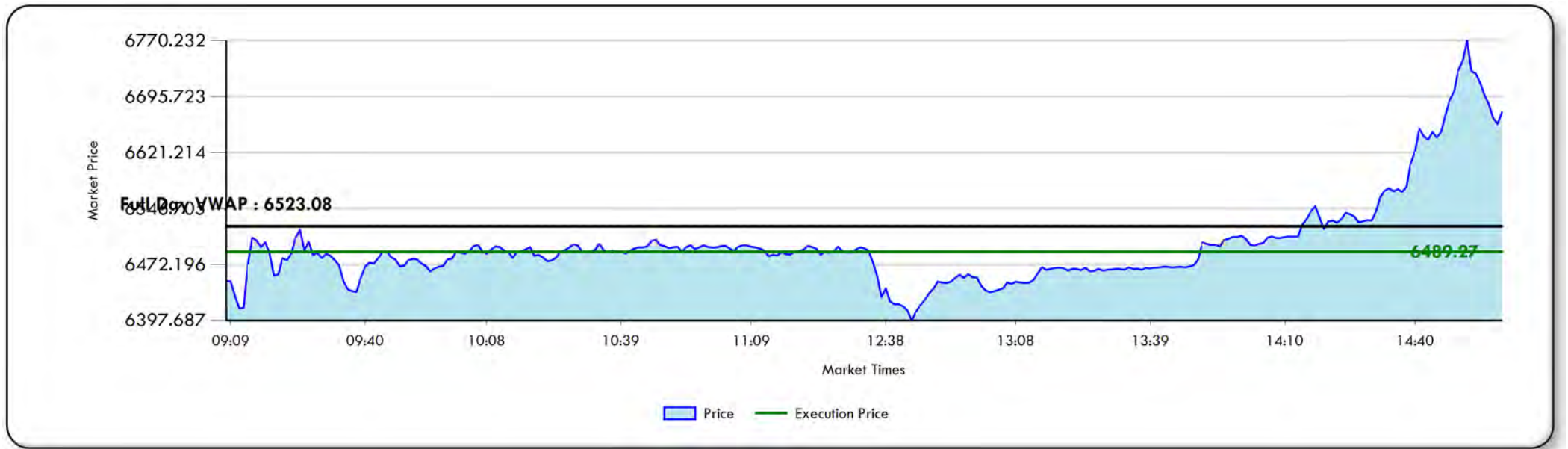


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

DON QUIJOTE HOLDINGS CO LTD CO - 20181011

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	MERRILL LYNCH	JAP	JPY	6269861	10/11/2018 09:00:00	10/11/2018 15:00:00	861,794	6489.27	6523.08	+4,490	+51.82	0.09	0.29



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.52% of your market impact cost.

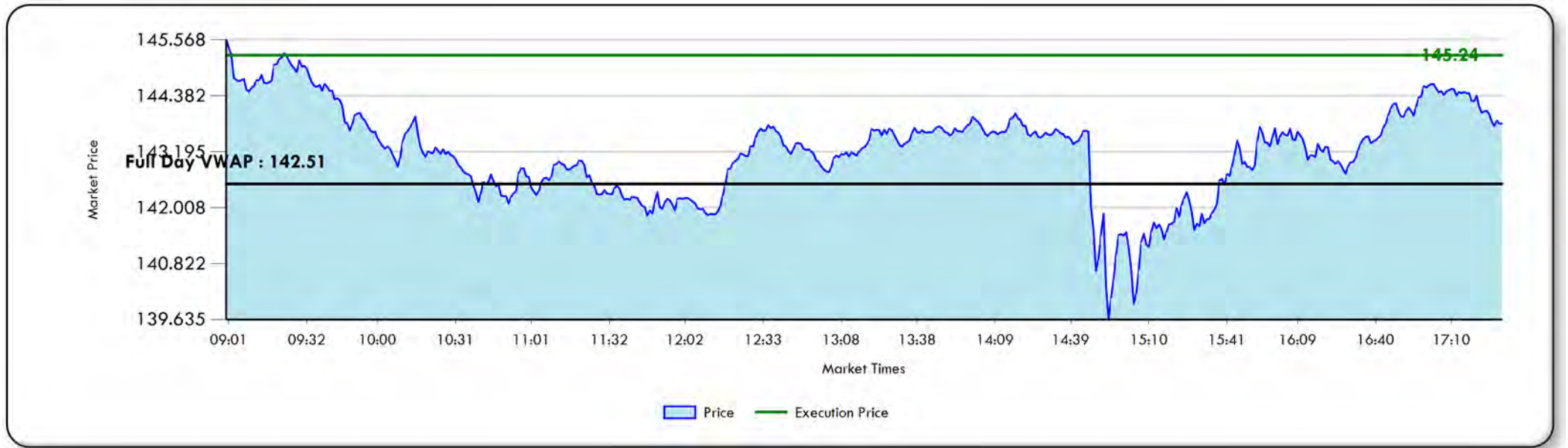


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

VOLKSWAGEN AG PREF PREFERENCE - 20181019

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LAZARD ASSET MANAGEMENT	ITG	GER	EUR	5497168	10/19/2018 09:00:00	10/19/2018 17:30:00	230,651	145.24	142.51	+4,339	+191.71	2.00	0.08



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.47% of your market impact cost.

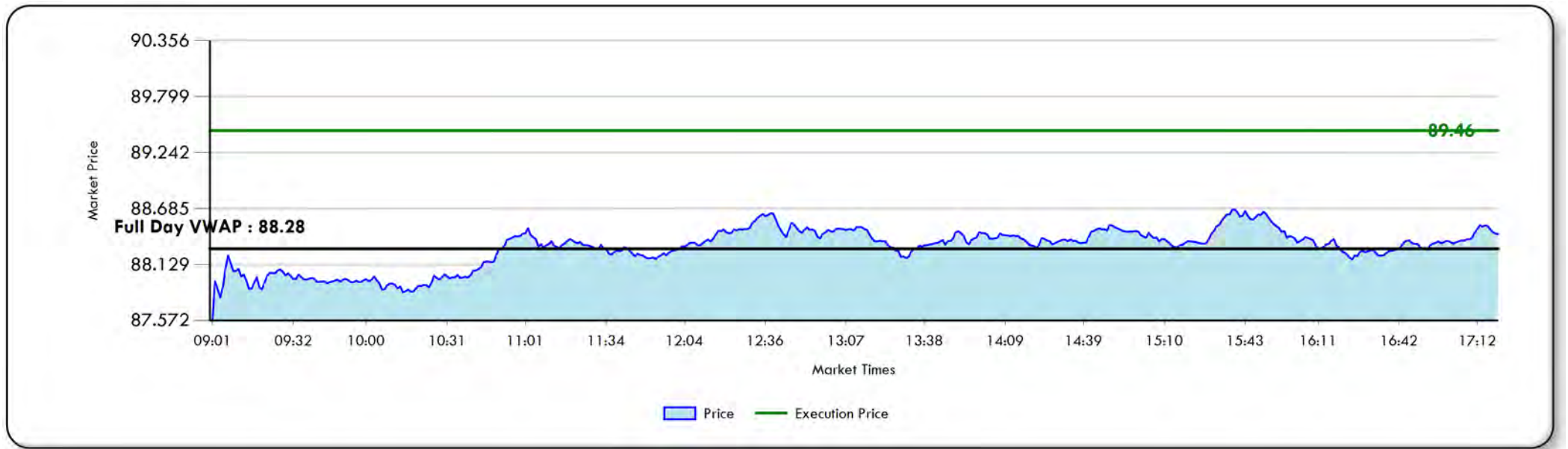


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

NOVARTIS AG REG COMMON STOCK C - 20181105

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LAZARD ASSET MANAGEMENT	CREDIT SUISSE	SWI	CHF	7103065	11/05/2018 09:00:00	11/05/2018 17:20:00	312,221	89.46	88.28	+4,110	+133.39	N/A	0.11



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.39% of your market impact cost.

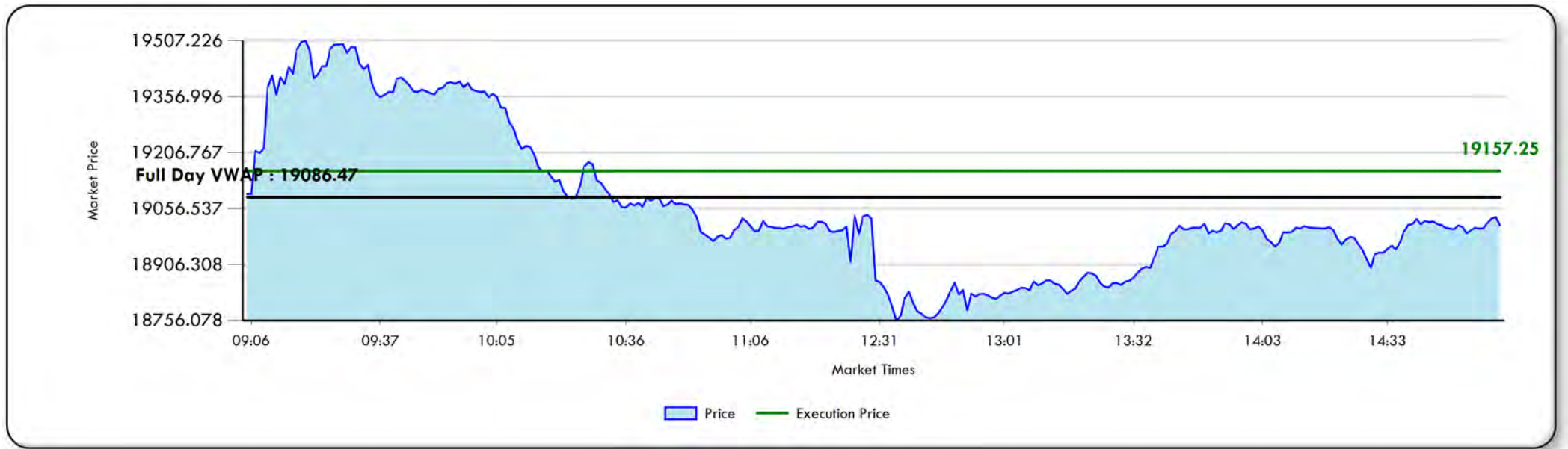


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

FANUC CORP COMMON STOCK - 20181011

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	CREDIT AGRICOLE	JAP	JPY	6356934	10/11/2018 09:00:00	10/11/2018 15:00:00	1,656,253	19157.25	19086.47	6,120	37.08	-0.32	0.30



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.12% of your market impact cost.

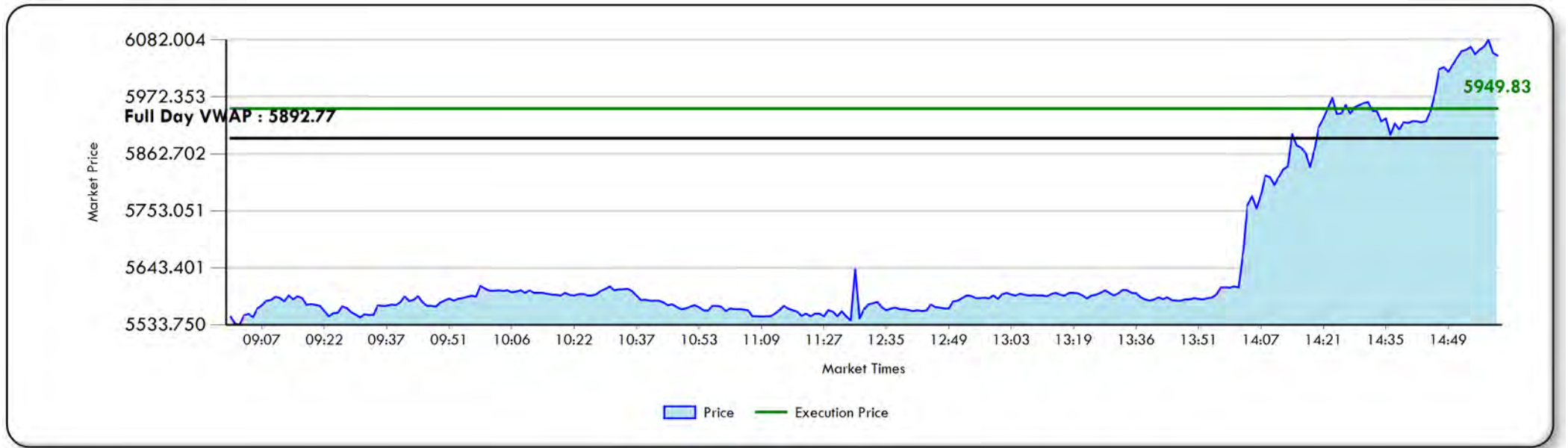


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

DON QUIJOTE HOLDINGS CO LTD CO - 20181010

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	MERRILL LYNCH	JAP	JPY	6269861	10/10/2018 09:00:00	10/10/2018 15:00:00	501,611	5949.83	5892.77	4,811	96.83	-1.96	0.35



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.45% of your market impact cost.

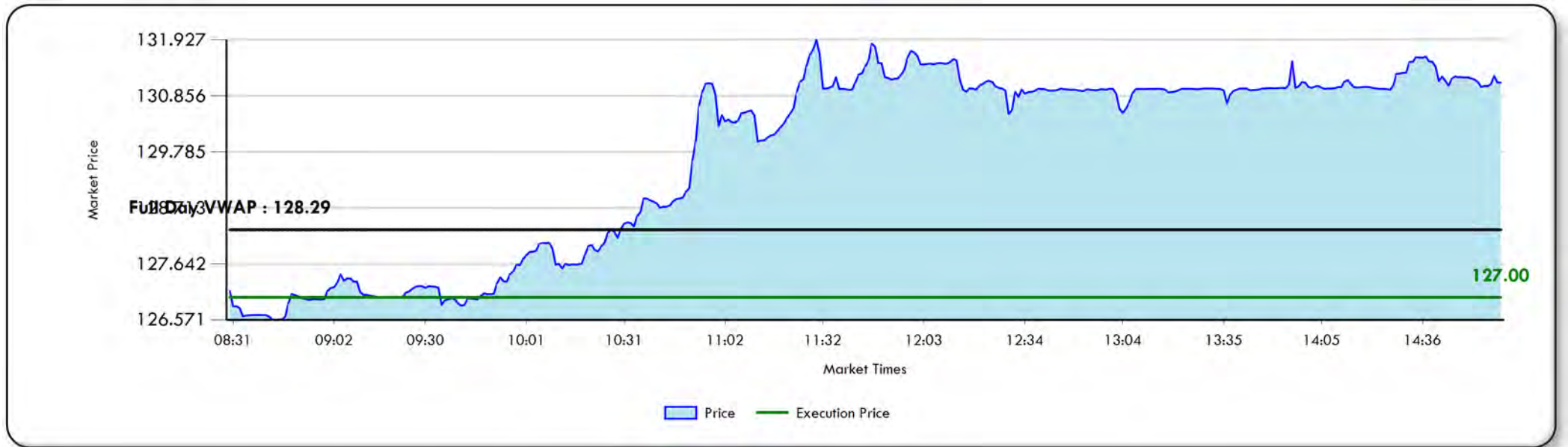


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

GRUPO AEROPORTUARIO DEL CENT C - 20181009

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	WILLIAM BLAIR & COMPANY	CITIGROUP	MEX	MXN	B1KFX13	10/09/2018 08:30:00	10/09/2018 15:00:00	427,346	127.00	128.29	4,355	100.87	-1.53	1.37



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.22% of your market impact cost.

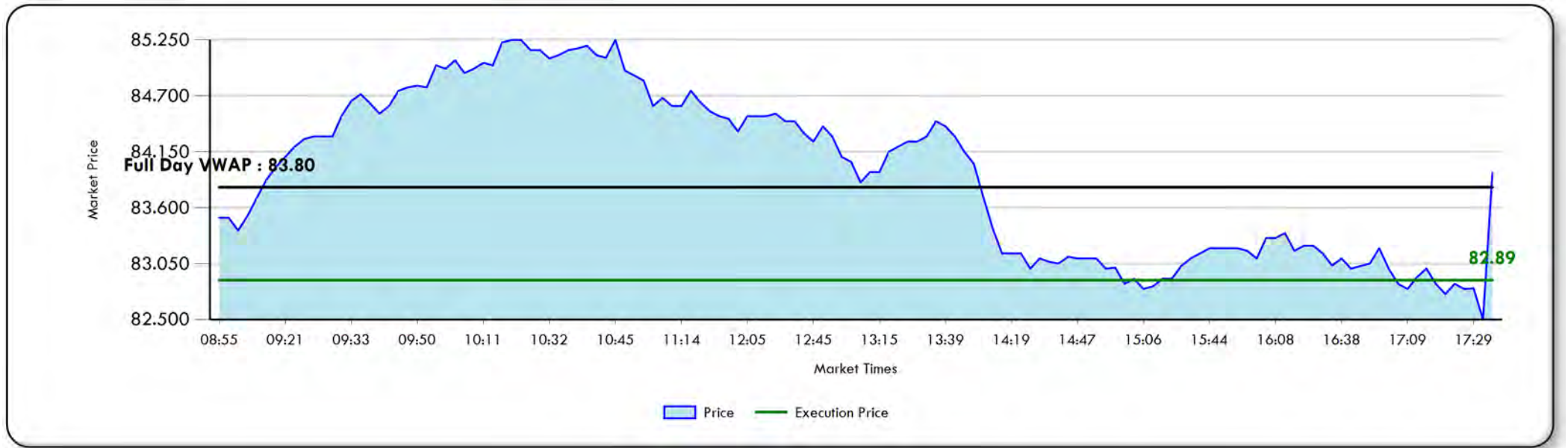


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

LENZING AG COMMON STOCK - 20181205

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LSV ASSET MANAGEMENT	CREDIT SUISSE	AUS	EUR	4512330	12/05/2018 08:55:00	12/05/2018 17:35:00	292,388	82.89	83.80	3,228	109.21	-1.29	8.03



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.65% of your market impact cost.

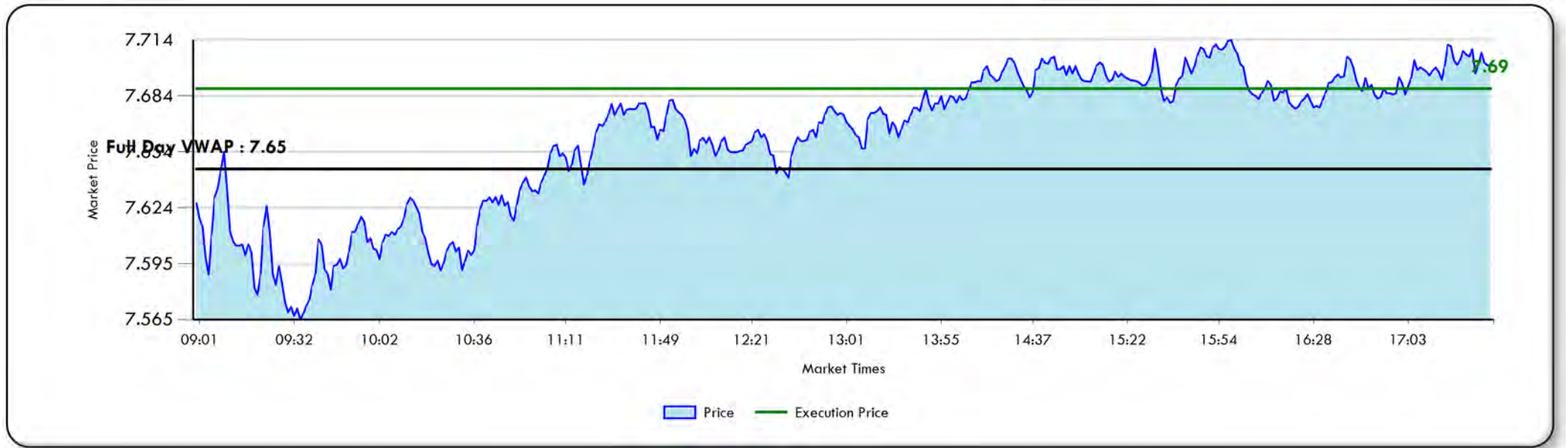


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

MEDIOBANCA SPA COMMON STOCK EU - 20181015

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LSV ASSET MANAGEMENT	MERRILL LYNCH	ITA	EUR	4574813	10/15/2018 09:00:00	10/15/2018 17:30:00	534,556	7.69	7.65	2,983	56.11	-0.69	2.12



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.52% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

BANKIA SA COMMON STOCK EUR1.0 - 20181018

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	JEFFERIES & CO	SPA	EUR	BZ3C3Q4	10/18/2018 09:00:00	10/18/2018 17:30:00	254,176	2.98	2.94	2,974	118.40	0.00	0.43



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.52% of your market impact cost.

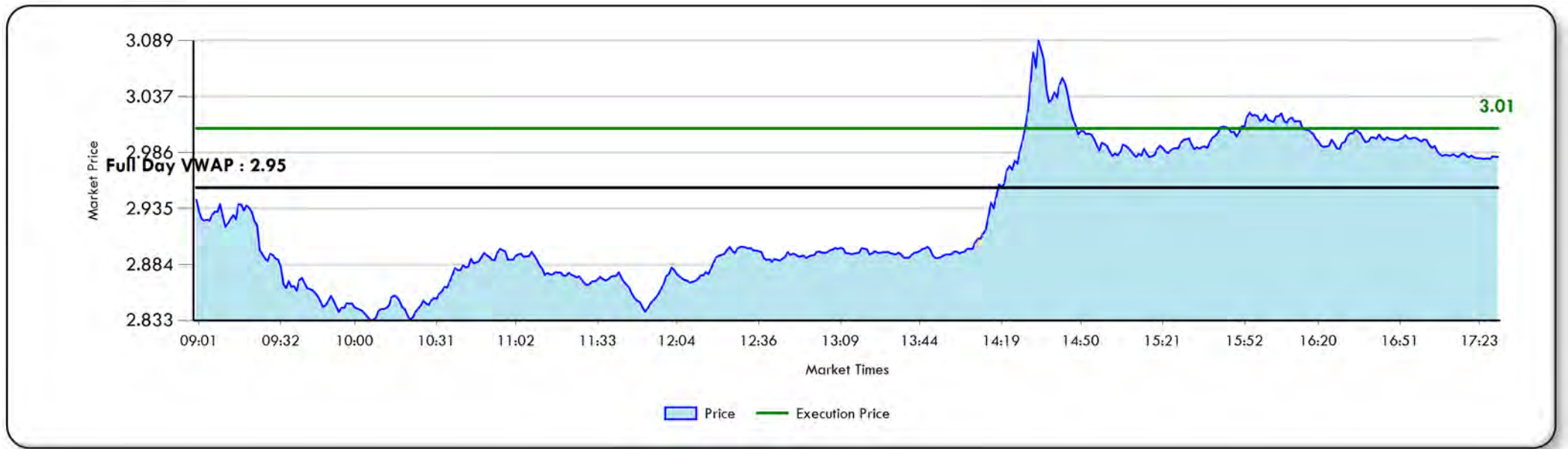


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

BANKIA SA COMMON STOCK EUR1.0 - 20181019

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	CREDIT SUISSE	SPA	EUR	BZ3C3Q4	10/19/2018 09:00:00	10/19/2018 17:30:00	160,815	3.01	2.95	2,900	183.66	-1.30	0.30



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.48% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

ARCELORMITAL COMMON STOCK - 20181012

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	PERSHING	NTH	EUR	BYPBS67	10/12/2018 09:00:00	10/12/2018 17:30:00	1,261,740	24.66	24.60	2,844	22.58	-0.36	0.84



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.45% of your market impact cost.

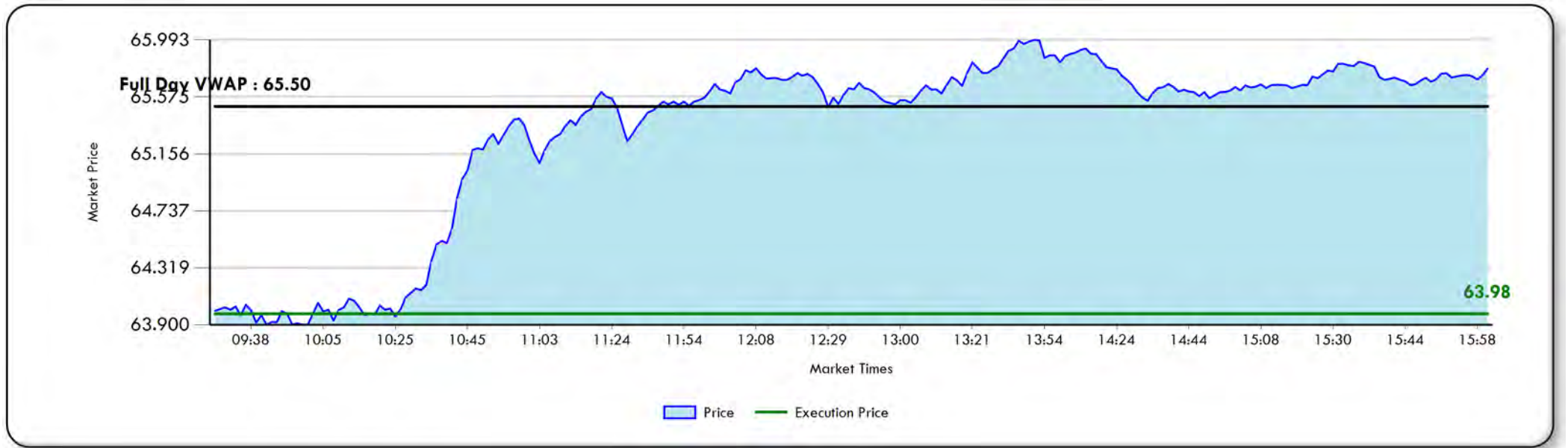


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

TOROMONT INDUSTRIES LTD COMMON - 20181022

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	WILLIAM BLAIR & COMPANY	LIQUIDNET	CAN	CAD	2897103	10/22/2018 09:30:00	10/22/2018 16:00:00	119,374	63.98	65.50	2,843	232.64	-2.12	1.01



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.45% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

SHIRE PLC COMMON STOCK GBP.05 - 20181105

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	ITG	UK	GBP	B2QKY05	11/05/2018 08:00:00	11/05/2018 16:30:00	928,690	45.43	45.30	2,643	28.54	-1.43	1.79

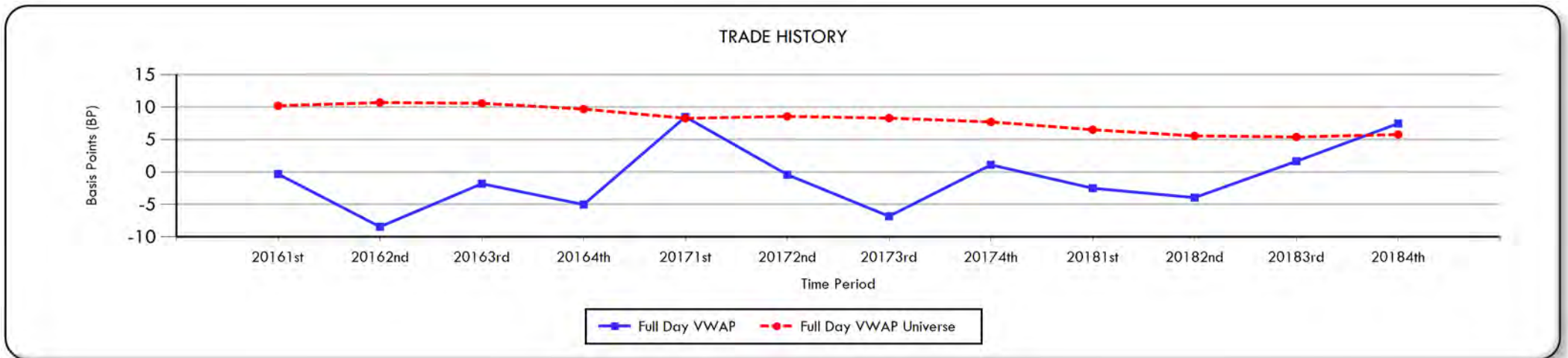


NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.35% of your market impact cost.

TRADE HISTORY

Period	Total Principal (\$)	Commission (bp)	Commission Universe (bp)	Fees (bp)	Fees Universe (bp)	Full Day VWAP (bp)	Full Day VWAP Universe (bp)	Total Cost/Savings Vs. Universe (bp)
20161st	122,988,471	+7.80	+15.62	+4.75	+5.22	0.33	+10.19	18.81
20162nd	188,544,188	+7.40	+16.20	+5.32	+5.52	8.45	+10.68	28.14
20163rd	170,434,065	+7.69	+16.36	+6.62	+6.96	1.82	+10.56	21.39
20164th	200,915,200	+7.12	+16.08	+5.97	+6.25	5.02	+9.68	23.94
20171st	193,287,065	+8.16	+15.81	+6.67	+6.60	+8.47	+8.26	7.37
20172nd	199,438,944	+6.90	+14.86	+4.37	+4.99	0.43	+8.55	17.56
20173rd	186,109,779	+7.65	+14.45	+5.00	+5.31	6.83	+8.29	22.23
20174th	198,018,280	+7.13	+14.19	+3.98	+4.19	+1.09	+7.70	13.88
20181st	207,232,838	+8.30	+14.33	+5.34	+5.43	2.52	+6.50	15.12
20182nd	152,374,616	+7.46	+14.16	+10.17	+6.65	3.96	+5.55	12.69
20183rd	84,663,286	+6.92	+13.97	+5.95	+3.81	+1.64	+5.39	8.65
20184th	132,282,303	+7.47	+14.63	+4.94	+3.67	+7.46	+5.76	4.18



Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
ARGENTINA	2.97 BP	42.15 BP	0.00 BP	24.97 BP	67.12 BP
AUSTRALIA	6.99 BP	13.93 BP	1.07 BP	3.82 BP	18.82 BP
AUSTRIA	28.24 BP	14.00 BP	0.03 BP	7.04 BP	21.07 BP
BELGIUM	76.49 BP	13.66 BP	0.01 BP	4.15 BP	17.82 BP
BRAZIL	6.31 BP	13.83 BP	1.36 BP	7.38 BP	22.57 BP
CANADA	15.12 BP	14.07 BP	0.03 BP	4.18 BP	18.28 BP
CHILE	0.40 BP	16.65 BP	0.64 BP	4.15 BP	21.44 BP
CHINA	5.74 BP	19.77 BP	3.97 BP	2.00 BP	25.74 BP
COLOMBIA	1.92 BP	24.80 BP	0.76 BP	11.34 BP	36.90 BP
CZECH REPUBLIC	11.95 BP	16.64 BP	0.00 BP	3.44 BP	20.08 BP
DENMARK	61.47 BP	14.69 BP	0.00 BP	6.10 BP	20.79 BP
EGYPT	1.52 BP	25.45 BP	13.71 BP	8.22 BP	47.38 BP
FINLAND	24.62 BP	13.94 BP	0.00 BP	6.78 BP	20.72 BP
FRANCE - BUYS	56.30 BP	13.91 BP	30.00 BP	3.28 BP	47.19 BP
FRANCE - SELLS	51.05 BP	14.85 BP	0.00 BP	3.38 BP	18.23 BP
GERMANY	59.74 BP	13.84 BP	0.03 BP	4.13 BP	18.00 BP
GREECE	1.40 BP	14.01 BP	2.52 BP	14.39 BP	30.92 BP
HONG KONG	2.29 BP	19.51 BP	10.11 BP	1.53 BP	31.15 BP
HUNGARY	11.29 BP	13.53 BP	0.08 BP	2.90 BP	16.51 BP
INDONESIA	0.28 BP	16.44 BP	9.74 BP	3.70 BP	29.88 BP

Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
INDIA	8.53 BP	14.64 BP	10.73 BP	2.71 BP	28.08 BP
IRELAND - BUYS	18.48 BP	15.66 BP	100.00 BP	2.95 BP	118.61 BP
IRELAND - SELLS	15.08 BP	14.29 BP	0.00 BP	17.76 BP	32.05 BP
ISRAEL	4.84 BP	14.35 BP	0.09 BP	4.10 BP	18.54 BP
ITALY - BUYS	6.66 BP	13.76 BP	12.00 BP	2.72 BP	28.48 BP
ITALY - SELLS	10.43 BP	13.95 BP	0.00 BP	7.85 BP	21.80 BP
JAPAN	20.46 BP	13.89 BP	0.02 BP	5.66 BP	19.57 BP
KOREA - BUYS	92.35 BP	18.72 BP	0.00 BP	5.69 BP	24.41 BP
KOREA - SELLS	69.62 BP	16.75 BP	28.78 BP	3.21 BP	48.74 BP
LUXEMBOURG	76.33 BP	28.98 BP	0.09 BP	34.09 BP	63.16 BP
MALAYSIA	1.49 BP	20.89 BP	2.98 BP	1.66 BP	25.53 BP
MEXICO	2.20 BP	14.25 BP	0.00 BP	1.49 BP	15.74 BP
NORWAY	12.20 BP	12.88 BP	0.06 BP	6.55 BP	19.49 BP
NETHERLANDS	29.03 BP	14.12 BP	0.11 BP	3.95 BP	18.18 BP
NEW ZEALAND	3.08 BP	14.47 BP	0.00 BP	6.46 BP	20.93 BP
PERU	1.18 BP	19.00 BP	0.68 BP	5.98 BP	25.66 BP
PHILIPPINES - BUYS	0.72 BP	18.16 BP	4.01 BP	2.25 BP	24.42 BP
PHILIPPINES - SELLS	0.73 BP	20.87 BP	59.27 BP	1.24 BP	81.38 BP
POLAND	11.88 BP	14.61 BP	0.00 BP	4.66 BP	19.27 BP
PORTUGAL	4.53 BP	13.65 BP	0.02 BP	7.11 BP	20.78 BP

Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
RUSSIA	0.06 BP	0.00 BP	0.00 BP	17.56 BP	17.56 BP
SOUTH AFRICA - BUYS	11.90 BP	13.65 BP	23.53 BP	5.15 BP	42.33 BP
SOUTH AFRICA - SELLS	7.08 BP	14.32 BP	0.07 BP	3.85 BP	18.24 BP
SINGAPORE	3.12 BP	16.72 BP	3.57 BP	2.17 BP	22.46 BP
SPAIN	9.81 BP	13.90 BP	0.00 BP	3.84 BP	17.74 BP
SWEDEN	12.69 BP	13.98 BP	0.02 BP	1.42 BP	15.42 BP
SWITZERLAND	68.92 BP	13.78 BP	0.02 BP	3.75 BP	17.55 BP
TAIWAN - BUYS	2.70 BP	14.40 BP	0.00 BP	1.82 BP	16.22 BP
TAIWAN - SELLS	2.52 BP	18.49 BP	29.15 BP	3.48 BP	51.12 BP
THAILAND	1.82 BP	18.39 BP	0.80 BP	2.99 BP	22.18 BP
TURKEY	2.35 BP	15.66 BP	0.00 BP	4.47 BP	20.13 BP
U.K. - BUYS	7.02 BP	16.74 BP	31.51 BP	2.18 BP	50.43 BP
U.K. - SELLS	8.52 BP	14.53 BP	0.00 BP	14.01 BP	28.54 BP
U.S.	54.18 BP	15.46 BP	0.10 BP	2.42 BP	17.98 BP
VENEZUELA	10.50 BP	43.22 BP	9.10 BP	31.03 BP	83.35 BP
TOTAL: 55	18.53 BP	16.74 BP	7.10 BP	6.46 BP	30.30 BP

DISCLAIMER

State Street Corporation and its subsidiaries and affiliates, including Elkins/McSherry, LLC (“State Street”), provide products and services to professional and institutional clients and this report and information (“Report”) is provided solely for general, marketing and/or informational purposes and is subject to these terms and conditions, including that the Report does not constitute investment research or investment, legal, regulatory, or tax advice. Nothing herein is an offer or solicitation to buy or sell any product, service or securities or any financial instrument and this does not create or constitute any binding contractual commitment or obligations for State Street of any kind. Not all products and features a may be available in all jurisdictions. Any opinions expressed or other information in the Report are subject to change without notice. The Report has been prepared and obtained from sources believed to be reliable at the time of preparation, however, it is provided “as-is” and State Street makes no guarantee, representation, or warranty of any kind including but not limited to its accuracy, suitability, timeliness, merchantability, fitness for a particular purpose, non-infringement of third-party rights, etc. This Report is not intended to be relied upon by any person or entity. State Street disclaims all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs arising, either direct or consequential, from or in connection with the use of the Report. No permission is granted to reprint, sell, copy, distribute, or modify any of the Report, in any form or by any means without the prior written consent of State Street. The Report may contain certain statements that may be deemed forward-looking statements. Please note that any such statements or forecasted information are not guarantees or reliable indicators for future performance and actual results or developments may differ materially from those depicted or projected. Investing involves risk, including the risk of loss of principal. Diversification does not ensure a profit or guarantee against loss. The Report does not take into account any client’s particular investment objectives, strategies, or tax and legal status, relevant regulations, nor does it purport to be comprehensive or intended to replace the exercise of a client’s or investor’s own careful independent review regarding any corresponding investment decision or related analysis.

Copyright © 2019 State Street Corporation, All rights reserved.



SACRAMENTO COUNTY

US Fixed Income Analysis

Period End December 31, 2018



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates U.S. fixed income executions from October 01,2018 to December 31,2018. The analysis included trading of 364 trades in 137 different issues representing \$713,870,378 in principal across mortgages, governments And corporates.

Methodology:

The Elkins/McSherry analysis measures trading efficiency by quantifying the cost of each trade by comparing your executed price to the average price or benchmark price on the day of the trade and to the Elkins/McSherry U.S. Fixed Income Trading Cost Universe. Daily prices are calculated from Market Axess, Tullett Prebon, Bloomberg and Reuters. For comparison purposes, Elkins/McSherry establishes average institutional trading costs quarterly for the most actively traded U.S.treasury, corporates, agencies, mortgages and municipal issues. The "Universe" is the average trading cost incurred by pension funds, investment managers, banks and brokers for Treasuries, Corporates, Agencies, Mortgages and Municipals. Benchmark prices are calculated by using the following methodologies: Government Bonds – Average of six indicative prices received from Tullett Prebon. Municipal Bonds – Average of institutional sized execution prices from MSRB. If actual trade prices are not available the Elkins/McSherry analysis defaults to a fair value price from Reuters or Bloomberg. Corporate Bonds – Average of execution prices where available, from TRACE and Market Axess. If actual trade prices are not available the Elkins/McSherry analysis defaults to a fair value price from Reuters or Bloomberg. Mortgage Bonds – Reuters or Bloomberg fair value prices.

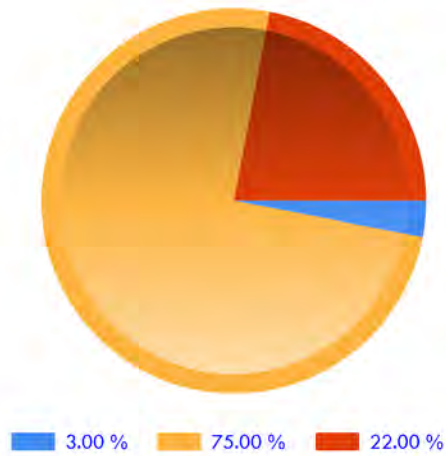
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q3 2018	Q2 2018	Q1 2018	Q4 2017
BUYS	340	173	99	+291.32	+8.56	+9.96	47.65	1.40	+10.48	+11.14	+8.36	+9.82
SELLS	374	191	71	268.05	7.18	+7.65	553.97	14.83	10.05	4.57	8.91	10.65
GRAND TOTAL	714	364	137	+23.27	+0.33	+8.75	601.62	8.42	+0.04	+2.62	+0.68	0.60

EXECUTIVE SUMMARY

BOND TYPES PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	Q3 2018	Q2 2018	Q1 2018	Q4 2017
Governments	538	254	60	15.85	0.29	+8.40	468.02 8.69	0.10	+1.22	+4.09	+0.03
Mortgages	155	62	34	+35.90	+2.32	+9.26	107.39 6.94	+0.15	+6.46	1.82	2.65
Corporates	21	48	43	+3.21	+1.54	+14.14	26.21 12.60	+0.71	1.77	17.49	+1.35

Bonds by Principal Traded



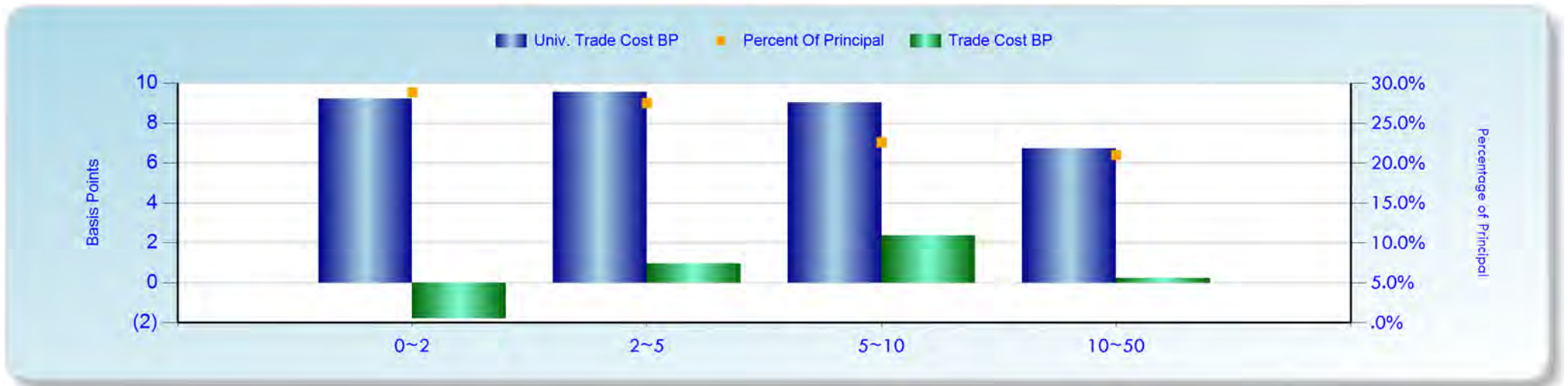
Historical Trade Cost Trend



EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	206	263	116	37.15	1.80	+9.23	227.28	11.03
2~5	196	69	36	+18.65	+0.95	+9.57	169.30	8.62
5~10	161	22	17	+38.21	+2.37	+9.04	107.72	6.67
10~50	150	10	9	+3.56	+0.24	+6.72	97.32	6.48



EXECUTIVE SUMMARY

GRADING SUMMARY

Grading	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
Govt-INVESTMENT GRADE	538	254	60	15.85	0.29	+8.40	468.02	8.69
Mtge-High Yield	155	62	34	+35.90	+2.32	+9.26	107.39	6.94
Corp-INVESTMENT GRADE	19	44	40	+1.57	+0.83	+14.42	25.79	13.59
Corp-High Yield	<1	2	2	+0.09	+4.23	+59.84	1.18	55.61



EXECUTIVE SUMMARY

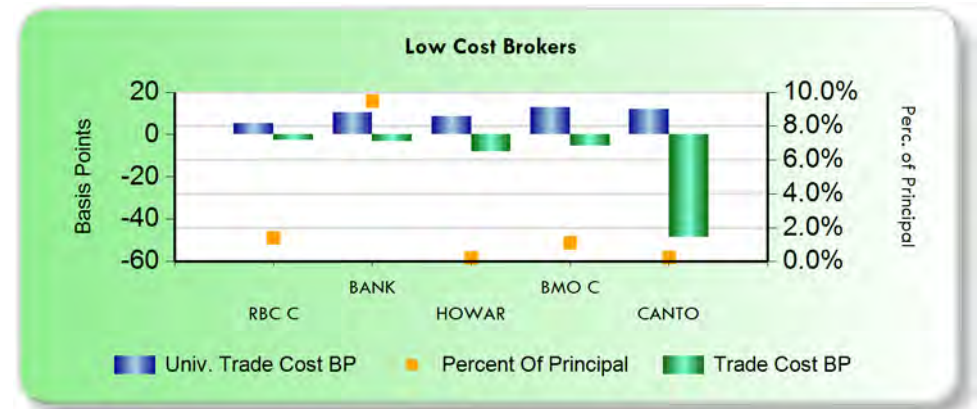
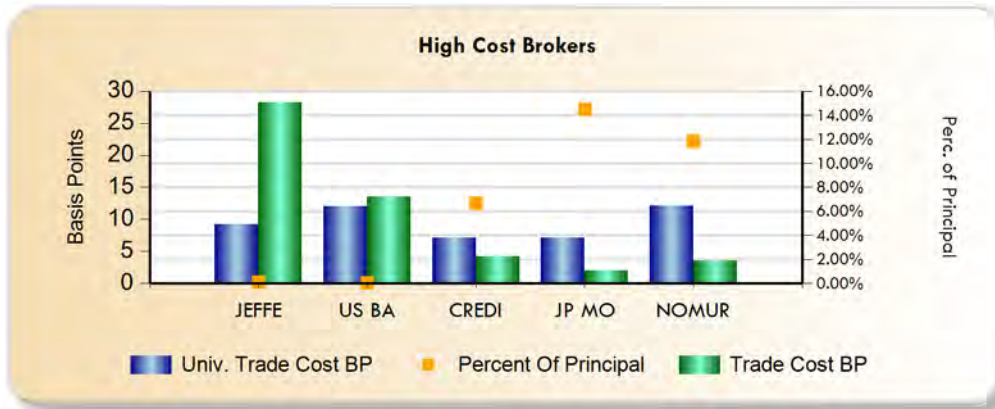
RATING SUMMARY

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
AAA	538.30	254	60	15.85	0.29	+8.40	468.02	8.69
NR	154.76	62	34	+35.90	+2.32	+9.26	107.39	6.94
A-	4.74	8	7	5.93	12.51	+12.12	11.66	24.63
BBB	4.64	10	10	1.25	2.69	+15.25	8.32	17.94
BBB+	2.65	10	7	+4.78	+18.01	+10.48	+2.00	+7.53
BBB-	2.43	7	7	+4.77	+19.65	+21.74	0.51	2.09
A	1.76	6	6	0.87	4.93	+16.91	3.84	21.84
A *-	1.62	2	1	+1.56	+9.63	+4.93	+0.76	+4.70
A+	1.22	1	1	0.73	5.94	+12.54	2.26	18.48
AA-	<1	1	1	+0.79	+8.37	+13.35	0.47	4.98



EXECUTIVE SUMMARY

BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
5 HIGHEST COST BROKERS (Sorted By Trade Cost BP)								
JEFFERIES & CO	<1	4	3	+2.44	+28.32	+9.27	+1.64	+19.05
US BANCORP	<1	1	1	+0.52	+13.58	+12.04	+0.06	+1.54
CREDIT SUISSE	48	24	17	+20.35	+4.26	+7.18	13.95	2.92
JP MORGAN CHASE	104	45	28	+20.61	+1.99	+7.15	53.47	5.16
NOMURA	85	40	18	+30.16	+3.57	+12.19	72.98	8.62
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
RBC CAPITAL MARKETS	10	11	8	2.46	2.44	+5.37	7.86	7.81
BANK OF AMERICA	68	36	17	20.60	3.04	+10.56	92.10	13.60
HOWARD TAYLOR & COMP	2	3	3	1.26	8.02	+8.57	2.60	16.59
BMO CAPITAL MARKETS	8	4	4	4.24	5.31	+13.02	14.63	18.33
CANTOR FITZGERALD	2	1	1	8.68	48.45	+11.92	10.82	60.37





COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country	Side	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
								(Thous. \$)	BP
								UNITED STATES	BUYS
	SELLS	374	191	71	268.05	7.18	+7.65	553.97	14.83

Manager PERFORMANCE

Manager PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
Manager	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2018	Q2 2018	Q1 2018	Q4 2017
METROPOLITAN WEST MG	602	298	98	+16.87	+0.28	+9.08	529.76	8.80	+0.03	+2.61	+0.45	0.89
NEUBERGER BERMAN	71	21	15	+7.80	+1.09	+8.18	50.62	7.09	+0.92	+2.73	+1.39	+0.04
BARCLAYS 1-10 YR TIP	41	45	27	1.41	0.35	+4.88	21.24	5.23	1.52	+2.58	4.70	0.86

BROKER PERFORMANCE

BROKER PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2018	Q2 2018	Q1 2018	Q4 2017
GOLDMAN SACHS	137	56	39	+7.26	+0.53	+8.09	103.35	7.56	+0.08	+3.42	+0.59	1.06
JP MORGAN CHASE	104	45	28	+20.61	+1.99	+7.15	53.47	5.16	1.01	+2.09	+8.71	2.93
NOMURA	85	40	18	+30.16	+3.57	+12.19	72.98	8.62	+1.03	+0.77	+2.12	1.34
BANK OF AMERICA	68	36	17	20.60	3.04	+10.56	92.10	13.60	1.19	0.05	+5.91	+0.93
BARCLAYS	64	22	17	6.55	1.02	+6.82	50.43	7.84	+0.35	1.25	2.81	3.67
CITIGROUP	56	22	20	0.59	0.11	+9.85	55.41	9.96	+1.08	+0.26	4.25	1.44
CREDIT SUISSE	48	24	17	+20.35	+4.26	+7.18	13.95	2.92	+0.47	+6.51	1.77	+2.95
DEUTSCHE BANK	31	17	14	4.11	1.34	+12.48	42.30	13.82	+0.20	+0.75	+5.10	0.57
BNY MELLON	18	19	8	3.15	1.73	+10.52	22.33	12.25	+1.12	+5.38	+1.80	+10.94
WELLS FARGO	18	8	6	0.60	0.34	+12.31	22.39	12.65	+1.76	+1.98	6.97	4.33
CITADEL SECURITIES	15	9	5	2.48	1.63	+4.39	9.16	6.02	0.17	+0.42	+3.54	+4.76
BNP PARIBAS	15	5	5	2.44	1.63	+1.32	4.41	2.95	-	-	5.72	+2.53
MORGAN STANLEY	12	13	11	+1.91	+1.64	+10.84	10.74	9.20	2.98	+10.21	+1.11	+6.05
RBC CAPITAL MARKETS	10	11	8	2.46	2.44	+5.37	7.86	7.81	2.76	+3.38	0.32	+6.79
HSBC BANK	10	9	7	1.32	1.31	+6.91	8.27	8.22	+0.43	+3.88	1.29	+2.73
BMO CAPITAL MARKETS	8	4	4	4.24	5.31	+13.02	14.63	18.33	0.27	-	+1.17	+0.12
UBS	8	11	10	0.34	0.45	+5.15	4.21	5.60	+2.88	1.29	8.52	+0.35
WACHOVIA BANK	5	4	4	1.18	2.38	+1.48	1.91	3.86	0.98	-	+1.59	+1.34
CANTOR FITZGERALD	2	1	1	8.68	48.45	+11.92	10.82	60.37	5.07	-	-	-
HOWARD TAYLOR & COMP	2	3	3	1.26	8.02	+8.57	2.60	16.59	+3.81	-	0.11	+2.83

TRADE DETAILS

Buy/Sell	Security	Bond Type	Trade Date/ Maturity	Manager/ Broker	Cty	Local Curr.	Principal (\$)	Price	Benchmark Price	Trade Cost BP	Trading Cost
15 Highest Cost Trades											
B	01F03261 FNCL 3.5 1/11	Mtge	12/10/2018 01/01/1900	METROPOLITAN WE JP MORGAN CHASE	US	USD	9,347,075	99.016	98.486	+53.49	+49,997
B	01F0326C FNCL 3.5 12/10	Mtge	11/06/2018 01/01/1900	METROPOLITAN WE JP MORGAN CHASE	US	USD	9,136,150	96.781	96.268	+53.08	+48,498
B	9128285T US TREASURY N/B 12/25 2.625	Govt	12/28/2018 12/31/2025	METROPOLITAN WE GOLDMAN SACHS	US	USD	19,845,162	99.875	99.748	+12.67	+25,147
B	02R0426C FGLMC 4.5 12/09	Mtge	11/06/2018 01/01/1900	METROPOLITAN WE CREDIT SUISSE	US	USD	5,557,296	101.969	101.657	+30.62	+17,018
S	912810SD US TREASURY N/B 08/48 3	Govt	12/14/2018 08/15/2048	METROPOLITAN WE BANK OF AMERICA	US	USD	3,095,249	96.727	97.199	+48.87	+15,125
B	02R04261 FGLMC 4.5 1/10	Mtge	12/07/2018 01/01/1900	METROPOLITAN WE CITIGROUP	US	USD	4,916,384	102.961	102.664	+28.86	+14,188
B	01F0326B FNCL 3.5 11/10	Mtge	10/05/2018 12/31/2099	METROPOLITAN WE CITIGROUP	US	USD	9,177,450	97.219	97.073	+15.04	+13,806
B	9128285K US TREASURY N/B 10/23 2.875	Govt	12/17/2018 10/31/2023	METROPOLITAN WE NOMURA	US	USD	9,917,259	100.785	100.669	+11.55	+11,455
B	01F0306B FNCL 3 11/12	Mtge	10/04/2018 12/31/2099	METROPOLITAN WE MORGAN STANLEY	US	USD	1,776,562	94.750	94.195	+58.54	+10,401
B	912810SE US TREASURY N/B 11/48 3.375	Govt	12/17/2018 11/15/2048	METROPOLITAN WE NOMURA	US	USD	2,422,050	105.078	104.644	+41.34	+10,012
B	912810SD US TREASURY N/B 08/48 3	Govt	10/16/2018 08/15/2048	METROPOLITAN WE BARCLAYS	US	USD	5,156,250	93.750	93.569	+19.33	+9,969
B	02R0324C FGCI 3.5 12/10	Mtge	11/13/2018 01/01/1900	METROPOLITAN WE CREDIT SUISSE	US	USD	2,341,187	99.625	99.204	+42.31	+9,905
B	01F0406C FNCL 4 12/10	Mtge	11/07/2018 01/01/1900	METROPOLITAN WE GOLDMAN SACHS	US	USD	2,033,625	99.688	99.223	+46.65	+9,486
B	01F0406B FNCL 4 11/09	Mtge	10/05/2018 12/31/2099	METROPOLITAN WE GOLDMAN SACHS	US	USD	2,315,904	100.039	99.644	+39.54	+9,157



B	01F0304B FNCI 3 11/10	Mtge	10/09/2018 01/01/1900	METROPOLITAN WE CREDIT SUISSE	US	USD	2,006,017	98.094	97.653	+44.98	+9,024
---	--------------------------	------	--------------------------	----------------------------------	----	-----	-----------	--------	--------	--------	--------



TRADE DETAILS

Buy/Sell	Security	Bond Type	Trade Date/ Maturity	Manager/ Broker	Cty	Local Curr.	Principal (\$)	Price	Benchmark Price	Trade Cost BP	Trading Cost
15 Lowest Cost Trades											
S	01F0326B FNCL 3.5 11/10	Mtge	11/06/2018 12/31/2099	METROPOLITAN WE JP MORGAN CHASE	US	USD	9,146,290	96.889	96.304	60.37	55,212
S	9128285C US TREASURY N/B 09/25 3	Govt	12/28/2018 09/30/2025	METROPOLITAN WE GOLDMAN SACHS	US	USD	20,718,388	102.237	102.114	12.05	24,975
S	01F0326A FNCL 3.5 10/10	Mtge	10/05/2018 12/31/2099	METROPOLITAN WE CITIGROUP	US	USD	9,187,222	97.322	97.106	22.27	20,463
B	9128105E US TREASURY N/B 11/48 3.375	Govt	12/14/2018 11/15/2048	METROPOLITAN WE BANK OF AMERICA	US	USD	3,156,400	104.000	104.496	47.70	15,056
S	01F0406B FNCL 4 11/09	Mtge	11/07/2018 12/31/2099	METROPOLITAN WE GOLDMAN SACHS	US	USD	2,310,757	99.817	99.266	55.19	12,754
B	9128105E US TREASURY N/B 11/48 3.375	Govt	11/08/2018 11/15/2048	METROPOLITAN WE BANK OF AMERICA	US	USD	6,712,148	99.219	99.398	18.11	12,156
S	01F0306A FNCL 3 10/12	Mtge	10/04/2018 12/31/2099	METROPOLITAN WE MORGAN STANLEY	US	USD	1,778,283	94.842	94.229	64.61	11,490
S	02R0324B FGCI 3.5 11/10	Mtge	11/13/2018 01/01/1900	METROPOLITAN WE CREDIT SUISSE	US	USD	2,343,849	99.738	99.253	48.68	11,409
S	01F0406A FNCL 4 10/09	Mtge	10/05/2018 12/31/2099	METROPOLITAN WE GOLDMAN SACHS	US	USD	2,318,888	100.168	99.689	47.84	11,093
S	9128105C US TREASURY N/B 05/48 3.125	Govt	10/16/2018 05/15/2048	METROPOLITAN WE BARCLAYS	US	USD	5,227,500	96.094	95.911	19.02	9,945
S	02R0326A FGLMC 3.5 10/12	Mtge	10/05/2018 12/31/2099	METROPOLITAN WE CITIGROUP	US	USD	2,810,959	97.434	97.124	31.79	8,937
S	01F0306C FNCL 3 12/12	Mtge	12/03/2018 01/01/1900	METROPOLITAN WE CANTOR FITZGERA	US	USD	1,792,382	95.594	95.131	48.45	8,684
S	9128105D US TREASURY N/B 08/48 3	Govt	12/19/2018 08/15/2048	METROPOLITAN WE JP MORGAN CHASE	US	USD	830,312	100.038	99.019	101.85	8,457
S	02R0326C FGLMC 3.5 12/11	Mtge	12/03/2018 01/01/1900	METROPOLITAN WE CITIGROUP	US	USD	2,679,867	98.344	98.044	30.53	8,182
S	02R0324C FGCI 3.5 12/10	Mtge	12/13/2018 01/01/1900	METROPOLITAN WE CREDIT SUISSE	US	USD	2,362,117	100.516	100.168	34.63	8,181

Sacramento County
Period End December 31, 2018
(US Fixed Income Analysis)



AGENCIES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous.\$)	BP
CORPORATES	21	48	43	+3.21	+1.54	+14.14	26.21	12.60

CORPORATES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous.\$)	BP
GOVERNMENTS	538	254	60	15.85	0.29	+8.40	468.02	8.69

GOVERNMENTS



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous.\$)	BP
MORTGAGES	155	62	34	+35.90	+2.32	+9.26	107.39	6.94

MORTGAGES





MUNICIPALS





RATING BY EACH BOND TYPE

GOVERNMENTS - RATING DETAILS

Rating	Principal	No. of	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
	(Mil. \$)	Trades		(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
AAA	538	254	60	15.85	0.29	+8.40	468.02	8.69



RATING BY EACH BOND TYPE

MORTGAGES - RATING DETAILS

Rating	Principal	No. of	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
	(Mil. \$)	Trades		(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
NR	155	62	34	+35.90	+2.32	+9.26	107.39	6.94

RATING BY EACH BOND TYPE

CORPORATES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost		Univ. Trade Cost BP	Cost Diff. from Universe	
				(Thous. \$)	BP		(Thous. \$)	BP
A-	5	8	7	5.93	12.51	+12.12	11.66	24.63
BBB	5	10	10	1.25	2.69	+15.25	8.32	17.93
BBB+	3	10	7	+4.78	+18.01	+10.48	+2.00	+7.52
BBB-	2	7	7	+4.77	+19.65	+21.74	0.51	2.09
A	2	6	6	0.87	4.93	+16.91	3.84	21.83
A *-	2	2	1	+1.56	+9.63	+4.93	+0.76	+4.70
A+	1	1	1	0.73	5.94	+12.54	2.26	18.48
AA-	<1	1	1	+0.79	+8.37	+13.35	0.47	4.98
AA+	<1	1	1	+0.00	+0.00	+12.11	0.72	12.11
BB+	<1	1	1	+0.10	+4.97	+62.44	1.12	57.47
CCC+	<1	1	1	0.01	4.84	+28.01	0.05	32.85

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
10/01/2018-12/31/2018	713,870	364	137	+23.27	+0.33	+8.75	601.62	8.42
07/01/2018-09/30/2018	578,565	315	150	+2.45	+0.04	+7.31	420.64	7.27
04/01/2018-06/30/2018	779,482	378	169	+203.86	+2.62	+9.58	542.73	6.96
01/01/2018-03/31/2018	1,666,649	1608	992	+113.13	+0.68	+8.88	1,367.40	8.20
Year-Ending 2018	3,738,566	2665		+342.70	+0.92	+8.76	2,932.39	7.84
10/01/2017-12/31/2017	624,736	649	254	37.30	0.60	+6.59	448.75	7.19
07/01/2017-09/30/2017	733,365	712	245	70.43	0.96	+7.13	593.40	8.09
04/01/2017-06/30/2017	789,018	849	277	11.21	0.14	+6.26	504.99	6.40
01/01/2017-03/31/2017	710,311	779	281	+88.61	+1.25	+7.07	413.59	5.82
Year-Ending 2017	2,857,429	2989		30.32	0.11	+6.76	1,960.73	6.86
10/01/2016-12/31/2016	711,667	646	221	68.72	0.97	+6.26	514.24	7.23
07/01/2016-09/30/2016	589,731	684	203	14.71	0.25	+6.35	389.30	6.60
04/01/2016-06/30/2016	619,130	801	269	67.81	1.10	+8.74	608.75	9.84
01/02/2016-03/31/2016	710,978	1117	262	193.39	2.72	+6.08	625.45	8.80
Year-Ending 2016	2,631,505	3248		344.62	1.31	+6.81	2,137.74	8.12
10/01/2015-12/31/2015	820,526	980	212	138.86	1.69	+8.52	837.57	10.21
07/01/2015-09/30/2015	992,841	1625	204	225.86	2.27	+3.74	596.77	6.01
04/01/2015-06/30/2015	1,141,971	1504	246	310.14	2.72	+7.36	1,150.64	10.08
01/01/2015-03/31/2015	944,141	1100	191	8.38	0.09	+6.57	628.26	6.66
Year-Ending 2015	3,899,478	5209		683.23	1.75	+6.49	3,213.25	8.24
10/01/2014-12/31/2014	676,216	885	213	+41.55	+0.61	+5.86	354.40	5.25
07/01/2014-09/30/2014	905,295	785	133	+534.89	+5.91	+6.85	85.46	0.94
04/01/2014-06/30/2014	727,152	957	240	48.64	0.67	+7.04	560.46	7.71
01/02/2014-03/31/2014	920,513	1033	210	131.04	1.42	+6.54	733.34	7.96

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	
Year-Ending 2014	3,229,176	3660		+396.76	+1.23	+6.60	1,733.66	5.37
10/01/2013-12/31/2013	804,252	799	216	45.80	0.57	+5.50	487.92	6.07
07/01/2013-09/30/2013	778,379	825	214	+21.56	+0.28	+6.25	465.02	5.97
04/01/2013-06/30/2013	937,180	803	217	51.74	0.55	+7.82	784.80	8.37
01/02/2013-03/31/2013	635,964	613	190	+89.06	+1.40	+8.12	427.14	6.72
Year-Ending 2013	3,155,775	3040		+13.07	+0.04	+6.90	2,164.88	6.86
10/01/2012-12/31/2012	528,034	613	192	215.02	4.07	+7.49	610.46	11.56
07/01/2012-09/30/2012	567,084	722	230	+18.83	+0.33	+8.56	466.39	8.23
04/01/2012-06/30/2012	520,106	739	204	+102.98	+1.98	+8.39	333.44	6.41
01/02/2012-03/31/2012	136,055	131	54	+29.91	+2.20	+7.08	66.46	4.88
Year-Ending 2012	1,751,279	2205		63.30	0.36	+8.07	1,476.76	8.43
10/01/2011-12/31/2011	91,474	88	43	18.39	2.01	+6.04	73.67	8.05
07/01/2011-09/30/2011	101,872	106	49	47.22	4.64	+4.74	95.51	9.38
04/01/2011-06/30/2011	100,523	97	54	4.28	0.43	+4.90	53.56	5.33
01/02/2011-03/31/2011	205,267	171	56	143.81	7.01	+7.08	289.08	14.09
Year-Ending 2011	499,136	462		213.70	4.28	+5.97	511.82	10.25
10/01/2010-12/31/2010	184,240	138	57	8.71	0.47	+5.73	114.34	6.20
07/01/2010-09/30/2010	219,586	151	60	20.80	0.95	+4.97	129.88	5.92
04/01/2010-06/30/2010	161,213	123	50	+101.24	+6.28	+7.34	17.15	1.06
01/02/2010-03/31/2010	221,701	181	70	+60.21	+2.72	+11.49	194.49	8.77
Year-Ending 2010	786,740	593		+131.95	+1.68	+7.47	455.85	5.79



BENCHMARK VENDOR REPORT

Bonds	Number of Trades	Number of Issues	Vendor Benchmark	Percent Of Principal
CORPORATES	40	37	MARKETAXESS-TRADES	86.42 %
	6	4	BVAL	10.76 %
	1	1	ISSUE PRICE	1.97 %
	1	1	MARKETAXESS-EMQUOTES	0.85 %
GOVERNMENTS	236	56	TULLET PREBON	90.79 %
	14	8	BVAL	7.63 %
	4	1	BLOOMBERGTERMINAL	1.58 %
MORTGAGES	54	26	TULLET PREBON	93.93 %
	8	8	BLOOMBERGTERMINAL	6.07 %

DISCLAIMER

State Street Corporation and its subsidiaries and affiliates, including Elkins/McSherry, LLC (“State Street”), provide products and services to professional and institutional clients and this report and information (“Report”) is provided solely for general, marketing and/or informational purposes and is subject to these terms and conditions, including that the Report does not constitute investment research or investment, legal, regulatory, or tax advice. Nothing herein is an offer or solicitation to buy or sell any product, service or securities or any financial instrument and this does not create or constitute any binding contractual commitment or obligations for State Street of any kind. Not all products and features a may be available in all jurisdictions. Any opinions expressed or other information in the Report are subject to change without notice. The Report has been prepared and obtained from sources believed to be reliable at the time of preparation, however, it is provided “as-is” and State Street makes no guarantee, representation, or warranty of any kind including but not limited to its accuracy, suitability, timeliness, merchantability, fitness for a particular purpose, non-infringement of third-party rights, etc. This Report is not intended to be relied upon by any person or entity. State Street disclaims all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs arising, either direct or consequential, from or in connection with the use of the Report. No permission is granted to reprint, sell, copy, distribute, or modify any of the Report, in any form or by any means without the prior written consent of State Street. The Report may contain certain statements that may be deemed forward-looking statements. Please note that any such statements or forecasted information are not guarantees or reliable indicators for future performance and actual results or developments may differ materially from those depicted or projected. Investing involves risk, including the risk of loss of principal. Diversification does not ensure a profit or guarantee against loss. The Report does not take into account any client’s particular investment objectives, strategies, or tax and legal status, relevant regulations, nor does it purport to be comprehensive or intended to replace the exercise of a client’s or investor’s own careful independent review regarding any corresponding investment decision or related analysis.

Copyright © 2019 State Street Corporation, All rights reserved.



SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End December 31, 2018



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates global fixed income executions from October 01,2018 to December 31,2018. The analysis included trading of 146 trades in 75 different issues representing \$66,814,061 in principal across mortgages, governments And corporates.

Methodology:

The cost of each trade will be determined by comparing your executed price to the average or benchmark price of the issue on the day of the trade and to the Elkins/McSherry Fixed Income Trading Cost Universe. For comparison purposes, Elkins/McSherry establishes average institutional trading costs quarterly for governments, corporates and agency issues. The Universe is the average trading cost incurred by pension funds, investment managers, banks and brokers.

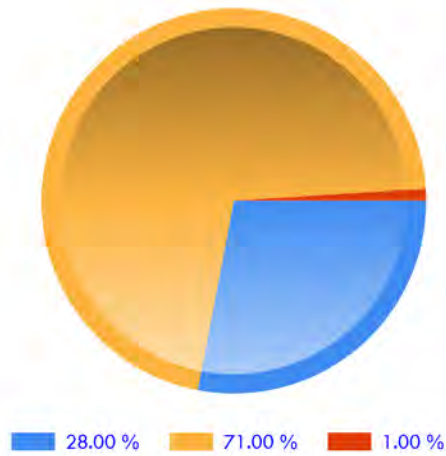
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q3 2018	Q2 2018	Q1 2018	Q4 2017
BUYS	38	84	48	11.76	3.06	+6.76	37.77	9.82	1.18	1.41	1.88	+0.15
SELLS	28	62	35	+21.46	+7.57	+7.90	0.95	0.33	+1.14	+6.60	+1.58	9.10
GRAND TOTAL	67	146	75	+9.69	+1.45	+7.24	38.71	5.79	+0.05	+1.62	0.20	4.64

EXECUTIVE SUMMARY

BOND TYPES PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	Q3 2018	Q2 2018	Q1 2018	Q4 2017
Governments	47	87	29	+13.17	+2.78	+7.92	24.39 5.14	0.61	+1.62	+2.21	+0.05
Corporates	19	57	44	2.44	1.30	+5.60	12.99 6.90	+5.88	+0.01	+8.64	2.85
Mortgages	<1	2	2	1.04	20.02	+5.60	1.33 25.62	24.86	+28.04	54.51	29.94

Bonds by Principal Traded



Historical Trade Cost Trend

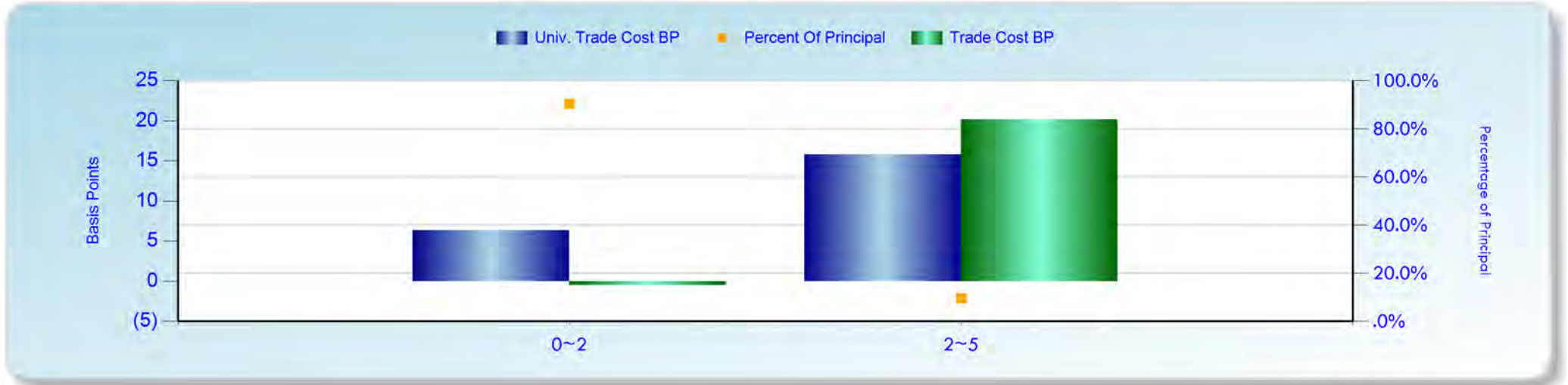




EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	60	143	73	3.18	0.53	+6.34	41.48	6.87
2~5	6	3	3	+12.88	+20.14	+15.81	+2.77	+4.33





EXECUTIVE SUMMARY

GRADING SUMMARY

Grading	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
Govt-INVESTMENT GRADE	43	83	26	+1.81	+0.42	+5.60	22.15	5.18
Corp-INVESTMENT GRADE	14	40	32	6.66	4.64	+5.60	14.71	10.24
Govt-High Yield	5	4	4	+11.36	+24.29	+29.10	2.25	4.81
Corp-High Yield	4	17	12	+4.22	+9.45	+5.60	+1.72	+3.85
Mtge-INVESTMENT GRADE	<1	1	1	0.88	21.11	+5.60	1.12	26.71
Mtge-High Yield	<1	1	1	0.15	15.43	+5.60	0.21	21.03



EXECUTIVE SUMMARY

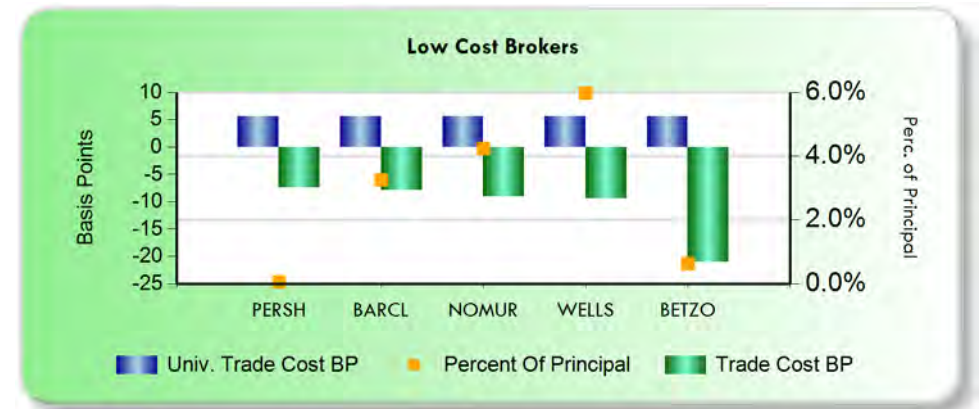
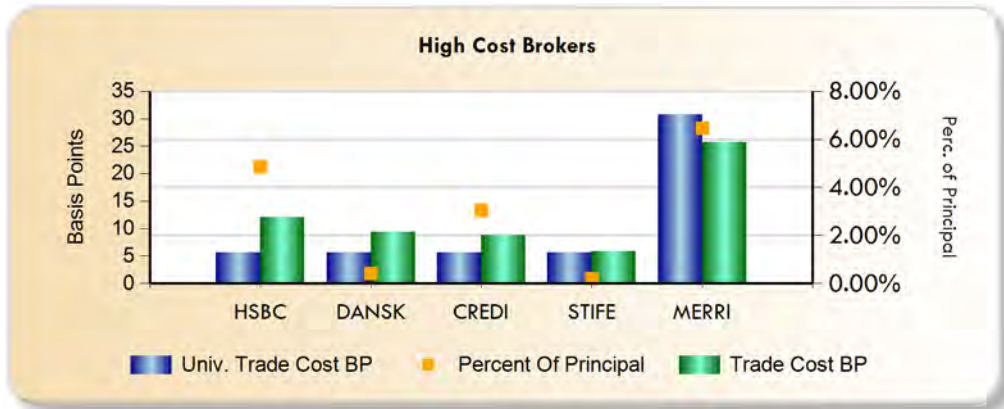
RATING SUMMARY

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
AAA	43.20	84	27	+0.93	+0.22	+5.60	23.26	5.38
BBB+	6.28	15	12	+0.99	+1.57	+5.60	2.53	4.03
B	5.20	7	5	+11.16	+21.47	+26.56	2.65	5.09
A-	2.73	5	5	5.26	19.27	+5.60	6.79	24.87
BBB-	2.42	14	9	+1.02	+4.21	+5.60	0.34	1.39
BBB	2.07	4	4	2.32	11.21	+5.60	3.47	16.81
BB-	1.08	5	4	+1.91	+17.62	+5.60	+1.30	+12.02
B-	<1	5	3	+1.76	+19.48	+5.95	+1.22	+13.53
NR	<1	3	3	0.19	2.14	+6.33	0.75	8.47
BB	<1	1	1	+0.95	+12.38	+5.60	+0.52	+6.78



EXECUTIVE SUMMARY

BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
5 HIGHEST COST BROKERS (Sorted By Trade Cost BP)								
HSBC BANK	3	6	6	+3.90	+12.01	+5.60	+2.08	+6.41
DANSKE BANK	<1	2	1	+0.26	+9.38	+5.60	+0.11	+3.78
CREDIT SUISSE	2	4	4	+1.78	+8.78	+5.60	+0.65	+3.18
STIFEL NICOLAUS & CO	<1	1	1	+0.08	+5.85	+5.60	+0.00	+0.25
MERRILL LYNCH	4	3	3	+11.13	+25.76	+30.82	2.18	5.06
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
PERSHING	<1	1	1	0.03	7.40	+5.60	0.05	13.00
BARCLAYS	2	9	8	1.71	7.88	+5.60	2.93	13.48
NOMURA	3	5	5	2.59	9.12	+5.60	4.17	14.72
WELLS FARGO	4	6	5	3.77	9.45	+5.60	6.01	15.05
BETZOLD BERG & NUSSB	<1	1	1	0.88	21.11	+5.60	1.12	26.71



COUNTRY PERFORMANCE

COUNTRY SUMMARY									TRADE COST HISTORICAL PERFORMANCE			
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2018	Q2 2018	Q1 2018	Q4 2017
UNITED STATES	62	142	72	1.67	0.27	+5.60	36.46	5.87	+0.05	+1.62	0.57	4.97
GREECE	4	2	2	+10.18	+27.56	+35.09	2.78	7.53	-	-	-	-
GERMANY	<1	2	2	+1.18	+12.01	+6.58	+0.53	+5.43	-	-	+20.55	-

COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country	Side	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
								(Thous. \$)	BP
								UNITED STATES	SELLS
	BUYS	36	81	46	12.18	3.38	+5.60	32.34	8.98
GREECE	BUYS	1	1	1	.76	5.12	+35.09	5.95	40.21
	SELLS	2	1	1	+10.94	+49.43	+35.09	+3.17	+14.34
GERMANY	BUYS	<1	2	2	+1.18	+12.01	+6.58	+0.53	+5.43

Manager PERFORMANCE

Manager PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
Manager	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2018	Q2 2018	Q1 2018	Q4 2017
PRUDENTIAL INVESTMEN	67	146	75	+9.69	+1.45	+7.24	38.71	5.79	+0.05	+1.62	0.20	4.64

BROKER PERFORMANCE

BROKER PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)		Q3 2018	Q2 2018	Q1 2018	Q4 2017
GOLDMAN SACHS	8	18	14	+0.46	+0.56	+5.64	4.20	5.08	4.71	+3.01	14.92	+6.45
JP MORGAN CHASE	8	21	15	1.91	2.43	+5.60	6.32	8.03	+1.70	+9.53	+2.71	0.97
DEUTSCHE BANK	5	12	10	0.80	1.46	+5.60	3.87	7.06	1.93	+6.20	+1.73	7.93
BANK OF AMERICA	5	8	8	+0.42	+0.83	+5.60	2.40	4.77	67.01	+3.35	+6.51	+0.30
MERRILL LYNCH	4	3	3	+11.13	+25.76	+30.82	2.18	5.06	4.02	+20.27	-	4.34
JEFFERIES & CO	4	7	7	+1.30	+3.19	+5.60	0.98	2.41	+14.52	+2.35	+5.71	0.03
WELLS FARGO	4	6	5	3.77	9.45	+5.60	6.01	15.05	8.57	2.15	13.27	+1.90
CITIGROUP	3	13	13	+1.20	+3.54	+5.60	0.70	2.06	+4.60	2.64	1.53	68.48
HSBC BANK	3	6	6	+3.90	+12.01	+5.60	+2.08	+6.41	6.15	26.96	+20.55	-
NOMURA	3	5	5	2.59	9.12	+5.60	4.17	14.72	+0.68	+1.32	+0.57	+0.34
MORGAN STANLEY	3	7	7	+1.14	+4.23	+5.84	0.44	1.61	+2.80	+0.85	0.17	1.71
TD SECURITIES	2	2	2	+0.08	+0.30	+5.60	1.31	5.30	+0.02	+0.19	0.16	+0.35
UBS	2	5	4	0.20	0.92	+5.60	1.43	6.52	-	+2.82	-	2.09
BARCLAYS	2	9	8	1.71	7.88	+5.60	2.93	13.48	+6.03	0.62	+5.09	6.14
CREDIT SUISSE	2	4	4	+1.78	+8.78	+5.60	+0.65	+3.18	0.28	+4.94	22.22	+1.23
RBC CAPITAL MARKETS	2	4	3	0.19	0.92	+5.60	1.32	6.52	1.25	+0.25	+2.92	+2.57
CITADEL SECURITIES	1	2	2	0.05	0.33	+5.60	0.84	5.93	+0.16	+0.17	-	1.29
BMO CAPITAL MARKETS	1	4	4	+0.01	+0.04	+5.60	0.70	5.56	-	4.94	4.46	-
CIBC WORLD MARKETS	<1	2	2	+0.04	+0.97	+5.60	0.21	4.63	-	-	4.19	-
BETZOLD BERG & NUSSB	<1	1	1	0.88	21.11	+5.60	1.12	26.71	-	-	-	-
SCOTIA CAPITAL	<1	1	1	+0.02	+0.47	+5.60	0.18	5.13	-	-	-	-
DANSKE BANK	<1	2	1	+0.26	+9.38	+5.60	+0.11	+3.78	+2.12	-	-	-

Sacramento County
Period End December 31, 2018
(Global Fixed Income Analysis)

BROKER PERFORMANCE

BROKER PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2018	Q2 2018	Q1 2018	Q4 2017
BNY MELLON	<1	1	1	+0.00	+0.00	+5.60	0.11	5.60	-	+13.93	+15.49	+0.00
STIFEL NICOLAUS & CO	<1	1	1	+0.08	+5.85	+5.60	+0.00	+0.25	-	+12.89	-	-
BNP PARIBAS	<1	1	1	+0.01	+0.40	+5.60	0.07	5.20	-	-	4.02	+6.71
PERSHING	<1	1	1	0.03	7.40	+5.60	0.05	13.00	-	9.02	-	-

TRADE DETAILS

Buy/Sell	Security	Bond Type	Trade Date/ Maturity	Manager/ Broker	Cty	Local Curr.	Principal (\$)	Price	Benchmark Price	Trade Cost BP	Trading Cost
15 Highest Cost Trades											
S	GR0124034688 HELLENIC REPUBLIC BONDS REGS	Govt	10/02/2018 01/30/2028	PRUDENTIAL INVE MERRILL LYNCH	GRE	EUR	2,213,106	95.550	96.022	+49.43	+10,939
B	BPORQ30 REPUBLIC OF PORTUGAL SR UNSE	Govt	10/24/2018 10/15/2024	PRUDENTIAL INVE HSBC BANK	US	USD	1,777,010	104.530	104.311	+20.97	+3,727
S	912810SC US TREASURY N/B 05/48 3.125	Govt	11/07/2018 05/15/2048	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	348,652	94.230	94.784	+58.78	+2,049
S	9128284V US TREASURY N/B 08/28 2.875	Govt	10/17/2018 08/15/2028	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	2,046,515	97.453	97.531	+8.02	+1,641
S	912810SC US TREASURY N/B 05/48 3.125	Govt	11/13/2018 05/15/2048	PRUDENTIAL INVE RBC CAPITAL MAR	US	USD	937,673	95.195	95.361	+17.40	+1,631
B	62854AAP MYLAN NV COMPANY GUAR 06/46	Corp	11/14/2018 06/15/2046	PRUDENTIAL INVE MORGAN STANLEY	US	USD	184,737	87.970	87.204	+87.05	+1,608
B	14042RBT CAPITAL ONE NA SR UNSECURED	Corp	12/17/2018 09/13/2021	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	642,168	95.846	95.659	+19.48	+1,251
S	38141GWZ GOLDMAN SACHS GROUP INC SR U	Corp	12/18/2018 05/01/2029	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	540,131	96.452	96.675	+23.07	+1,246
B	XS1303921214 UKRAINE GOVERNMENT SR UNSECU	Govt	10/25/2018 09/01/2022	PRUDENTIAL INVE GOLDMAN SACHS	GER	USD	324,885	98.450	98.080	+37.58	+1,221
B	9128285M US TREASURY N/B 11/28 3.125	Govt	12/18/2018 11/15/2028	PRUDENTIAL INVE CREDIT SUISSE	US	USD	1,313,500	102.617	102.525	+8.98	+1,180
S	9128285M US TREASURY N/B 11/28 3.125	Govt	12/18/2018 11/15/2028	PRUDENTIAL INVE WELLS FARGO	US	USD	931,896	102.406	102.525	+11.60	+1,081
S	62886EAS NCR CORP COMPANY GUAR 12/23	Corp	11/07/2018 12/15/2023	PRUDENTIAL INVE BANK OF AMERICA	US	USD	767,600	101.000	101.125	+12.38	+950
B	BPORQ30 REPUBLIC OF PORTUGAL SR UNSE	Govt	10/19/2018 10/15/2024	PRUDENTIAL INVE MERRILL LYNCH	US	USD	625,500	104.250	104.092	+15.16	+948
B	9128284V US TREASURY N/B 08/28 2.875	Govt	10/02/2018 08/15/2028	PRUDENTIAL INVE JEFFERIES & CO	US	USD	1,044,071	98.497	98.413	+8.61	+899



S	984245AM YPF SOCIEDAD ANONIMA SR UNSE	Corp	11/14/2018 03/23/2021	PRUDENTIAL INVE JEFFERIES & CO	US	USD	223,300	101.500	101.875	+36.95	+825
---	--	------	--------------------------	-----------------------------------	----	-----	---------	---------	---------	--------	------



TRADE DETAILS

Buy/Sell	Security	Bond Type	Trade Date/ Maturity	Manager/ Broker	Cty	Local Curr.	Principal (\$)	Price	Benchmark Price	Trade Cost BP	Trading Cost
15 Lowest Cost Trades											
B	465410AH ITALY GOV T INT BOND SR UNSE	Govt	10/10/2018 09/27/2023	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	414,565	104.953	105.763	77.18	3,200
B	9128284V US TREASURY N/B 08/28 2.875	Govt	10/17/2018 08/15/2028	PRUDENTIAL INVE NOMURA	US	USD	982,461	97.273	97.531	26.50	2,604
B	55336VAT MPLX LP SR UNSECURED 02/49 5	Corp	11/07/2018 02/15/2049	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	446,041	98.031	98.468	44.61	1,990
B	40573LAS CIGNA CORP COMPANY GUAR 144A	Corp	12/18/2018 10/15/2028	PRUDENTIAL INVE WELLS FARGO	US	USD	1,001,320	100.132	100.320	18.77	1,879
B	20030NCT COMCAST CORP COMPANY GUAR 10	Corp	10/02/2018 10/15/2028	PRUDENTIAL INVE WELLS FARGO	US	USD	769,615	99.950	100.189	23.93	1,842
B	92343VCX VERIZON COMMUNICATIONS SR UN	Corp	10/01/2018 09/15/2048	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	808,239	95.087	95.276	19.85	1,604
B	912810SD US TREASURY N/B 08/48 3	Govt	11/13/2018 08/15/2048	PRUDENTIAL INVE RBC CAPITAL MAR	US	USD	924,245	92.889	93.042	16.50	1,525
B	BPORQ30 REPUBLIC OF PORTUGAL SR UNSE	Govt	10/05/2018 10/15/2024	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	626,400	104.400	104.619	20.99	1,315
B	91324PDM UNITEDHEALTH GROUP INC SR UN	Corp	12/13/2018 02/15/2024	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	648,381	99.751	99.918	16.77	1,088
B	62854AAP MYLAN NV COMPANY GUAR 06/46	Corp	10/09/2018 06/15/2046	PRUDENTIAL INVE BARCLAYS	US	USD	215,791	89.913	90.358	49.53	1,069
S	912810SC US TREASURY N/B 05/48 3.125	Govt	10/01/2018 05/15/2048	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	673,440	98.313	98.166	14.94	1,006
B	9128285D US TREASURY N/B 09/23 2.875	Govt	10/10/2018 09/30/2023	PRUDENTIAL INVE BANK OF AMERICA	US	USD	1,442,098	99.113	99.177	6.38	921
S	36252CAA GS MORTGAGE SECURITIES TRUST	Mtge	10/03/2018 02/10/2037	PRUDENTIAL INVE BETZOLD BERG &	US	USD	418,957	98.578	98.370	21.11	885
S	172967LW CITIGROUP INC SR UNSECURED 0	Corp	12/04/2018 04/23/2029	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	611,074	96.996	96.864	13.63	833
B	46647PAX JPMORGAN CHASE + CO SR UNSEC	Corp	12/18/2018 12/05/2029	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	505,370	101.074	101.229	15.36	776



AGENCIES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
CORPORATES	19	57	44	2.44	1.30	+5.60	12.99	6.90

CORPORATES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous.\$)	BP
GOVERNMENTS	47	87	29	+13.17	+2.78	+7.92	24.39	5.14

GOVERNMENTS



BOND TYPE PERFORMANCE

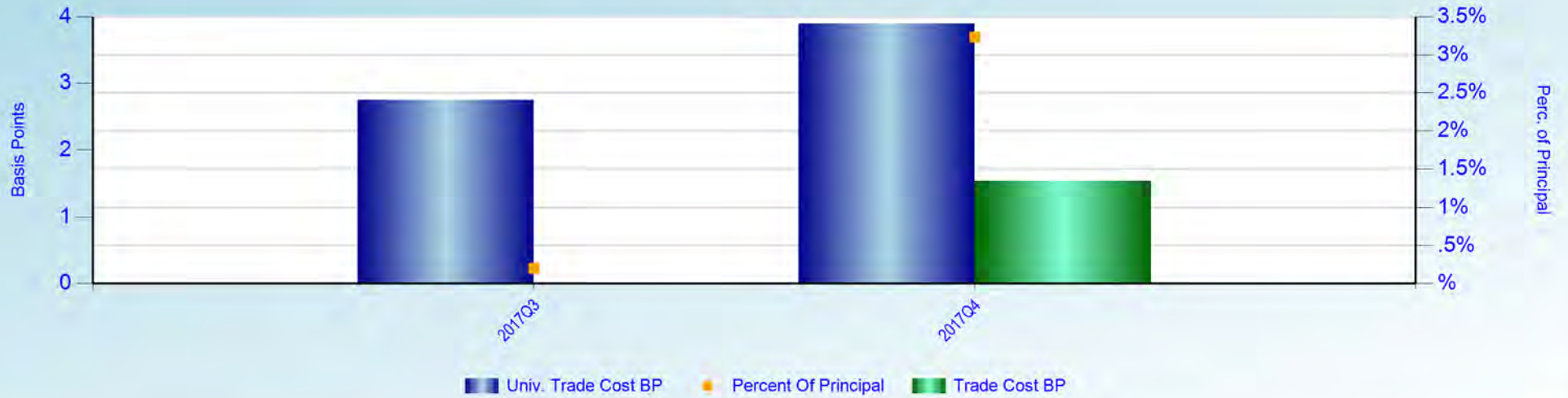
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous.\$)	BP
MORTGAGES	<1	2	2	1.04	20.02	+5.60	1.33	25.62

MORTGAGES



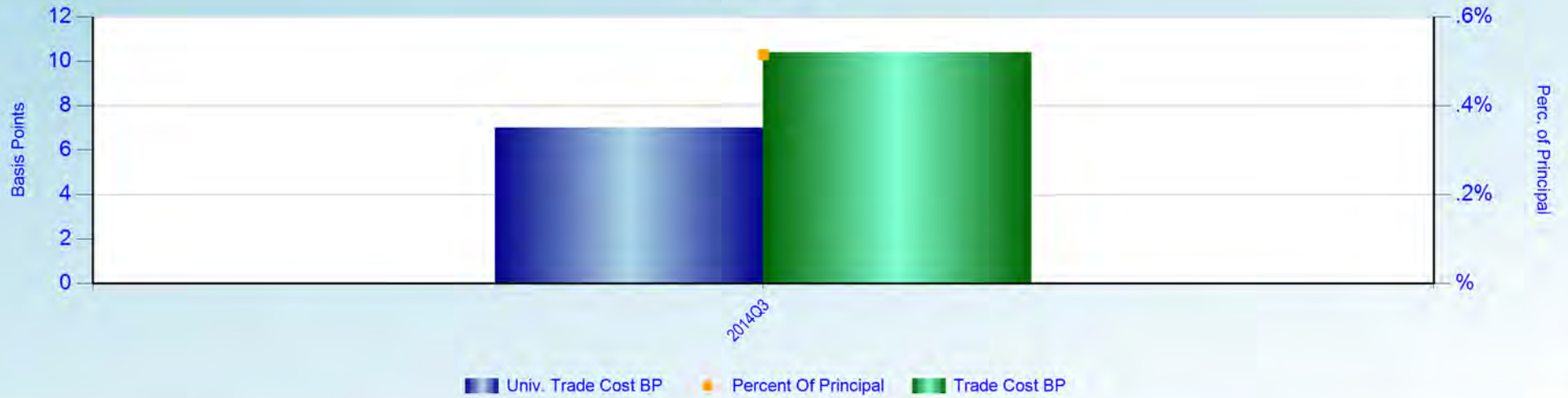


MUNICIPALS





UNCLASSIFIED



RATING BY EACH BOND TYPE

GOVERNMENTS - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost		Univ. Trade Cost BP	Cost Diff. from Universe	
				(Thous. \$)	BP		(Thous. \$)	BP
AAA	43	83	26	+1.81	+0.42	+5.60	22.15	5.18
B	4	2	2	+10.18	+27.56	+35.09	2.78	7.53
NR	<1	1	1	0.04	0.63	+6.58	0.47	7.21
B-	<1	1	1	+1.22	+37.58	+6.58	+1.01	+31.00

RATING BY EACH BOND TYPE

CORPORATES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost		Univ. Trade		Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous. \$)	BP	
BBB+	6	15	12	+0.99	+1.57	+5.60	2.53	4.03	
A-	3	5	5	5.26	19.27	+5.60	6.79	24.87	
BBB-	2	14	9	+1.02	+4.21	+5.60	0.34	1.39	
BBB	2	4	4	2.32	11.21	+5.60	3.47	16.81	
B	2	5	3	+0.98	+6.49	+5.60	+0.13	+0.89	
BB-	1	5	4	+1.91	+17.62	+5.60	+1.30	+12.02	
BB	<1	1	1	+0.95	+12.38	+5.60	+0.52	+6.78	
A+	<1	1	1	1.09	16.77	+5.60	1.45	22.37	
B-	<1	4	2	+0.54	+9.33	+5.60	+0.22	+3.73	
CCC+	<1	1	1	0.16	4.04	+5.60	0.39	9.64	
A	<1	1	1	+0.00	+0.00	+5.60	0.13	5.60	
NR	<1	1	1	+0.01	+0.40	+5.60	0.07	5.20	

RATING BY EACH BOND TYPE

MORTGAGES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
AAA	<1	1	1	0.88	21.11	+5.60	1.12	26.71
NR	<1	1	1	0.15	15.43	+5.60	0.21	21.03

COUNTRIES BY EACH BOND TYPE

GOVERNMENTS								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	
UNITED STATES	43	83	26	+1.81	+0.42	+5.60	22.15	5.18
GREECE	4	2	2	+10.18	+27.56	+35.09	2.78	7.53
GERMANY	<1	2	2	+1.18	+12.01	+6.58	+0.53	+5.43



COUNTRIES BY EACH BOND TYPE

CORPORATES								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous. \$)	BP
UNITED STATES	19	57	44	2.44	1.30	+5.60	12.99	6.90



COUNTRIES BY EACH BOND TYPE

MORTGAGES								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous. \$)	BP
UNITED STATES	<1	2	2	1.04	20.02	+5.60	1.33	25.62

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
10/01/2018-12/31/2018	66,814	146	75	+9.69	+1.45	+7.24	38.71	5.79
07/01/2018-09/30/2018	37,664	102	50	+0.18	+0.05	+5.24	19.56	5.19
04/01/2018-06/30/2018	77,479	217	112	+12.54	+1.62	+5.51	30.15	3.89
01/01/2018-03/31/2018	51,291	127	70	1.01	0.20	+10.09	52.77	10.29
Year-Ending 2018	233,248	592		+21.40	+0.92	+6.97	141.19	6.05
10/01/2017-12/31/2017	47,359	119	46	21.97	4.64	+4.00	40.93	8.64
07/01/2017-09/30/2017	74,271	178	73	+11.09	+1.49	+2.75	9.35	1.26
04/01/2017-06/30/2017	65,905	139	61	+10.87	+1.65	+3.17	10.02	1.52
01/01/2017-03/31/2017	88,323	207	89	+24.27	+2.75	+3.32	5.07	0.57
Year-Ending 2017	275,858	643		+24.27	+0.88	+3.25	65.38	2.37
10/01/2016-12/31/2016	59,762	110	50	5.73	0.96	+3.49	26.57	4.45
07/01/2016-09/30/2016	44,927	135	53	+9.79	+2.18	+3.58	6.28	1.40
04/01/2016-06/30/2016	76,455	102	58	+22.49	+2.94	+5.97	23.17	3.03
01/02/2016-03/31/2016	91,594	125	57	42.69	4.66	+4.69	85.61	9.35
Year-Ending 2016	272,738	472		16.14	0.59	+4.60	141.63	5.19
10/01/2015-12/31/2015	43,193	60	34	29.83	6.91	+7.18	60.85	14.09
07/01/2015-09/30/2015	20,663	41	24	68.34	33.07	+4.30	77.22	37.37
04/01/2015-06/30/2015	143,060	122	71	98.11	6.86	+5.55	177.48	12.41
01/01/2015-03/31/2015	116,093	109	56	60.79	5.24	+5.51	124.75	10.75
Year-Ending 2015	323,008	332		257.06	7.96	+5.67	440.30	13.63
10/01/2014-12/31/2014	48,315	72	50	+9.25	+1.91	+5.72	18.39	3.81
07/01/2014-09/30/2014	266,740	204	99	216.37	8.11	+7.08	405.13	15.19
04/01/2014-06/30/2014	244,265	204	138	+42.48	+1.74	+8.55	166.48	6.81
01/02/2014-03/31/2014	187,634	187	128	+186.20	+9.92	+8.13	+33.59	+1.79

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
Year-Ending 2014	746,953	667		+21.55	+0.29	+7.74	556.41	7.45
10/01/2013-12/31/2013	143,798	142	84	+56.51	+3.93	+8.36	63.70	4.43
07/01/2013-09/30/2013	187,166	136	90	+47.79	+2.55	+6.68	77.19	4.13
04/01/2013-06/30/2013	157,154	129	98	+104.81	+6.67	+1.44	+82.21	+5.23
01/02/2013-03/31/2013	281,064	206	156	+366.87	+13.05	+1.56	+323.04	+11.49
Year-Ending 2013	769,183	613		+575.98	+7.49	+4.05	+264.35	+3.44
10/01/2012-12/31/2012	132,722	116	90	+470.95	+35.48	+2.11	+442.94	+33.37
07/01/2012-09/30/2012	120,859	101	77	+125.20	+10.36	+2.09	+99.92	+8.27
04/01/2012-06/30/2012	85,150	85	60	+71.84	+8.44	+2.27	+52.54	+6.17
01/02/2012-03/31/2012	31,666	13	9	0.75	0.24	+7.38	24.12	7.62
Year-Ending 2012	370,398	315		+667.24	+18.01	+2.59	+571.28	+15.42
10/01/2011-12/31/2011	54,456	22	11	+249.88	+45.89	+3.18	+232.57	+42.71
07/01/2011-09/30/2011	45,561	26	10	+31.66	+6.95	+4.14	+12.80	+2.81
04/01/2011-06/30/2011	40,214	15	6	+83.99	+20.88	+4.01	+67.86	+16.87
01/02/2011-03/31/2011	45,680	23	3	+2.18	+0.48	+5.21	21.63	4.73
Year-Ending 2011	185,912	86		+367.70	+19.78	+4.09	+291.59	+15.68
10/01/2010-12/31/2010	57,022	27	11	152.30	26.71	+8.46	200.51	35.17
Year-Ending 2010	57,022	27		152.30	26.71	+8.46	200.51	35.16

BENCHMARK VENDOR REPORT

Bonds	Number of Trades	Number of Issues	Vendor Benchmark	Percent Of Principal
CORPORATES	34	28	MARKETAXESS-TRADES	61.29 %
	15	8	BVAL	19.14 %
	7	7	ISSUE PRICE	18.38 %
	1	1	MARKETAXESS-EMQUOTES	1.19 %
GOVERNMENTS	66	17	TULLET PREBON	75.46 %
	16	10	BVAL	22.56 %
	3	2	BLOOMBERGTERMINAL	1.16 %
	1	1	ISSUE PRICE	0.42 %
	1	1	MARKETAXESS-EMQUOTES	0.41 %
MORTGAGES	2	2	BLOOMBERGTERMINAL	100.00 %

DISCLAIMER

State Street Corporation and its subsidiaries and affiliates, including Elkins/McSherry, LLC (“State Street”), provide products and services to professional and institutional clients and this report and information (“Report”) is provided solely for general, marketing and/or informational purposes and is subject to these terms and conditions, including that the Report does not constitute investment research or investment, legal, regulatory, or tax advice. Nothing herein is an offer or solicitation to buy or sell any product, service or securities or any financial instrument and this does not create or constitute any binding contractual commitment or obligations for State Street of any kind. Not all products and features a may be available in all jurisdictions. Any opinions expressed or other information in the Report are subject to change without notice. The Report has been prepared and obtained from sources believed to be reliable at the time of preparation, however, it is provided “as-is” and State Street makes no guarantee, representation, or warranty of any kind including but not limited to its accuracy, suitability, timeliness, merchantability, fitness for a particular purpose, non-infringement of third-party rights, etc. This Report is not intended to be relied upon by any person or entity. State Street disclaims all liability, whether arising in contract, tort or otherwise, for any losses, liabilities, damages, expenses or costs arising, either direct or consequential, from or in connection with the use of the Report. No permission is granted to reprint, sell, copy, distribute, or modify any of the Report, in any form or by any means without the prior written consent of State Street. The Report may contain certain statements that may be deemed forward-looking statements. Please note that any such statements or forecasted information are not guarantees or reliable indicators for future performance and actual results or developments may differ materially from those depicted or projected. Investing involves risk, including the risk of loss of principal. Diversification does not ensure a profit or guarantee against loss. The Report does not take into account any client’s particular investment objectives, strategies, or tax and legal status, relevant regulations, nor does it purport to be comprehensive or intended to replace the exercise of a client’s or investor’s own careful independent review regarding any corresponding investment decision or related analysis.

Copyright © 2019 State Street Corporation, All rights reserved.