

DISCUSSION

SCERS engages Elkins / McSherry (E/M) 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:

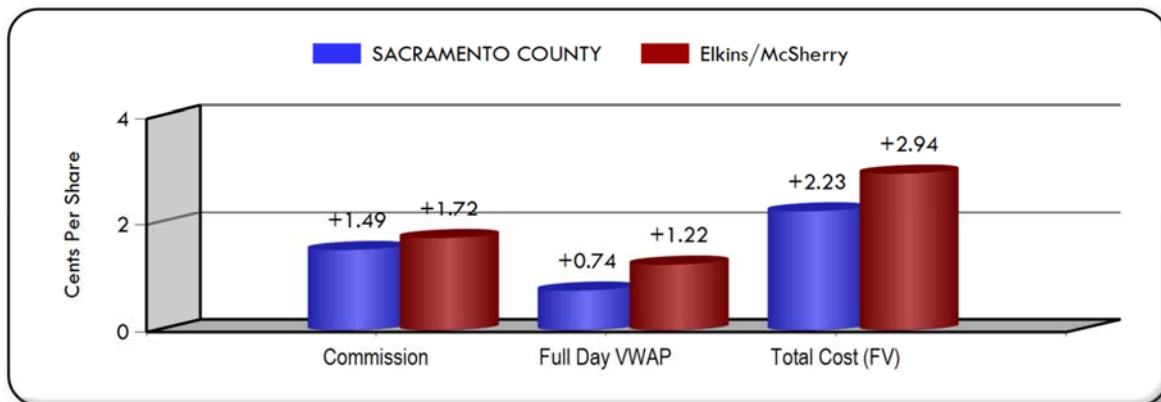
1. Commission costs, trade costs, and any soft dollar amounts.
2. Market Impact Cost, an industry performance metric, which measures the difference between a manager’s trade price and the market’s volume weighted average price (VWAP). VWAP is the average security price weighted by the share volume trade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

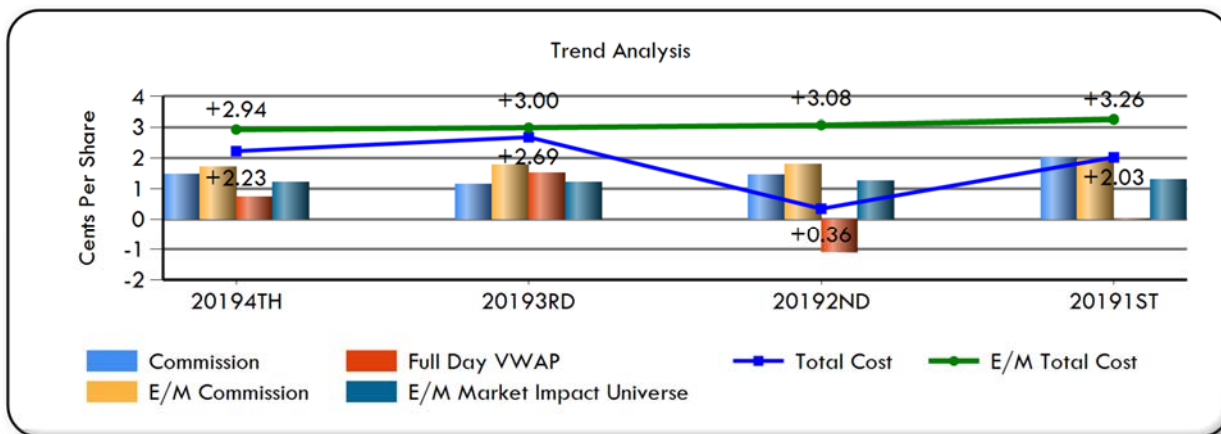
U.S. EQUITY

- SCERS’ U.S. equity managers traded 3.3 million shares across the AMEX, NASDAQ, and NYSE exchanges totaling \$155.4 million in principal. SCERS’ equity managers generated an E/M E-Score¹ of 0.04 during the quarter, which signifies that costs were slightly higher than the VWAP when considering the volatility of stocks traded.
- SCERS’ total trading costs equaled +2.23 cps, which is 0.71 cps lower than the peer group at +2.94cps, as follows:
 - Commission cost of +1.49 cps versus peer group cost of +1.72 cps
 - Market impact costs of +0.74 cps versus peer group cost of +1.22 cps



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.

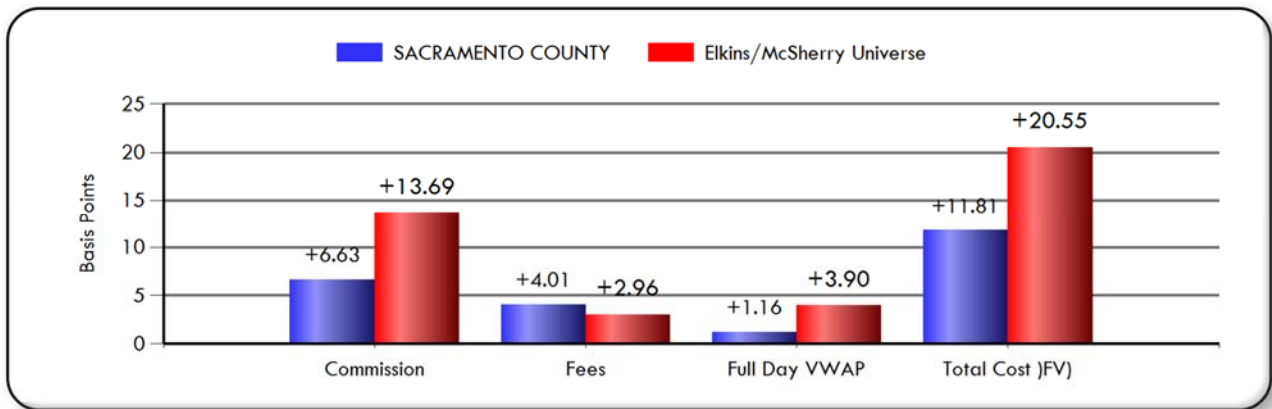
- SCERS' total trading costs were better than 57% of the peer group.
- SCERS' U.S. Equity managers that experienced unfavorable commission costs compared to the U.S. Equity peer group average cost of +1.72 cps include:
 - DGHM at +3.75 cps
 - Weatherbie at +3.22 cps
 - Eagle Capital at +2.89 cps
- As illustrated below, over the past four quarters SCERS' managers have generated slightly lower commission costs than the peer group.
- 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 +3.91 cps, which is higher than both of SCERS' U.S. Small Cap managers during the third quarter.



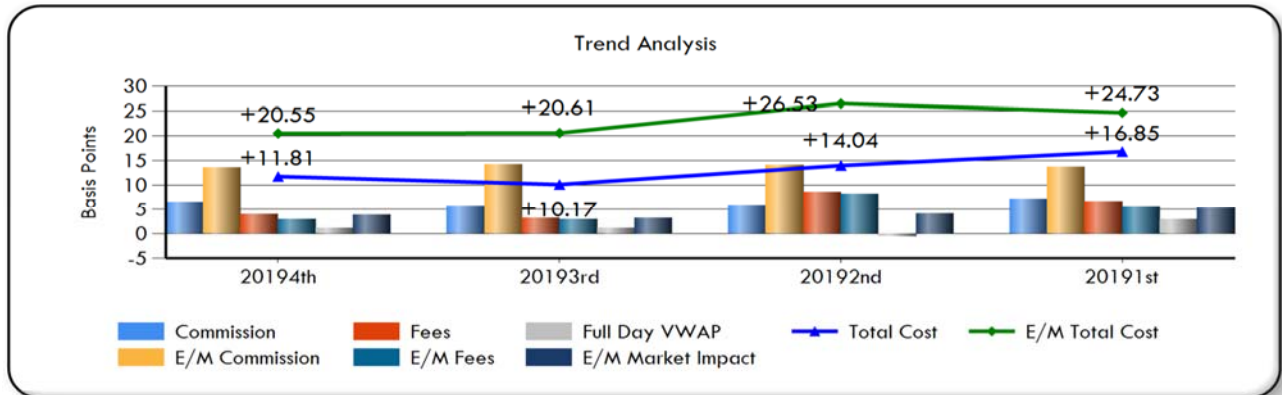
- SCERS' total trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 1.24 cps over the past four quarters.
- SCERS' total trading costs during the fourth quarter were lower than the prior quarter due to lower market impact costs, with market impact cost of 0.74 cps compared to 1.53 cps in the prior quarter. The lower market impact costs were somewhat offset by higher commission costs in the quarter, with commission costs of +1.49 cps compared to +1.16 cps in the prior quarter.
- Commission costs for manager Eagle Capital were higher during the fourth quarter, however, Eagle's trading activity generated significant market impact savings, ranking better than 96% of managers, compared to the full day volume weighted average price (VWAP).

INTERNATIONAL EQUITY

- SCERS’ International Equity managers traded 12.8 million shares totaling \$151.3 million in principal across 26 countries.
- Total trading cost equaled +11.81 bps, which is 8.74 bps lower than the peer group at +20.55 bps, as follows:
 - Commission cost of +6.63 bps versus +13.69 bps
 - Fees (country taxes, tariffs) of +4.01 bps versus +2.96 bps
 - Market impact costs of +1.16 bps versus market impact costs of +3.90 bps

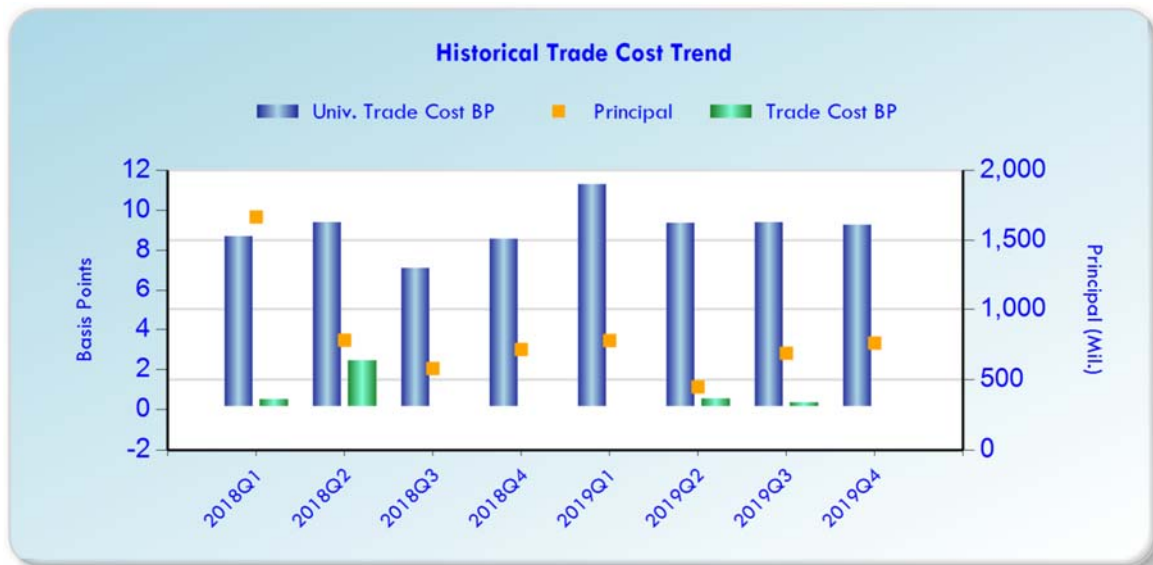


- All of SCERS’ International Equity managers analyzed generated commission costs (ranging from +3.96 bps to +7.26 bps), significantly less than the E/M peer group (ranging from +13.43 bps to +14.57 bps). This result is consistent with the previous quarters’ lower trade costs versus the peer group, as illustrated below (commission vs. E/M commission).
- SCERS’ International Equity managers generated lower market impact cost versus the peer group during the quarter (full day VWAP vs. E/M market impact), with the following exceptions:
 - LSV Asset Management at +9.31 bps versus +3.99 bps for their benchmark
 - William Blair at +8.41 bps versus +2.81 bps for their benchmark
- SCERS’ total international trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 9.89 bps over the past four quarters.



U.S. FIXED INCOME

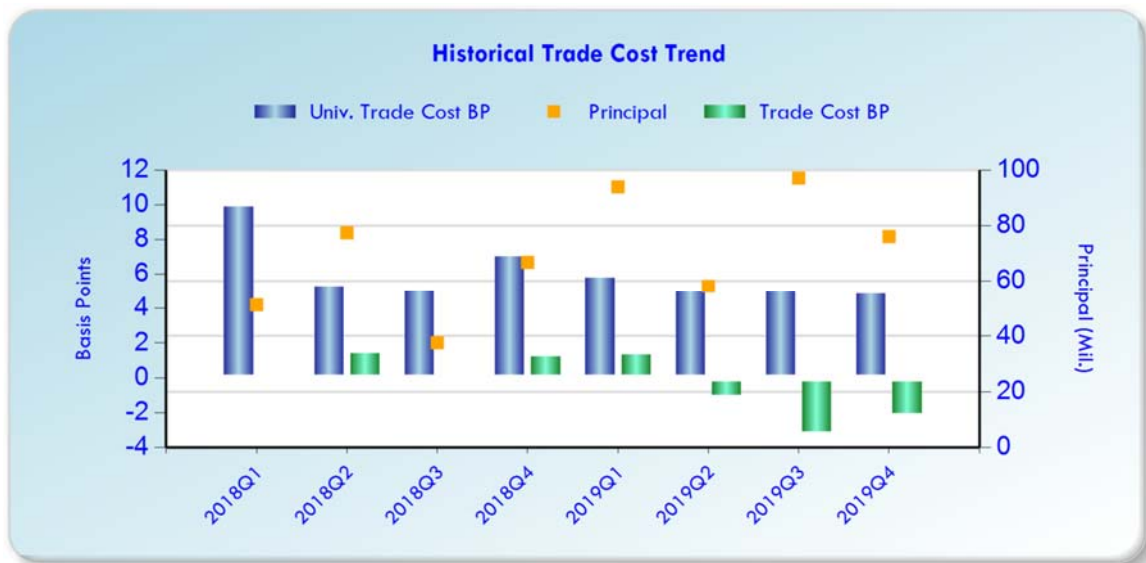
- SCERS' U.S. Fixed Income managers conducted 479 trades totaling \$759.3 million in principal, as follows:
 - Governments: 406 trades totaling \$730 million
 - Corporates: 72 trades totaling \$28 million
 - Agencies: 1 trade totaling approximately \$1 million
- Total trading cost equaled -0.23 bps, which is 9.68 bps lower than the E/M peer group cost of +9.45 bps, as follows:
 - Governments at -0.45bps versus +9.16 bps
 - Corporates at +5.42 bps versus +16.48 bps
 - Agencies at +2.75 bps versus +19.78 bps
- Cost savings is primarily due to trading of Government bonds, where SCERS' experienced a cost savings (versus expense) on trading activity, which SCERS has experienced in prior quarters.
- 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 -0.57 bps versus +11.70 bps
 - NeubergerBerman (Treasury) at +0.29 bps versus +7.76 bps

INTERNATIONAL FIXED INCOME

- SCERS is invested with Brandywine Global Fixed Income’s commingled fund; therefore, trading activity is not tracked.
- Prudential, one of SCERS’ Core Plus Fixed Income managers, is permitted up to a 20% allocation in international bonds or non-U.S. denominated bonds, which is reported as follows:
 - Prudential conducted 174 international trades totaling \$76.2 million in principal as follows:
 - Governments: 75 trades totaling \$52 million
 - Corporates: 97 trades totaling \$24 million
 - Agencies: 1 trade for less than \$1 million
 - Municipals: 1 trade for less than \$1 million
 - Total trading cost was -2.22 bps, which was 7.29 bps lower than the E/M peer group cost of +5.07 bps, as follows:
 - Governments at -6.76 bps versus +5.07 bps
 - Corporates at +8.24 bps versus +5.07 bps
 - Agencies at +8.32 bps versus +5.07 bps
 - Municipals at -112.14 bps versus +5.07 bps
 - Trading costs were in-line with the previous quarters’ results, as illustrated below, as trading costs have been trending lower over the past year.



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.

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- For the fourth quarter of 2019, SCERS' brokerage partners provided a rebate back to SCERS for approximately 51% of the commissions paid.
 - For the quarter ending December 31, 2019, the commission rebate totaled \$8,798. For comparison, the commission rebate for the quarter ending December 31, 2018 totaled \$5,588.
 - Year to date through December 31, 2019, the commission rebate totaled \$41,006. This compares to a rebate of \$37,766 for the prior year ending December 31, 2018.

ATTACHMENTS

- Elkins / McSherry Trading Cost Summary report for the quarter ending December 31, 2019 for U.S. equity, international equity, U.S. fixed income, and global fixed income.

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SACRAMENTO COUNTY

Trade Cost Summary - U.S. Equity Trading

Period End December 31, 2019





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 , 2019 to December 31, 2019. The analysis included trading of 3,275,124 shares representing \$155.42 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 +1.49 cps (+3.15 bp) or +\$48,930 (0.22 cps (0.47 bp) better than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact cost was +0.74 cps (+1.56 bp) or 0.48 cps (1.02 bp) better than the Elkins/McSherry Universe Your overall trading cost of +2.23 cps (+4.70 bp) was 0.71 cps (1.49 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 58% Total Cost Universe Rank: 57% 	<ul style="list-style-type: none"> E-Score : 0.04

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program	Median	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	75 %	+1.22
				25 %	+3.58



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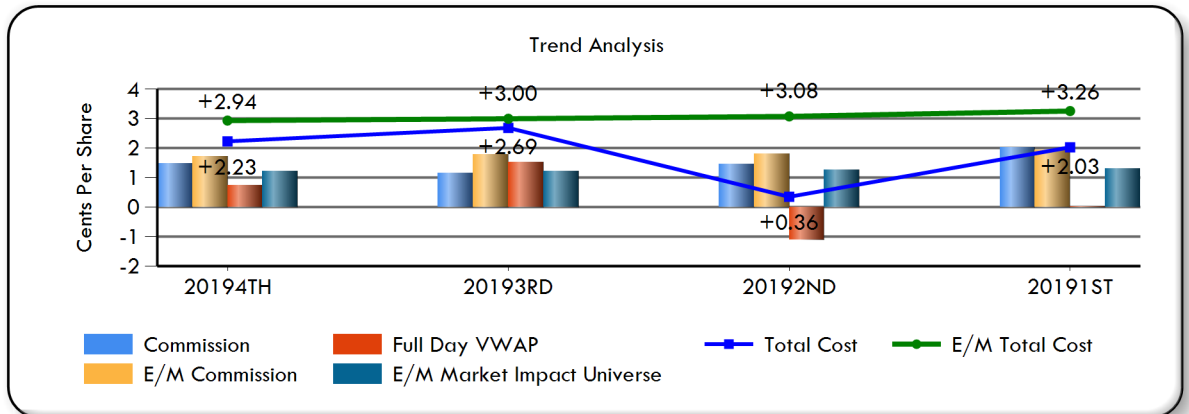
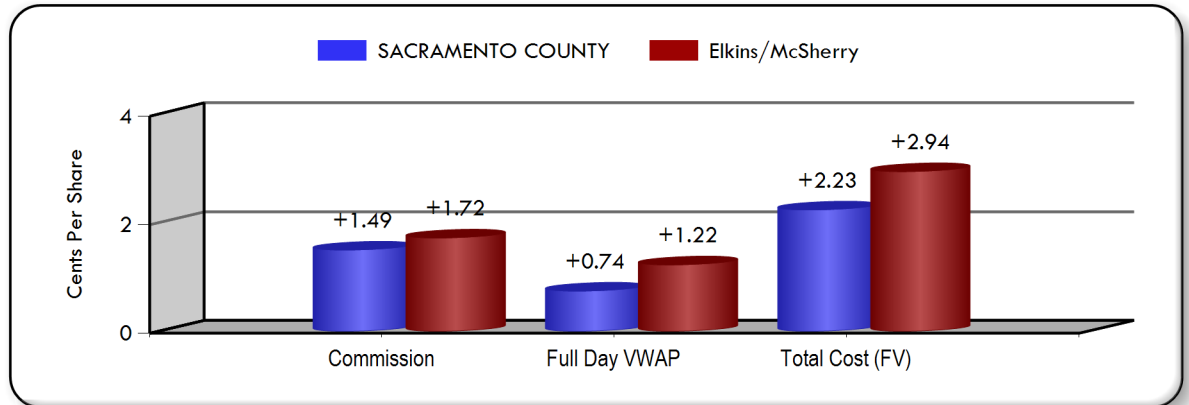
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	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	+1.57	+1.72	+3.91	+0.77	+1.22	+2.33	0.60	0.05
Buys	+1.40	+1.72	+3.91	+0.70	+1.22	+2.10	0.84	0.04
Total	+1.49	+1.72	+3.91	+0.74	+1.22	+2.23	0.71	0.04

TRADING COMPONENTS

	Buys	Sells
Trade Principal	78,589,696	76,829,207
Shares	1,388,316	1,886,808
Unique Names	196	175
Liquidity (% ADV)	0.093	0.10
Avg. Execution Size	2,655	3,923
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	523	481





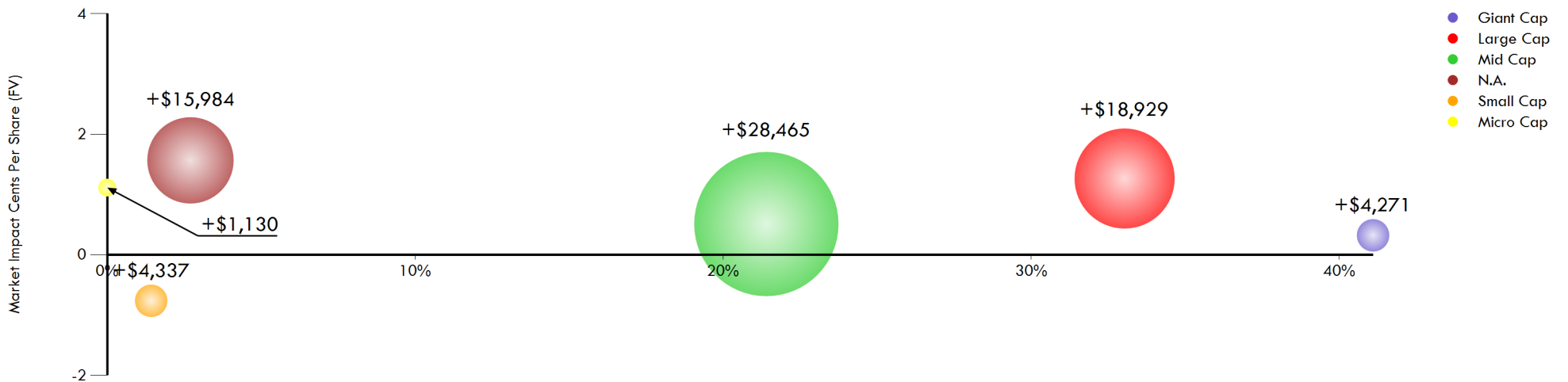
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EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded	Avg. Shares Per Order	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score	Market Cap Definition
			Your Commission	All Trading Universe	Full Day VWAP	Universe Full Day VWAP	Rank Full Day VWAP	(cps)	Commission+ Full Day VWAP Vs. Universe		
	(\$)		(cps)	(cps)	(cps)	(cps)		(cps)			
Giant Cap	41.16 %	3,485	+0.22	+1.72	+0.32	+1.58	63 %	+0.54	2.76	0.09	Over \$25 B
Large Cap	33.09 %	2,904	+0.77	+1.72	+1.26	+1.46	52 %	+2.03	1.15	0.02	\$5 B To \$25 B
Mid Cap	21.46 %	2,566	+2.47	+1.72	+0.51	+1.22	62 %	+2.97	+0.04	0.04	\$1 B To \$5 B
N.A.	2.76 %	12,220	+2.79	+1.72	+1.57	+1.22	45 %	+4.36	+1.42	-0.29	
Small Cap	1.48 %	3,714	+3.25	+1.72	0.77	+0.71	73 %	+2.48	+0.06	-0.14	\$250 M To \$1 B
Micro Cap	0.06 %	8,907	+1.00	+1.72	+1.11	+0.55	38 %	+2.11	0.15	0.43	Under \$250 M

Total Cost by Market Cap: (USD)



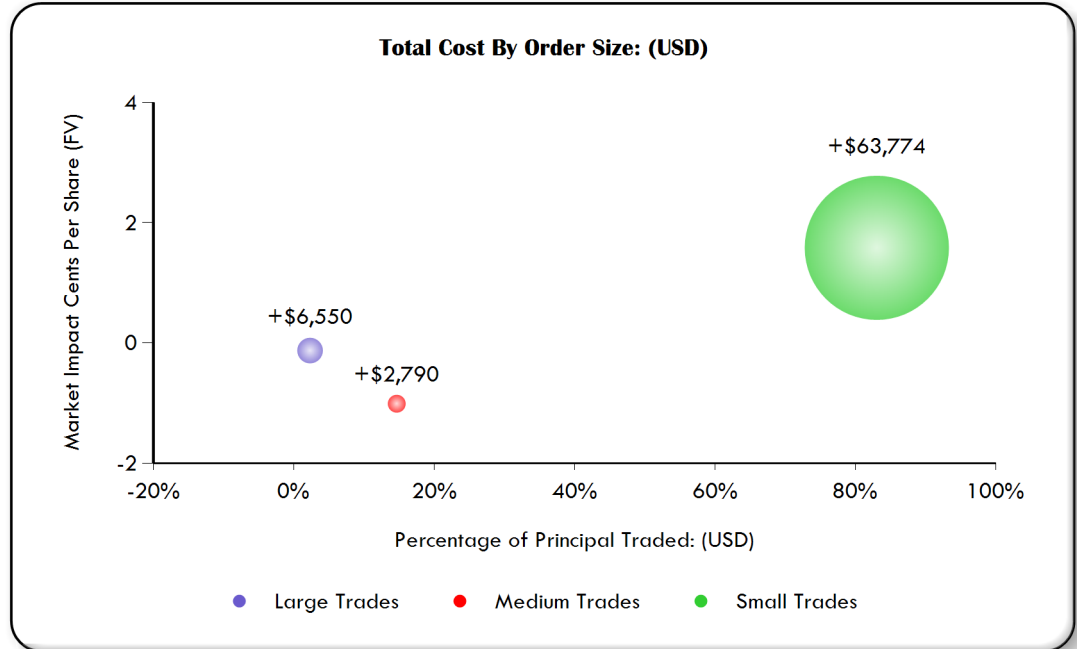
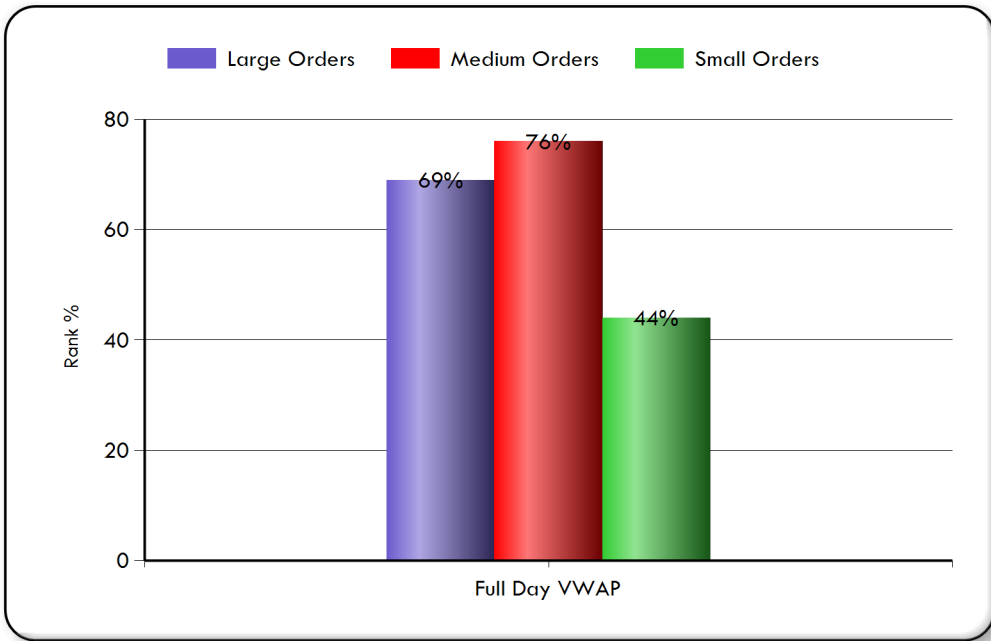


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EXECUTIVE SUMMARY

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	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	153,752	N/A	+2.26	+1.72	0.13	+1.22	69 %	+2.13	0.81	-0.15	50K Or More
Med. Orders	51	16,905	N/A	+1.34	+1.72	1.01	+1.22	76 %	+0.32	2.61	-0.01	10K-50K
Small Orders	951	2,214	N/A	+1.45	+1.72	+1.58	+1.22	44 %	+3.03	+0.09	0.06	10K Or Less





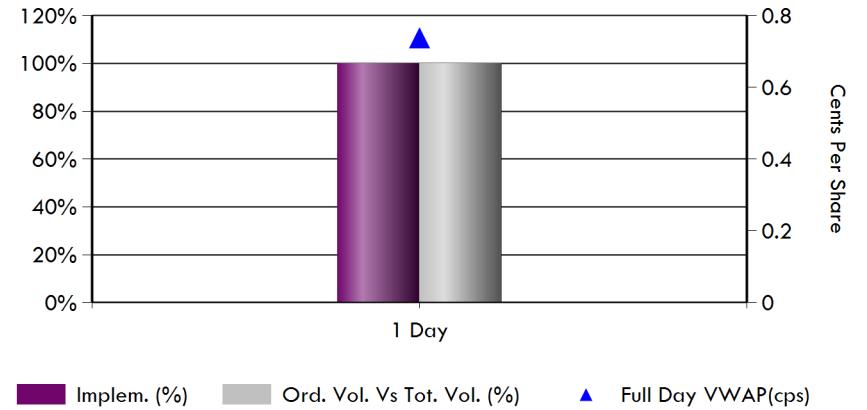
(+) = Cost

EXECUTIVE SUMMARY

IMPLEMENTATION DAYS BY TRADE

Period	Percent Traded (%)	Order Vol. Vs Total Vol. (%)	Full Day VWAP (cps)	E - Score
1 Day	100.00	100%	+0.74	0.04

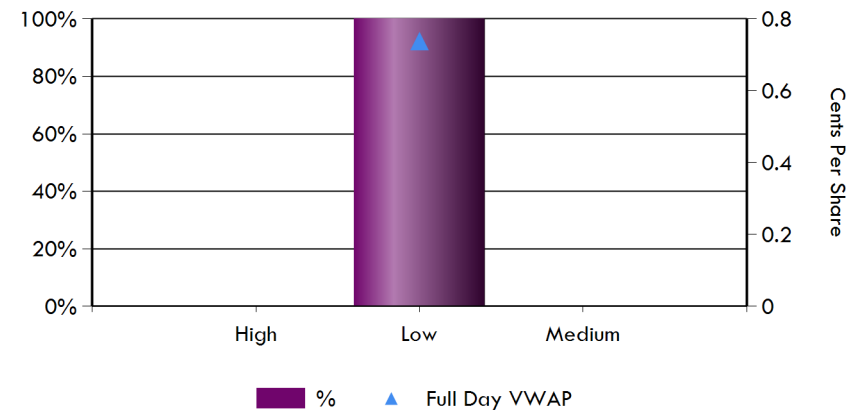
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (cps)	E - Score
0%~20% of daily vol.	L	100%	+0.74	0.04

Avg. % of Daily Volume





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EXECUTIVE SUMMARY

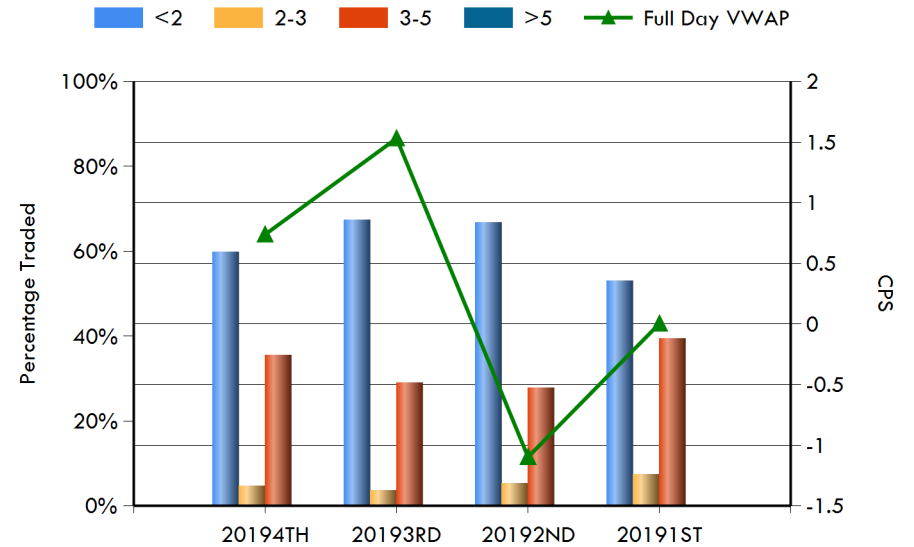
COMMISSION REVIEW

Top 10 Broker

Commission Trends

Broker	Total Commission (\$)	Commission 20194th (cps)	All Trading Universe (cps)	Bundled Universe (cps)	20193RD (cps)	20192ND (cps)	20191ST (cps)
COWEN & CO	12,384	+4.05	+1.72	+3.91	+3.99	+4.25	+3.62
OPPENHEIME	686	+3.60	+1.72	+3.91	+3.60	N.A	+3.60
LIQUIDNET	2,048	+3.58	+1.72	+3.91	+2.21	+3.13	+3.51
KEYBANC	751	+4.82	+1.72	+3.91	N.A	N.A	+4.90
THEMIS TRA	4,058	+3.42	+1.72	+3.91	+3.56	+3.41	+3.42
WILLIAM BL	1,969	+3.31	+1.72	+3.91	+3.77	+3.86	+3.58
GOLDMAN SA	1,373	+0.34	+1.72	+3.91	+0.20	+0.38	+0.41
CAPITAL IN	11,800	+3.15	+1.72	+3.91	+3.82	+3.28	+3.10
PIPER JAFF	676	+3.52	+1.72	+3.91	+3.92	+4.36	+3.65
ITG	5,651	+2.78	+1.72	+3.91	+3.58	+3.40	+3.60

Commission Category Trend



NOTES



(+) = Cost

TRADE CYCLE DETAIL

Manager Performance (Full Day VWAP)

					COMMISSION		MARKET IMPACT		TOTAL COST/SAVIN GS	RANK TREND - Full Day VWAP		
Manager	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20193RD (%)	20192ND (%)	20191ST (%)
AQR	109	3,055	1,793,228	0.03	+0.07	+1.72	+0.74	57 %	2.13	44	59	61
WEATHERBIE	19	1,977	535,643	0.23	+3.22	+1.72	+7.57	10 %	+7.85	70	57	48
DALTON, GREINER, HAR	13	4,133	549,629	-0.19	+3.75	+1.72	3.51	92 %	2.70	83	96	95
EAGLE CAPITAL MANAGE	12	41,306	330,451	-0.16	+2.89	+1.72	5.26	96 %	5.31	29	98	68
ALLIANCE R 3000 CAPI	3	13,235	66,173	1.27	+0.51	+1.72	+10.53	4 %	+8.10	1	86	1

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	+1.22

NOTES

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(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS Commission + Full Day VWAP Vs. Universe	RANK TREND - Full Day VWAP		
					Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP		20193RD (%)	20192ND (%)	20191ST (%)
MORGAN STANLEY	21	2,527	293,109	0.04	364	+0.12	+1.72	+0.94	56 %	1.87	21	99	48
GOLDMAN SACHS	19	3,833	406,246	0.02	1,373	+0.34	+1.72	+1.91	39 %	0.69	55	34	50
CREDIT SUISSE	18	2,838	306,459	0.04	276	+0.09	+1.72	+0.46	61 %	2.39	39	40	87
MERRILL LYNCH	17	3,005	255,386	0.02	51	+0.02	+1.72	+1.22	50 %	1.70	59	82	64
JP MORGAN CHASE	16	2,961	278,356	0.22	415	+0.15	+1.72	+2.18	36 %	0.61	38	91	34
CITIGROUP	15	3,819	278,799	0.05	195	+0.07	+1.72	+0.73	58 %	2.13	69	35	35
CAPITAL INSTL SVCS	12	31,224	374,693	-0.10	11,800	+3.15	+1.72	3.51	92 %	3.29	66	63	88
COWEN & CO	8	3,643	305,990	-0.22	12,384	+4.05	+1.72	4.44	94 %	3.33	83	98	80
THEMIS TRADING LLC	6	1,648	118,679	0.25	4,058	+3.42	+1.72	+11.29	3 %	+11.77	90	12	15
ITG	5	2,505	202,939	0.20	5,651	+2.78	+1.72	+6.74	11 %	+6.59	86	99	10

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	+1.22

NOTES

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TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)
DEUTSCHE BANK	5	3,243	74,588	0.01	15	+0.02	+1.72	+0.76	57 %	2.16	69	73	40
WILLIAM BLAIR	2	1,918	59,463	0.38	1,969	+3.31	+1.72	+6.62	11 %	+6.99	19	1	88
LIQUIDNET	2	1,685	57,294	0.10	2,048	+3.58	+1.72	+0.28	63 %	+0.92	41	99	99
CONVERGEX	1	12,141	24,281	-0.70	364	+1.50	+1.72	27.59	99 %	29.03	1	49	-
KEYBANC	<1	2,596	15,574	-0.18	751	+4.82	+1.72	8.17	98 %	6.28	-	-	62
STEPHENS & CO INC	<1	1,201	12,014	0.15	478	+3.98	+1.72	+7.06	11 %	+8.11	1	18	50
OPPENHEIMER & CO INC	<1	2,720	19,042	0.16	686	+3.60	+1.72	+12.20	2 %	+12.86	1	-	96
NEEDHAM & CO INC	<1	1,446	7,228	-0.28	260	+3.60	+1.72	19.46	99 %	18.80	56	99	98
CANACCORD GENUITY	<1	674	4,046	0.40	146	+3.60	+1.72	+24.90	1 %	+25.56	27	16	1
PIPER JAFFRAY	<1	3,204	19,221	-0.19	676	+3.52	+1.72	+0.69	59 %	+1.27	4	99	42

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	+1.22

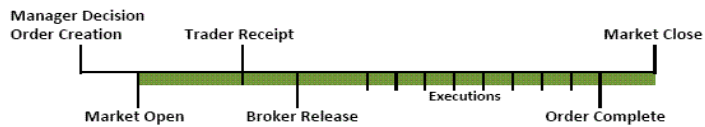
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TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
BAIRD, ROBERT W	<1	3,152	9,456	0.51	340	+3.60	+1.72	+8.26	8 %	+8.92	99	99	1
STIFEL NICOLAUS & CO	<1	2,250	13,500	-0.36	452	+3.35	+1.72	9.69	99 %	9.28	97	99	99
INSTINET	<1	1,964	11,781	-0.10	353	+3.00	+1.72	6.15	97 %	6.09	98	96	95
PERSHING	<1	1,535	3,069	0.31	110	+3.60	+1.72	+40.21	1 %	+40.87	-	-	-
JEFFERIES & CO	<1	6,057	24,228	0.09	660	+2.72	+1.72	+1.51	46 %	+1.29	93	24	99
B.RILEY & CO	<1	5,050	10,100	-0.06	455	+4.50	+1.72	0.15	69 %	+1.41	-	99	40
SANDLER ONEILL	<1	7,875	15,750	-0.17	630	+4.00	+1.72	2.29	86 %	1.22	-	-	76
RBC CAPITAL MARKETS	<1	2,388	7,163	-0.25	201	+2.80	+1.72	2.13	85 %	2.26	99	98	99
WELLS FARGO	<1	1,646	3,292	0.23	119	+3.60	+1.72	+9.52	5 %	+10.18	23	-	99
WOLFE TRAHAN SECS	<1	7,487	7,487	0.33	299	+4.00	+1.72	+3.27	27 %	+4.33	-	91	99

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	+1.22

NOTES

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(+) = Cost

TRADE CYCLE DETAIL

Broker Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
SEAPORT GROUP SECS	<1	10,969	21,938	-0.39	459	+2.09	+1.72	1.63	81 %	2.48	83	1	-
CORNERSTONE MACRO LL	<1	706	2,117	0.78	76	+3.60	+1.72	+25.51	1 %	+26.17	7	3	-
NATL FINANCIAL SERVS	<1	3,988	3,988	0.63	144	+3.60	+1.72	+15.16	1 %	+15.82	3	-	-
ISI GROUP INC	<1	19,400	19,400	-0.06	388	+2.00	+1.72	0.58	72 %	1.52	78	45	30
RAYMOND JAMES	<1	661	1,322	0.45	48	+3.60	+1.72	+15.55	1 %	+16.21	44	94	47
JANNEY MONTGOMERY	<1	2,863	5,726	-0.30	172	+3.00	+1.72	2.04	84 %	1.97	-	99	98
KEEFE BRUYETTE WOODS	<1	1,400	1,400	-0.49	63	+4.50	+1.72	4.07	93 %	2.51	-	82	99

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.91	+1.72	+1.29	+1.47	+1.22

NOTES

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(+) = 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	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	20193RD (%)	20192ND (%)	20191ST (%)
Grand Total	3	13,235	66,173	1.27	336	+0.51	+1.72	+10.53	4 %	+8.10	1	86	1
JP MORGAN CHASE	3	15,335	61,339	1.26	307	+0.50	+1.72	+9.34	5 %	+6.90	1	-	19
GOLDMAN SACHS	<1	4,834	4,834	1.45	29	+0.60	+1.72	+25.70	1 %	+23.36	-	74	-



(+) = Cost

TRADE CYCLE DETAIL

AQR Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
Grand Total	109	3,055	1,793,228	0.03	1,192	+0.07	+1.72	+0.74	57 %	2.13	44	59	61
MORGAN STANLEY	21	2,518	284,569	0.03	57	+0.02	+1.72	+0.75	57 %	2.17	18	83	59
GOLDMAN SACHS	19	3,962	376,410	0.02	489	+0.13	+1.72	+0.99	55 %	1.81	54	31	56
CREDIT SUISSE	18	2,838	306,459	0.04	276	+0.09	+1.72	+0.46	61 %	2.39	39	40	87
MERRILL LYNCH	17	3,005	255,386	0.02	51	+0.02	+1.72	+1.22	50 %	1.70	49	62	64
CITIGROUP	15	3,819	278,799	0.05	195	+0.07	+1.72	+0.73	58 %	2.13	69	43	57
JP MORGAN CHASE	13	2,411	217,017	0.01	109	+0.05	+1.72	+0.16	65 %	2.73	61	82	45
DEUTSCHE BANK	5	3,243	74,588	0.01	15	+0.02	+1.72	+0.76	57 %	2.16	69	73	61



(+) = 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	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20193RD (%)	20192ND (%)	20191ST (%)
Grand Total	13	4,133	549,629	-0.19	20,607	+3.75	+1.72	3.51	92 %	2.70	83	96	95
COWEN & CO	8	3,551	291,152	-0.22	11,939	+4.10	+1.72	4.60	94 %	3.43	85	98	83
CAPITAL INSTL SVCS	1	11,421	68,523	-0.24	2,615	+3.82	+1.72	3.57	92 %	2.69	66	74	99
ITG	<1	4,180	29,257	0.07	878	+3.00	+1.72	0.01	68 %	+0.06	-	-	99
KEYBANC	<1	2,596	15,574	-0.18	751	+4.82	+1.72	8.17	98 %	6.28	-	-	62
INSTINET	<1	1,964	11,781	-0.10	353	+3.00	+1.72	6.15	97 %	6.09	98	96	95
B.RILEY & CO	<1	5,050	10,100	-0.06	455	+4.50	+1.72	0.15	69 %	+1.41	-	99	40
SANDLER ONEILL	<1	7,875	15,750	-0.17	630	+4.00	+1.72	2.29	86 %	1.22	-	-	76
LIQUIDNET	<1	1,259	10,068	-0.14	352	+3.50	+1.72	2.63	87 %	2.06	97	94	88
PIPER JAFFRAY	<1	8,022	16,044	-0.24	562	+3.50	+1.72	+0.23	64 %	+0.79	85	99	95
RBC CAPITAL MARKETS	<1	2,388	7,163	-0.25	201	+2.80	+1.72	2.13	85 %	2.26	99	98	99
STEPHENS & CO INC	<1	2,550	5,100	-0.55	230	+4.50	+1.72	6.62	97 %	5.06	-	96	99
WOLFE TRAHAN SECS	<1	7,487	7,487	0.33	299	+4.00	+1.72	+3.27	27 %	+4.33	-	91	99
SEAPORT GROUP SECS	<1	10,969	21,938	-0.39	459	+2.09	+1.72	1.63	81 %	2.48	83	1	-
ISI GROUP INC	<1	19,400	19,400	-0.06	388	+2.00	+1.72	0.58	72 %	1.52	78	45	30
JEFFERIES & CO	<1	13,292	13,292	0.41	266	+2.00	+1.72	+2.56	33 %	+1.62	95	45	99
KEEFE BRUYETTE WOODS	<1	1,400	1,400	-0.49	63	+4.50	+1.72	4.07	93 %	2.51	-	82	99
STIFEL NICOLAUS & CO	<1	5,600	5,600	-1.40	168	+3.00	+1.72	7.54	98 %	7.48	77	97	-



(+) = Cost

TRADE CYCLE DETAIL

EAGLE CAPITAL MANAGEMENT Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
Grand Total	12	41,306	330,451	-0.16	9,549	+2.89	+1.72	5.26	96 %	5.31	29	98	68
CAPITAL INSTL SVCS	11	51,028	306,170	-0.09	9,185	+3.00	+1.72	3.49	92 %	3.43	-	59	74
CONVERGEX	1	12,141	24,281	-0.70	364	+1.50	+1.72	27.59	99 %	29.03	1	49	-



(+) = Cost

TRADE CYCLE DETAIL

WEATHERBIE Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
Grand Total	19	1,977	535,643	0.23	17,246	+3.22	+1.72	+7.57	10 %	+7.85	70	57	48
THEMIS TRADING LLC	6	1,648	118,679	0.25	4,058	+3.42	+1.72	+11.29	3 %	+11.77	90	12	15
ITG	4	2,347	173,682	0.23	4,773	+2.75	+1.72	+7.88	9 %	+7.69	86	99	10
WILLIAM BLAIR	2	1,918	59,463	0.38	1,969	+3.31	+1.72	+6.62	11 %	+6.99	22	1	88
LIQUIDNET	2	1,816	47,226	0.13	1,696	+3.59	+1.72	+0.90	56 %	+1.55	57	69	99
OPPENHEIMER & CO INC	<1	2,720	19,042	0.16	686	+3.60	+1.72	+12.20	2 %	+12.86	1	-	96
GOLDMAN SACHS	<1	2,500	25,002	-0.17	855	+3.42	+1.72	+11.15	4 %	+11.63	95	41	24
NEEDHAM & CO INC	<1	1,446	7,228	-0.28	260	+3.60	+1.72	19.46	99 %	18.80	89	99	98
STEPHENS & CO INC	<1	864	6,914	0.46	249	+3.60	+1.72	+17.16	1 %	+17.82	1	1	2
CANACCORD GENUITY	<1	674	4,046	0.40	146	+3.60	+1.72	+24.90	1 %	+25.56	27	16	1
BAIRD, ROBERT W	<1	3,152	9,456	0.51	340	+3.60	+1.72	+8.26	8 %	+8.92	99	-	1
PERSHING	<1	1,535	3,069	0.31	110	+3.60	+1.72	+40.21	1 %	+40.87	-	-	-
STIFEL NICOLAUS & CO	<1	1,580	7,900	-0.27	284	+3.60	+1.72	11.22	99 %	10.56	99	99	99
MORGAN STANLEY	<1	2,847	8,540	0.45	307	+3.60	+1.72	+7.33	10 %	+8.00	99	-	-
JEFFERIES & CO	<1	3,645	10,936	0.01	394	+3.60	+1.72	+0.24	64 %	+0.90	91	1	87
WELLS FARGO	<1	1,646	3,292	0.23	119	+3.60	+1.72	+9.52	5 %	+10.18	23	-	99
PIPER JAFFRAY	<1	794	3,177	-0.14	114	+3.60	+1.72	+3.03	29 %	+3.70	1	78	8
CORNERSTONE MACRO LL	<1	706	2,117	0.78	76	+3.60	+1.72	+25.51	1 %	+26.17	7	3	-
NATL FINANCIAL SERVS	<1	3,988	3,988	0.63	144	+3.60	+1.72	+15.16	1 %	+15.82	3	-	-
COWEN & CO	<1	7,419	14,838	-0.25	445	+3.00	+1.72	1.38	80 %	1.32	35	82	23
RAYMOND JAMES	<1	661	1,322	0.45	48	+3.60	+1.72	+15.55	1 %	+16.21	18	99	45



(+) = Cost

TRADE CYCLE DETAIL

WEATHERBIE Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	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	20193RD (%)	20192ND (%)	20191ST (%)
JANNEY MONTGOMERY	<1	2,863	5,726	-0.30	172	+3.00	+1.72	2.04	84 %	1.97	-	99	-



(+) = 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)
BCS	1	229,578	2,021,480	+3.00	8.63%	-0.53	0.77
HPQ	4	161,447	3,055,845	+0.07	0.19%	0.23	+1.79
TLRA	18	68,083	528,728	+3.00	0.37%	-0.03	0.36
NUAN	4	62,463	917,306	+3.50	0.42%	-0.24	2.14
EBAY	7	61,254	2,207,443	+0.09	0.10%	-0.09	1.18
NEX	4	59,430	293,514	+2.09	0.83%	-0.08	0.39
KRG	13	59,296	1,054,987	+3.93	0.86%	-0.06	0.12
TMHC	13	58,525	1,475,904	+4.09	0.24%	-0.03	+1.12
ACOR	6	53,443	88,435	+1.00	0.85%	0.43	+1.11
FOXA	2	45,837	1,472,605	+3.00	0.37%	-0.98	9.35

Names Most Traded - Total Orders

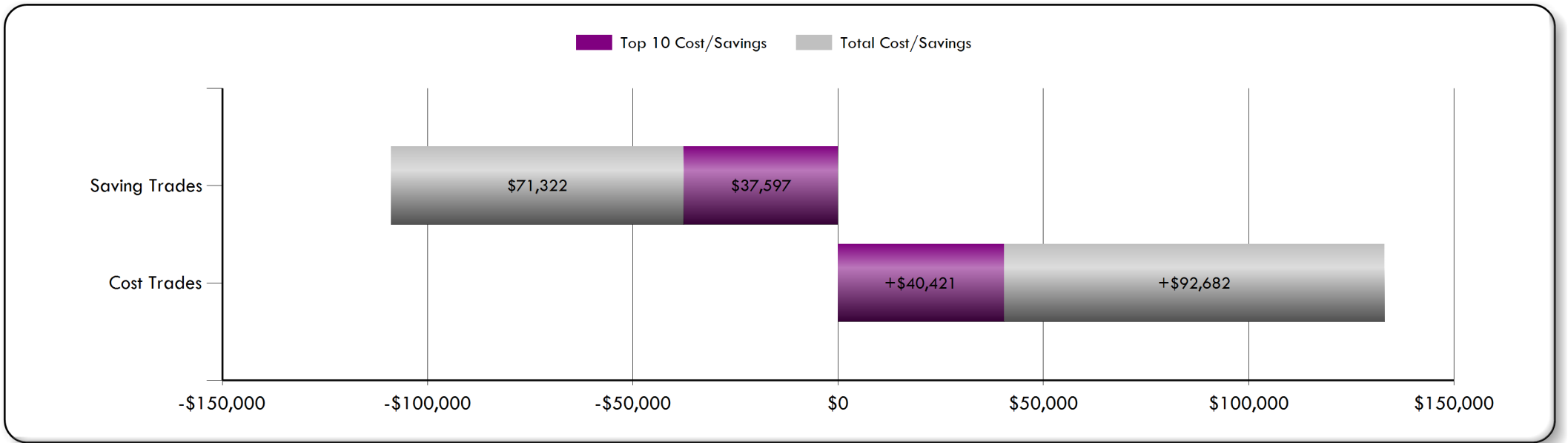
							Market Impact
Security	# Orders	Shares	US Dollars	Commission (cps)	% of Volume	E - Score	Full Day VWAP (cps)
KSS	8	35,250	1,743,300	+0.07	0.11%	0.02	0.70
EBAY	7	61,254	2,207,443	+0.09	0.10%	-0.09	1.18
AAPL	5	8,598	2,210,341	+0.16	0.00%	0.71	+49.67
HUM	5	5,910	1,992,551	+0.02	0.10%	0.04	+8.76
NOC	5	6,369	2,228,787	+0.07	0.10%	0.12	+30.66
CVX	4	14,154	1,638,436	+0.06	0.05%	-0.06	3.07
FB	4	18,063	3,579,486	+2.61	0.04%	0.57	+49.49
HPQ	4	161,447	3,055,845	+0.07	0.19%	0.23	+1.79
NFLX	3	16,949	4,859,922	+2.83	0.02%	-0.12	96.57
BCS	1	229,578	2,021,480	+3.00	8.63%	-0.53	0.77



(+) = Cost

TRADE CONTRIBUTIONS

Cost\Savings Performance				
Category	Principal USD	# of Trades	Avg. Market Impact (cps)	Percentage of all Cost\Savings
10 High Cost Trades	6,163,672	10	+105.36	30.37%
Cost Trades	85,144,610	550	+20.41	100.00%
Saving Trades	70,274,293	454	15.89	100.00%
10 Low Cost Trades	9,468,939	10	45.40	34.52%





(+) = Cost

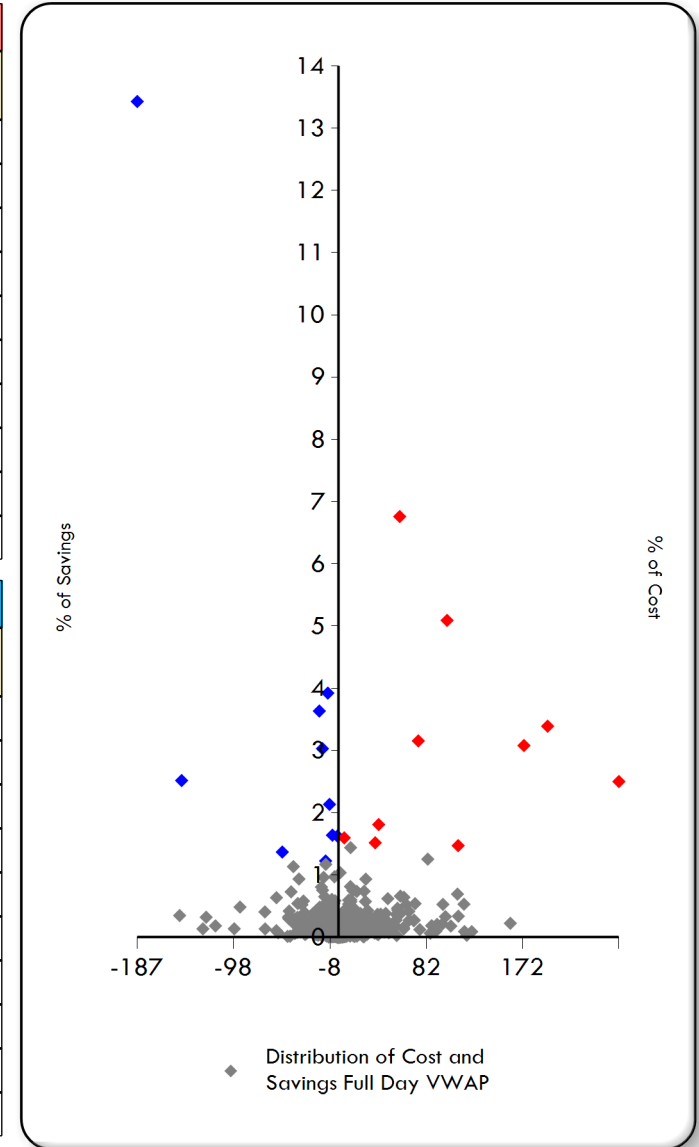
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Cost (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Buy	FB	2019/11/20	15,682	6.76	0.67	+57.37	EAGLE CAPI	CAPITAL IN
Buy	PGNY	2019/10/25	6,673	5.09	0.00	+101.54	WEATHERBIE	ITG
Sell	AAPL	2019/12/20	2,310	3.39	2.49	+195.33	ALLIANCE R	JP MORGAN
Buy	PGNY	2019/10/25	5,624	3.15	0.00	+74.65	WEATHERBIE	GOLDMAN SA
Sell	W	2019/10/31	2,366	3.08	0.44	+173.24	WEATHERBIE	THEMIS TRA
Sell	TTD	2019/10/28	1,272	2.50	0.74	+261.76	AQR	GOLDMAN SA
Buy	PETQ	2019/11/11	6,381	1.81	0.82	+37.75	WEATHERBIE	OPPENHEIME
Sell	HPQ	2019/11/07	37,764	1.60	0.28	+5.62	AQR	MERRILL LY
Buy	GOOS	2019/10/15	5,853	1.52	0.60	+34.49	WEATHERBIE	ITG
Buy	NOC	2019/10/17	1,751	1.47	0.47	+111.81	AQR	MORGAN STA

10 Low Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Savings (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Buy	NFLX	2019/10/18	7,800	13.43	-0.27	187.50	EAGLE CAPI	CAPITAL IN
Sell	FOXA	2019/10/17	43,895	3.92	-1.02	9.73	EAGLE CAPI	CAPITAL IN
Sell	DISH	2019/11/01	22,405	3.63	-1.10	17.67	EAGLE CAPI	CONVERGEX
Buy	AEO	2019/12/11	22,398	3.03	-0.60	14.73	DALTON, GR	COWEN & CO
Buy	NFLX	2019/10/16	1,876	2.52	-0.11	146.11	EAGLE CAPI	CONVERGEX
Sell	KMT	2019/10/21	28,641	2.13	-0.05	8.12	DALTON, GR	COWEN & CO
Buy	UBER	2019/12/20	32,829	1.64	-0.18	5.44	ALLIANCE R	JP MORGAN
Sell	BCS	2019/11/12	229,578	1.63	-0.53	0.77	EAGLE CAPI	CAPITAL IN
Buy	RPD	2019/11/22	2,853	1.37	-1.03	52.22	WEATHERBIE	NEEDHAM &
Buy	TMHC	2019/12/19	11,362	1.22	-1.17	11.74	DALTON, GR	CAPITAL IN



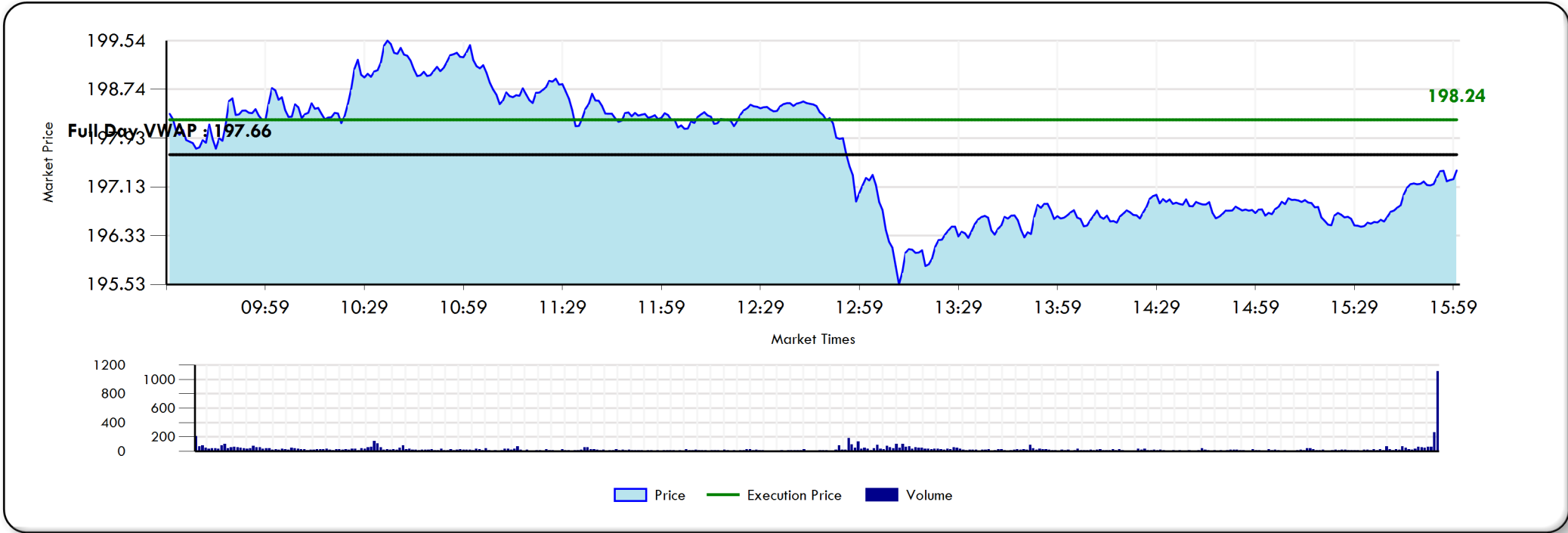


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

FB - 2019/11/20

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	CAPITAL INSTL SVCS	11/20/2019 09:30:00	11/20/2019 16:00:00	15,682	198.2371	197.6634	+8,997	+57.37	0.67	0.13



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 6.76% of your market impact cost.

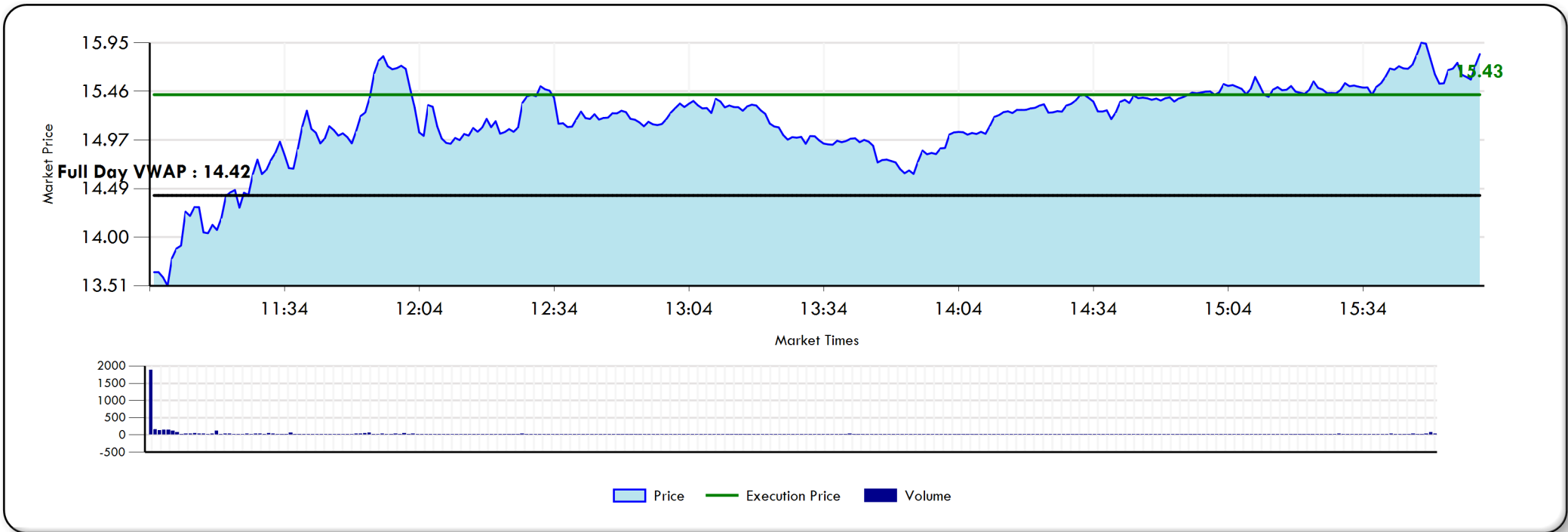


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TRADE LEVEL DETAIL - HIGH COST

PGNY - 2019/10/25

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	ITG	10/25/2019 09:30:00	10/25/2019 16:00:00	6,673	15.4313	14.4160	+6,775	+101.54	0.00	0.13



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 5.09% of your market impact cost.

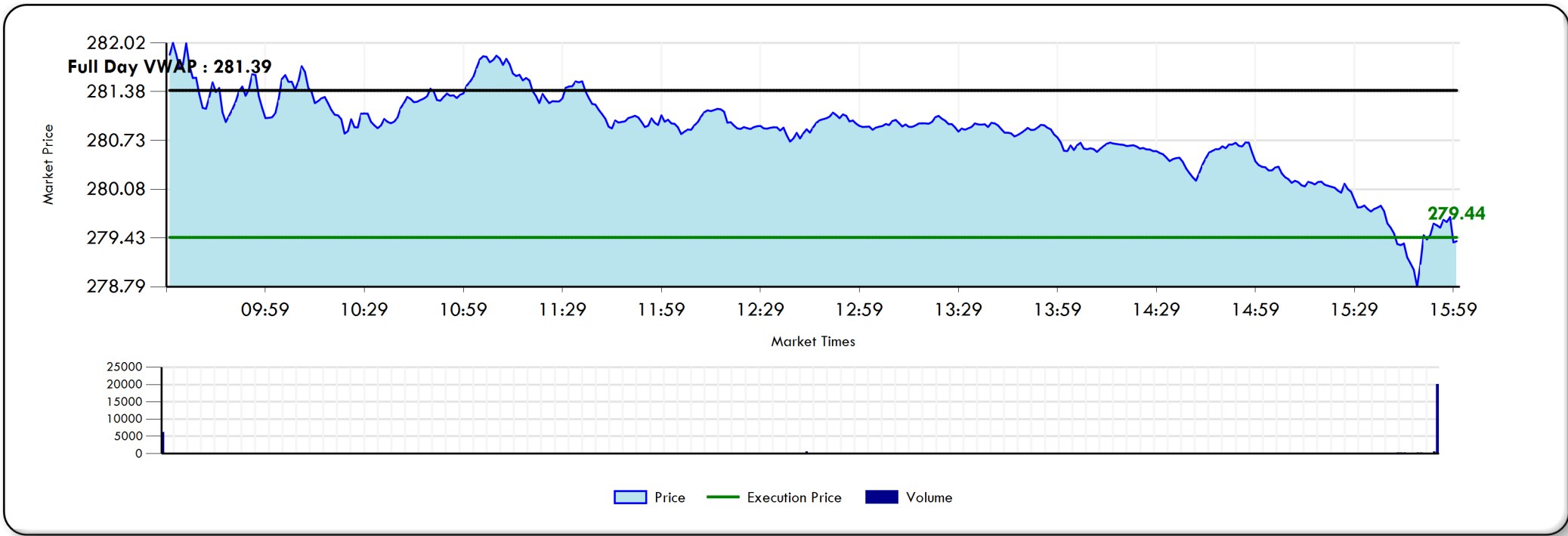


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

AAPL - 2019/12/20

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	JP MORGAN CHASE	12/20/2019 09:30:00	12/20/2019 16:00:00	2,310	279.4400	281.3933	+4,512	+195.33	2.49	0.00



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.39% of your market impact cost.

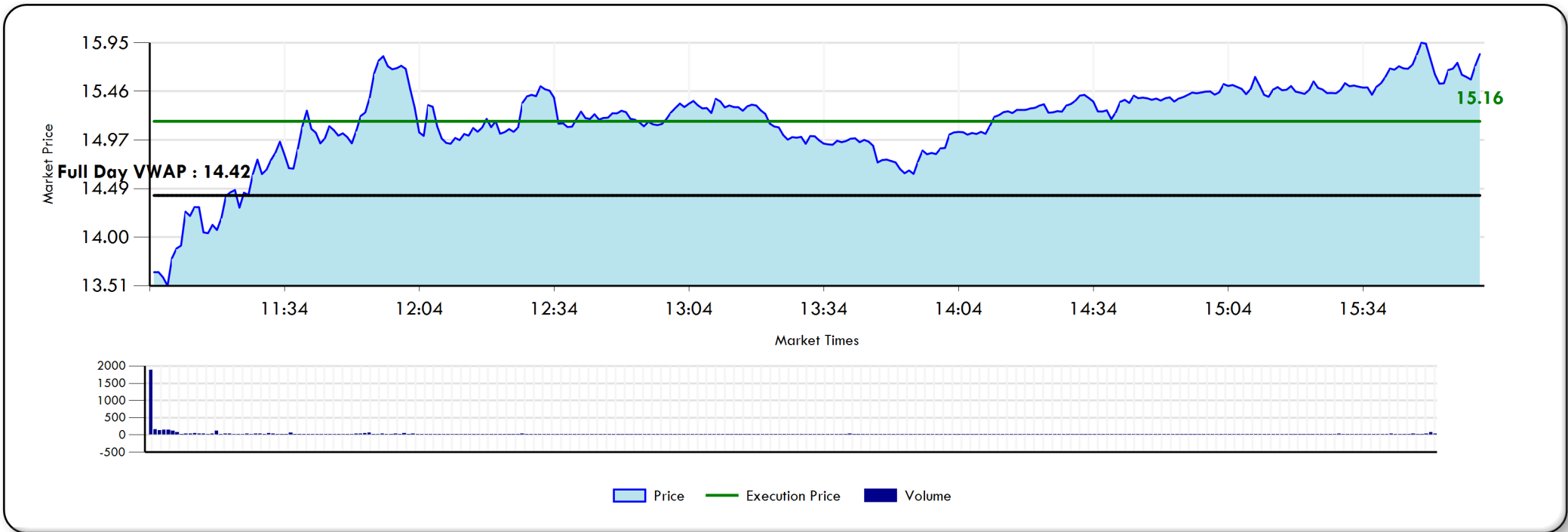


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

PGNY - 2019/10/25

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	GOLDMAN SACHS	10/25/2019 09:30:00	10/25/2019 16:00:00	5,624	15.1625	14.4160	+4,199	+74.65	0.00	0.11



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.15% of your market impact cost.

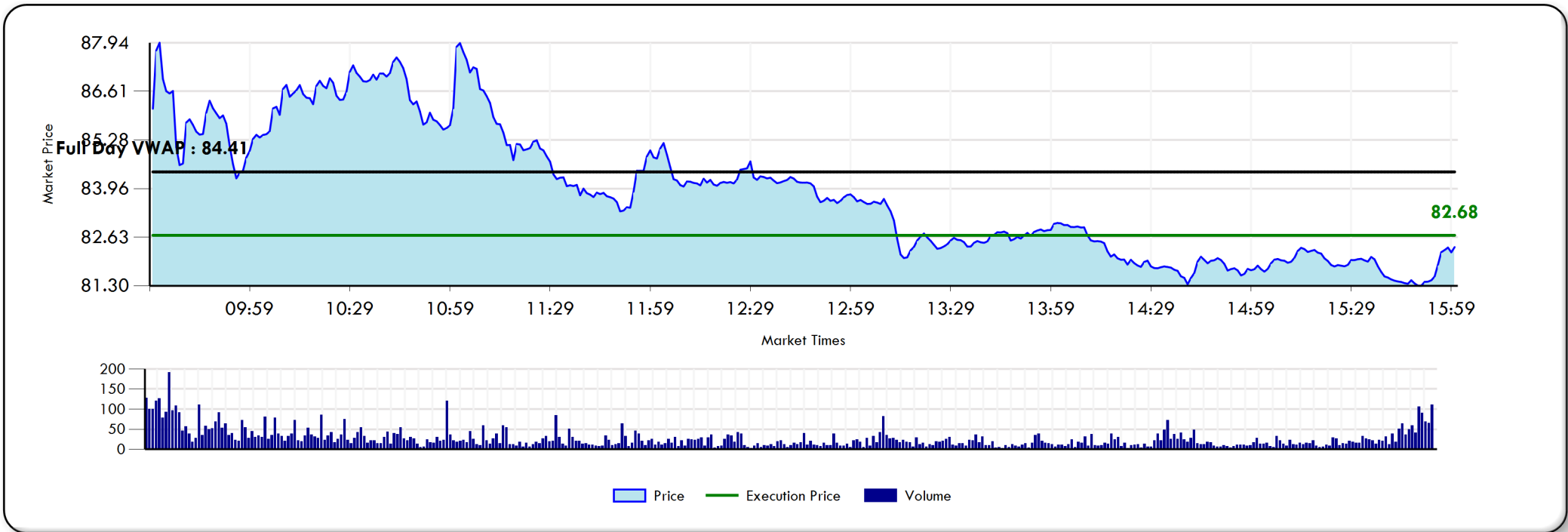


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

W - 2019/10/31

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	WEATHERBIE	THEMIS TRADING LLC	10/31/2019 09:30:00	10/31/2019 16:00:00	2,366	82.6792	84.4116	+4,099	+173.24	0.44	0.02



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.08% of your market impact cost.

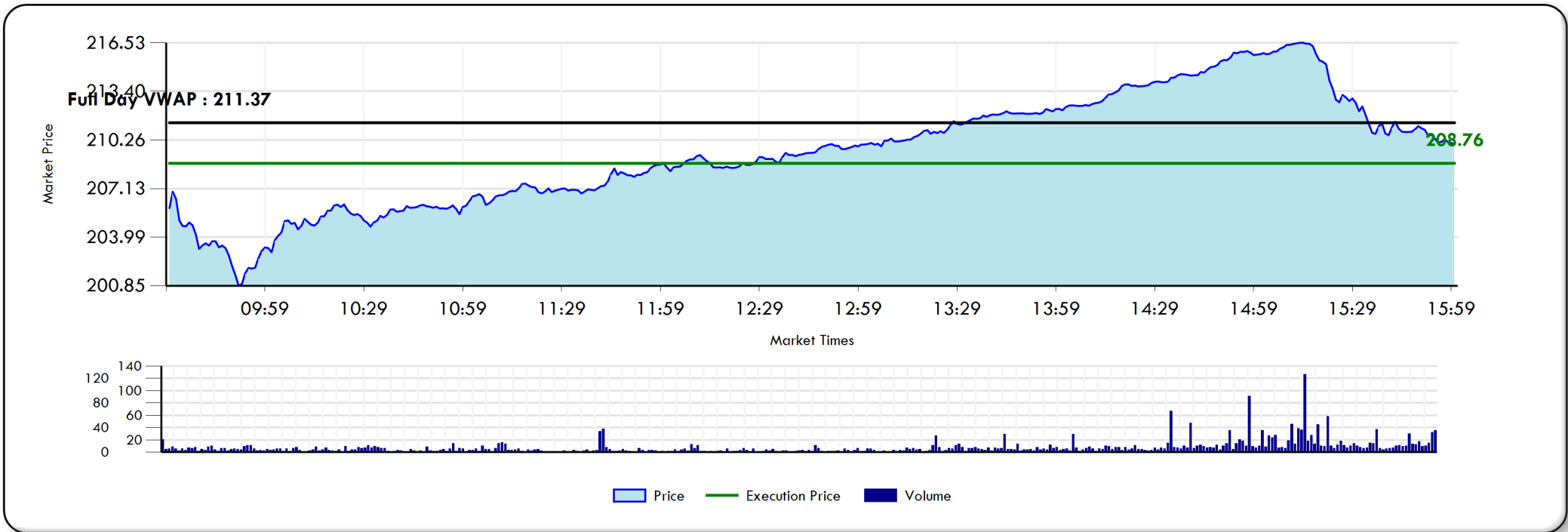


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

TTD - 2019/10/28

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	AQR	GOLDMAN SACHS	10/28/2019 09:30:00	10/28/2019 16:00:00	1,272	208.7567	211.3743	+3,330	+261.76	0.74	0.04



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.50% of your market impact cost.

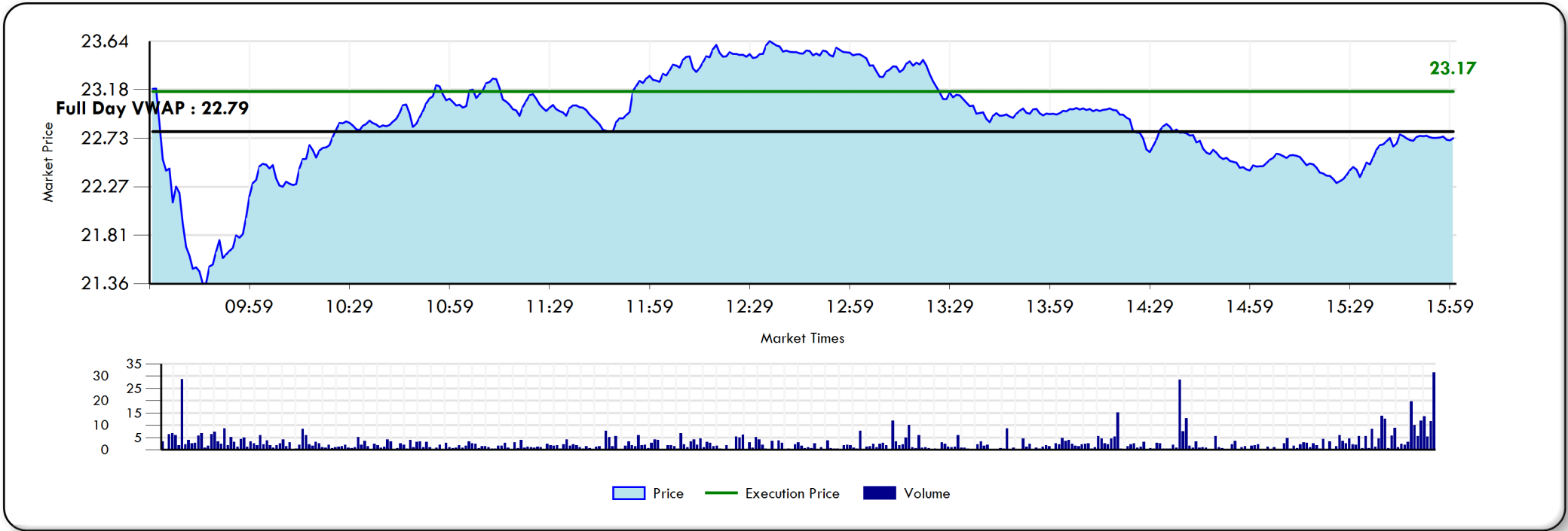


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

PETQ - 2019/11/11

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	OPPENHEIMER & CO INC	11/11/2019 09:30:00	11/11/2019 16:00:00	6,381	23.1660	22.7885	+2,409	+37.75	0.82	0.63



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.81% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

HPQ - 2019/11/07

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 (%)
Sell	AQR	MERRILL LYNCH	11/07/2019 09:30:00	11/07/2019 16:00:00	37,764	19.6388	19.6950	+2,124	+5.62	0.28	0.11



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.60% of your market impact cost.

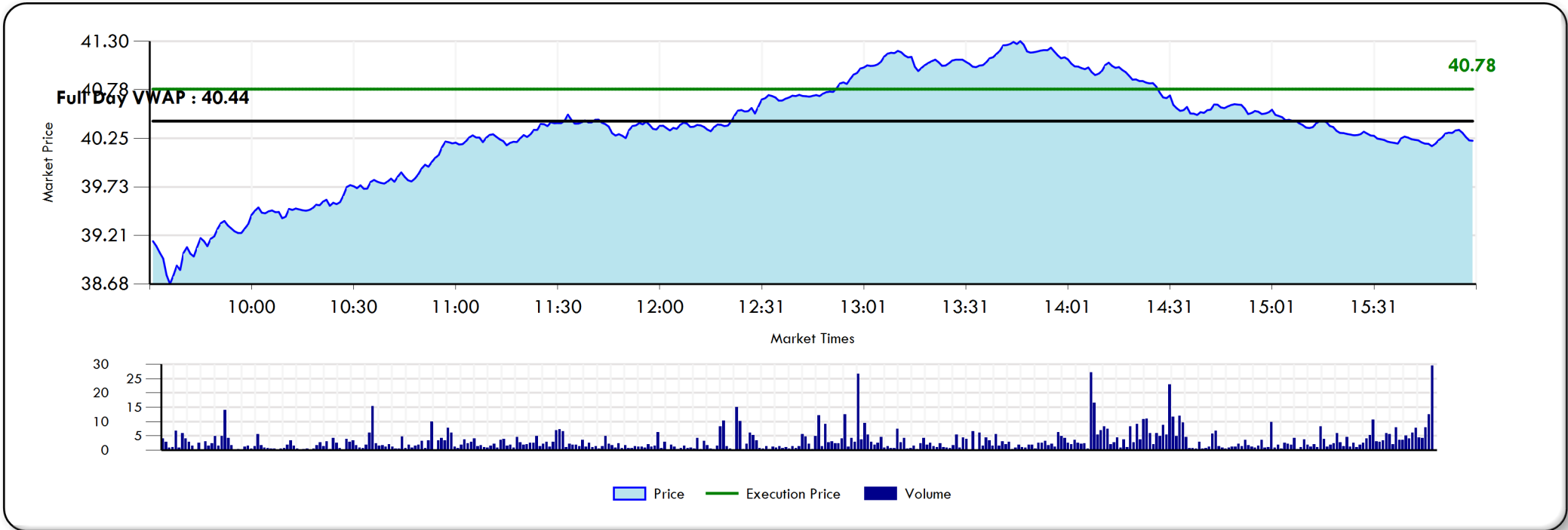


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

GOOS - 2019/10/15

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	ITG	10/15/2019 09:30:00	10/15/2019 16:00:00	5,853	40.7830	40.4381	+2,019	+34.49	0.60	0.43



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.

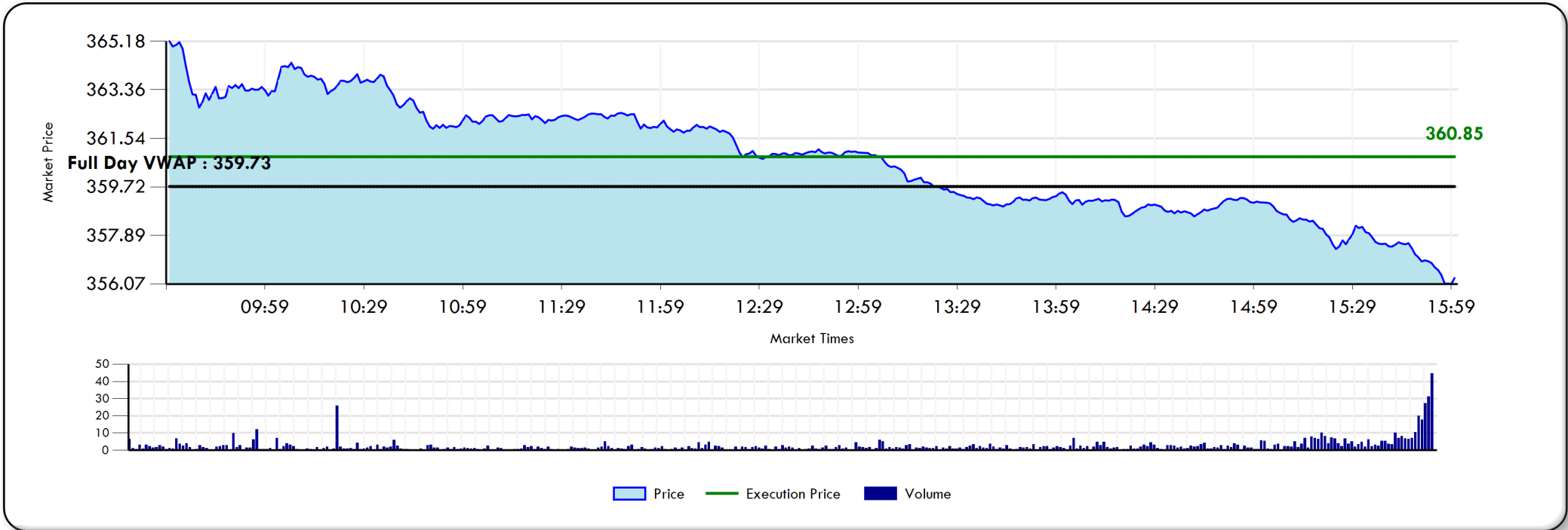


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

NOC - 2019/10/17

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	AQR	MORGAN STANLEY	10/17/2019 09:30:00	10/17/2019 16:00:00	1,751	360.8469	359.7288	+1,958	+111.81	0.47	0.13



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.

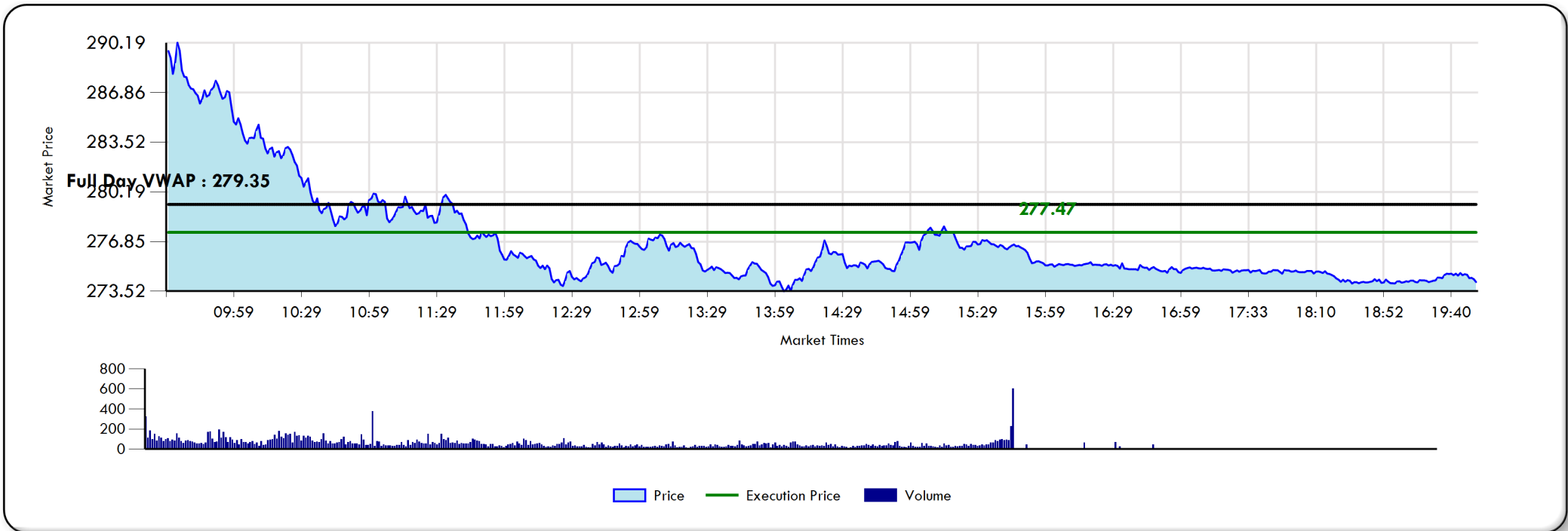


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

NFLX - 2019/10/18

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	CAPITAL INSTL SVCS	10/18/2019 09:30:00	10/18/2019 16:00:00	7,800	277.4715	279.3465	14,625	187.50	-0.27	0.03



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 13.43% of your market impact savings.

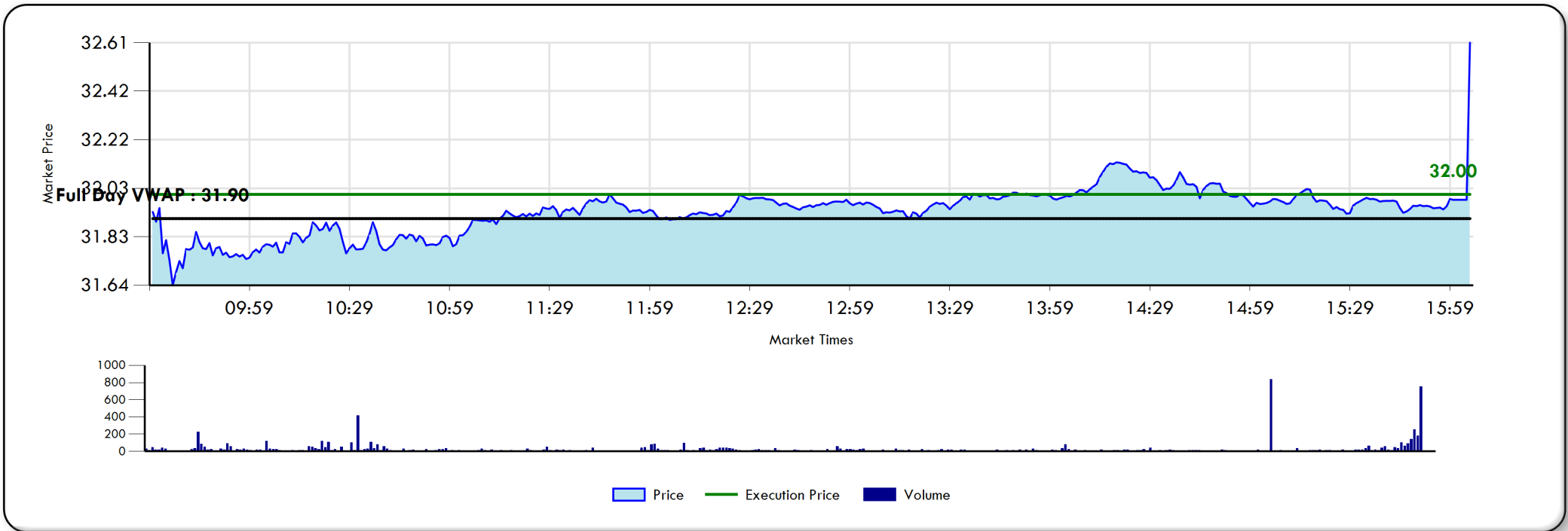


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

FOXA - 2019/10/17

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	CAPITAL INSTL SVCS	10/17/2019 09:30:00	10/17/2019 16:00:00	43,895	32.0021	31.9048	4,271	9.73	-1.02	0.48



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.92% of your market impact savings.

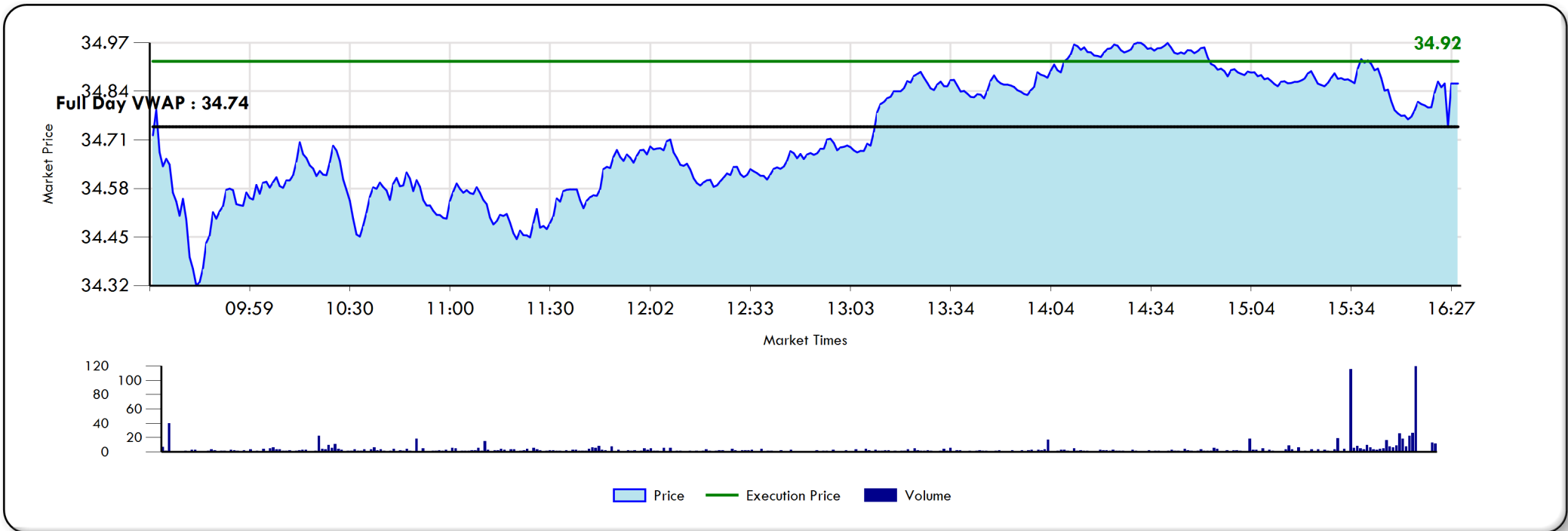


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

DISH - 2019/11/01

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 (%)
Sell	EAGLE CAPITAL MANAGEMENT	CONVERGEX	11/01/2019 09:30:00	11/01/2019 16:00:00	22,405	34.9200	34.7433	3,958	17.67	-1.10	1.73



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.63% of your market impact savings.

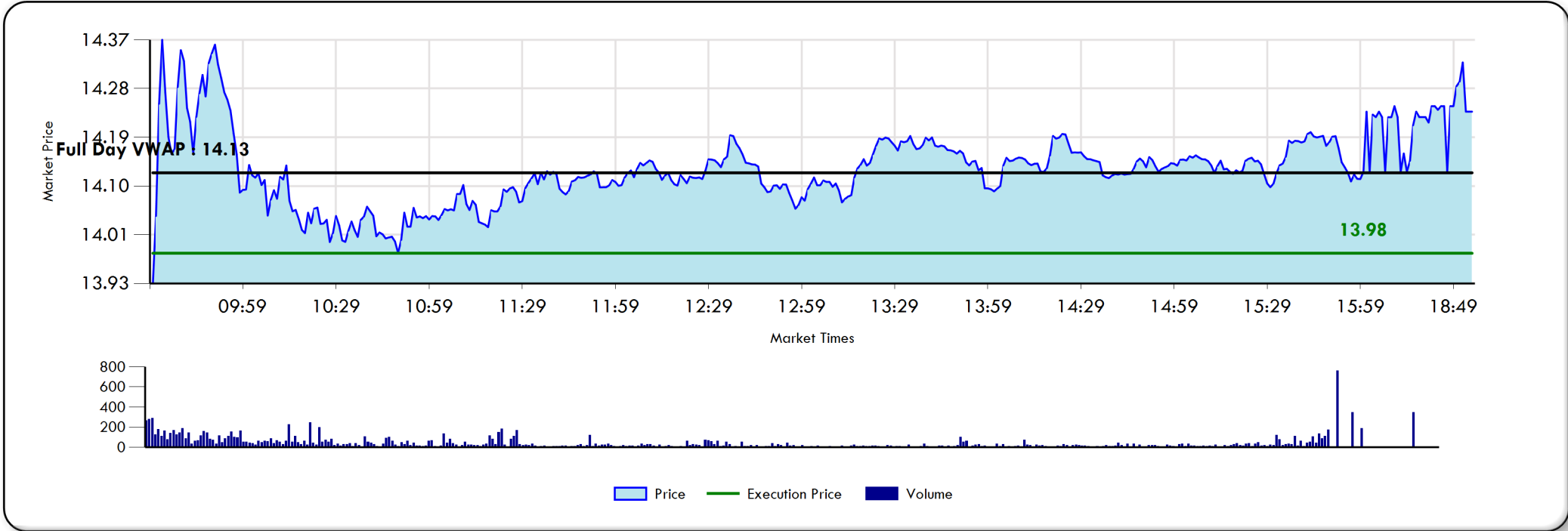


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

AEO - 2019/12/11

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	DALTON, GREINER, HARTMAN, MAHER	COWEN & CO	12/11/2019 09:30:00	12/11/2019 16:00:00	22,398	13.9808	14.1281	3,299	14.73	-0.60	0.13



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.03% of your market impact savings.

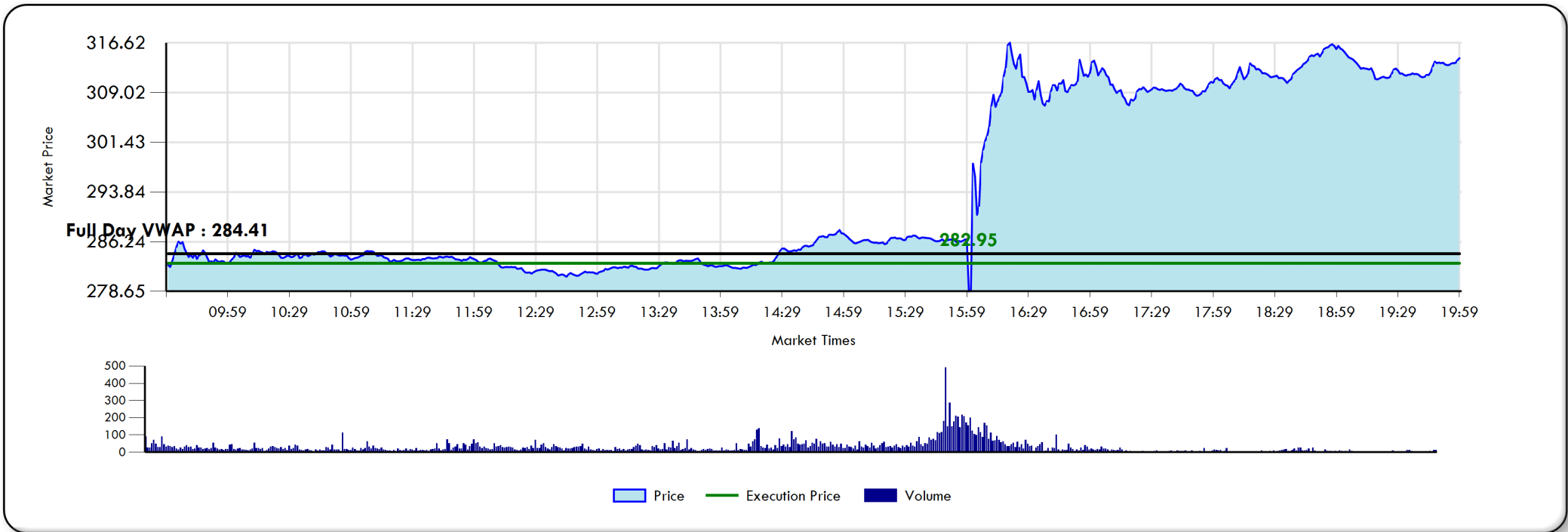


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

NFLX - 2019/10/16

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 (%)
Buy	EAGLE CAPITAL MANAGEMENT	CONVERGEX	10/16/2019 09:30:00	10/16/2019 16:00:00	1,876	282.9506	284.4117	2,741	146.11	-0.11	0.01



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.52% of your market impact savings.

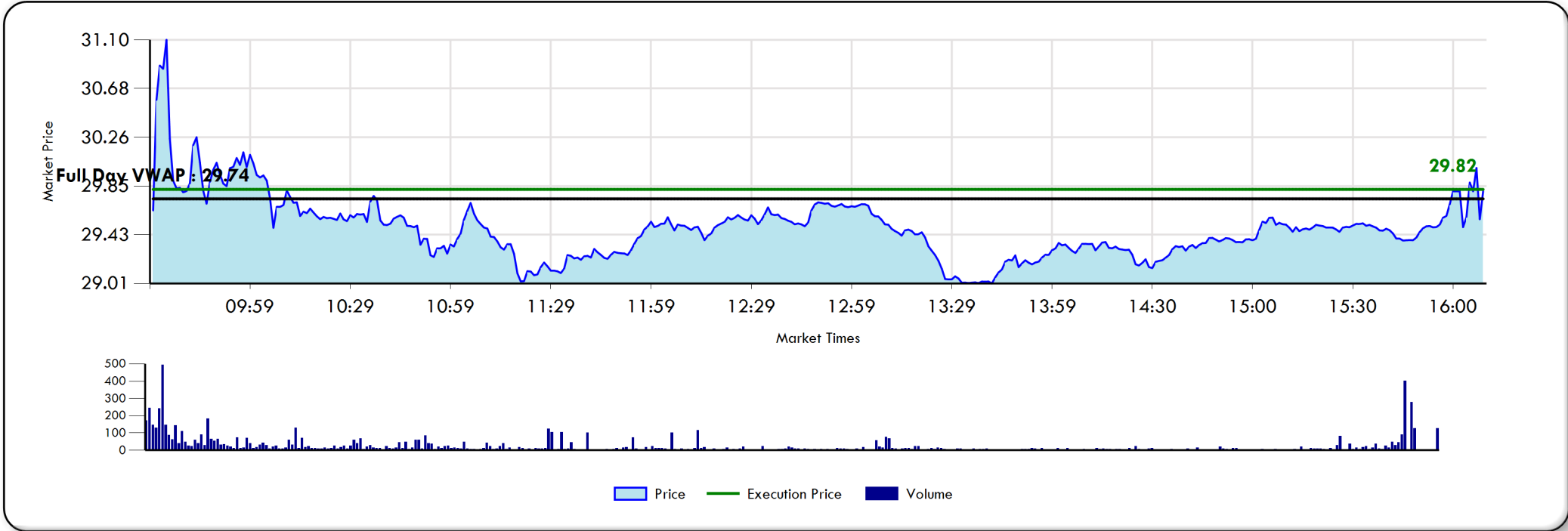


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

KMT - 2019/10/21

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	DALTON, GREINER, HARTMAN, MAHER	COWEN & CO	10/21/2019 09:30:00	10/21/2019 16:00:00	28,641	29.8164	29.7353	2,324	8.12	-0.05	0.31



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.13% of your market impact savings.

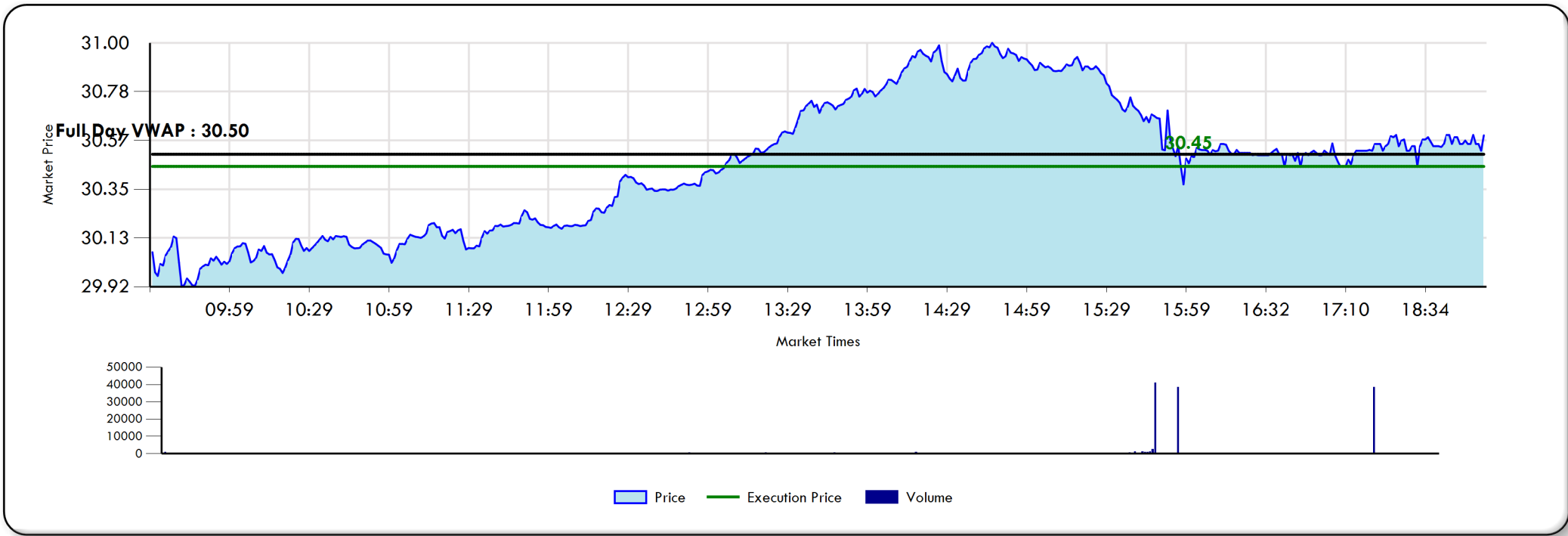


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

UBER - 2019/12/20

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	ALLIANCE R 3000 CAPITAL MANAGEM	JP MORGAN CHASE	12/20/2019 09:30:00	12/20/2019 16:00:00	32,829	30.4500	30.5044	1,785	5.44	-0.18	0.02



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.64% of your market impact savings.

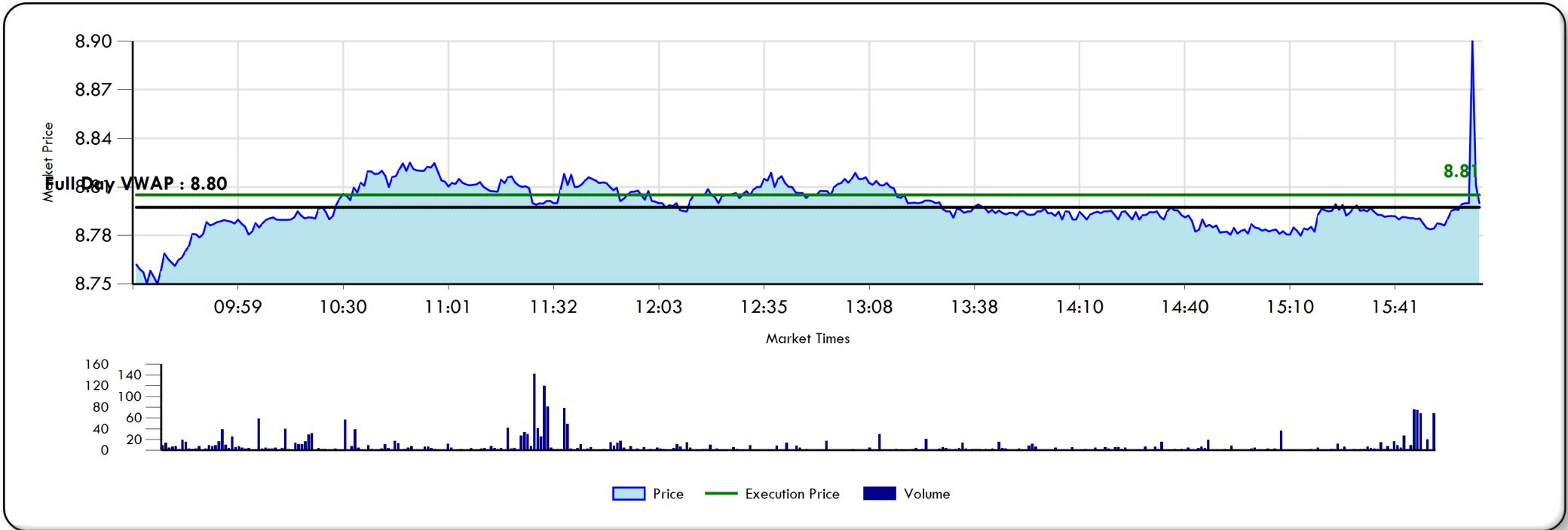


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

BCS - 2019/11/12

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	CAPITAL INSTL SVCS	11/12/2019 09:30:00	11/12/2019 16:00:00	229,578	8.8052	8.7975	1,770	0.77	-0.53	8.63



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.63% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

RPD - 2019/11/22

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	NEEDHAM & CO INC	11/22/2019 09:30:00	11/22/2019 16:00:00	2,853	53.8167	54.3389	1,490	52.22	-1.03	0.61



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.37% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

TMHC - 2019/12/19

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	DALTON, GREINER, HARTMAN, MAHER	CAPITAL INSTL SVCS	12/19/2019 09:30:00	12/19/2019 16:00:00	11,362	21.5592	21.6766	1,334	11.74	-1.17	0.46



NOTES

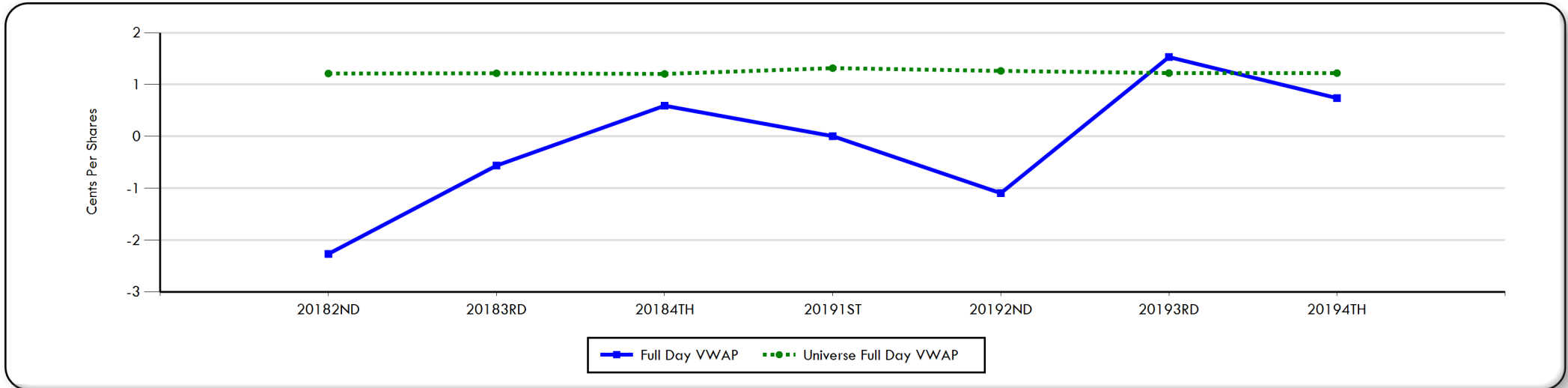
- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.22% of your market impact savings.



(+) = Cost

TRADE HISTORY

Trade History						
Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP	Full Day VWAP Universe Rank
			(cps)	(\$)		
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	3,436,466	183,217,997	+1.71	58,637	+0.59	61
20191ST	4,459,275	188,723,176	+2.03	90,386	+0.00	69
20192ND	3,647,786	171,841,719	+1.45	52,944	1.10	81
20193RD	4,500,167	228,793,910	+1.16	52,110	+1.53	46
20194TH	3,275,124	155,418,903	+1.49	48,930	+0.74	58



Note on Universes:

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

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SACRAMENTO COUNTY

Trade Cost Summary - Global Equity Trading

Period End December 31, 2019





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, 2019 to December 31, 2019. The analysis included trading of 12,811,887 shares representing \$151.28 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 :

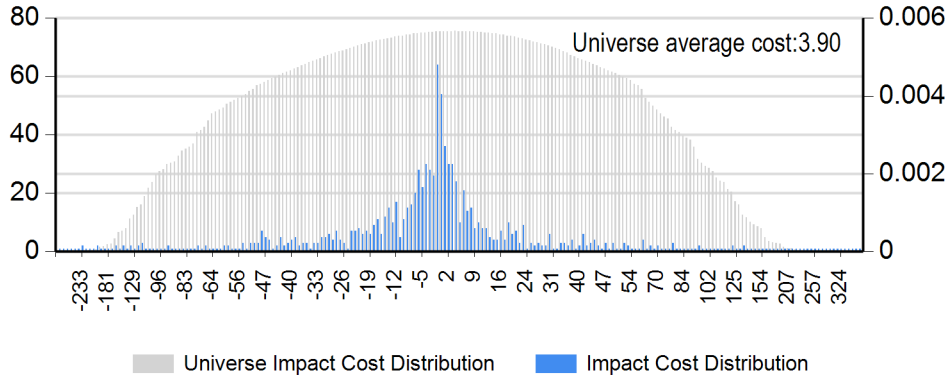
BENCHMARK PERFORMANCE			E - Score
Commission	Fees	Full Day VWAP	
<ul style="list-style-type: none"> Your commission cost was +6.63 bp or \$ +\$100,270 (7.06 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +4.01 bp or \$ +60,713 (+1.06 bp worse than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact cost was +1.16 bp or \$+17,602 (2.74 bp better than the Elkins/McSherry Universe) Your overall trading cost of +11.81 bp was 8.74 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 10 countries and lower than the Elkins/McSherry Universe in 19 countries. 14 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 33 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : -0.03



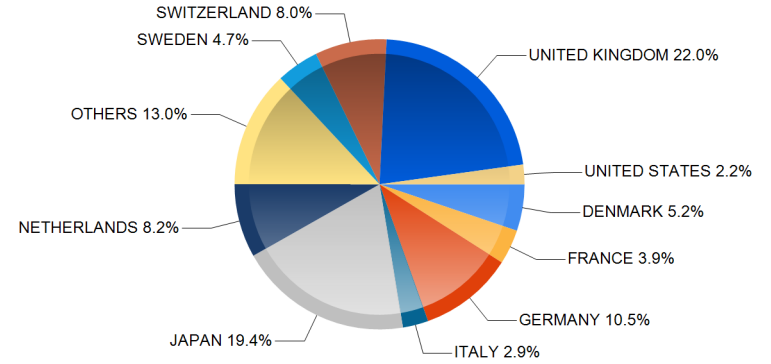
(+) = Cost

EXECUTIVE SUMMARY

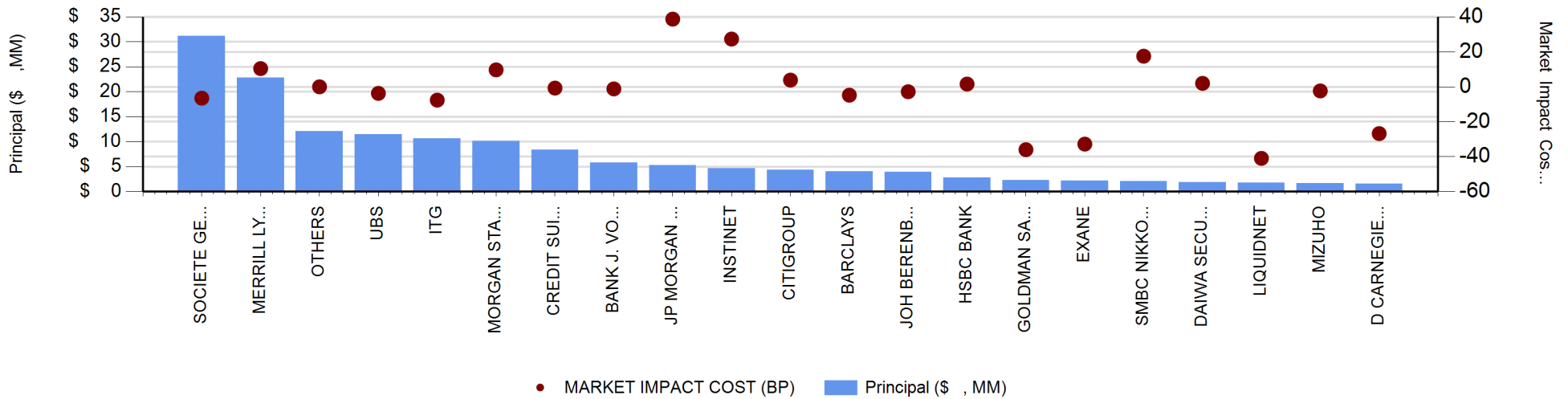
Cost Distribution



Principal Across Country



Top 20 Brokers in Principal Traded





(+) = Cost

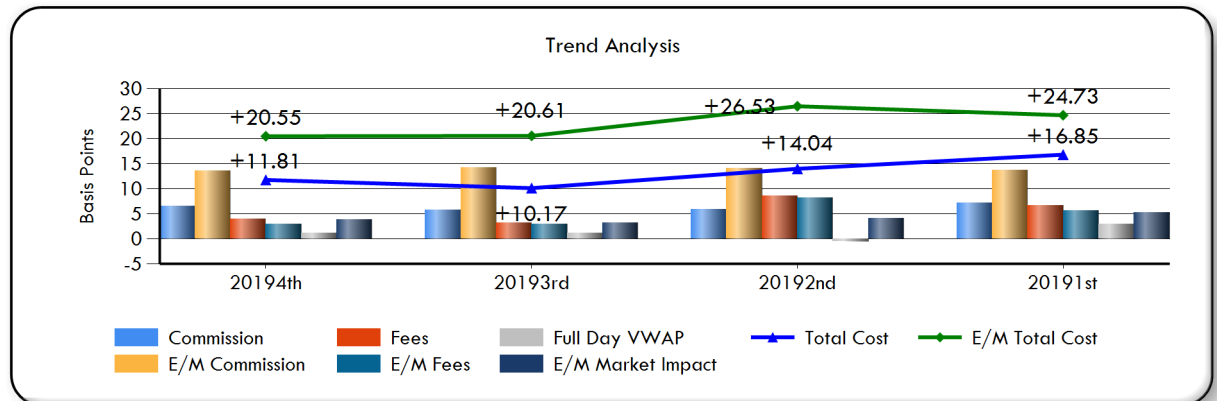
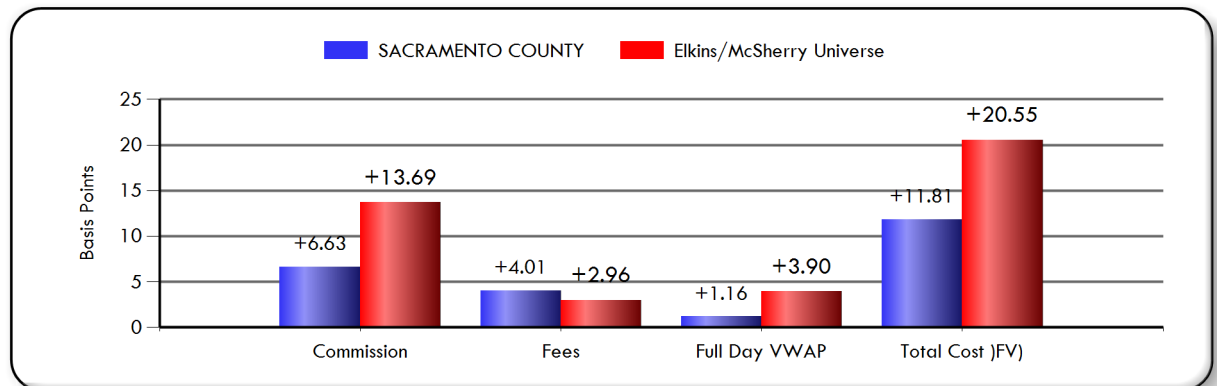
EXECUTIVE SUMMARY

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	+6.27	+13.81	+2.49	+0.36	+0.29	1.37	+5.05	+5.27	13.88	-0.05
Buy	+6.96	+13.58	+2.57	+7.46	+5.47	+3.55	+2.81	+17.97	3.89	0.00
Total	+6.63	+13.69	+2.53	+4.01	+2.96	+1.16	+3.90	+11.81	8.74	-0.03

TRADING COMPONENTS

	Buys	Sells
Trade Principal	77,839,329	73,442,917
Shares	8,621,174	4,190,713
Unique Names	101	59
Liquidity (% POV)	0.357	0.392
Avg. Order Size	16,453	8,381
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	524	500





(+) = Cost

EXECUTIVE SUMMARY

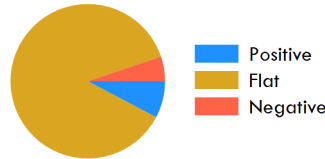
Market Metrics Summary

Momentum	Positive			Flat			Negative		
	Trades	Shares	Principal	Trades	Shares	Principal	Trades	Shares	Principal
% Of Total									
Buys	5%	1%	5%	44%	42%	43%	3%	24%	4%
Sells	3%	2%	4%	44%	29%	42%	3%	1%	2%
Total	8%	3%	10%	87%	72%	84%	5%	25%	6%

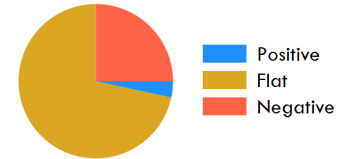
Relative Volatility	High			Normal			Low		
	Trades	Shares	Principal	Trades	Shares	Principal	Trades	Shares	Principal
% Of Total									
Buys	0%	0%	0%	15%	39%	18%	36%	29%	33%
Sells				13%	7%	13%	36%	25%	36%
Total	0%	0%	0%	28%	46%	31%	71%	54%	69%

Relative Volume	High			Normal			Low		
	Trades	Shares	Principal	Trades	Shares	Principal	Trades	Shares	Principal
% Of Total									
Buys	1%	1%	4%	1%	1%	3%	50%	66%	45%
Sells	0%	1%	0%	0%	1%	1%	48%	31%	48%
Total	1%	1%	4%	1%	1%	3%	98%	97%	93%

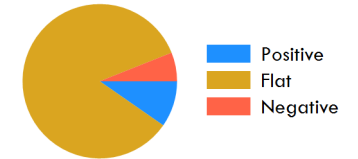
Momentum of Total Trades



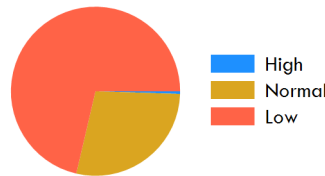
Momentum of Total Shares



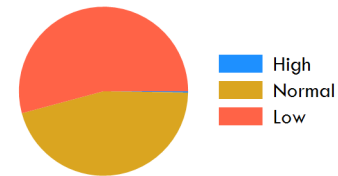
Momentum of Total Principal



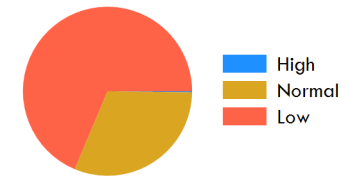
Relative Volatility of Total Trades



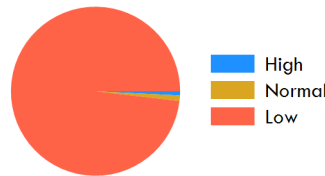
Relative Volatility of Total Shares



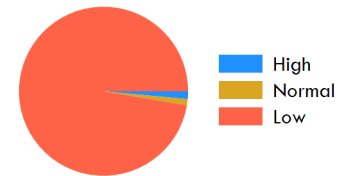
Relative Volatility of Total Principal



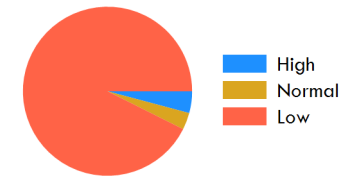
Relative Volume of Total Trades



Relative Volume of Total Shares



Relative Volume of Total Principal



NOTES

MOMENTUM: One-day open to close pricing trend of a security

Positive - Greater than +2%

Flat - Within a +2% and -2% range

Negative - Price decrease is more negative than -2%

RELATIVE VOLATILITY: The standard deviation of price relative to the one-day average price

High - Greater than 20%

Normal - Between 5% and 20%

Low - Less than 5%

RELATIVE VOLUME: Executed shares relative to the one-day total market volume

High - Greater than 10%

Normal - Between 5% and 10%

Low - Less than 5%



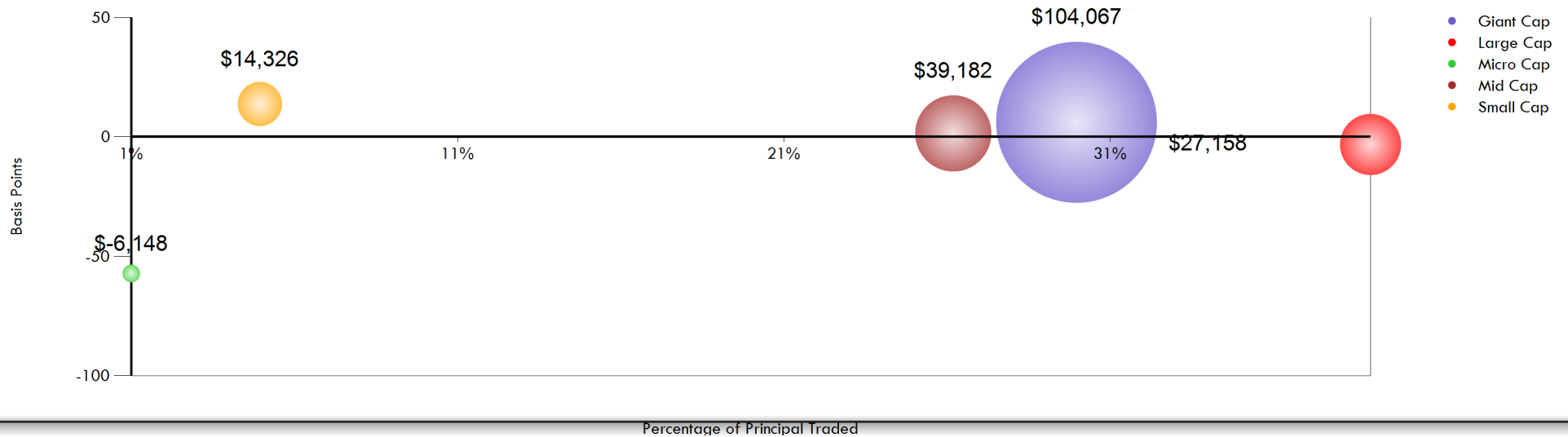
(+) = Cost

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	38.76 %	187,333	+6.87	+13.57	3.17	+5.02	+4.63	14.78	-0.11	\$5 Billion To \$25 Billion
Giant Cap	29.75 %	226,163	+6.18	+13.54	+6.10	+3.18	+23.13	1.35	0.06	Over \$25 Billion
Mid Cap	25.97 %	104,229	+6.87	+14.06	+1.46	+3.15	+9.97	8.51	-0.02	\$1 Billion To \$5 Billion
Small Cap	4.73 %	65,636	+6.24	+13.40	+13.79	+3.38	+20.03	+3.21	0.20	\$250 Million To \$1 Billion
Micro Cap	0.79 %	45,849	+5.92	+14.53	57.19	+3.72	51.27	69.52	-0.52	Under \$250 Million

Total Cost by Market Cap





(+) = 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	17	1,680,241	N/A	+7.19	+13.44	+9.63	+3.96	+22.72	+0.41	0.16	1M or Greater
Medium Orders	42	690,551	N/A	+6.56	+13.60	0.97	+4.40	+9.23	11.03	-0.03	Between 500k - 1M
Small Orders	965	97,114	N/A	+6.48	+13.79	0.76	+3.73	+9.27	10.83	-0.08	500K or Less

Total Cost By Order Size





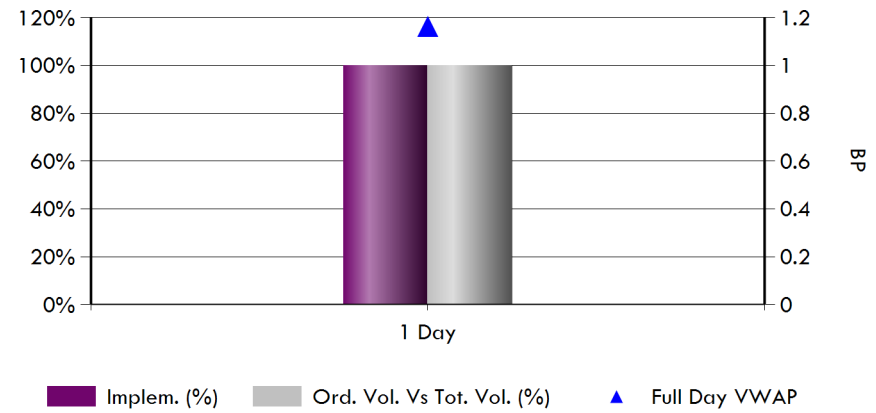
(+) = Cost

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%	+1.16	-0.03

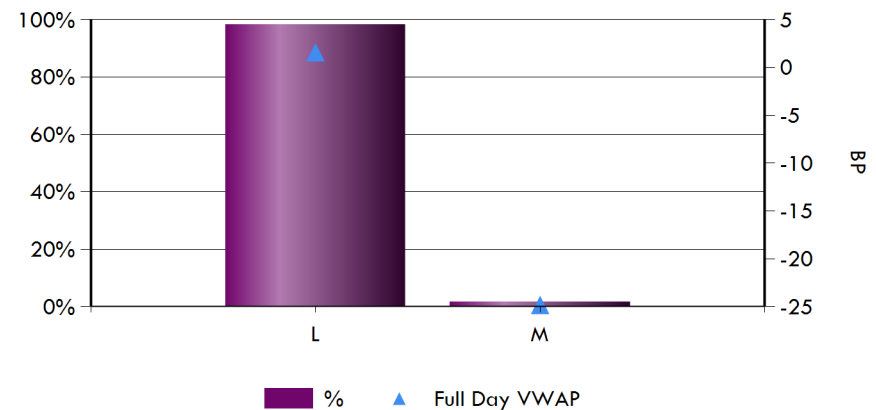
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (bp)	E - Score
0%~20% of daily vol.	L	98%	+1.61	-0.02
20%~50% of daily vol.	M	2%	24.82	-0.46

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										
SOUTH AFRICA - SELLS	<1	0.23%	+14.41	+17.43	+0.00	+0.03	+46.88	+2.53	+41.30	0.62
BELGIUM	<1	0.22%	+4.80	+13.09	+0.00	+0.00	+50.10	+2.72	+39.09	0.42
BRAZIL	1	0.67%	+11.55	+14.24	+3.16	+2.24	+44.17	+4.84	+37.56	-0.42
HONG KONG	2	1.40%	+6.89	+13.47	+10.77	+8.09	+42.16	+1.00	+37.26	0.71
ITALY - BUYS	3	1.94%	+8.81	+13.41	+10.00	+12.00	+28.93	+1.79	+20.54	0.28
ISRAEL	<1	0.52%	+5.03	+13.20	+0.00	+0.03	+27.27	+2.69	+16.38	0.76
AUSTRALIA	<1	0.42%	+5.48	+12.65	+0.00	+1.65	+24.28	+2.50	+12.96	0.35
FRANCE - SELLS	1	0.96%	+5.64	+14.39	+0.00	+0.00	+19.05	+2.21	+8.09	0.11
GERMANY	16	10.52%	+5.96	+13.24	+0.00	+0.02	+16.65	+2.71	+6.64	0.13
U.K. - BUYS	8	5.12%	+5.99	+13.48	+49.66	+29.08	8.56	+1.43	+3.10	-0.20

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										
FINLAND	3	2.01%	+6.12	+13.54	+0.00	+0.02	16.25	+4.45	28.14	-0.31
SPAIN	3	1.76%	+6.67	+13.54	+0.00	+0.01	18.41	+2.52	27.81	-0.03
U.K. - SELLS	26	16.91%	+5.92	+13.89	+0.05	+0.00	8.65	+9.19	25.77	-0.14
KOREA - BUYS	<1	0.20%	+7.85	+18.49	+0.00	+0.00	9.10	+3.73	23.47	-0.11
AUSTRIA	<1	0.00%	+5.00	+13.11	+0.00	+0.02	8.95	+4.62	21.70	-0.20
SINGAPORE	<1	0.13%	+5.00	+18.27	+4.00	+3.43	4.99	+1.42	19.11	-0.24
CANADA	2	1.63%	+1.88	+21.11	+0.00	+0.01	+3.24	+2.74	18.74	0.15
DENMARK	8	5.18%	+5.47	+12.91	+0.00	+0.01	7.04	+4.00	18.48	-0.26
ITALY - SELLS	1	0.90%	+6.49	+12.56	+0.00	+0.00	7.22	+5.15	18.44	-0.33
NORWAY	3	2.12%	+5.56	+13.04	+0.00	+0.02	5.83	+4.30	17.63	-0.10
U.S.	3	2.19%	+0.88	+14.31	+0.13	+0.07	1.64	+1.59	16.60	-0.07
FRANCE - BUYS	4	2.91%	+6.06	+13.29	+30.00	+30.00	5.98	+2.15	15.36	0.08
SWEDEN	7	4.74%	+7.90	+13.47	+0.00	+0.01	6.48	+0.93	12.99	-0.13
NEW ZEALAND	<1	0.62%	+8.15	+19.17	+0.00	+0.01	+4.10	+4.24	11.17	0.14
SWITZERLAND	12	8.01%	+8.95	+13.59	+0.00	+0.01	3.26	+2.46	10.37	-0.10
IRELAND - BUYS	<1	0.10%	+3.00	+14.00	+100.03	+100.00	+5.53	+1.93	7.37	0.06
JAPAN	29	19.40%	+7.34	+13.14	+0.00	+0.01	+3.78	+3.71	5.74	0.03
NETHERLANDS	12	8.21%	+7.08	+13.71	+0.00	+0.07	+4.31	+2.59	4.98	0.04
INDIA	1	0.98%	+10.65	+17.86	+11.74	+10.92	+5.89	+1.78	2.29	-0.04



(+) = Cost

TRADE CYCLE DETAIL

4 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
WILLIAM BLAIR & COMP	16	223	10.43%	70,787	0.05	+7.26	+14.57	+8.41	+2.81	0.64	9.17	11.86	+4.82
LSV ASSET MANAGEMENT	19	271	12.71%	70,949	0.19	+3.96	+13.94	+9.31	+3.99	3.70	2.04	16.69	7.85
LAZARD ASSET MANAGEM	89	443	58.71%	200,507	-0.04	+7.05	+13.56	+1.24	+3.65	7.52	19.80	10.97	12.73
WALTER SCOTT INTL EA	27	87	18.14%	315,458	-0.16	+6.76	+13.43	8.97	+5.26	20.90	-	-	-

NOTES

- Manager above made up 100.00 % of principal traded.



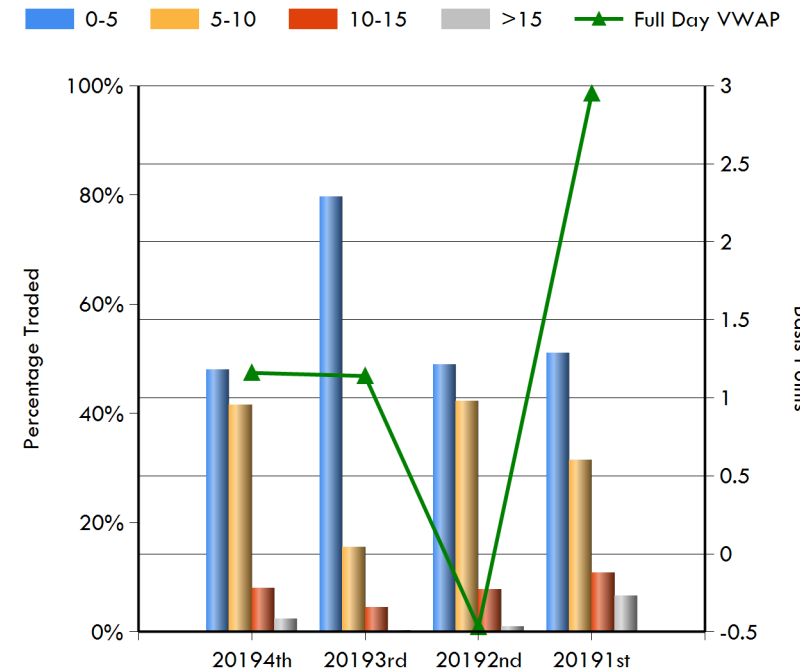
(+) = Cost

COMMISSION REVIEW

COMMISSION REVIEW - Top 20 Brokers (Commission \$)

Broker	Total Commission	Commission (bp)	Bundled Universe (bp)	All Trading Universe (bp)	Commission Trends		
					20193rd (bp)	20192nd (bp)	20191st (bp)
MERRILL LY	16,092	+7.04	+13.37	+2.61	+5.06	+6.81	+6.43
SOCIETE GE	16,009	+5.13	+13.50	+2.36	+4.78	+4.98	+5.08
MORGAN STA	8,896	+8.80	+13.81	+2.64	+6.40	+7.77	+10.73
UBS	7,996	+6.99	+13.70	+2.57	+7.60	+6.73	+5.10
CREDIT SUI	6,870	+8.19	+13.91	+2.58	+6.47	+6.17	+8.13
ITG	5,332	+4.99	+13.63	+2.42	+4.69	+5.04	+5.06
BANK J. VO	4,674	+8.00	+13.59	+2.51	-	+7.00	+7.00
BARCLAYS	4,334	+10.67	+13.66	+2.43	+8.42	+3.58	+7.01
JP MORGAN	3,887	+7.30	+13.67	+2.49	+7.70	+3.09	+11.77
CITIGROUP	2,617	+6.01	+13.67	+2.58	+4.34	+4.52	+5.04
JOH BERENB	2,472	+6.29	+13.25	+2.47	+7.00	+7.00	+7.00
GOLDMAN SA	2,251	+9.67	+13.58	+2.31	+5.09	+8.64	+11.49
INSTINET	2,220	+4.72	+13.37	+2.72	+3.98	+3.77	+3.48
SMBC NIKKO	2,084	+10.00	+13.14	+2.69	-	-	-
MIZUHO	1,546	+9.10	+13.14	+2.69	+5.03	+4.99	+7.45
ROYAL BANK	1,293	+12.00	+13.58	+2.34	-	-	-
DAIWA SECU	1,260	+6.79	+13.14	+2.69	+5.00	-	+7.06
CREDIT AGR	1,098	+7.56	+14.76	+2.86	+6.63	+15.00	+11.30
D CARNEGIE	968	+6.16	+13.47	+2.70	+7.00	+7.00	+7.00
EXANE	867	+3.96	+13.52	+2.48	+4.69	+3.00	+7.00

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)	20193rd (bp)	20192nd (bp)	20191st (bp)
LAZARD ASSET MANAGEM	89	443	58.71%	200,507	-0.04	+7.05	+13.56	+1.24	+3.65	7.52	19.80	10.97	12.73
WALTER SCOTT INTL EA	27	87	18.14%	315,458	-0.16	+6.76	+13.43	8.97	+5.26	20.89	-	-	-
LSV ASSET MANAGEMENT	19	271	12.71%	70,949	0.19	+3.96	+13.94	+9.31	+3.99	3.69	2.04	16.69	7.85
WILLIAM BLAIR & COMP	16	223	10.43%	70,787	0.05	+7.26	+14.57	+8.41	+2.81	0.64	9.17	11.86	+4.82

NOTES

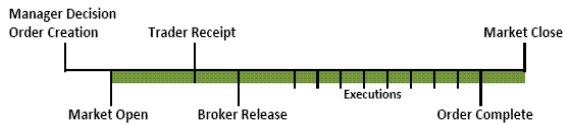
- Manager above made up 100.00 % of principal traded.



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
SOCIETE GENERALE	31	131	20.62%	238,069	-0.16	16,009	+5.13	+13.50	6.50	+4.99	17.26	17.93	20.98	30.94
MERRILL LYNCH	23	139	15.11%	164,443	0.13	16,092	+7.04	+13.37	+10.45	+2.78	+1.85	+2.30	4.72	2.71
UBS	11	112	7.57%	102,201	-0.14	7,996	+6.99	+13.70	3.76	+2.85	12.26	10.93	12.04	8.26
ITG	11	70	7.07%	152,700	-0.06	5,332	+4.99	+13.63	7.62	+5.85	21.05	17.58	8.91	21.98
MORGAN STANLEY	10	46	6.68%	219,743	0.01	8,896	+8.80	+13.81	+9.72	+2.84	+1.88	30.41	10.02	+6.62
CREDIT SUISSE	8	84	5.55%	99,868	-0.07	6,870	+8.19	+13.91	0.74	+4.14	10.69	0.01	14.25	5.40
BANK J. VONTOBEL	6	7	3.86%	834,726	0.12	4,674	+8.00	+13.59	1.21	+2.46	9.27	-	15.54	35.29
JP MORGAN CHASE	5	15	3.52%	354,750	0.27	3,887	+7.30	+13.67	+38.69	+5.19	+26.76	46.68	19.56	20.82
INSTINET	5	81	3.11%	58,073	0.54	2,220	+4.72	+13.37	+27.36	+3.68	+15.02	13.53	12.45	23.01
CITIGROUP	4	30	2.88%	145,081	0.04	2,617	+6.01	+13.67	+3.84	+2.67	6.35	+8.79	+1.50	10.72

NOTES

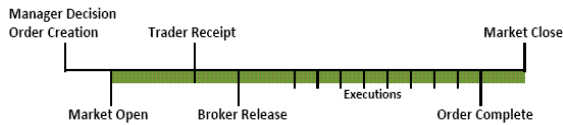
- Brokers above made up 75.95 % of principal traded.



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
BARCLAYS	4	44	2.68%	92,296	-0.08	4,334	+10.67	+13.66	4.80	+3.85	6.96	9.16	+7.46	0.51
JOH BERENBERG GOSSLE	4	11	2.60%	357,078	-0.11	2,472	+6.29	+13.25	2.82	+2.70	12.50	15.81	18.41	+15.50
HSBC BANK	3	29	1.84%	96,139	0.06	836	+3.00	+13.84	+1.57	+8.31	15.17	36.27	25.76	14.89
GOLDMAN SACHS	2	11	1.54%	211,676	-0.40	2,251	+9.67	+13.58	36.12	+5.14	46.74	+8.61	24.61	+25.51
EXANE	2	8	1.45%	273,585	-0.48	867	+3.96	+13.52	32.69	+2.16	44.41	4.04	14.08	4.03
SMBC NIKKO CAP MKT	2	16	1.38%	130,236	0.12	2,084	+10.00	+13.14	+17.54	+3.71	+10.68	-	-	-
DAIWA SECURITIES	2	18	1.23%	103,009	0.11	1,260	+6.79	+13.14	+1.98	+3.71	8.09	12.80	-	+0.35
LIQUIDNET	2	13	1.18%	136,761	-0.63	751	+4.22	+14.32	40.82	+2.36	53.25	8.84	+37.87	+41.28
MIZUHO	2	16	1.12%	106,220	-0.02	1,546	+9.10	+13.14	2.36	+3.71	10.12	10.29	8.69	14.79
D CARNEGIE AG	2	9	1.04%	174,433	-0.49	968	+6.16	+13.47	26.76	+0.93	35.01	+14.94	+92.18	12.24

NOTES

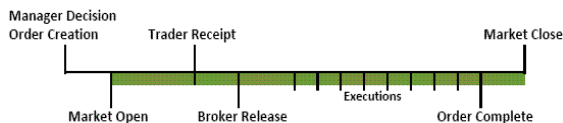
- Brokers above made up 16.05 % of principal traded.



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
CREDIT AGRICOLE	1	26	0.96%	55,885	0.05	1,098	+7.56	+14.76	+4.37	+2.75	4.99	+33.32	21.38	9.51
ROYAL BANK OF CANADA	1	12	0.71%	89,824	-0.26	1,293	+12.00	+13.58	+0.72	+3.32	+11.75	-	-	-
SC BERNSTEIN	1	2	0.69%	521,936	0.61	385	+3.68	+13.97	+23.29	+1.35	+12.83	14.59	15.00	43.17
SCOTIA CAPITAL	1	15	0.68%	68,684	0.16	111	+1.08	+21.11	+2.76	+2.74	20.02	24.10	24.28	15.87
REDBURN PARTNERS LLP	1	3	0.66%	333,775	-0.21	501	+5.00	+13.89	9.07	+9.19	27.11	-	-	16.23
JEFFERIES & CO	<1	8	0.59%	111,520	0.34	860	+9.63	+13.71	+7.77	+3.48	+0.25	7.70	15.15	17.38
MACQUARIE	<1	2	0.44%	333,454	0.49	800	+12.00	+13.89	+37.24	+9.19	+26.20	1.72	-	+35.72
BNP PARIBAS	<1	10	0.43%	65,115	-1.03	444	+6.82	+13.11	11.46	+3.37	21.11	14.18	95.73	2.41
KEPLER EQUITIES	<1	4	0.37%	139,838	0.42	271	+4.85	+14.10	+64.80	+3.55	+52.01	31.28	-	-
SVENSKA HANDELSBANKE	<1	6	0.28%	69,645	0.16	293	+7.00	+13.47	+29.77	+0.93	+22.36	28.93	-	+149.28

NOTES

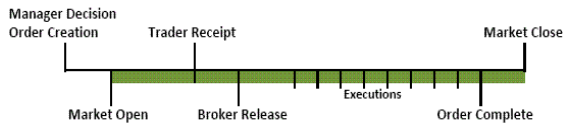
- Brokers above made up 5.81 % of principal traded.



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
RBC DOMINION SECS	<1	4	0.27%	100,778	0.04	94	+2.32	+21.11	+2.78	+2.74	18.76	10.95	17.59	+35.86
MOTILAL OSWAL SECURI	<1	4	0.26%	98,978	-0.22	475	+12.00	+17.86	8.33	+1.78	14.73	-	-	9.59
CANACCORD GENUITY	<1	2	0.25%	185,376	0.04	249	+6.71	+13.89	+0.71	+9.19	15.59	-	-	+19.61
BANCO SANTANDER	<1	3	0.23%	116,876	-0.37	405	+11.55	+14.24	26.92	+4.84	33.53	-	-	-
SMBC SECURITIES INC	<1	4	0.20%	76,096	-0.06	161	+5.29	+13.14	1.02	+3.71	12.59	20.42	13.02	6.30
MITSUBISHI UFJ SECS	<1	6	0.20%	49,354	0.14	178	+6.00	+13.14	+3.59	+3.71	7.27	4.56	21.29	-
PAVILION GLOBAL MKT	<1	5	0.18%	55,414	-0.63	83	+3.00	+21.11	+1.29	+2.74	19.57	-	-	18.88
CONVERGEX	<1	1	0.14%	210,012	0.00	105	+5.00	+13.89	+0.96	+9.19	17.06	-	-	29.34
PAREL	<1	3	0.13%	66,482	-0.02	87	+4.34	+13.47	+44.20	+2.55	+32.52	16.08	-	58.82
LIBERUM CAPITAL LTD	<1	2	0.11%	81,696	-0.13	114	+7.00	+13.48	1.30	+1.43	+11.87	-	18.39	-

NOTES

- Brokers above made up 1.96 % 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
BRDESCO	<1	2	0.07%	53,879	-0.67	124	+11.55	+14.24	6.16	+4.84	12.77	-	-	-
INDIA INFOLINE LTD	<1	1	0.07%	107,214	-0.73	129	+12.00	+17.86	19.32	+1.78	25.72	8.71	-	-
CANTOR FITZGERALD	<1	3	0.03%	17,453	0.32	21	+3.96	+14.03	+8.54	+6.74	8.04	+0.89	-	0.88
BANK OF AMERICA	<1	3	0.03%	16,867	-0.16	20	+4.00	+21.11	0.47	+2.74	20.33	15.57	-	-
AUTREPAT-STK	<1	1	0.01%	8,859	N/A	0	+0.00	+13.48	500.18	+1.43	544.17	-	404.88	-
ODDO SECS	<1	1	0.00%	6,901	-3.23	0	+0.00	+13.09	226.32	+2.72	242.13	+6.23	-	64.84
NOMURA	<1	1	0.00%	6,829	1.19	8	+12.00	+17.86	+54.59	+1.78	+48.00	12.88	-	-

NOTES

- Brokers above made up 0.23 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

LAZARD ASSET MANAGEMENT PERFORMANCE (FULL DAY VWAP)



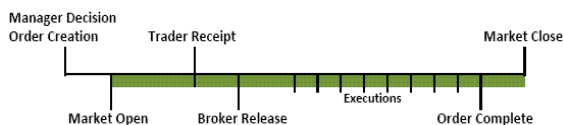
Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission + Fees + Full Day VWAP Vs. Universe (bp)	20193rd (bp)	20192nd (bp)	20191st (bp)
GRAND TOTAL	89	443	58.71%	200,507	-0.04	62,644	+7.05	+13.56	+1.24	+3.65	7.52	19.80	10.97	12.73
MERRILL LYNCH	17	78	11.41%	221,395	0.11	13,436	+7.78	+13.39	+11.66	+2.73	+4.00	17.46	4.52	17.42
SOCIETE GENERALE	16	60	10.25%	258,416	-0.06	8,140	+5.25	+13.51	3.62	+3.38	10.40	9.51	26.99	70.71
ITG	10	64	6.79%	160,496	-0.09	5,010	+4.88	+13.61	8.21	+6.01	21.93	11.08	9.19	38.99
MORGAN STANLEY	9	26	5.95%	346,102	-0.06	8,011	+8.90	+13.70	+3.95	+2.85	3.73	58.04	11.46	+38.64
UBS	7	62	4.95%	120,717	-0.13	5,278	+7.05	+13.32	2.79	+2.89	10.56	16.91	11.81	29.50
JP MORGAN CHASE	4	12	2.82%	355,365	0.20	3,078	+7.22	+13.65	+31.90	+5.55	+19.05	52.69	28.46	20.60
JOH BERENBERG GOSSLE	4	7	2.42%	523,881	-0.07	2,290	+6.24	+13.24	1.10	+2.71	10.83	-	-	-
BARCLAYS	3	28	2.29%	123,638	-0.03	4,154	+12.00	+13.69	3.43	+4.22	7.39	0.35	+10.52	+39.91
CREDIT SUISSE	3	28	2.16%	116,689	-0.34	3,554	+10.88	+13.56	8.50	+4.71	15.87	+1.33	3.38	+6.10
CITIGROUP	3	10	1.85%	279,858	0.12	1,986	+7.10	+13.88	+4.92	+2.10	3.91	-	-	19.98



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
GRAND TOTAL	19	271	12.71%	70,949	0.19	7,611	+3.96	+13.94	+9.31	+3.99	3.69	2.04	16.69	7.85
MERRILL LYNCH	5	49	3.00%	92,612	0.20	1,815	+4.00	+13.26	+4.88	+3.02	7.42	+11.31	8.15	+23.41
CREDIT SUISSE	3	46	1.88%	61,957	0.05	1,459	+5.12	+13.19	+0.73	+3.53	11.17	+2.21	27.40	18.00
HSBC BANK	3	29	1.84%	96,139	0.06	836	+3.00	+13.84	+1.57	+8.31	15.17	36.34	25.76	14.89
INSTINET	3	41	1.76%	64,800	0.90	1,049	+3.95	+13.54	+44.45	+3.66	+31.19	13.65	11.27	39.15
CITIGROUP	2	18	0.99%	83,590	-0.10	606	+4.03	+13.12	+1.81	+3.70	10.68	+10.13	+5.80	9.52
SCOTIA CAPITAL	1	15	0.68%	68,684	0.16	111	+1.08	+21.11	+2.76	+2.74	20.02	36.80	37.44	15.87
SOCIETE GENERALE	<1	16	0.61%	57,721	-0.11	587	+6.36	+13.61	5.88	+4.52	17.61	36.50	4.66	2.11
MORGAN STANLEY	<1	15	0.46%	46,658	0.61	292	+4.17	+13.22	+65.00	+2.88	+53.05	10.84	-	24.00
BARCLAYS	<1	16	0.40%	37,448	-0.37	180	+3.00	+13.49	12.75	+1.67	4.50	33.61	18.37	33.01
JP MORGAN CHASE	<1	1	0.30%	449,615	1.16	135	+3.00	+13.24	+40.26	+2.71	+27.29	-	-	-



(+) = Cost

TRADE CYCLE DETAIL

WALTER SCOTT INTL EAFE INCOME 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)	2019 3rd (bp)	2019 2nd (bp)	2019 1st (bp)
GRAND TOTAL	27	87	18.14%	315,458	-0.16	18,550	+6.76	+13.43	8.97	+5.26	20.89	-	-	-
SOCIETE GENERALE	14	34	9.11%	405,399	-0.30	6,892	+5.00	+13.46	11.47	+6.93	26.85	-	-	-
BANK J. VONTOBEL	6	7	3.86%	834,726	0.12	4,674	+8.00	+13.59	1.21	+2.46	9.27	-	-	-
SMBC NIKKO CAP MKT	2	16	1.38%	130,236	0.12	2,084	+10.00	+13.14	+17.54	+3.71	+10.68	-	-	-
MIZUHO	1	5	0.91%	273,886	-0.05	1,369	+10.00	+13.14	4.24	+3.71	11.10	-	-	-
CREDIT SUISSE	1	3	0.86%	432,990	0.18	1,039	+8.00	+12.91	+11.42	+4.00	+2.50	-	-	-
GOLDMAN SACHS	<1	2	0.50%	376,571	-1.09	603	+8.00	+13.72	149.22	+8.26	163.19	-	-	-
LIQUIDNET	<1	5	0.45%	134,769	-0.25	337	+5.00	+13.59	5.70	+2.46	16.76	-	-	-
DAIWA SECURITIES	<1	7	0.41%	87,999	0.00	616	+10.00	+13.14	0.35	+3.71	7.21	-	-	-
INSTINET	<1	6	0.39%	97,798	-0.02	587	+10.00	+13.14	0.50	+3.71	7.36	-	-	-
UBS	<1	2	0.29%	218,128	-0.82	349	+8.00	+13.89	25.20	+9.19	40.22	-	-	-



(+) = 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)	20193rd (bp)	20192nd (bp)	20191st (bp)
GRAND TOTAL	16	223	10.43%	70,787	0.05	11,465	+7.26	+14.57	+8.41	+2.81	0.64	9.17	11.86	+4.82
UBS	3	45	2.15%	72,113	-0.05	2,228	+6.87	+14.58	2.99	+1.93	12.10	+1.42	+0.70	6.66
INSTINET	1	34	0.97%	42,952	0.13	584	+4.00	+13.14	+7.53	+3.71	5.33	13.12	14.21	5.61
CREDIT AGRICOLE	1	24	0.78%	49,102	0.10	906	+7.68	+15.14	+8.38	+2.52	0.86	1.33	21.38	28.15
MERRILL LYNCH	1	12	0.69%	87,565	0.18	841	+8.00	+13.57	+14.55	+2.61	+6.64	+17.86	-	-
SOCIETE GENERALE	<1	21	0.64%	46,425	0.16	390	+4.00	+13.71	+17.30	+3.51	+9.78	13.65	16.83	51.57
CREDIT SUISSE	<1	7	0.64%	138,946	0.17	818	+8.41	+18.55	+4.81	+4.19	9.54	23.46	46.10	+2.92
D CARNEGIE AG	<1	6	0.60%	152,373	-0.40	640	+7.00	+13.47	19.72	+0.93	27.13	+14.94	+92.18	12.24
JP MORGAN CHASE	<1	2	0.40%	303,627	-1.23	675	+11.11	+14.17	+84.70	+4.51	+80.01	8.33	+7.39	74.66
EXANE	<1	4	0.30%	114,106	-0.11	319	+7.00	+14.39	2.78	+2.21	12.38	6.78	-	4.03
SC BERNSTEIN	<1	1	0.28%	423,544	0.53	339	+8.00	+13.47	+33.12	+1.00	+29.33	5.07	28.86	63.81



(+) = Cost

TRADE DETAIL ANALYSIS

Largest Principal Volume Traded

							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Principal (\$)	% of Volume	E - Score	Full Day VWAP (bp)
WHITBREAD PLC COMMON STOCK GBP	21	164,100	8,858,415	8,858,415	1.36%	-0.36	23.95
NINTENDO CO LTD COMMON STOCK	5	15,600	-6,039,628	6,039,628	0.11%	0.03	+10.02
WOLTERS KLUWER COMMON STOCK EU	34	78,354	5,568,951	5,568,951	0.52%	0.12	+9.48
CHR HANSEN HOLDING A/S COMMON	13	71,800	-5,568,308	5,568,308	1.90%	-0.29	8.92
VAT GROUP AG COMMON STOCK CHF.	6	42,971	-5,541,909	5,541,909	6.11%	0.16	+0.97
SAP SE COMMON STOCK	10	36,713	-4,666,096	4,666,096	0.08%	0.53	+47.64
LLOYDS BANKING GROUP PLC COMMO	9	5,759,856	-4,570,296	4,570,296	0.49%	-0.18	10.23
VONOVIA SE COMMON STOCK	12	82,517	-4,292,267	4,292,267	0.31%	-0.22	4.35
COMPASS GROUP PLC COMMON STOCK	18	172,582	4,262,444	4,262,444	0.37%	0.00	9.08
ASSA ABLOY AB B COMMON STOCK S	18	174,548	4,066,952	4,066,952	0.52%	0.00	5.27

Names Most Traded - Total Orders (\$)

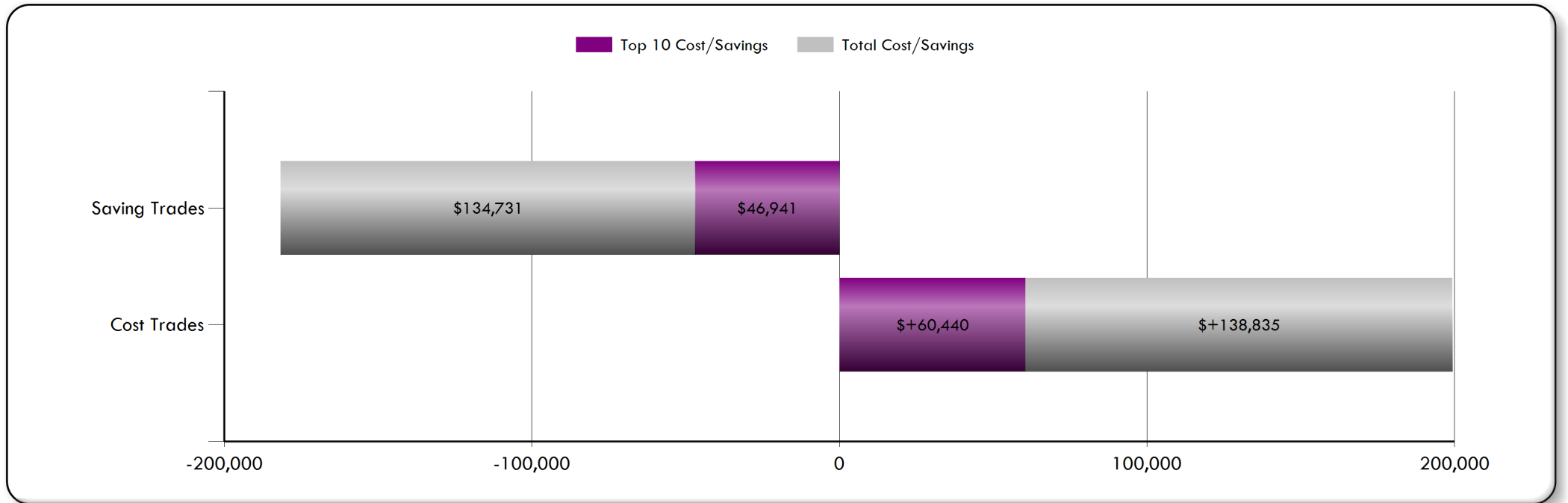
							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Commission (bp)	% of Volume	E - Score	Full Day VWAP (bp)
DAIWA HOUSE INDUSTRY CO LTD CO	43	124,900	3,961,331	+6.90	0.16%	-0.28	8.11
MAKITA CORP COMMON STOCK	34	55,700	-1,881,204	+8.83	0.26%	0.02	+14.32
TESCO PLC COMMON STOCK GBP.05	34	585,688	-1,896,847	+7.07	0.18%	-0.30	3.12
WOLTERS KLUWER COMMON STOCK EU	34	78,354	5,568,951	+7.07	0.52%	0.12	+9.48
SUMITOMO CORP COMMON STOCK	29	42,900	-667,227	+4.24	0.04%	0.28	+13.02
SILTRONIC AG COMMON STOCK	26	14,100	-1,266,256	+4.76	0.16%	0.20	+29.99
DOWA HOLDINGS CO LTD COMMON ST	24	28,200	1,009,366	+4.26	0.47%	0.12	0.34
NISSAN MOTOR CO LTD COMMON STO	21	198,000	1,251,933	+4.17	0.07%	0.41	+18.79
WHITBREAD PLC COMMON STOCK GBP	21	164,100	8,858,415	+5.36	1.36%	-0.36	23.95
RESTAURANT GROUP PLC COMMON ST	20	32,000	58,833	+4.90	0.22%	-0.03	+1.79



(+) = Cost

TRADE CONTRIBUTIONS

Cost/Savings Performance				
Category	Principal (\$)	# of Trades	Avg. Market Impact (bp)	Percentage of all Cost/Savings
10 High Cost Trades	11,691,003	10	+87.08	30.33%
Cost Trades	73,996,278	471	+30.35	100.00%
Saving Trades	77,285,967	553	29.99	100.00%
10 Low Cost Trades	8,505,774	10	93.18	25.84%





(+) = Cost

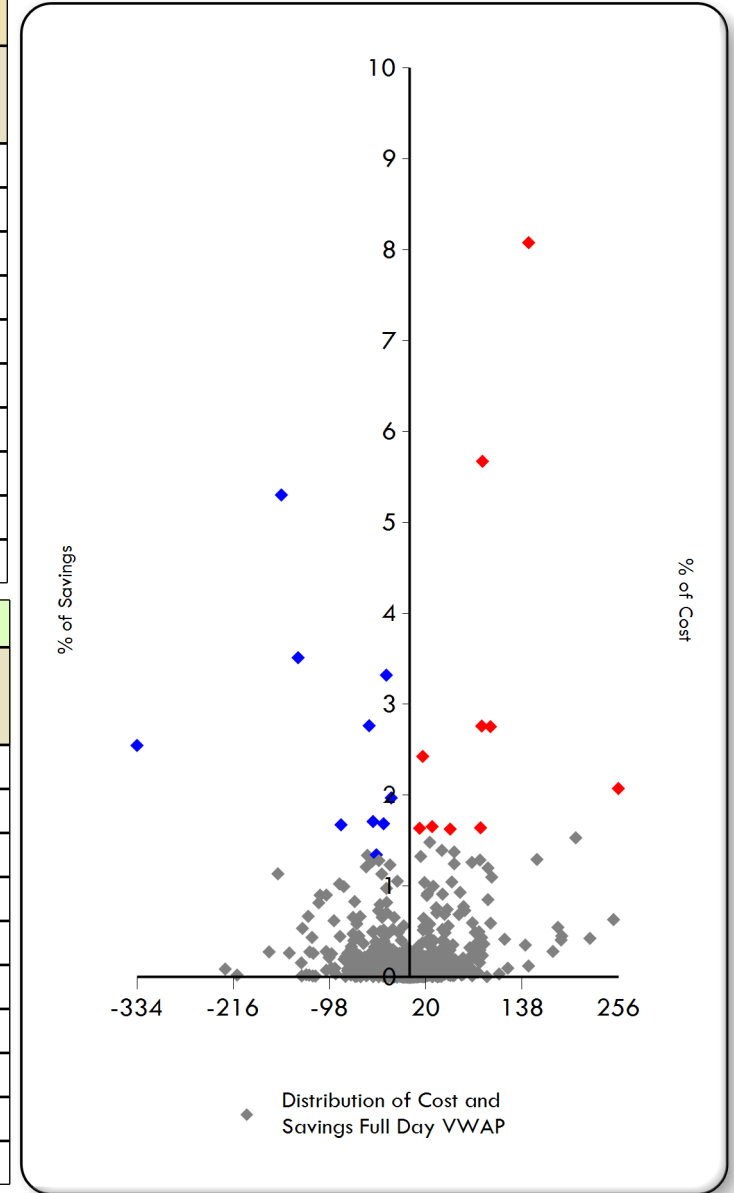
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Cost (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Buy	GER	SAP SE COM	20191011	1,119,439	8.08%	1.36	+145.90	LAZAR	MERRI
Buy	ITA	ENEL SPA C	20191220	1,278,549	5.67%	1.39	+89.21	LAZAR	JP MO
Buy	JAP	TOKYO SEIM	20191016	627,996	2.76%	1.39	+88.39	LSV A	INSTI
Sell	BRZ	LOCALIZA R	20191025	548,448	2.75%	N/A	+99.10	WILLI	JP MO
Buy	JAP	NINTENDO C	20191101	3,034,445	2.43%	0.20	+15.96	LAZAR	MORGA
Buy	HKG	AIA GROUP	20191223	165,561	2.07%	3.95	+255.97	LAZAR	MERRI
Buy	FRA	SANOFI COM	20191216	1,199,497	1.66%	0.84	+27.58	LAZAR	MERRI
Sell	FRA	UBISOFT EN	20191028	372,842	1.64%	0.54	+86.98	LAZAR	KEPLE
Buy	SWI	VAT GROUP	20191016	2,693,590	1.64%	0.58	+12.13	WALTE	BANK
Sell	UK	MELROSE IN	20191220	650,636	1.63%	0.01	+49.63	LAZAR	JP MO

10 Low Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Savings (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Sell	UK	WHITBREAD	20191022	621,619	5.30%	-0.91	157.41	WALTE	GOLDM
Buy	SPA	SIEMENS GA	20191212	459,807	3.51%	-1.68	136.91	LAZAR	LIQUI
Buy	SWI	VAT GROUP	20191015	2,101,284	3.32%	-0.50	28.63	WALTE	BANK
Buy	FRA	ENGIE COMM	20191002	1,005,698	2.76%	-0.68	49.69	LAZAR	EXANE
Buy	JAP	KOBE BUSSA	20191002	133,772	2.55%	-1.58	334.48	LAZAR	ITG
Buy	UK	LLOYDS BAN	20191129	1,581,265	1.97%	-0.33	22.60	LAZAR	SOCIE
Buy	UK	LLOYDS BAN	20191128	688,390	1.71%	-1.05	44.94	LAZAR	SOCIE
Sell	UK	COMPASS GR	20191217	960,053	1.69%	-0.01	32.03	LAZAR	ITG
Buy	UK	LLOYDS BAN	20191129	358,148	1.67%	-1.22	84.24	LAZAR	MERRI
Buy	ITA	ENEL SPA C	20191230	595,739	1.35%	-1.53	40.85	LAZAR	JP MO



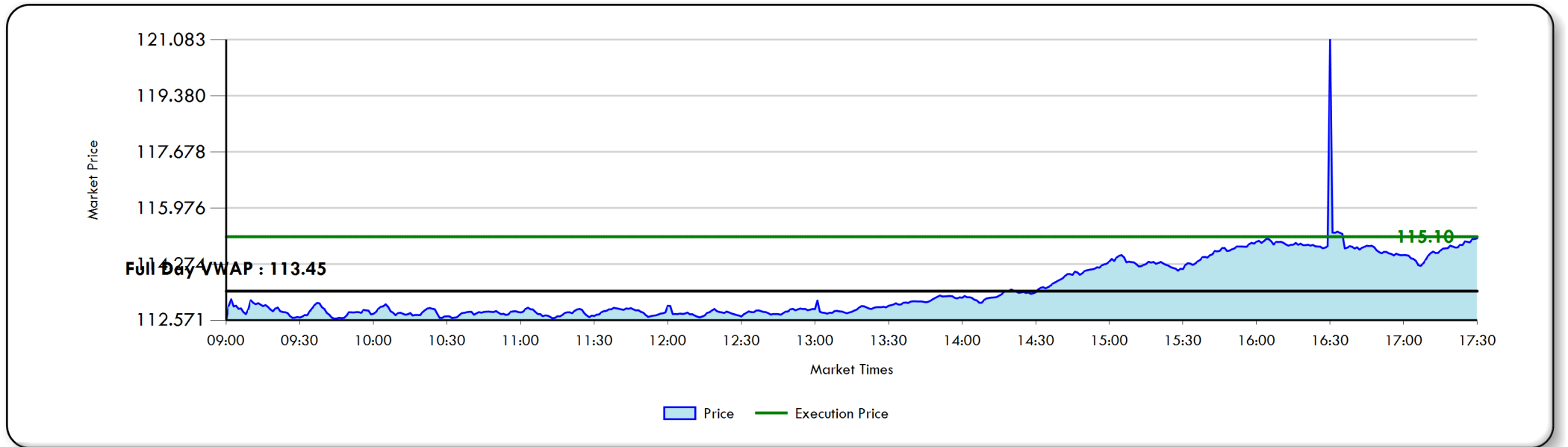


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

SAP SE COMMON STOCK - 20191011

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	MERRILL LYNCH	GER	EUR	4846288	10/11/2019 09:00:00	10/11/2019 17:30:00	1,119,439	115.10	113.45	+16,098	+145.89	1.36	0.08



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 0.08% of your market impact cost.

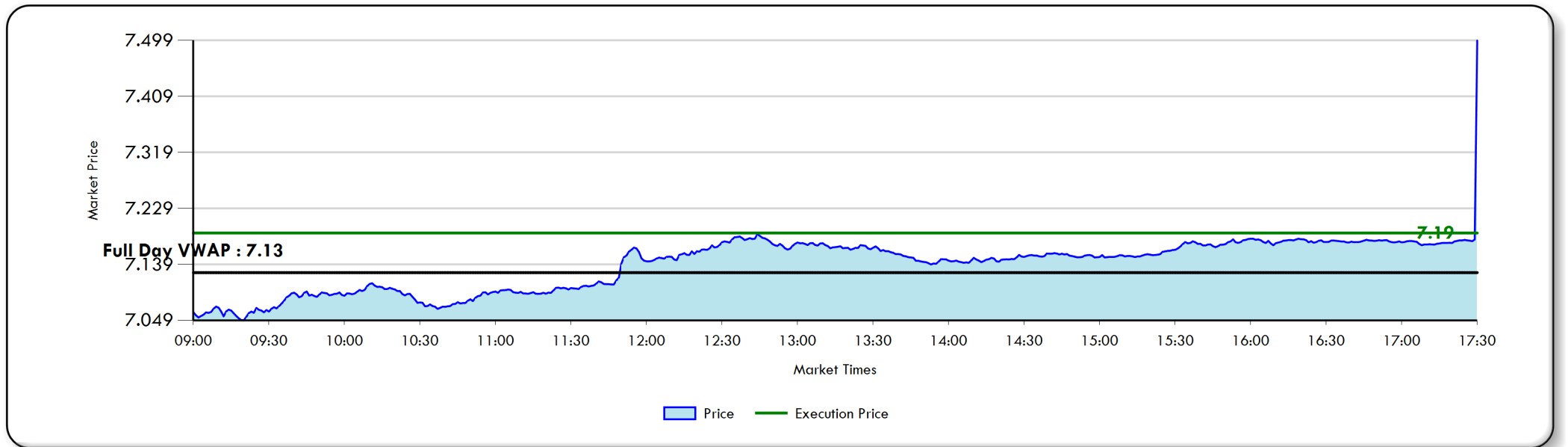


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

ENEL SPA COMMON STOCK EUR1. - 20191220

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	JP MORGAN CHASE	ITA	EUR	7144569	12/20/2019 09:00:00	12/20/2019 17:30:00	1,278,549	7.19	7.13	+11,305	+89.20	1.39	0.28



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 5.67% of your market impact cost.

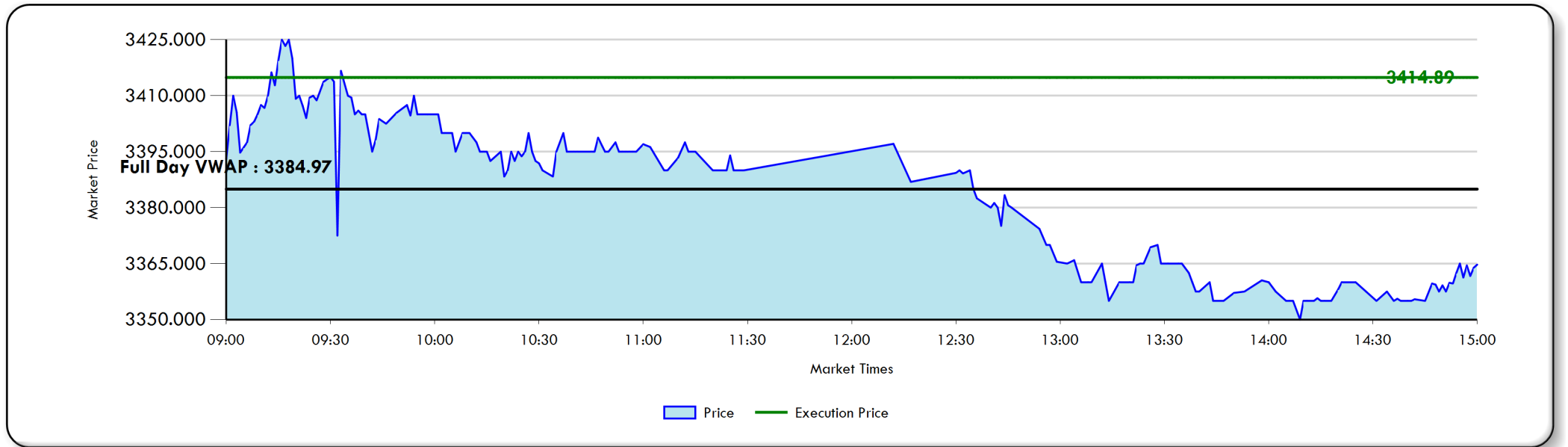


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

TOKYO SEIMITSU CO LTD COMMON S - 20191016

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	INSTINET	JAP	JPY	6894304	10/16/2019 09:00:00	10/16/2019 15:00:00	627,996	3414.89	3384.97	+5,502	+88.38	1.39	7.57



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.76% of your market impact cost.

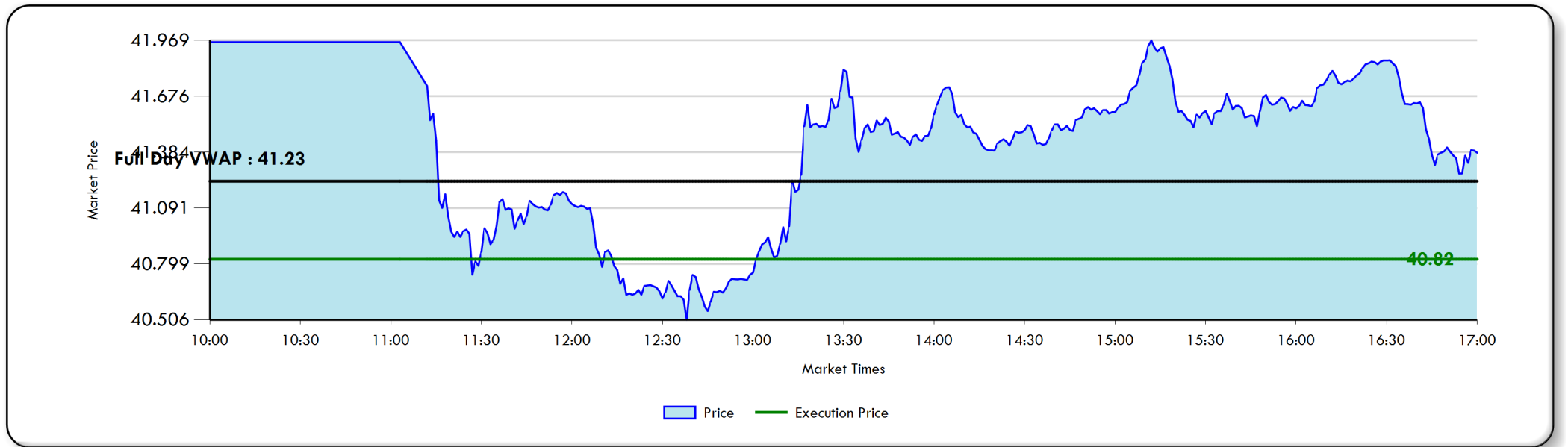


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

LOCALIZA RENT A CAR COMMON STO - 20191025

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	JP MORGAN CHASE	BRZ	BRL	B08K3SO	10/25/2019 10:00:00	10/25/2019 17:00:00	548,448	40.82	41.23	+5,490	+99.10	N/A	0.54



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.75% of your market impact cost.

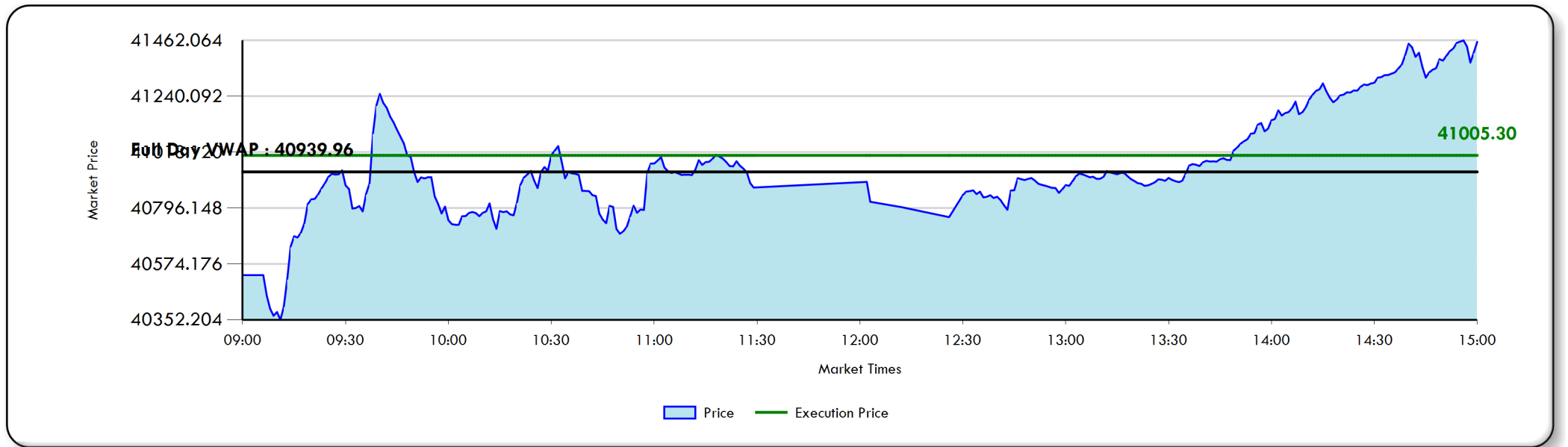


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

NINTENDO CO LTD COMMON STOCK - 20191101

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	MORGAN STANLEY	JAP	JPY	6639550	11/01/2019 09:00:00	11/01/2019 15:00:00	3,034,445	41005.30	40939.96	+4,836	+15.96	0.20	0.19



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.43% of your market impact cost.

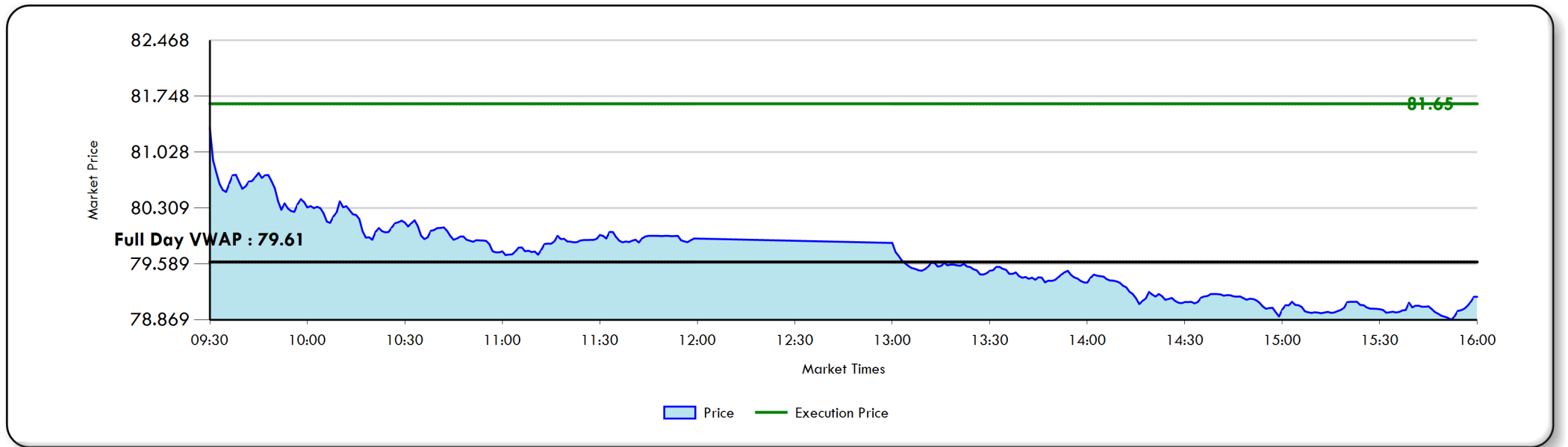


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

AIA GROUP LTD COMMON STOCK - 20191223

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	MERRILL LYNCH	HKG	HKD	B4TX8S1	12/23/2019 09:30:00	12/23/2019 16:00:00	165,561	81.65	79.61	+4,132	+255.97	3.95	0.09



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.07% of your market impact cost.

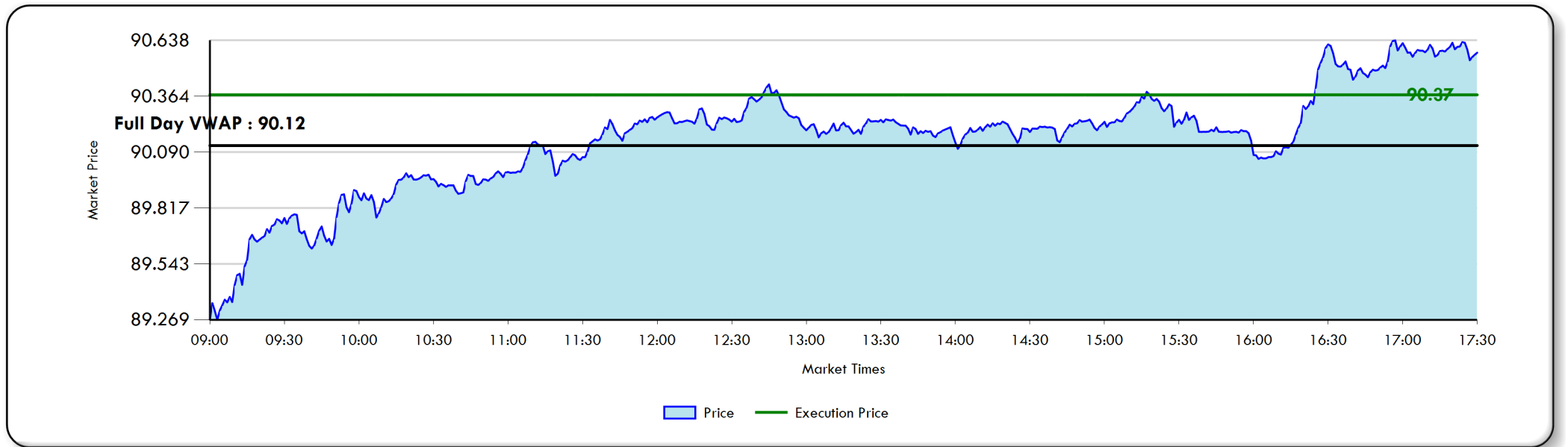


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

SANOFI COMMON STOCK EUR2.0 - 20191216

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	MERRILL LYNCH	FRA	EUR	5671735	12/16/2019 09:00:00	12/16/2019 17:30:00	1,199,497	90.37	90.12	+3,299	+27.57	0.84	0.78



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.66% of your market impact cost.

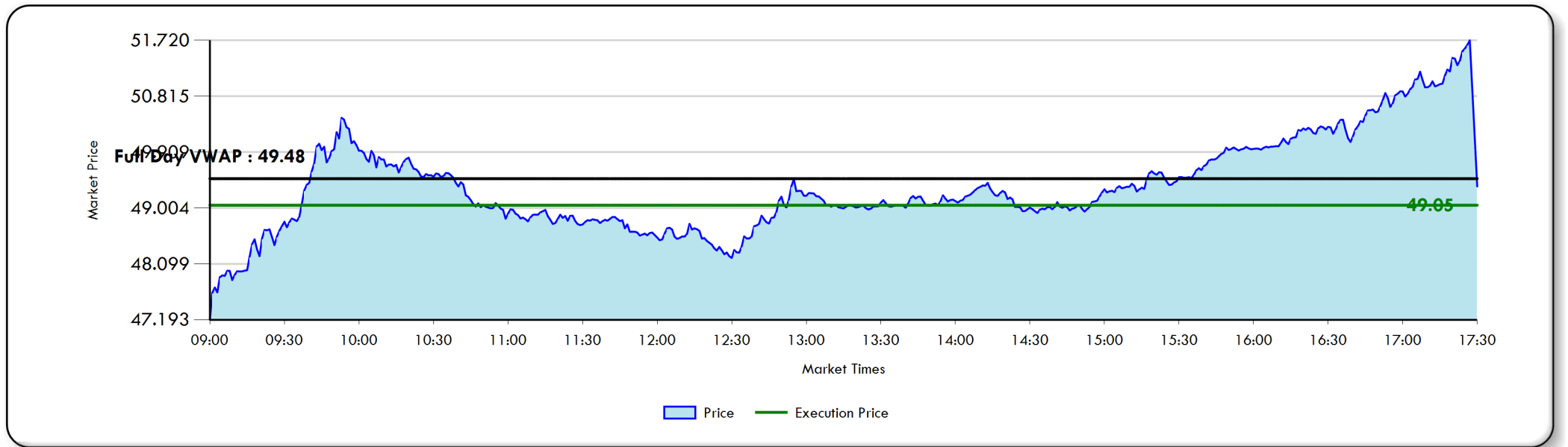


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

UBISOFT ENTERTAINMENT COMMON S - 20191028

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	KEPLER EQUITIES	FRA	EUR	B1L3CS6	10/28/2019 09:00:00	10/28/2019 17:30:00	372,842	49.05	49.48	+3,271	+86.97	0.54	0.44



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.64% of your market impact cost.

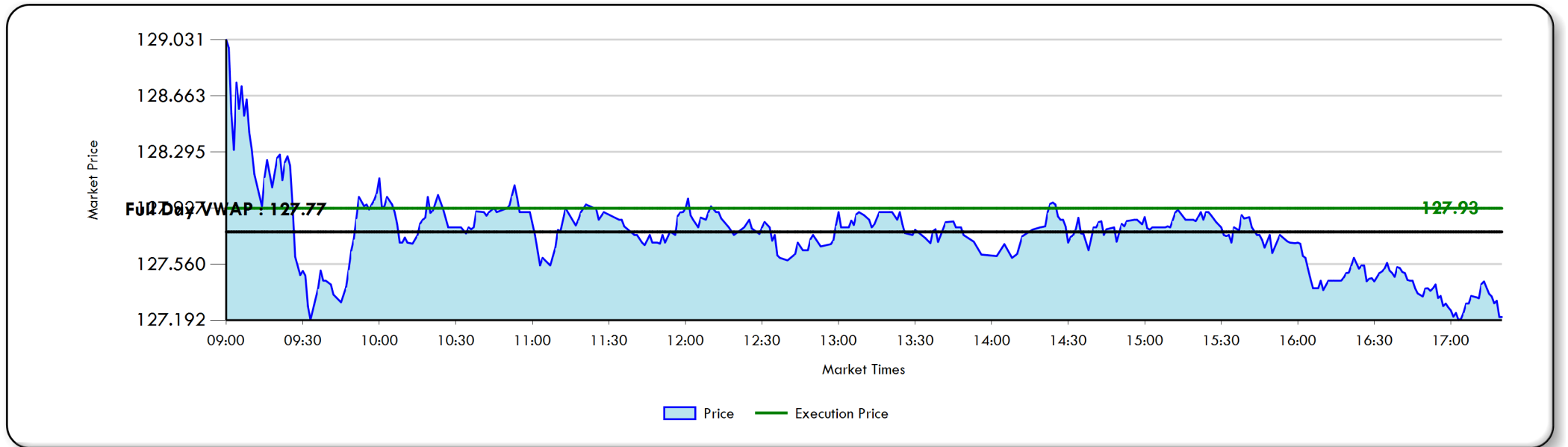


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

VAT GROUP AG COMMON STOCK CHF. - 20191016

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	WALTER SCOTT INTL EAFE INCOME	BANK J. VONTOBEL	SWI	CHF	BYZWMR 9	10/16/2019 09:00:00	10/16/2019 17:20:00	2,693,590	127.93	127.77	+3,262	+12.12	0.58	9.99



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.64% of your market impact cost.

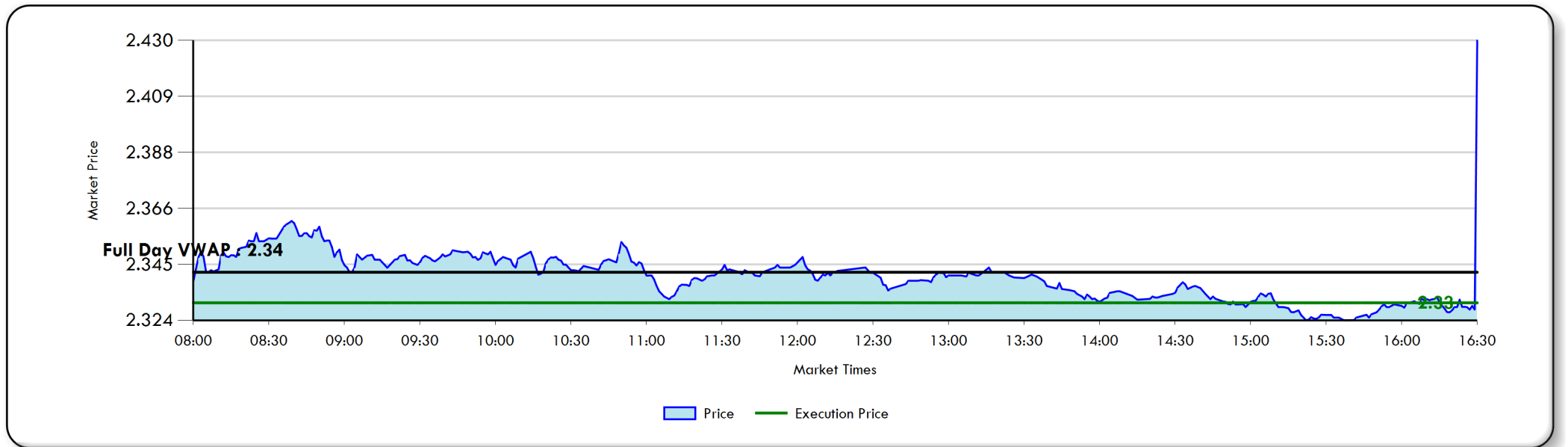


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

MELROSE INDUSTRIES PLC COMMON - 20191220

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	BZ1G432	12/20/2019 08:00:00	12/20/2019 16:30:00	650,636	2.33	2.34	+3,245	+49.62	0.01	2.77



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.63% of your market impact cost.

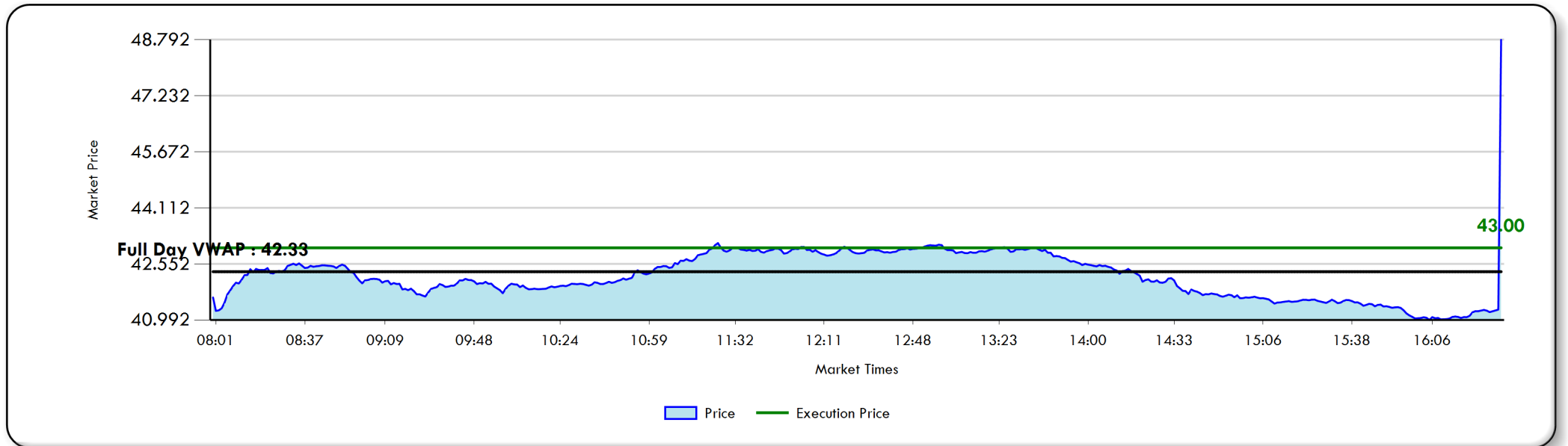


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

WHITBREAD PLC COMMON STOCK GBP - 20191022

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	WALTER SCOTT INTL EAFE INCOME	GOLDMAN SACHS	UK	GBP	B1KJJ40	10/22/2019 08:00:00	10/22/2019 16:30:00	621,619	43.00	42.33	9,633	157.41	-0.91	0.94



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 5.30% of your market impact cost.

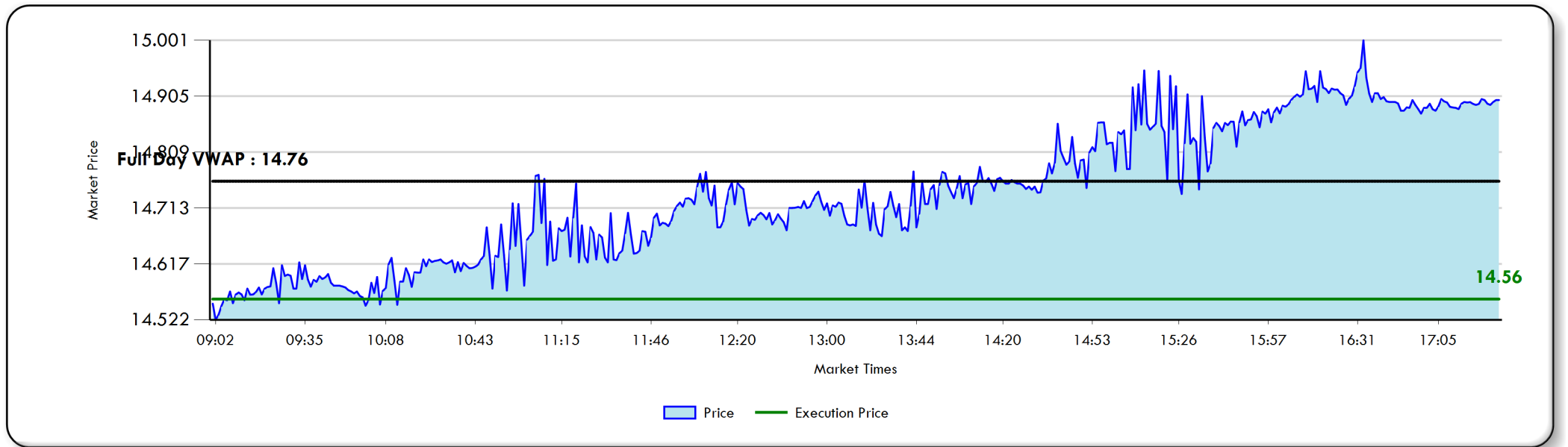


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

SIEMENS GAMESA RENEWABLE ENE C - 20191212

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	LIQUIDNET	SPA	EUR	B01CP21	12/12/2019 09:00:00	12/12/2019 17:30:00	459,807	14.56	14.76	6,383	136.91	-1.68	2.32



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.51% of your market impact cost.

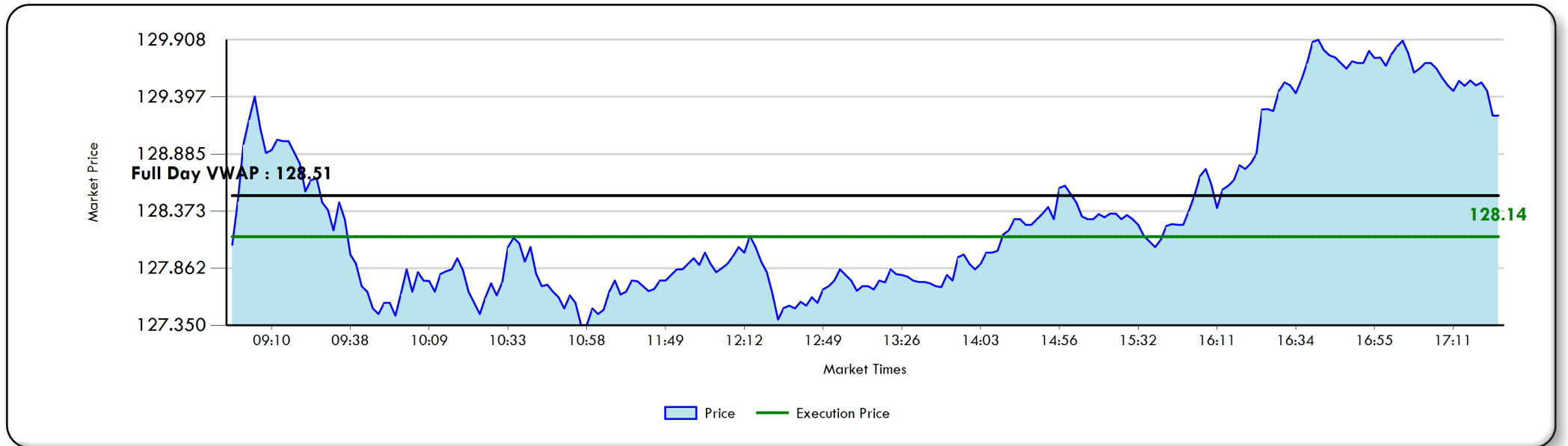


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

VAT GROUP AG COMMON STOCK CHF. - 20191015

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	WALTER SCOTT INTL EAFE INCOME	BANK J. VONTOBEL	SWI	CHF	BYZWMR 9	10/15/2019 09:00:00	10/15/2019 17:20:00	2,101,284	128.14	128.51	6,033	28.62	-0.50	22.70



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.32% of your market impact cost.

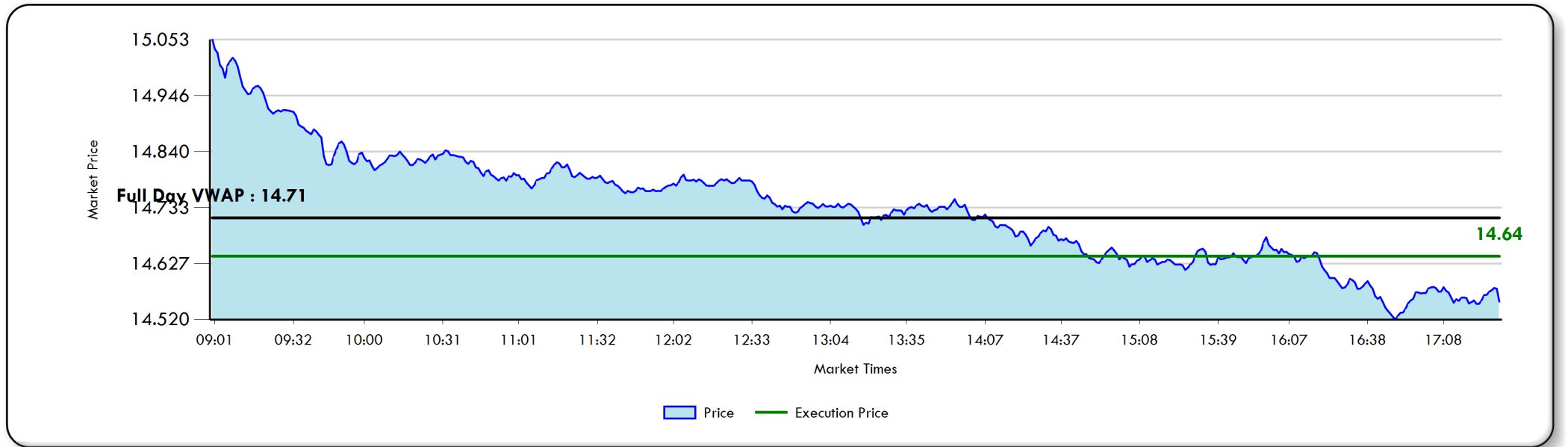


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

ENGIE COMMON STOCK EUR1.0 - 20191002

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	EXANE	FRA	EUR	BOC2CQ3	10/02/2019 09:00:00	10/02/2019 17:30:00	1,005,698	14.64	14.71	5,022	49.69	-0.68	1.27



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.76% of your market impact cost.

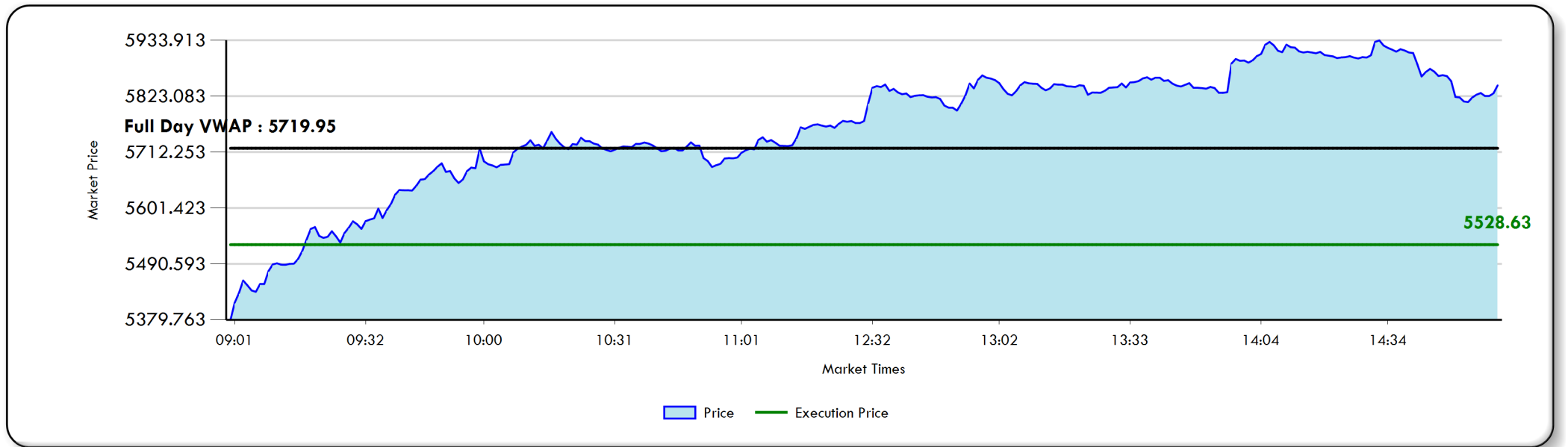


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

KOBE BUSSAN CO LTD COMMON STOC - 20191002

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	JAP	JPY	B14RJB7	10/02/2019 09:00:00	10/02/2019 15:00:00	133,772	5528.63	5719.95	4,629	334.47	-1.58	0.08



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.55% of your market impact cost.

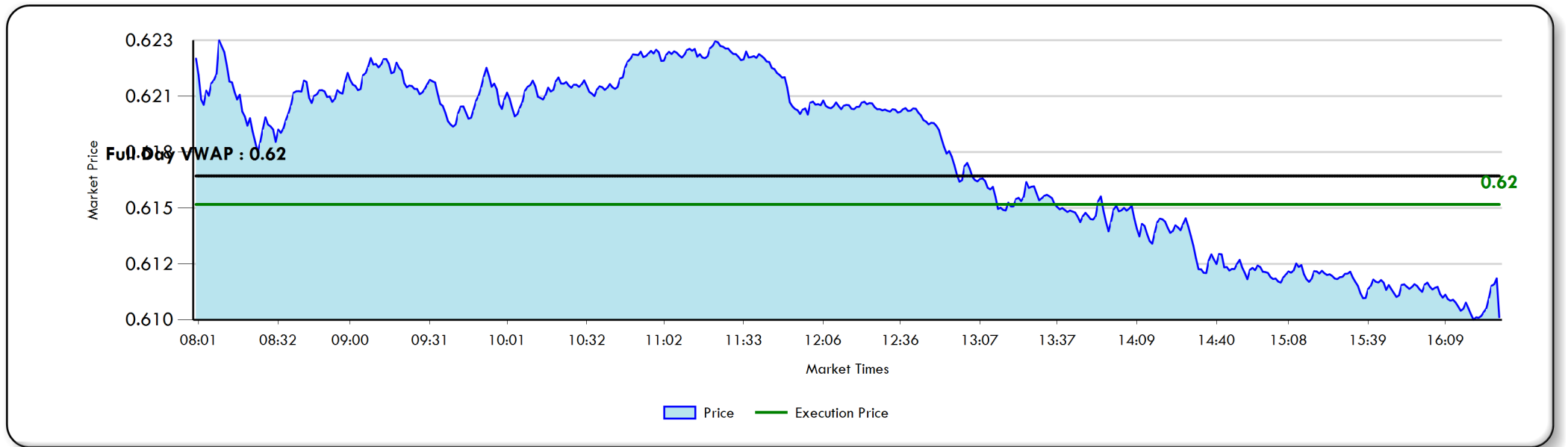


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

LLOYDS BANKING GROUP PLC COMMO - 20191129

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	SOCIETE GENERALE	UK	GBP	0870612	11/29/2019 08:00:00	11/29/2019 16:30:00	1,581,265	0.62	0.62	3,581	22.59	-0.33	1.56



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.97% of your market impact cost.

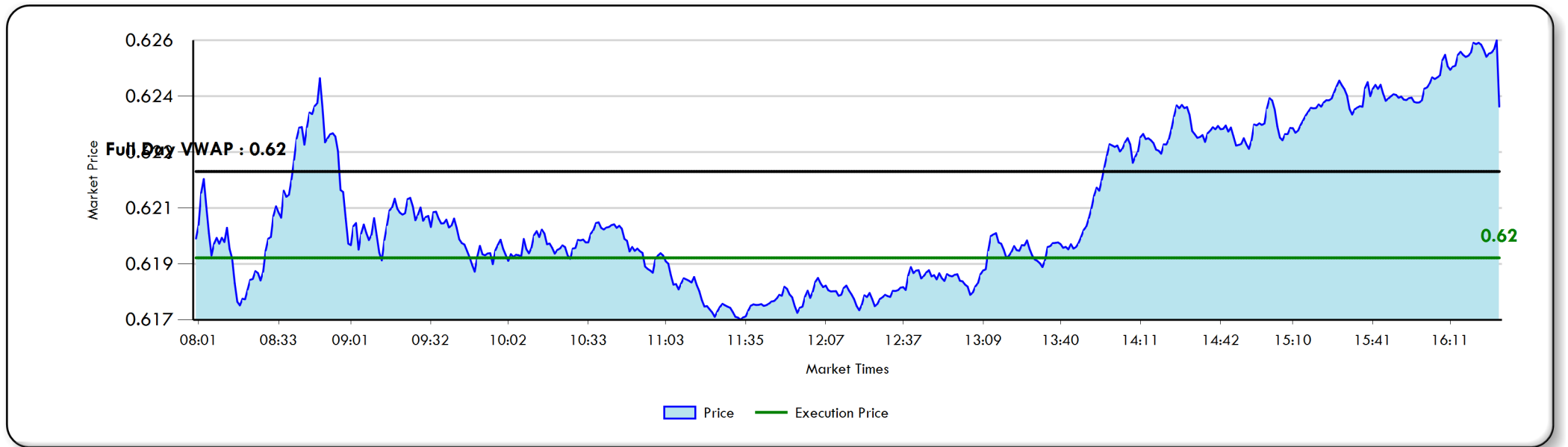


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

LLOYDS BANKING GROUP PLC COMMO - 20191128

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	SOCIETE GENERALE	UK	GBP	0870612	11/28/2019 08:00:00	11/28/2019 16:30:00	688,390	0.62	0.62	3,108	44.94	-1.05	0.63



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.71% of your market impact cost.

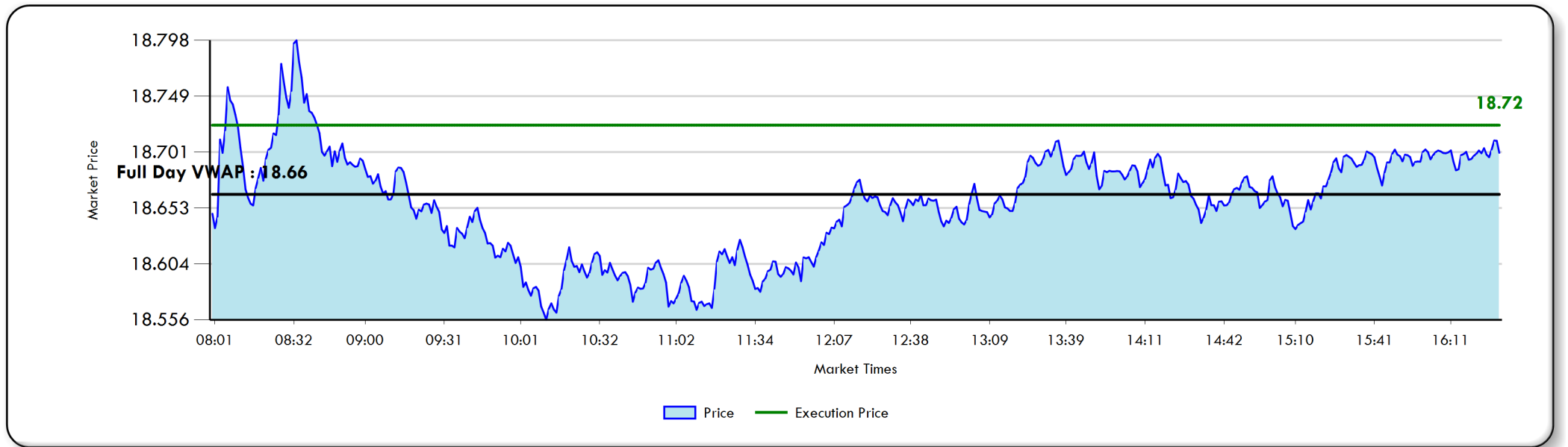


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

COMPASS GROUP PLC COMMON STOCK - 20191217

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	BD6K457	12/17/2019 08:00:00	12/17/2019 16:30:00	960,053	18.72	18.66	3,065	32.02	-0.01	1.29



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.69% of your market impact cost.

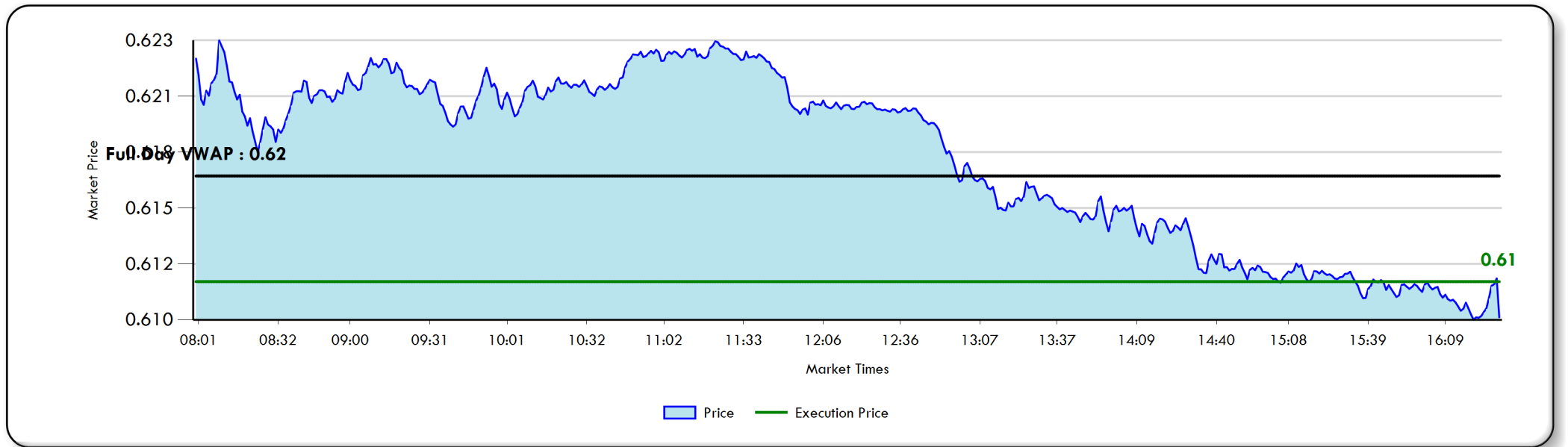


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

LLOYDS BANKING GROUP PLC COMMO - 20191129

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	MERRILL LYNCH	UK	GBP	0870612	11/29/2019 08:00:00	11/29/2019 16:30:00	358,148	0.61	0.62	3,043	84.23	-1.22	0.36



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.67% of your market impact cost.

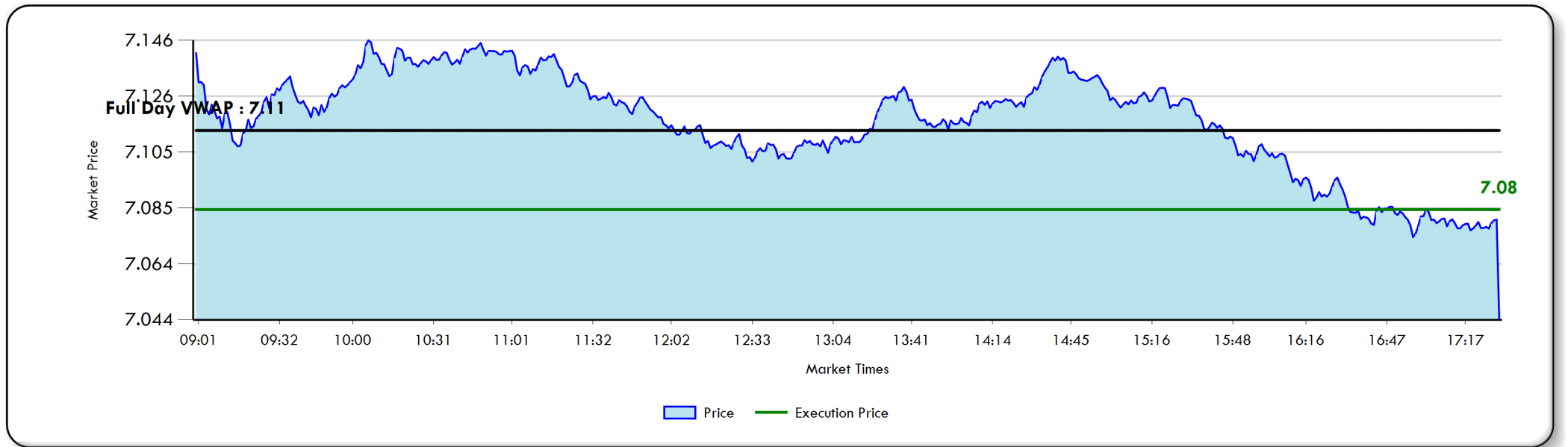


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

ENEL SPA COMMON STOCK EUR1. - 20191230

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	JP MORGAN CHASE	ITA	EUR	7144569	12/30/2019 09:00:00	12/30/2019 17:30:00	595,739	7.08	7.11	2,444	40.85	-1.53	0.72



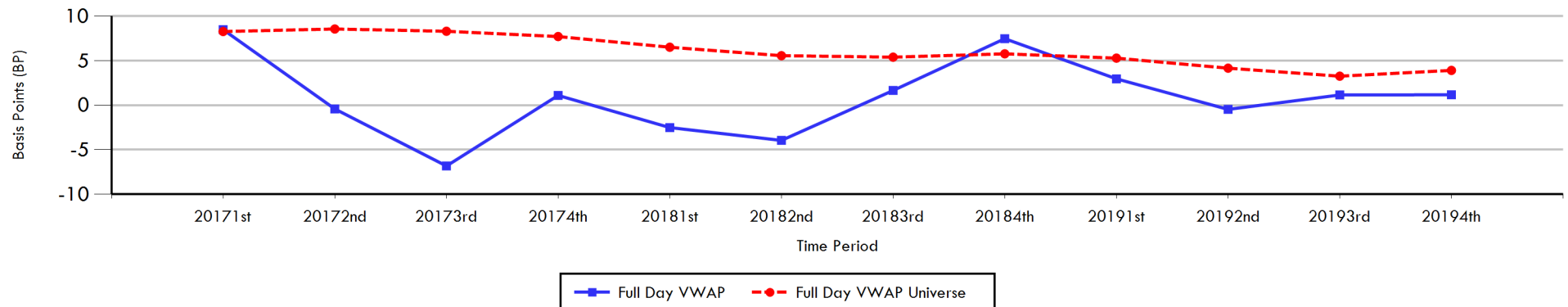
NOTES

- 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)
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
20191st	75,137,208	+7.16	+13.73	+6.74	+5.73	+2.95	+5.28	7.88
20192nd	70,813,093	+5.93	+14.19	+8.58	+8.20	0.48	+4.15	12.50
20193rd	79,515,054	+5.84	+14.32	+3.19	+3.04	+1.14	+3.25	10.44
20194th	151,282,246	+6.63	+13.69	+4.01	+2.96	+1.16	+3.90	8.74

TRADE HISTORY





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	6.01 BP	12.65 BP	1.65 BP	2.50 BP	16.80 BP
AUSTRIA	29.09 BP	13.11 BP	0.02 BP	4.62 BP	17.75 BP
BELGIUM	48.81 BP	13.09 BP	0.00 BP	2.72 BP	15.81 BP
BRAZIL	7.30 BP	14.24 BP	2.24 BP	4.84 BP	21.32 BP
CANADA	16.70 BP	21.11 BP	0.01 BP	2.74 BP	23.86 BP
CHILE	0.23 BP	16.78 BP	0.74 BP	2.72 BP	20.24 BP
CHINA	3.12 BP	16.84 BP	6.11 BP	1.32 BP	24.27 BP
COLOMBIA	1.72 BP	20.25 BP	1.06 BP	7.44 BP	28.75 BP
CZECH REPUBLIC	10.05 BP	20.98 BP	0.17 BP	2.25 BP	23.40 BP
DENMARK	65.79 BP	12.91 BP	0.01 BP	4.00 BP	16.92 BP
EGYPT	1.91 BP	18.54 BP	16.42 BP	5.40 BP	40.36 BP
FINLAND	19.78 BP	13.54 BP	0.02 BP	4.45 BP	18.01 BP
FRANCE - BUYS	49.71 BP	13.29 BP	30.00 BP	2.15 BP	45.44 BP
FRANCE - SELLS	53.96 BP	14.39 BP	0.00 BP	2.21 BP	16.60 BP
GERMANY	47.86 BP	13.24 BP	0.02 BP	2.71 BP	15.97 BP
GREECE	2.76 BP	18.95 BP	2.82 BP	9.44 BP	31.21 BP
HONG KONG	2.09 BP	13.47 BP	8.09 BP	1.00 BP	22.56 BP
HUNGARY	14.10 BP	15.67 BP	0.00 BP	1.90 BP	17.57 BP
INDONESIA	0.26 BP	16.67 BP	7.46 BP	2.43 BP	26.56 BP



Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
INDIA	6.91 BP	17.86 BP	10.92 BP	1.78 BP	30.56 BP
IRELAND - BUYS	3.34 BP	14.00 BP	100.00 BP	1.93 BP	115.93 BP
IRELAND - SELLS	13.24 BP	14.05 BP	0.00 BP	11.65 BP	25.70 BP
ISRAEL	3.49 BP	13.20 BP	0.03 BP	2.69 BP	15.92 BP
ITALY - BUYS	7.71 BP	13.41 BP	12.00 BP	1.79 BP	27.20 BP
ITALY - SELLS	9.75 BP	12.56 BP	0.00 BP	5.15 BP	17.71 BP
JAPAN	22.20 BP	13.14 BP	0.01 BP	3.71 BP	16.86 BP
KOREA - BUYS	47.79 BP	18.49 BP	0.00 BP	3.73 BP	22.22 BP
KOREA - SELLS	54.80 BP	18.97 BP	21.03 BP	2.10 BP	42.10 BP
LUXEMBOURG	92.85 BP	14.49 BP	0.05 BP	22.37 BP	36.91 BP
MALAYSIA	1.27 BP	17.66 BP	3.46 BP	1.09 BP	22.21 BP
MEXICO	2.18 BP	14.22 BP	0.00 BP	0.98 BP	15.20 BP
NORWAY	8.97 BP	13.04 BP	0.02 BP	4.30 BP	17.36 BP
NETHERLANDS	38.12 BP	13.71 BP	0.07 BP	2.59 BP	16.37 BP
NEW ZEALAND	4.47 BP	19.17 BP	0.01 BP	4.24 BP	23.42 BP
PERU	0.96 BP	22.52 BP	4.10 BP	3.92 BP	30.54 BP
PHILIPPINES - BUYS	1.01 BP	22.75 BP	4.45 BP	1.48 BP	28.68 BP
PHILIPPINES - SELLS	0.60 BP	22.60 BP	62.35 BP	0.81 BP	85.76 BP
POLAND	10.46 BP	14.72 BP	0.00 BP	3.05 BP	17.77 BP
PORTUGAL	5.93 BP	13.97 BP	0.01 BP	4.66 BP	18.64 BP



Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
RUSSIA	0.06 BP	14.60 BP	0.00 BP	11.52 BP	26.12 BP
SOUTH AFRICA - BUYS	11.85 BP	13.13 BP	17.92 BP	3.38 BP	34.43 BP
SOUTH AFRICA - SELLS	20.18 BP	17.43 BP	0.03 BP	2.53 BP	19.99 BP
SINGAPORE	2.45 BP	18.27 BP	3.43 BP	1.42 BP	23.12 BP
SPAIN	6.78 BP	13.54 BP	0.01 BP	2.52 BP	16.07 BP
SWEDEN	13.47 BP	13.47 BP	0.01 BP	0.93 BP	14.41 BP
SWITZERLAND	66.26 BP	13.59 BP	0.01 BP	2.46 BP	16.06 BP
TAIWAN - BUYS	2.80 BP	18.30 BP	0.04 BP	1.20 BP	19.54 BP
TAIWAN - SELLS	2.11 BP	18.05 BP	24.56 BP	2.28 BP	44.89 BP
THAILAND	1.62 BP	17.46 BP	0.56 BP	1.96 BP	19.98 BP
TURKEY	1.44 BP	13.81 BP	0.00 BP	2.93 BP	16.74 BP
U.K. - BUYS	7.60 BP	13.48 BP	29.08 BP	1.43 BP	43.99 BP
U.K. - SELLS	6.66 BP	13.89 BP	0.00 BP	9.19 BP	23.08 BP
U.S.	52.49 BP	14.31 BP	0.07 BP	1.59 BP	15.97 BP
VENEZUELA	10.50 BP	43.22 BP	9.10 BP	31.03 BP	83.35 BP
TOTAL: 55	16.85 BP	16.78 BP	6.91 BP	4.59 BP	28.28 BP

DISCLAIMER

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SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End December 31, 2019



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 01,2019 to December 31,2019. The analysis included trading of 174 trades in 90 different issues representing \$76,118,911 in principal across municipals, governments, corporates And agencies.

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.

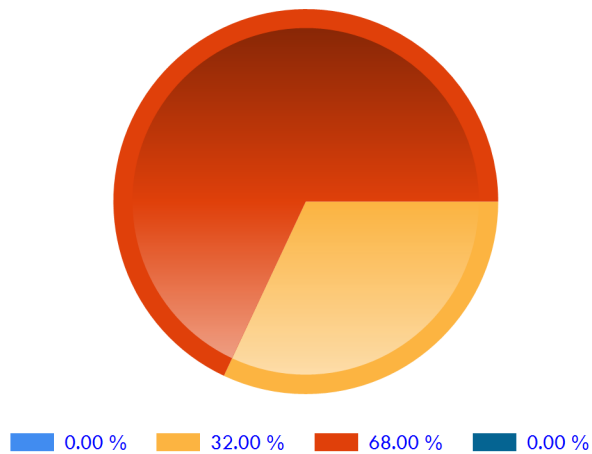
Results:

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 2019	Q2 2019	Q1 2019	Q4 2018
BUYS	37	82	49	18.72	5.06	+5.07	37.50	10.13	4.26	3.89	1.20	3.06
SELLS	39	92	50	+1.82	+0.47	+5.07	18.00	4.60	0.99	+2.14	+4.01	+7.57
GRAND TOTAL	76	174	90	16.90	2.22	+5.07	55.50	7.29	3.26	1.18	+1.53	+1.45

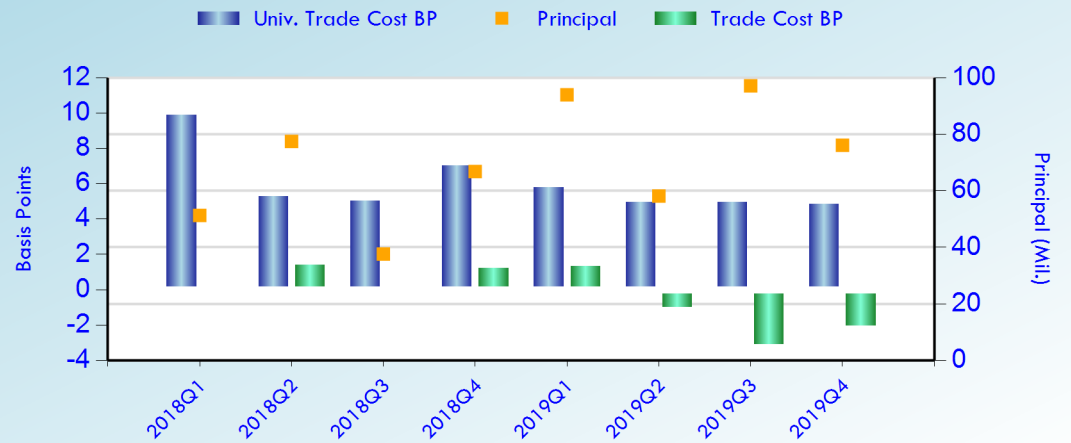
EXECUTIVE SUMMARY

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 2019	Q2 2019	Q1 2019	Q4 2018
Governments	52	75	28	34.93	6.76	+5.07	61.13 11.83	1.15	+1.06	+5.06	+2.78
Corporates	24	97	60	+19.84	+8.24	+5.07	+7.63 +3.17	6.57	1.00	1.10	1.30
Agencies	<1	1	1	+0.15	+8.32	+5.07	+0.06 +3.25	-	-	-	-
Municipals	<1	1	1	1.96	112.14	+5.07	2.05 117.21	1.66	-	+85.70	-

Bonds by Principal Traded



Historical Trade Cost Trend

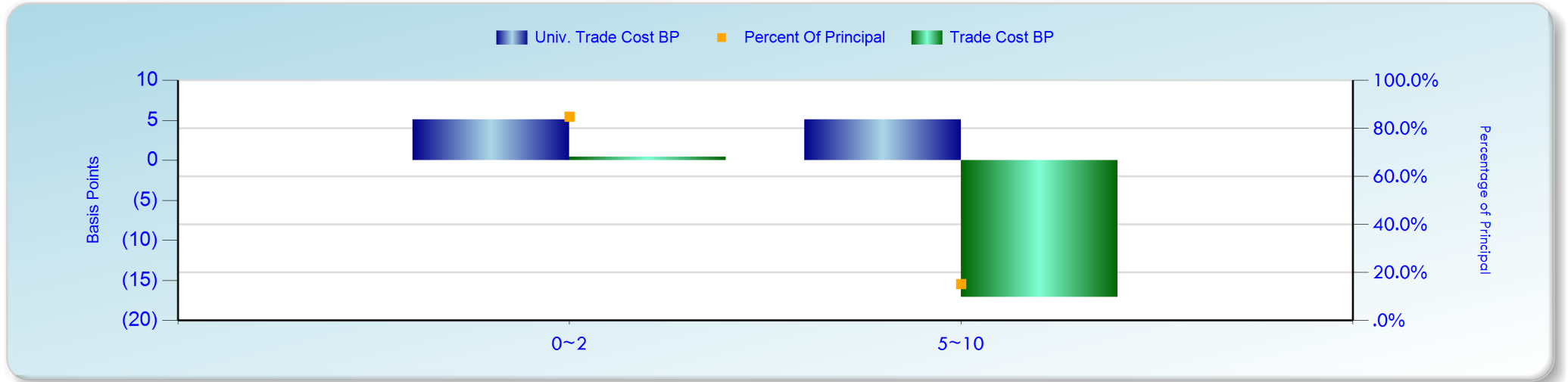




EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

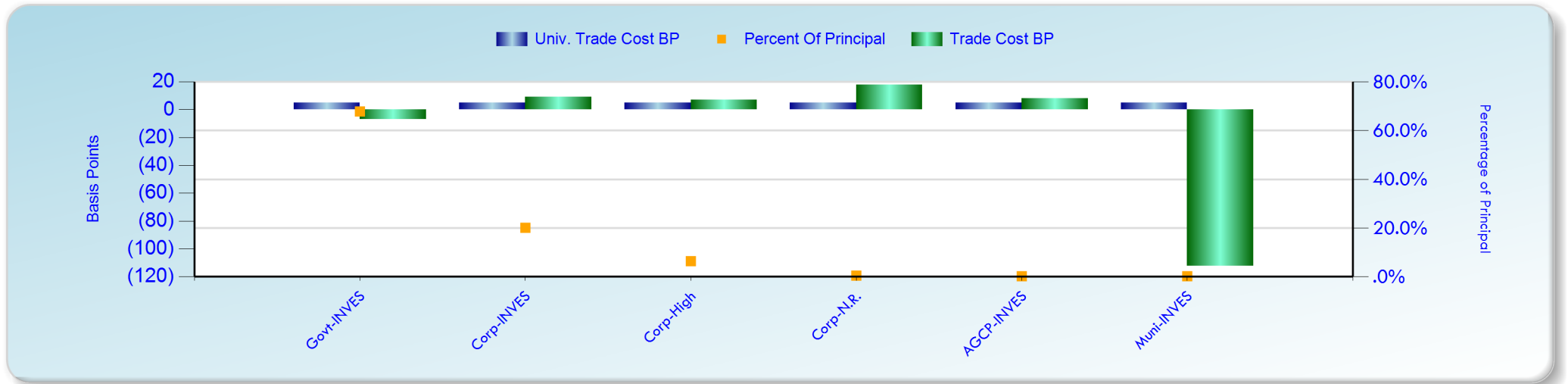
Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	65	172	88	+2.84	+0.44	+5.07	29.90	4.63
5~10	12	2	2	19.74	17.10	+5.07	25.60	22.17



EXECUTIVE SUMMARY

GRADING SUMMARY

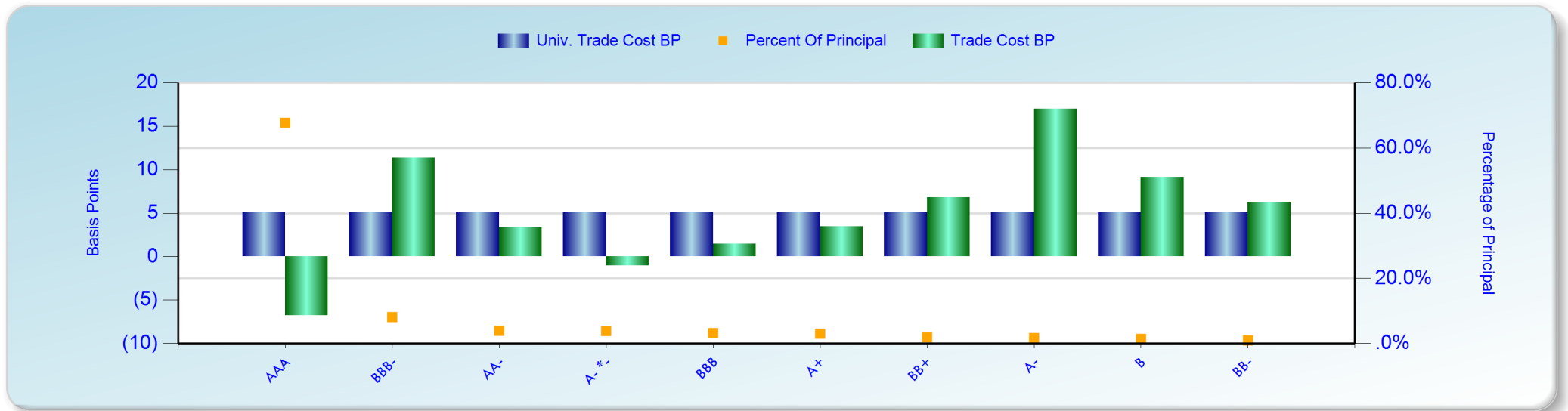
Grading	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	Cost Diff. from Universe BP
Govt-INVESTMENT GRADE	52	75	28	34.93	6.76	+5.07	61.13	11.83
Corp-INVESTMENT GRADE	15	51	30	+14.12	+9.22	+5.07	+6.36	+4.15
Corp-High Yield	5	35	26	+3.42	+7.03	+5.08	+0.95	+1.95
Corp-N.R.	<1	1	1	+0.68	+17.90	+5.07	+0.49	+12.83
AGCP-INVESTMENT GRADE	<1	1	1	+0.15	+8.32	+5.07	+0.06	+3.25
Muni-INVESTMENT GRADE	<1	1	1	1.96	112.14	+5.07	2.05	117.21



EXECUTIVE SUMMARY

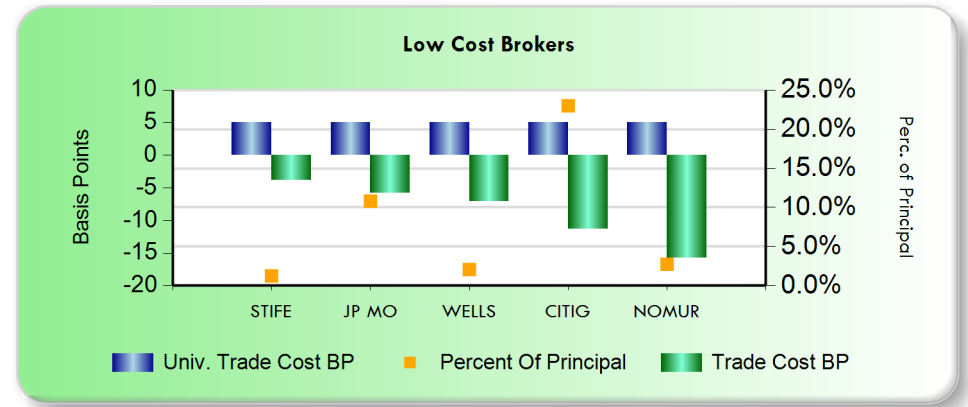
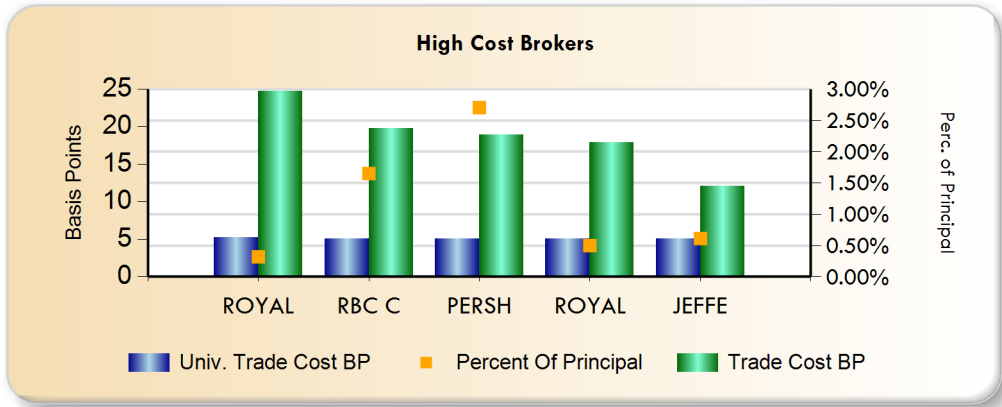
RATING SUMMARY

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	51.59	73	26	34.93	6.77	+5.07	61.08	11.84
BBB-	6.19	21	14	+7.04	+11.38	+5.07	+3.90	+6.31
AA-	2.98	8	4	+1.00	+3.36	+5.07	0.51	1.71
A- *-	2.94	8	2	0.30	1.02	+5.07	1.79	6.09
BBB	2.44	9	8	+0.36	+1.45	+5.07	0.88	3.62
A+	2.32	4	3	+0.81	+3.49	+5.07	0.37	1.58
BB+	1.47	5	4	+1.00	+6.83	+5.07	+0.26	+1.76
A-	1.30	3	2	+2.22	+17.01	+5.07	+1.56	+11.94
B	1.10	5	5	+1.01	+9.16	+5.07	+0.45	+4.09
BB-	<1	14	7	+0.45	+6.19	+5.07	+0.08	+1.12



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)								
ROYAL BANK OF CANADA	<1	1	1	+0.60	+24.76	+5.23	+0.47	+19.53
RBC CAPITAL MARKETS	1	5	3	+2.48	+19.75	+5.07	+1.84	+14.68
PERSHING	2	2	1	+3.89	+18.91	+5.07	+2.85	+13.84
ROYAL BK OF SCOTLAND	<1	1	1	+0.68	+17.90	+5.07	+0.49	+12.83
JEFFERIES & CO	<1	7	3	+0.56	+12.08	+5.07	+0.33	+7.01
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
STIFEL NICOLAUS & CO	<1	3	1	0.36	3.80	+5.07	0.85	8.87
JP MORGAN CHASE	8	29	21	4.76	5.79	+5.07	8.93	10.86
WELLS FARGO	2	7	6	1.12	7.08	+5.07	1.92	12.15
CITIGROUP	18	14	10	19.76	11.29	+5.07	28.64	16.36
NOMURA	2	2	2	3.28	15.68	+5.07	4.34	20.75



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 2019	Q2 2019	Q1 2019	Q4 2018
UNITED STATES	76	171	87	17.50	2.31	+5.07	55.93	7.38	3.36	1.23	+1.51	0.27
LUXEMBOURG	<1	3	3	+0.60	+17.95	+5.23	+0.43	+12.72	-	-	+4.55	-



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	BUYS
	SELLS	39	89	47	+1.22	+0.32	+5.07	18.43	4.75
LUXEMBOURG	SELLS	<1	3	3	+0.60	+17.95	+5.23	+0.43	+12.72

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 2019	Q2 2019	Q1 2019	Q4 2018
PRUDENTIAL INVESTMEN	76	174	90	16.90	2.22	+5.07	55.50	7.29	3.26	1.18	+1.53	+1.45

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 2019	Q2 2019	Q1 2019	Q4 2018
CITIGROUP	18	14	10	19.76	11.29	+5.07	28.64	16.36	6.46	3.25	+10.15	+3.54
BARCLAYS	11	23	17	+2.76	+2.41	+5.07	3.05	2.66	16.43	+2.61	+6.57	7.88
JP MORGAN CHASE	8	29	21	4.76	5.79	+5.07	8.93	10.86	0.53	5.28	+22.64	2.43
GOLDMAN SACHS	7	17	14	+1.74	+2.46	+5.07	1.85	2.61	+10.71	+11.54	+0.89	+0.56
MORGAN STANLEY	6	16	14	1.32	2.06	+5.07	4.57	7.13	+2.77	17.96	+1.39	+4.23
CITADEL SECURITIES	4	4	2	+0.09	+0.21	+5.07	2.18	4.86	+0.17	+0.06	0.21	0.33
DEUTSCHE BANK	3	7	6	0.07	0.25	+5.07	1.58	5.32	+12.42	3.78	23.87	1.46
CREDIT SUISSE	2	7	7	+0.34	+1.60	+5.07	0.74	3.47	0.75	+5.67	+6.19	+8.78
NOMURA	2	2	2	3.28	15.68	+5.07	4.34	20.75	+2.03	+1.21	+0.91	9.12
PERSHING	2	2	1	+3.89	+18.91	+5.07	+2.85	+13.84	-	+9.42	-	7.40
BMO CAPITAL MARKETS	2	3	3	+0.01	+0.07	+5.07	0.82	5.00	5.55	+9.66	+1.41	+0.04
WELLS FARGO	2	7	6	1.12	7.08	+5.07	1.92	12.15	+1.88	-	14.37	9.45
RBC CAPITAL MARKETS	1	5	3	+2.48	+19.75	+5.07	+1.84	+14.68	0.04	47.90	+0.31	0.92
STIFEL NICOLAUS & CO	<1	3	1	0.36	3.80	+5.07	0.85	8.87	10.52	-	-	+5.85
MIZUHO	<1	2	2	+0.16	+1.75	+5.07	0.31	3.32	+36.78	+3.36	-	-
BANK OF AMERICA	<1	8	7	0.31	3.57	+5.07	0.75	8.64	10.71	4.57	13.76	+0.83
BNY MELLON	<1	1	1	+0.10	+1.20	+5.07	0.33	3.87	+16.83	20.19	+0.00	+0.00
BREAN CAPITAL LLC	<1	4	3	+0.37	+5.55	+5.07	+0.03	+0.48	-	-	-	-
MERRILL LYNCH	<1	1	1	+0.00	+0.00	+5.07	0.28	5.07	+15.29	-	1.35	+25.76
HSBC BANK	<1	3	3	0.02	0.38	+5.07	0.28	5.45	+24.98	+40.75	+4.35	+12.01
JEFFERIES & CO	<1	7	3	+0.56	+12.08	+5.07	+0.33	+7.01	+24.10	+1.42	+3.98	+3.19
ROYAL BK OF SCOTLAND	<1	1	1	+0.68	+17.90	+5.07	+0.49	+12.83	-	-	-	-

Sacramento County
Period End December 31, 2019
(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 2019	Q2 2019	Q1 2019	Q4 2018
BNP PARIBAS	<1	1	1	+0.10	+2.77	+5.07	0.08	2.30	1.55	+0.08	19.38	+0.40
ROYAL BANK OF CANADA	<1	1	1	+0.60	+24.76	+5.23	+0.47	+19.53	-	-	+0.65	-
TD SECURITIES	<1	2	2	+0.00	+0.14	+5.07	0.10	4.93	+1.79	0.04	0.04	+0.30
MARKETAXESS CORP	<1	1	1	+0.13	+8.02	+5.07	+0.05	+2.95	-	+27.85	1.86	-
CANTOR FITZGERALD	<1	2	1	+0.03	+6.69	+5.07	+0.01	+1.62	+1.80	12.61	-	-
MILLER TABAK ROBERTS	<1	1	1	+0.04	+7.98	+5.07	+0.01	+2.91	-	-	-	-

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	BDCHLD9 PVH CORP SR UNSECURED 144A 0	Corp	12/17/2019 07/15/2024	PRUDENTIAL INVE MORGAN STANLEY	US	EUR	871,096	111.625	112.325	+62.68	+5,460
B	465410BG ITALY GOV T INT BOND SR UNSE	Govt	10/02/2019 06/15/2033	PRUDENTIAL INVE PERSHING	US	USD	2,057,781	121.232	120.817	+18.91	+3,890
S	912810RM US TREASURY N/B 05/45 3	Govt	11/19/2019 05/15/2045	PRUDENTIAL INVE CITIGROUP	US	USD	1,218,629	113.891	114.238	+30.46	+3,712
B	03522AAJ ANHEUSER BUSCH CO/INBEV COMP	Corp	11/20/2019 02/01/2046	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	595,380	119.076	118.604	+39.60	+2,358
B	912810SJ US TREASURY N/B 08/49 2.25	Govt	11/12/2019 08/15/2049	PRUDENTIAL INVE BARCLAYS	US	USD	621,000	97.031	96.725	+31.56	+1,960
S	55336VAT MPLX LP SR UNSECURED 02/49 5	Corp	11/25/2019 02/15/2049	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	495,317	108.861	109.266	+37.18	+1,841
S	912828YB US TREASURY N/B 08/29 1.625	Govt	11/05/2019 08/15/2029	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	714,715	97.906	98.148	+24.74	+1,768
S	110122CD BRISTOL MYERS SQUIBB CO SR U	Corp	11/26/2019 10/26/2049	PRUDENTIAL INVE RBC CAPITAL MAR	US	USD	387,003	119.078	119.588	+42.85	+1,658
B	912810QZ US TREASURY N/B 02/43 3.125	Govt	11/18/2019 02/15/2043	PRUDENTIAL INVE BARCLAYS	US	USD	1,320,134	115.296	115.181	+9.92	+1,310
B	110122BU BRISTOL MYERS SQUIBB CO SR U	Corp	12/03/2019 08/15/2045	PRUDENTIAL INVE RBC CAPITAL MAR	US	USD	219,517	129.128	128.463	+51.51	+1,131
S	912810RM US TREASURY N/B 05/45 3	Govt	10/03/2019 05/15/2045	PRUDENTIAL INVE BARCLAYS	US	USD	541,592	119.031	119.264	+19.56	+1,059
S	126307AY CSC HOLDINGS LLC SR UNSECURE	Corp	10/23/2019 04/01/2028	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	281,250	112.500	112.887	+34.36	+966
S	912828YQ US TREASURY N/B 10/26 1.625	Govt	11/05/2019 10/31/2026	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	435,875	99.063	99.253	+19.24	+839
B	50077LAY KRAFT HEINZ FOODS CO COMPANY	Corp	10/01/2019 10/01/2049	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	243,732	101.555	101.255	+29.57	+721



S	BYWKWN2 BALL CORP COMPANY GUAR 12/23	Corp	12/05/2019 12/15/2023	PRUDENTIAL INVE ROYAL BK OF SCO	US	EUR	380,152	114.250	114.455	+17.90	+681
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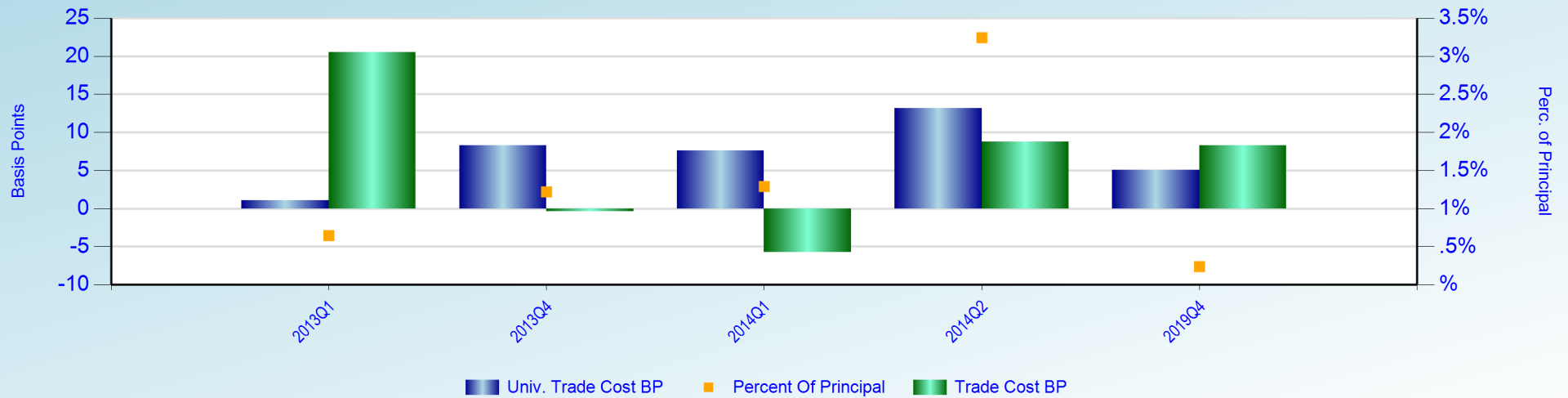
TRADE DETAILS

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	912834PM STRIPS 08/45 0.00000	Govt	10/02/2019 08/15/2045	PRUDENTIAL INVE CITIGROUP	US	USD	5,775,444	56.622	56.770	26.06	15,048
S	912828YB US TREASURY N/B 08/29 1.625	Govt	10/02/2019 08/15/2029	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	1,936,031	100.313	100.027	28.50	5,519
S	912810SJ US TREASURY N/B 08/49 2.25	Govt	11/12/2019 08/15/2049	PRUDENTIAL INVE MORGAN STANLEY	US	USD	822,290	97.313	96.725	60.37	4,964
S	912803EQ STRIP PRINC 11/45 0.00000	Govt	10/02/2019 11/15/2045	PRUDENTIAL INVE CITIGROUP	US	USD	5,771,100	57.711	57.664	8.13	4,694
B	912810QZ US TREASURY N/B 02/43 3.125	Govt	11/19/2019 02/15/2043	PRUDENTIAL INVE CITIGROUP	US	USD	1,310,578	115.469	115.759	25.11	3,291
B	912828YM US TREASURY N/B 10/24 1.5	Govt	11/07/2019 10/31/2024	PRUDENTIAL INVE MORGAN STANLEY	US	USD	938,718	98.813	99.052	24.25	2,276
B	882667AZ TEXAS ST PRIV ACTIVITY BOND	Muni	12/11/2019 12/31/2049	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	175,000	100.000	101.121	112.14	1,963
B	912834DV STRIPS	Govt	10/03/2019 05/15/2039	PRUDENTIAL INVE BARCLAYS	US	USD	518,425	67.328	67.561	34.54	1,791
S	912810SH US TREASURY N/B 05/49 2.875	Govt	10/01/2019 05/15/2049	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	181,640	117.188	116.092	93.47	1,698
S	912810RM US TREASURY N/B 05/45 3	Govt	11/26/2019 05/15/2045	PRUDENTIAL INVE NOMURA	US	USD	1,068,792	116.173	115.990	15.80	1,689
B	912834DV STRIPS	Govt	11/26/2019 05/15/2039	PRUDENTIAL INVE NOMURA	US	USD	1,020,614	65.215	65.316	15.55	1,587
B	55336VAN MPLX LP SR UNSECURED 04/48 4	Corp	11/25/2019 04/15/2048	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	484,342	97.847	98.126	28.51	1,381
S	912810RM US TREASURY N/B 05/45 3	Govt	11/18/2019 05/15/2045	PRUDENTIAL INVE BARCLAYS	US	USD	1,222,560	113.727	113.619	9.48	1,159
B	912828YS US TREASURY N/B 11/29 1.75	Govt	11/08/2019 11/15/2029	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	1,317,073	98.289	98.372	8.45	1,112
B	912834DU STRIPS	Govt	10/02/2019 11/15/2038	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	463,257	67.629	67.785	23.11	1,071

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
AGENCIES	<1	1	1	+0.15	+8.32	+5.07	+0.06	+3.25

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	24	97	60	+19.84	+8.24	+5.07	+7.63	+3.17

CORPORATES



BOND TYPE PERFORMANCE

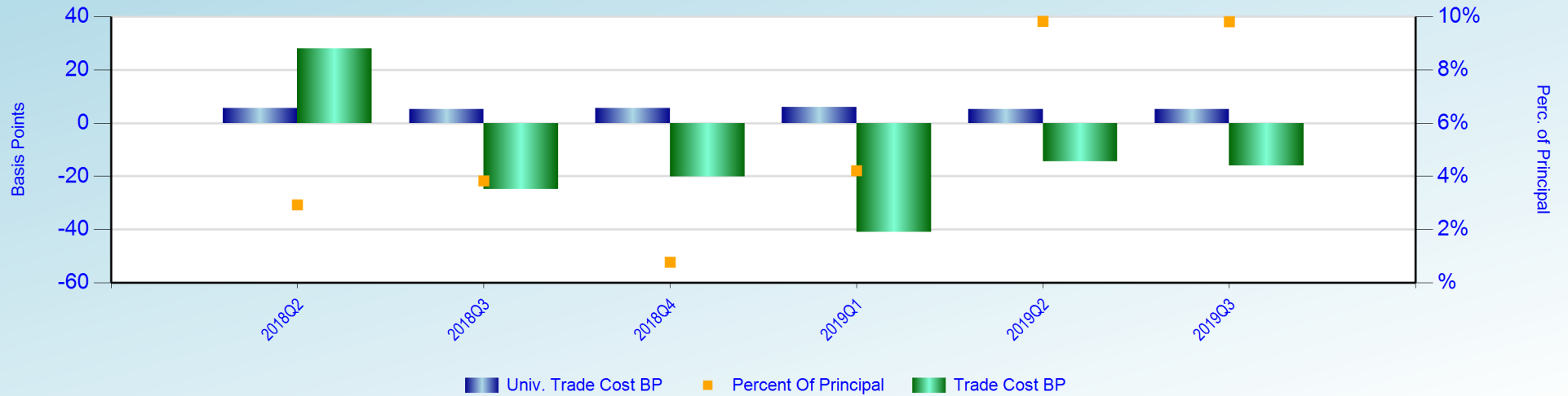
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
GOVERNMENTS	52	75	28	34.93	6.76	+5.07	61.13	11.83

GOVERNMENTS



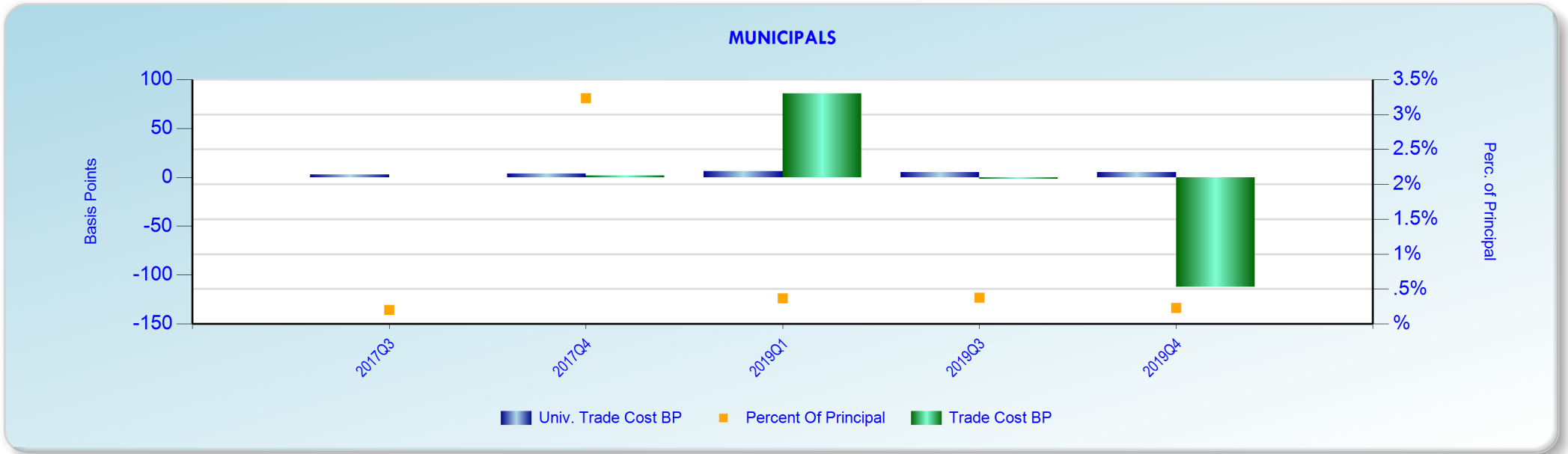


MORTGAGES



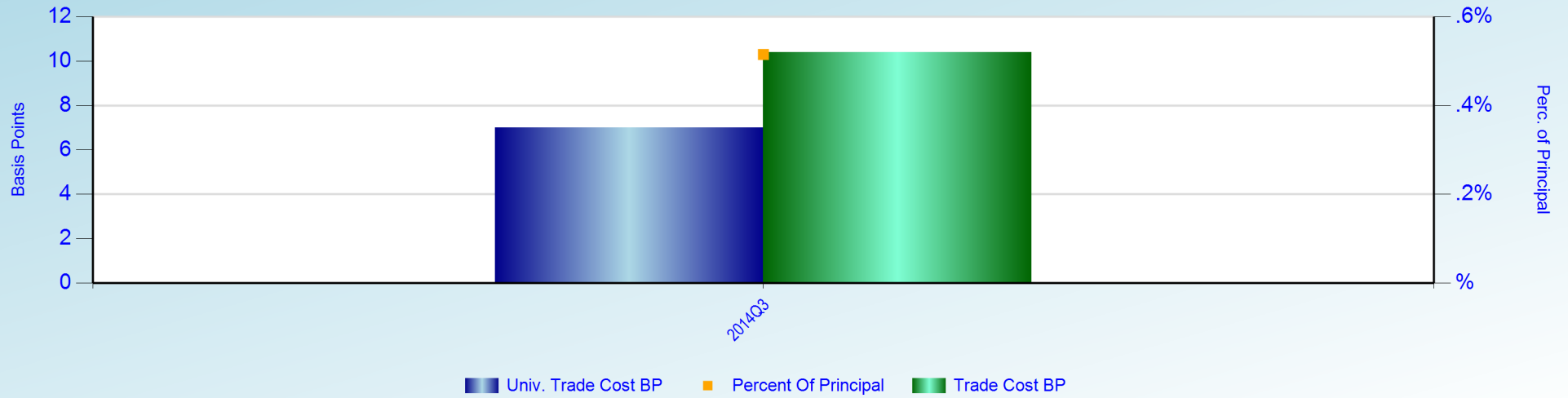
BOND TYPE PERFORMANCE

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
MUNICIPALS	<1	1	1	1.96	112.14	+5.07	2.05	117.21





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	52	73	26	34.93	6.77	+5.07	61.08	11.84
BBB-	<1	2	2	+0.00	0.23	+5.23	0.05	5.47

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	19	12	+7.04	+11.55	+5.07	+3.95	+6.48	
AA-	3	8	4	+1.00	+3.36	+5.07	0.51	1.71	
A- *-	3	8	2	0.30	1.02	+5.07	1.79	6.09	
A+	2	4	3	+0.81	+3.49	+5.07	0.37	1.58	
BBB	2	8	7	+2.32	+10.22	+5.07	+1.17	+5.15	
BB+	1	5	4	+1.00	+6.83	+5.07	+0.26	+1.76	
A-	1	3	2	+2.22	+17.01	+5.07	+1.56	+11.94	
B	1	5	5	+1.01	+9.16	+5.07	+0.45	+4.09	
BB-	<1	14	7	+0.45	+6.19	+5.07	+0.08	+1.12	
BB	<1	4	4	+0.38	+5.60	+5.13	+0.03	+0.48	
A+ *-	<1	2	1	+1.91	+33.07	+5.07	+1.62	+28.00	
B-	<1	4	3	+0.13	+2.59	+5.07	0.13	2.48	
NR	<1	1	1	+0.68	+17.90	+5.07	+0.49	+12.83	
CCC+	<1	1	1	+0.37	+10.93	+5.07	+0.20	+5.86	
BBB+	<1	9	2	+0.73	+21.75	+5.07	+0.56	+16.68	
B+	<1	2	2	+0.08	+16.17	+5.07	+0.05	+11.10	



RATING BY EACH BOND TYPE

AGENCIES - 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
AA+	<1	1	1	+0.15	+8.32	+5.07	+0.06	+3.25



RATING BY EACH BOND TYPE

MUNICIPALS - 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
BBB	<1	1	1	1.96	112.14	+5.07	2.05	117.21



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	52	73	26	34.93	6.77	+5.07	61.08	11.84
LUXEMBOURG	<1	2	2	+0.00	0.23	+5.23	0.05	5.47



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	24	96	59	+19.23	+8.07	+5.07	+7.15	+3.00
LUXEMBOURG	<1	1	1	+0.60	+24.76	+5.23	+0.47	+19.53



COUNTRIES BY EACH BOND TYPE

AGENCIES								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
UNITED STATES	<1	1	1	+0.15	+8.32	+5.07	+0.06	+3.25



COUNTRIES BY EACH BOND TYPE

MUNICIPALS								
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	1	1	1.96	112.14	+5.07	2.05	117.21

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost		Univ. Trade Cost BP	Cost Diff. from Universe	
				(Thous. \$)	BP		(Thous. \$)	BP
10/01/2019-12/31/2019	76,119	174	90	16.90	2.22	+5.07	55.50	7.29
07/01/2019-09/30/2019	97,170	144	79	31.64	3.26	+5.17	81.92	8.43
04/01/2019-06/30/2019	58,138	153	87	6.84	1.18	+5.19	37.02	6.37
01/01/2019-03/31/2019	93,964	228	119	+14.36	+1.53	+6.02	42.17	4.49
Year-Ending 2019	325,391	699		41.02	1.26	+5.40	216.61	6.66
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

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 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
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
AGENCIES	1	1	BVAL	100.00 %
CORPORATES	50	34	MARKETAXESS-TRADES	60.47 %
	34	24	BVAL	28.92 %
	7	7	ISSUE PRICE	9.82 %
	6	1	MARKETAXESS-EMQUOTES	0.78 %
GOVERNMENTS	57	17	TULLET PREBON	65.95 %
	16	10	BVAL	33.87 %
	2	2	MARKETAXESS-EMQUOTES	0.18 %
MUNICIPALS	1	1	MSRB-TRADES	100.00 %

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SACRAMENTO COUNTY

US Fixed Income Analysis

Period End December 31, 2019



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 01,2019 to December 31,2019. The analysis included trading of 479 trades in 127 different issues representing \$759,298,281 in principal across governments, corporates And agencies.

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.

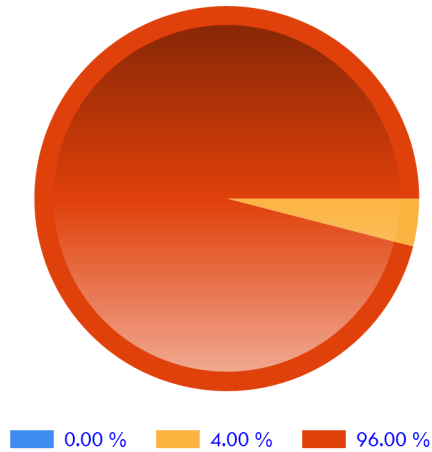
Results:

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 2019	Q2 2019	Q1 2019	Q4 2018
BUYS	358	230	81	+26.92	+0.75	+8.99	294.86	8.24	+10.49	+1.20	+2.14	+8.56
SELLS	401	249	95	44.28	1.10	+9.85	439.82	10.95	10.32	+0.28	2.58	7.18
GRAND TOTAL	759	479	127	17.36	0.23	+9.45	734.68	9.68	+0.54	+0.74	0.25	+0.33

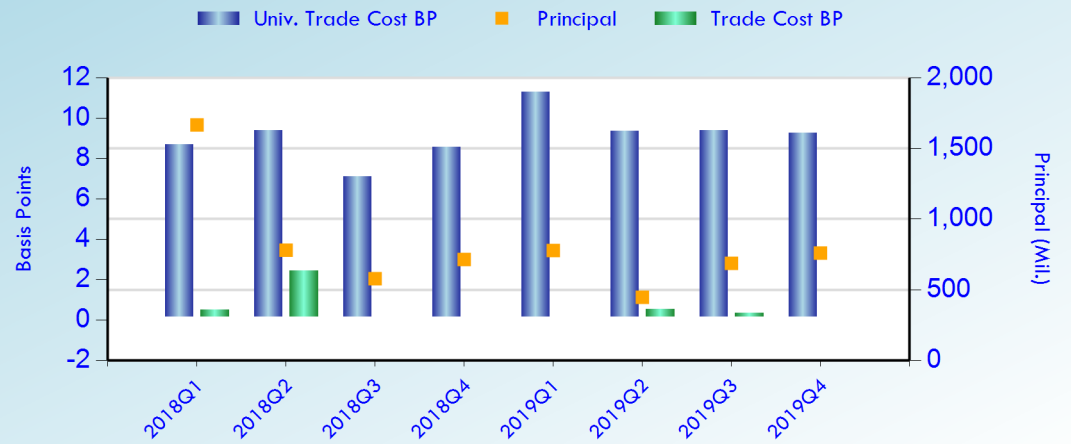
EXECUTIVE SUMMARY

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 2019	Q2 2019	Q1 2019	Q4 2018
Governments	730	406	74	32.84	0.45	+9.16	701.48 9.61	+0.28	+0.87	0.12	0.29
Corporates	28	72	52	+15.10	+5.42	+16.48	30.80 11.06	+6.98	1.30	0.97	+1.54
Agencies	1	1	1	+0.39	+2.75	+19.78	2.39 17.03	-	-	-	-

Bonds by Principal Traded



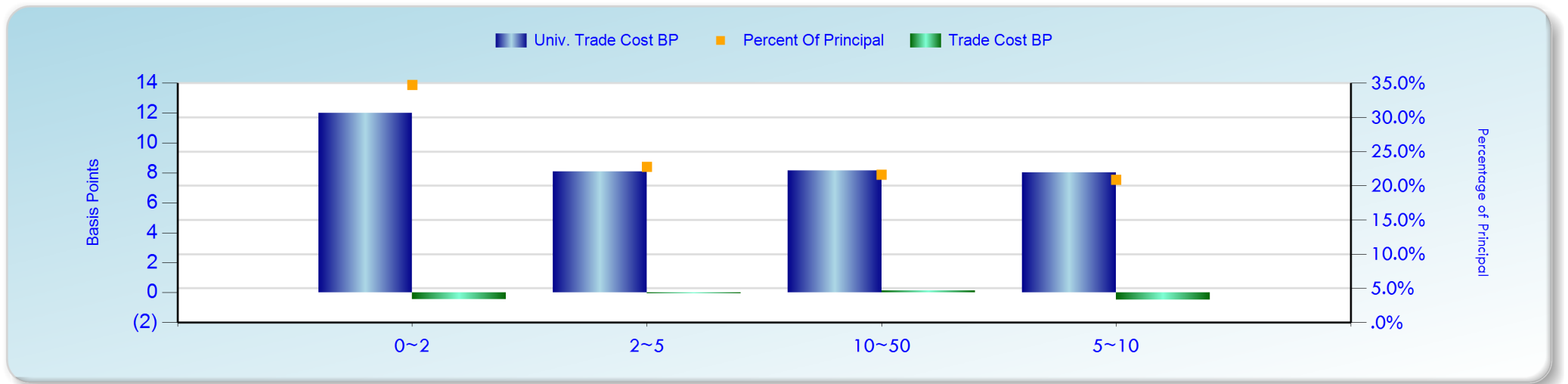
Historical Trade Cost Trend



EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

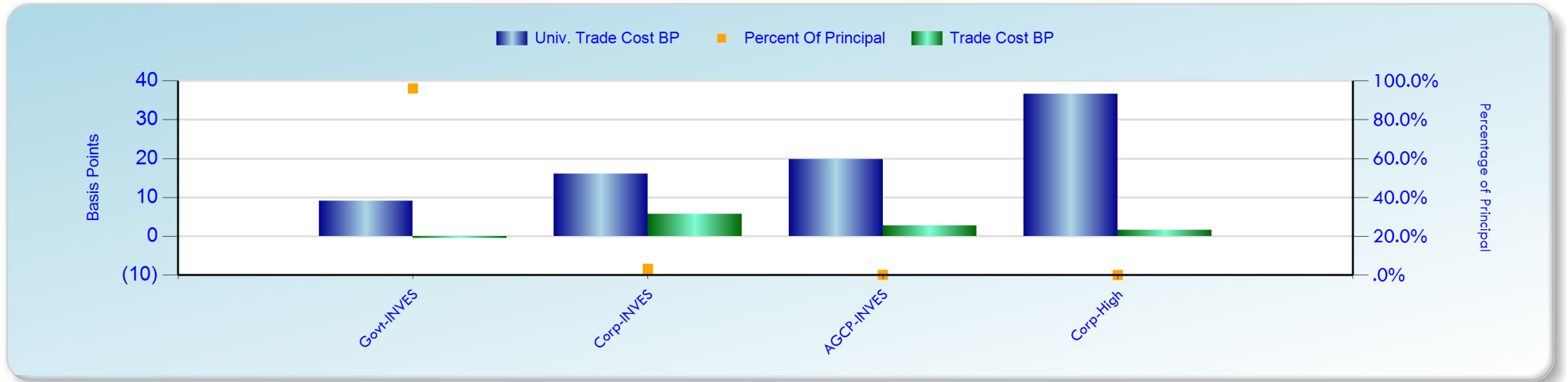
Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	264	397	104	11.23	0.43	+12.01	328.02	12.44
2~5	173	53	30	0.99	0.06	+8.09	140.86	8.15
10~50	164	9	9	+2.48	+0.15	+8.14	131.13	7.99
5~10	159	20	13	7.61	0.48	+8.01	134.68	8.49



EXECUTIVE SUMMARY

GRADING SUMMARY

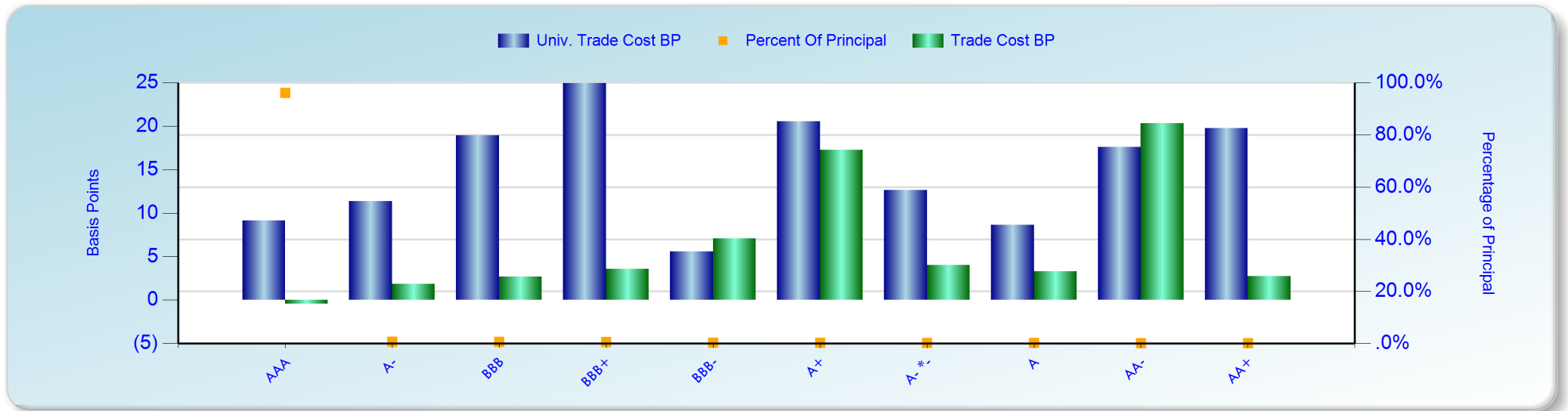
Grading	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
Govt-INVESTMENT GRADE	730	406	74	32.84	0.45	+9.16	701.48	9.61
Corp-INVESTMENT GRADE	25	65	47	+14.11	+5.68	+16.03	25.68	10.35
AGCP-INVESTMENT GRADE	1	1	1	+0.39	+2.75	+19.78	2.39	17.03
Corp-High Yield	<1	4	4	+0.15	+1.57	+36.65	3.32	35.08



EXECUTIVE SUMMARY

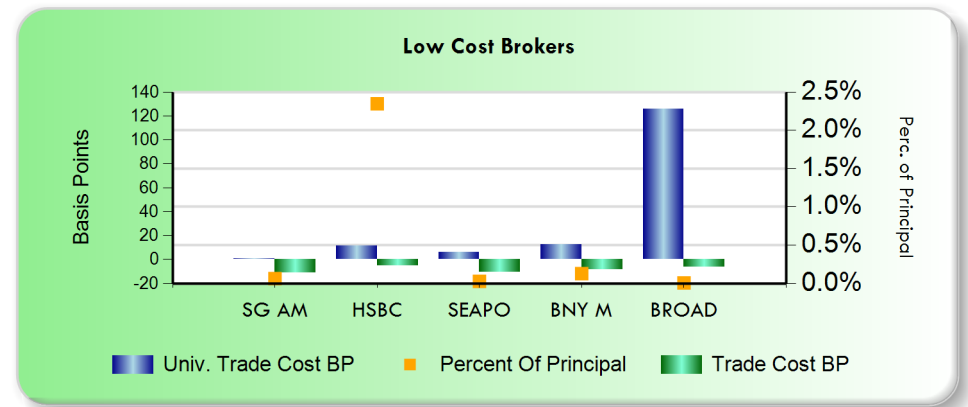
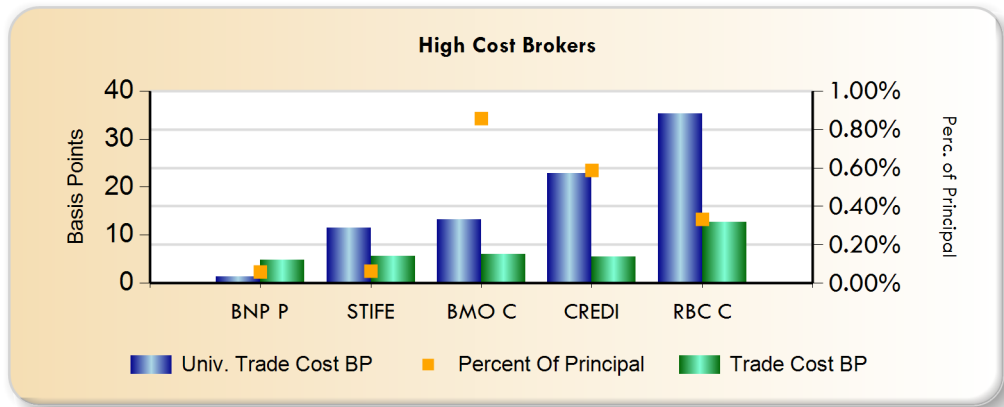
RATING SUMMARY

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	730.04	406	74	32.84	0.45	+9.16	701.48	9.61
A-	5.76	11	9	+1.08	+1.88	+11.37	5.46	9.49
BBB	5.20	16	12	+1.40	+2.69	+18.92	8.45	16.23
BBB+	5.02	20	11	+1.80	+3.59	+24.98	10.75	21.39
BBB-	2.96	7	7	+2.10	+7.07	+5.59	+0.44	+1.48
A+	2.36	5	5	+4.08	+17.25	+20.54	0.78	3.29
A- *-	2.09	3	1	+0.84	+4.04	+12.67	1.80	8.63
A	2.04	2	2	+0.67	+3.29	+8.62	1.09	5.33
AA-	1.46	4	1	+2.98	+20.34	+17.59	+0.40	+2.75
AA+	1.41	1	1	+0.39	+2.75	+19.78	2.39	17.03



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)								
BNP PARIBAS	<1	2	2	+0.21	+4.79	+1.43	+0.15	+3.36
STIFEL NICOLAUS & CO	<1	2	2	+0.27	+5.68	+11.55	0.28	5.87
BMO CAPITAL MARKETS	7	10	5	+3.94	+6.06	+13.28	4.70	7.22
CREDIT SUISSE	4	10	10	+2.47	+5.55	+22.87	7.72	17.32
RBC CAPITAL MARKETS	3	8	6	+3.21	+12.73	+35.35	5.71	22.62
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
SG AMERICAS	<1	1	1	0.52	11.02	+0.78	0.56	11.80
HSBC BANK	18	26	13	8.93	5.01	+11.46	29.33	16.47
SEAPORT GROUP SECS	<1	1	1	0.22	10.75	+6.09	0.34	16.84
BNY MELLON	<1	3	3	0.84	8.65	+12.48	2.05	21.13
BROADCORT CAPITAL	<1	1	1	0.03	6.46	+125.87	0.63	132.33





COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country									
		Principal	No. of	No. of	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
	Side	(Mil. \$)	Trades	Issues	(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
UNITED STATES	BUYS	358	230	81	+26.92	+0.75	+8.99	294.86	8.24
	SELLS	401	249	95	44.28	1.10	+9.85	439.82	10.95

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 2019	Q2 2019	Q1 2019	Q4 2018
NEUBERGER BERMAN	370	53	29	+10.92	+0.29	+7.76	276.60	7.47	+7.00	+1.42	+0.54	+1.09
METROPOLITAN WEST MG	351	356	74	19.91	0.57	+11.70	430.48	12.27	0.56	+0.61	0.75	+0.28
BARCLAYS 1-10 YR TIP	38	70	30	8.37	2.19	+5.04	27.60	7.23	2.84	+1.36	0.09	0.35

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 2019	Q2 2019	Q1 2019	Q4 2018
GOLDMAN SACHS	158	66	33	11.78	0.75	+11.19	188.84	11.94	+0.00	0.50	+2.30	+0.53
CITIGROUP	97	29	22	36.66	3.79	+4.15	76.82	7.94	0.49	+0.54	+2.05	0.11
BANK OF AMERICA	86	39	19	+5.65	+0.65	+8.76	70.06	8.11	+2.21	0.08	5.66	3.04
NOMURA	78	42	21	4.30	0.55	+10.99	90.50	11.54	1.96	1.59	+2.68	+3.57
PERSHING	56	10	8	+1.68	+0.30	+5.13	27.03	4.83	+0.48	-	19.39	-
JP MORGAN CHASE	53	41	36	+25.00	+4.69	+17.55	68.61	12.86	+11.72	+2.60	+2.00	+1.99
DEUTSCHE BANK	45	50	16	2.40	0.53	+12.68	59.94	13.21	2.41	1.81	2.53	1.34
CITADEL SECURITIES	43	42	10	+0.03	+0.01	+9.55	40.97	9.54	0.07	0.18	+0.03	1.63
WELLS FARGO	42	10	9	+1.00	+0.24	+2.33	8.76	2.09	1.05	+1.80	4.58	0.34
MORGAN STANLEY	23	14	9	+9.69	+4.24	+6.76	5.78	2.52	4.60	0.57	5.45	+1.64
HSBC BANK	18	26	13	8.93	5.01	+11.46	29.33	16.47	+0.77	+0.77	4.00	1.31
UBS	12	20	15	2.23	1.86	+4.23	7.29	6.09	5.87	+0.32	+2.20	0.45
HOWARD TAYLOR & COMP	10	16	7	2.95	3.10	+9.53	12.01	12.63	1.44	+8.22	+2.20	8.02
WACHOVIA BANK	9	12	11	2.63	2.86	+7.68	9.70	10.54	3.34	+0.77	1.63	2.38
BMO CAPITAL MARKETS	7	10	5	+3.94	+6.06	+13.28	4.70	7.22	+3.73	+0.30	1.28	5.31
BARCLAYS	6	8	8	+2.62	+4.53	+12.86	4.81	8.33	12.55	+2.02	+1.48	1.02
CREDIT SUISSE	4	10	10	+2.47	+5.55	+22.87	7.72	17.32	+3.82	+1.45	2.28	+4.26
JEFFERIES & CO	4	10	4	+0.32	+0.81	+17.78	6.62	16.97	6.99	1.87	+13.62	+28.32
JJ KENNY DRAKE INC	3	6	2	+0.02	+0.08	+20.82	5.76	20.74	+0.04	7.67	0.24	-
RBC CAPITAL MARKETS	3	8	6	+3.21	+12.73	+35.35	5.71	22.62	+7.56	0.68	2.81	2.44

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	912810RM US TREASURY N/B 05/45 3	Govt	12/03/2019 05/15/2045	NEUBERGER BERMA PERSHING	US	USD	9,685,515	116.273	115.186	+93.47	+90,527
S	912810SJ US TREASURY N/B 08/49 2.25	Govt	10/11/2019 08/15/2049	NEUBERGER BERMA GOLDMAN SACHS	US	USD	8,221,259	100.813	101.329	+51.24	+42,129
S	912810SD US TREASURY N/B 08/48 3	Govt	10/15/2019 08/15/2048	NEUBERGER BERMA JP MORGAN CHASE	US	USD	4,925,306	116.438	117.375	+80.52	+39,656
S	912810SJ US TREASURY N/B 08/49 2.25	Govt	12/18/2019 08/15/2049	NEUBERGER BERMA PERSHING	US	USD	4,097,990	97.688	98.513	+84.45	+34,609
B	912810QY US TREASURY N/B 11/42 2.75	Govt	10/02/2019 11/15/2042	NEUBERGER BERMA GOLDMAN SACHS	US	USD	8,031,552	113.280	112.806	+41.82	+33,589
S	9128283F US TREASURY N/B 11/27 2.25	Govt	12/10/2019 11/15/2027	NEUBERGER BERMA JP MORGAN CHASE	US	USD	15,634,355	103.265	103.444	+17.29	+27,028
B	912810RD US TREASURY N/B 11/43 3.75	Govt	12/13/2019 11/15/2043	NEUBERGER BERMA GOLDMAN SACHS	US	USD	20,870,774	127.145	127.008	+10.75	+22,443
B	912810QY US TREASURY N/B 11/42 2.75	Govt	10/08/2019 11/15/2042	NEUBERGER BERMA NOMURA	US	USD	4,467,049	114.540	114.008	+46.44	+20,745
S	912810RM US TREASURY N/B 05/45 3	Govt	11/06/2019 05/15/2045	NEUBERGER BERMA PERSHING	US	USD	9,483,375	113.438	113.636	+17.49	+16,590
B	912810QX US TREASURY N/B	Govt	10/25/2019 08/15/2042	NEUBERGER BERMA GOLDMAN SACHS	US	USD	7,857,540	109.742	109.543	+18.15	+14,264
B	912828YU US TREASURY N/B 11/26 1.625	Govt	12/11/2019 11/30/2026	METROPOLITAN WE BANK OF AMERICA	US	USD	17,358,348	99.227	99.109	+8.18	+14,207
B	912810SK US TREASURY N/B 11/49 2.375	Govt	12/03/2019 11/15/2049	METROPOLITAN WE CITADEL SECURIT	US	USD	702,139	104.797	103.381	+135.08	+9,485
S	912810SH US TREASURY N/B 05/49 2.875	Govt	10/03/2019 05/15/2049	METROPOLITAN WE BANK OF AMERICA	US	USD	2,785,799	117.828	118.177	+28.34	+7,894
S	912828U2 US TREASURY N/B 11/26 2	Govt	10/10/2019 11/15/2026	NEUBERGER BERMA BANK OF AMERICA	US	USD	3,116,863	102.867	103.087	+21.43	+6,680



S	912810QC US TREASURY N/B	Govt	12/12/2019 08/15/2039	NEUBERGER BERMA NOMURA	US	USD	4,595,400	138.000	138.147	+10.64	+4,891
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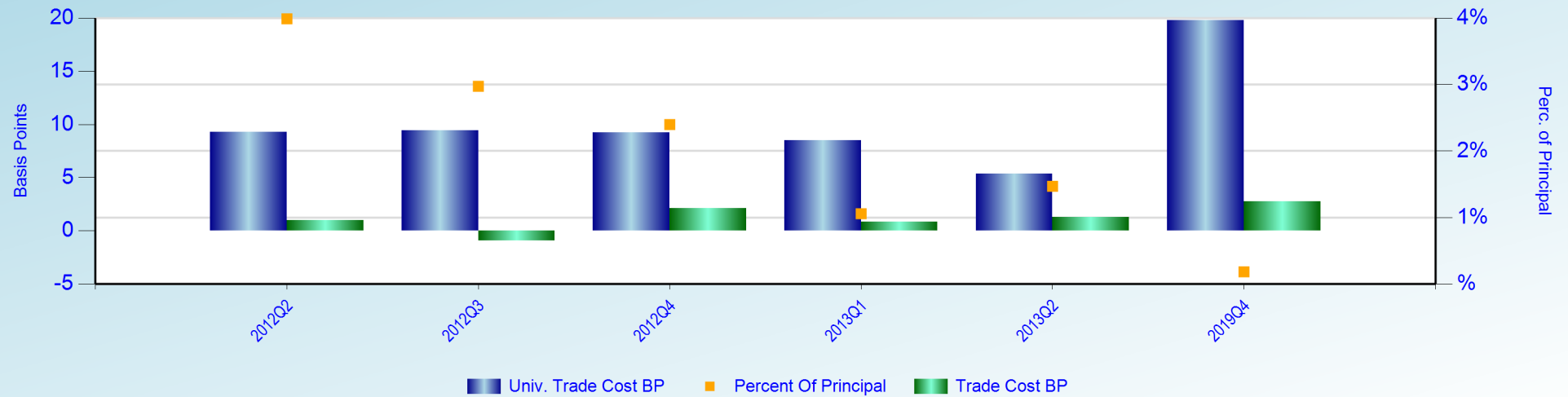
TRADE DETAILS

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	912810RJ US TREASURY N/B 11/44 3	Govt	12/03/2019 11/15/2044	NEUBERGER BERMA PERSHING	US	USD	9,862,656	116.031	114.942	93.86	92,570
B	912810RM US TREASURY N/B 05/45 3	Govt	10/11/2019 05/15/2045	NEUBERGER BERMA GOLDMAN SACHS	US	USD	9,680,712	115.798	116.372	49.58	47,992
B	912810RY US TREASURY N/B 08/47 2.75	Govt	10/15/2019 08/15/2047	NEUBERGER BERMA JP MORGAN CHASE	US	USD	4,962,527	110.771	111.656	79.94	39,673
B	912810SC US TREASURY N/B 05/48 3.125	Govt	12/18/2019 05/15/2048	NEUBERGER BERMA PERSHING	US	USD	4,500,077	115.832	116.697	74.66	33,597
S	912810QX US TREASURY N/B	Govt	10/02/2019 08/15/2042	NEUBERGER BERMA GOLDMAN SACHS	US	USD	8,098,410	113.344	112.878	41.08	33,269
S	912810QX US TREASURY N/B	Govt	10/08/2019 08/15/2042	NEUBERGER BERMA NOMURA	US	USD	4,503,534	114.594	114.072	45.54	20,509
B	912828N3 US TREASURY N/B 12/22 2.125	Govt	12/10/2019 12/31/2022	NEUBERGER BERMA CITIGROUP	US	USD	30,768,926	101.364	101.428	6.36	19,579
S	912810RB US TREASURY N/B 05/43 2.875	Govt	12/13/2019 05/15/2043	NEUBERGER BERMA GOLDMAN SACHS	US	USD	20,193,746	110.863	110.760	9.34	18,854
B	912810RJ US TREASURY N/B 11/44 3	Govt	11/06/2019 11/15/2044	NEUBERGER BERMA PERSHING	US	USD	9,621,260	113.191	113.380	16.64	16,013
S	912828YG US TREASURY N/B 09/26 1.625	Govt	12/11/2019 09/30/2026	METROPOLITAN WE BANK OF AMERICA	US	USD	17,765,501	99.221	99.141	8.09	14,372
S	912828YM US TREASURY N/B 10/24 1.5	Govt	12/13/2019 10/31/2024	METROPOLITAN WE CITIGROUP	US	USD	4,350,263	99.230	98.971	26.18	11,388
S	912810QY US TREASURY N/B 11/42 2.75	Govt	10/25/2019 11/15/2042	NEUBERGER BERMA GOLDMAN SACHS	US	USD	7,793,574	109.691	109.531	14.60	11,379
S	912810SJ US TREASURY N/B 08/49 2.25	Govt	12/03/2019 08/15/2049	METROPOLITAN WE CITADEL SECURIT	US	USD	698,527	101.975	100.595	135.27	9,449
B	9128286M US TREASURY N/B 04/22 2.25	Govt	12/10/2019 04/15/2022	NEUBERGER BERMA CITIGROUP	US	USD	17,954,019	101.321	101.369	4.75	8,523
B	912810SJ US TREASURY N/B 08/49 2.25	Govt	10/03/2019 08/15/2049	METROPOLITAN WE BANK OF AMERICA	US	USD	2,636,068	103.987	104.283	28.46	7,501

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
AGENCIES	1	1	1	+0.39	+2.75	+19.78	2.39	17.03

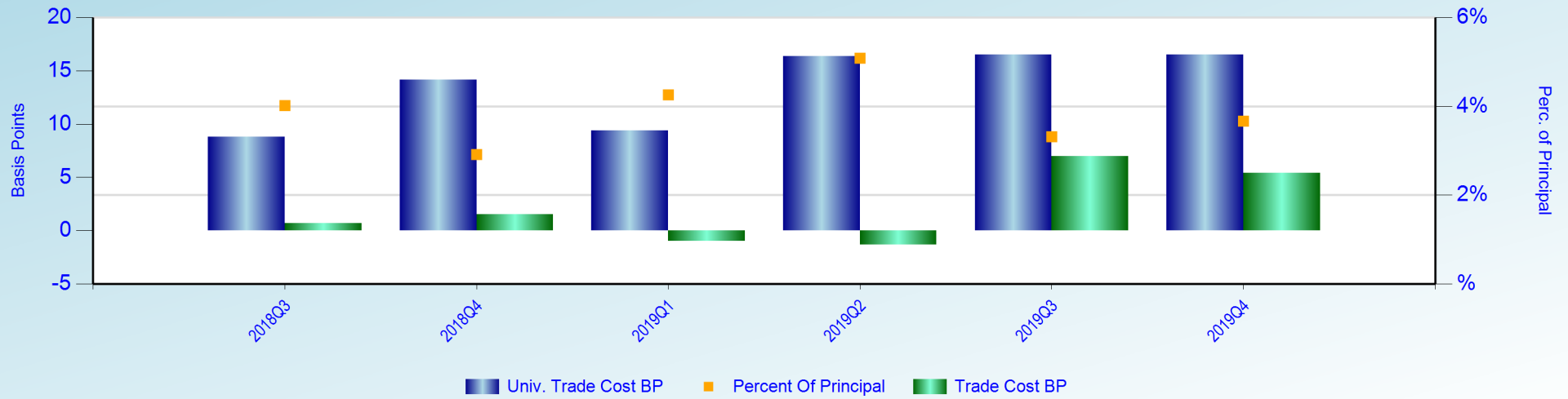
AGENCIES



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	28	72	52	+15.10	+5.42	+16.48	30.80	11.06

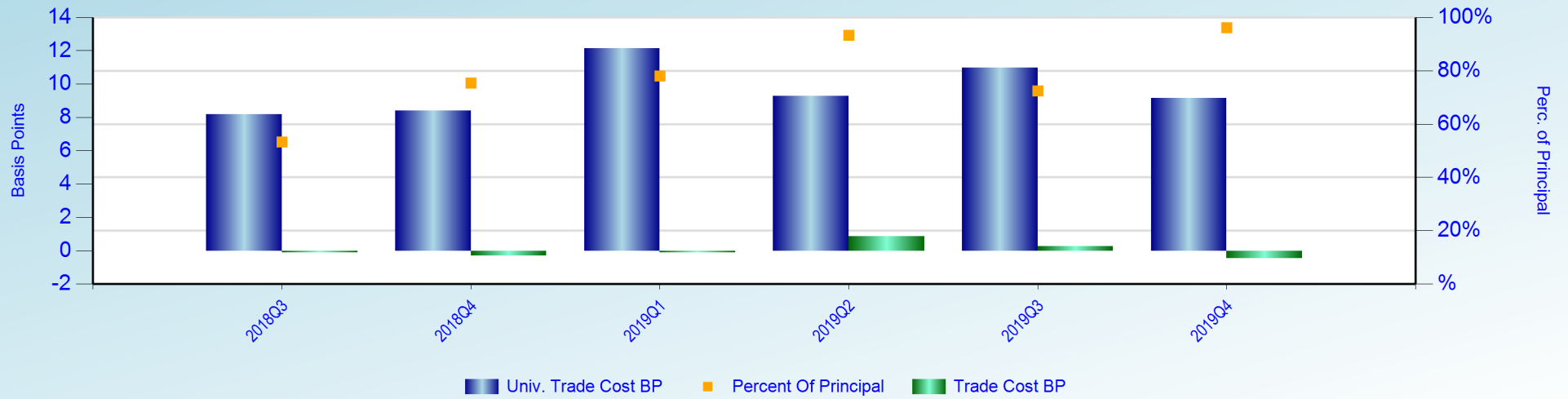
CORPORATES



BOND TYPE PERFORMANCE

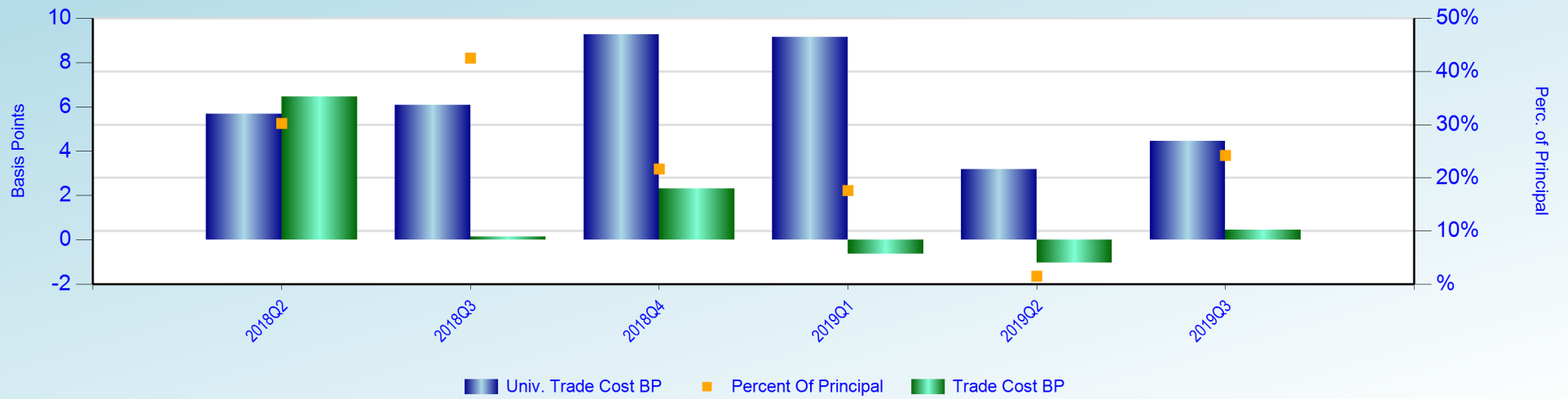
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous.\$)	BP
GOVERNMENTS	730	406	74	32.84	0.45	+9.16	701.48	9.61

GOVERNMENTS



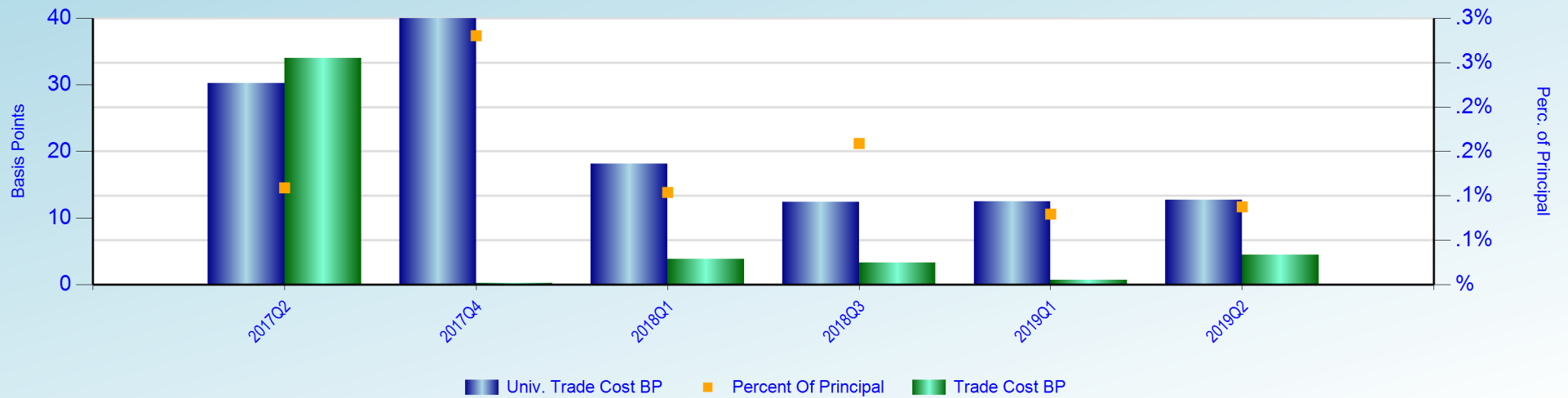


MORTGAGES





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	730	406	74	32.84	0.45	+9.16	701.48	9.61

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-	6	11	9	+1.08	+1.88	+11.37	5.46	9.49
BBB	5	16	12	+1.40	+2.69	+18.92	8.45	16.23
BBB+	5	20	11	+1.80	+3.59	+24.98	10.75	21.39
BBB-	3	7	7	+2.10	+7.07	+5.59	+0.44	+1.48
A+	2	5	5	+4.08	+17.25	+20.54	0.78	3.29
A- *-	2	3	1	+0.84	+4.04	+12.67	1.80	8.63
A	2	2	2	+0.67	+3.29	+8.62	1.09	5.33
AA-	1	4	1	+2.98	+20.34	+17.59	+0.40	+2.75
CCC+	<1	3	3	0.12	1.39	+38.67	3.56	40.07
BB+	<1	1	1	+0.27	+46.19	+6.26	+0.24	+39.93



RATING BY EACH BOND TYPE

AGENCIES - 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
AA+	1	1	1	+0.39	+2.75	+19.78	2.39	17.02

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
10/01/2019-12/31/2019	759,298	479	127	17.36	0.23	+9.45	734.68	9.68
07/01/2019-09/30/2019	686,683	408	111	+37.19	+0.54	+9.59	621.19	9.05
04/01/2019-06/30/2019	446,471	355	107	+32.98	+0.74	+9.54	392.87	8.80
01/01/2019-03/31/2019	777,794	441	181	19.31	0.25	+11.49	913.04	11.74
Year-Ending 2019	2,670,246	1683		+33.50	+0.13	+10.09	2,661.79	9.97
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

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 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
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



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 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
AGENCIES	1	1	BVAL	100.00 %
CORPORATES	60	44	MARKETAXESS-TRADES	81.90 %
	11	9	BVAL	12.33 %
	1	1	ISSUE PRICE	5.77 %
GOVERNMENTS	402	72	TULLET PREBON	98.56 %
	4	4	BVAL	1.44 %

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