



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 6

MEETING DATE: May 23, 2018

SUBJECT: Trading Activity Report – First Quarter 2018

SUBMITTED FOR: X Consent Deliberation and Action Receive and File

RECOMMENDATION

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

PURPOSE

This agenda item complies with SCERS' investment policy statement reporting requirements and provides a summary of SCERS' investment manager trade execution and Elkins / McSherry Quarterly Trade Cost Summary Report.

DISCUSSION

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

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

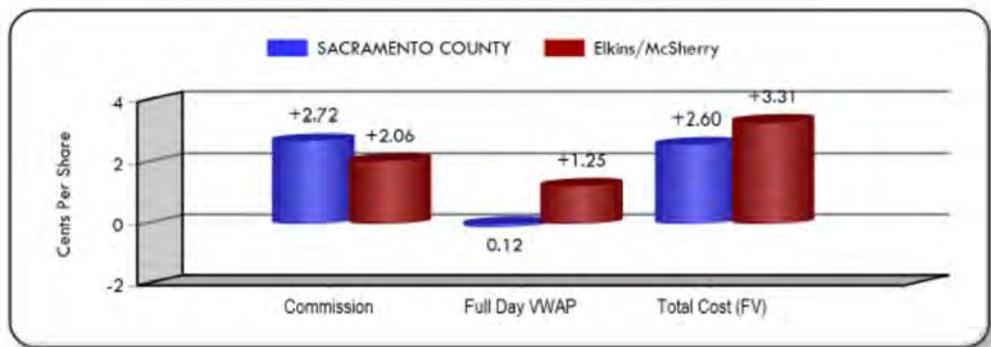
1. Commission costs, trade costs, and any soft dollar amounts.
2. Market Impact Cost, an industry performance metric, which measures the difference between a manager's trade price and the market's volume weighted average price (VWAP). VWAP is the average security price weighted by the share volume traded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

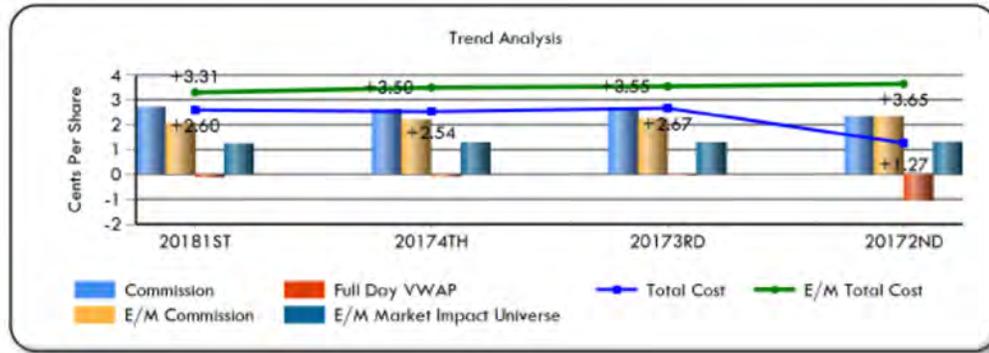
SCERS TRADE COST SUMMARY

U.S. EQUITY

- SCERS’ U.S. equity managers traded 3.6 million shares across the AMEX, NASDAQ, and NYSE exchanges totaling \$158.3 million in principal, and ranked in the 62nd percentile among the E/M U.S. Equity universe.
- SCERS’ total trading cost equaled +2.60 cps, which is 0.71 cps lower than the peer group at +3.31 cps, as follows:
 - Commission cost of +2.72 cps versus +2.06 cps
 - Market impact cost of -0.12 cps versus +1.25 cps



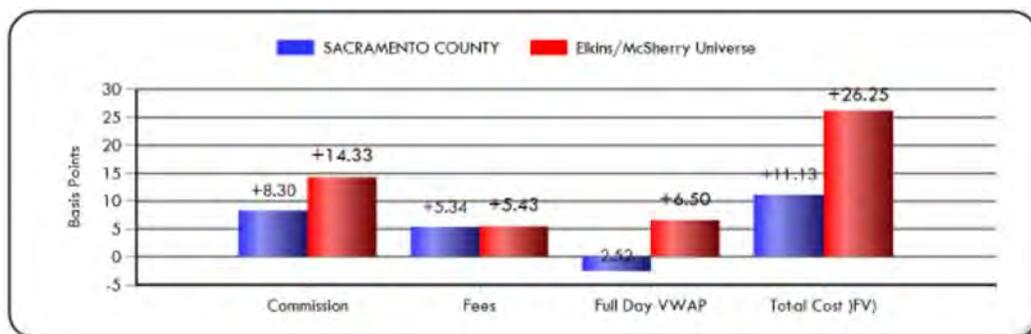
- SCERS’ total trading costs were better than 64% of the peer group.
- A majority of SCERS’ U.S. Equity managers experienced unfavorable commission costs compared to the U.S. Equity peer group. Managers with commission costs greater than the average peer group cost of +2.06 cps include:
 - DGHM at +3.53 cps
 - Weatherbie at +3.39 cps
 - CenterSquare at +3.39 cps
 - Wedge Capital at +3.27 cps
 - Eagle Capital at +2.72 cps
 - Brown Advisory at +2.69 cps
 - UBS Global at +2.42 cps
- As illustrated below, with the exception of Q2 2017, SCERS’ managers have generally been experiencing higher commission costs than the peer group.
- SCERS’ total trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 1.27 cps over the past four quarters.



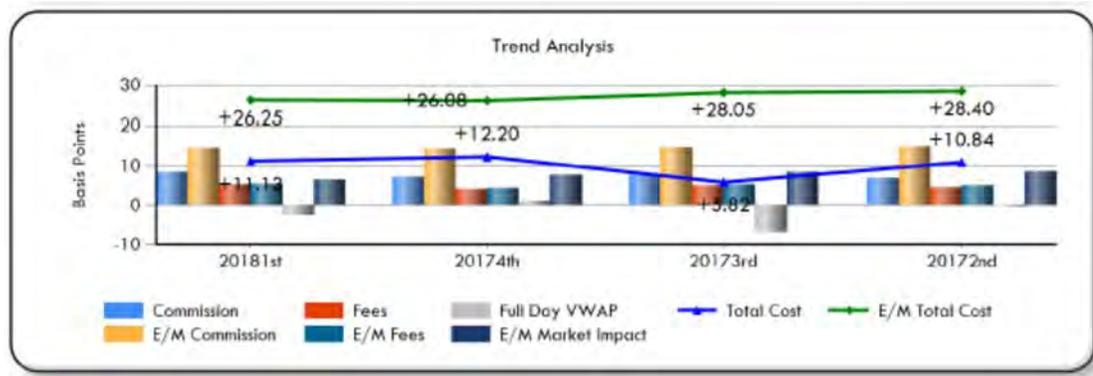
- The U.S. small cap managers (Weatherbie, UBS Global, DGHM, and Wedge Capital) and the U.S. REIT manager (CenterSquare) will typically incur additional commission costs in the form of a soft dollar relationship where, in return for conducting trades through a brokerage firm, the manager receives the 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 +3.62 cps, which is higher than all of SCERS’ U.S. Small Cap managers.
- The majority of SCERS’ U.S. Equity managers experienced favorable market impact costs compared to the peer group cost of +1.25 cps, except the following managers:
 - UBS Global at +2.57 cps
 - Weatherbie at +2.06 cps
 - Wedge Capital at +1.74 cps

INTERNATIONAL EQUITY

- SCERS’ International Equity managers traded 25.1 million shares totaling \$207.2 million in principal across 30 countries.
- Total trading cost equaled +11.13 bps, which is 15.12 bps lower than the peer group at +26.25 bps, as follows:
 - Commission cost of +8.30 bps versus +14.33 bps
 - Fees (country taxes, tariffs) of +5.34 bps versus +5.43 bps
 - Market impact cost of -2.52 bps versus +6.50 bps



- All of SCERS' International Equity managers analyzed generated commission costs (ranging from +2.34 bps to +10.06 bps), significantly less than the E/M peer group (ranging from +14.20 bps to +14.89 bps). This result is consistent with the previous quarters' lower trade costs versus the peer group, as illustrated below (commission vs. E/M commission).
- All of SCERS' International Equity managers experienced favorable market impact cost versus the peer group during the quarter (full day VWAP vs. E/M market impact).
- SCERS' total international trading costs have been consistently below the total trading costs of the E/M universe, with the difference averaging 17.20 cps over the past four quarters.



U.S. FIXED INCOME

- SCERS' U.S. Fixed Income managers conducted 1,608 trades totaling \$1.667 billion in principal, as follows:
 - Mortgages: 922 trades totaling \$442 million
 - Governments: 494 trades totaling \$1.081 billion
 - Corporates: 189 trades totaling \$143 million
 - Municipals: 3 trades totaling \$2 million
- Total trading cost equaled +0.68 bps, which is 8.20 bps lower than the E/M peer group, as follows:
 - Mortgages at -1.82 bps versus +6.68 bps
 - Governments at +4.09 bps versus +9.15 bps
 - Corporates at -17.49 bps versus +13.55 bps
 - Municipals at +3.87 bps versus +18.17 bps
- Trading volume was significantly higher during the quarter, compared to previous quarters, due to rebalancing the Fixed Income portfolio to align with SCERS' Strategic Asset Allocation.

- 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 higher compared to previous quarters due to increased trade volume due to rebalancing.



- Comparing SCERS' U.S. Fixed Income Core Plus managers trade costs versus their peer group is as follows:
 - TCW / MetWest at +0.45 bps versus +11.95 bps
 - NeubergerBerman at +1.39 bps versus +6.71 bps

INTERNATIONAL FIXED INCOME

- SCERS is invested with Brandywine Global Fixed Income's commingled fund; therefore, trading activity is not tracked.
- Prudential, SCERS' Core Plus Fixed Income manager, is permitted up to a 20% allocation in international bonds or non-U.S. denominated bonds, which is reported as follows:
 - Prudential conducted 127 international trades totaling \$51.3 million in principal as follows:
 - Governments: 92 trades totaling \$39 million
 - Corporates: 24 trades totaling \$9 million
 - Mortgages: 11 trades totaling \$3 million
 - Total trading cost was -0.20 bps, which was 10.29 bps lower than the E/M peer group cost of +10.09 bps, as follows:
 - Governments at +2.21 bps versus +10.07 bps
 - Corporates at +8.64 bps versus +10.17 bps
 - Mortgages at -54.51 bps versus +10.17 bps
 - Trading costs were in line with previous quarters' results, as illustrated below, led by lower trading cost for Mortgages.



COMMISSION RECAPTURE

- SCERS’ commission recapture program, administered by State Street, instructs investment managers to trade with the program’s brokerage partners but only if the trade cost is lower and is the best execution.
- For the first quarter of 2018, SCERS’ brokerage partners provided a rebate back to SCERS for approximately 50% of the commissions paid.
 - For the quarter ending March 31, 2018, the commission rebate totaled \$16,153.
 - For comparison, the commission rebate for the first quarter of 2017 totaled \$11,471.

ATTACHMENTS

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

Prepared by:

/S/

 Brian Miller
 Investment Officer

Reviewed by:

/S/

 Steve Davis
 Chief Investment Officer

/S/

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SACRAMENTO COUNTY

Trade Cost Summary - U.S. Equity Trading

Period End March 31, 2018





REPORT CONTENTS

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

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

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- **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 January 1 , 2018 to March 31, 2018. The analysis included trading of 3,617,136 shares representing \$158.34 million in principal.

Methodology :

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

Results :

BENCHMARK PERFORMANCE

Commission	Full Day VWAP	E - Score
<ul style="list-style-type: none"> Your commission cost was +2.72 cps (+6.22 bp) or +\$98,459 (+0.66 cps (+1.51 bp) worse than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact savings was 0.12 cps (0.27 bp) or 1.37 cps (3.13 bp) better than the Elkins/McSherry Universe Your overall trading cost of +2.60 cps (+5.95 bp) was 0.71 cps (1.62 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 81% Total Cost Universe Rank: 62% 	<ul style="list-style-type: none"> E-Score Rank : 62 E-Score : 0.50

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program		Full Day VWAP
+3.62	+2.06	+1.19	+1.24	Median	+1.25
				75 %	+0.27
				25 %	+2.66



(+) = Cost

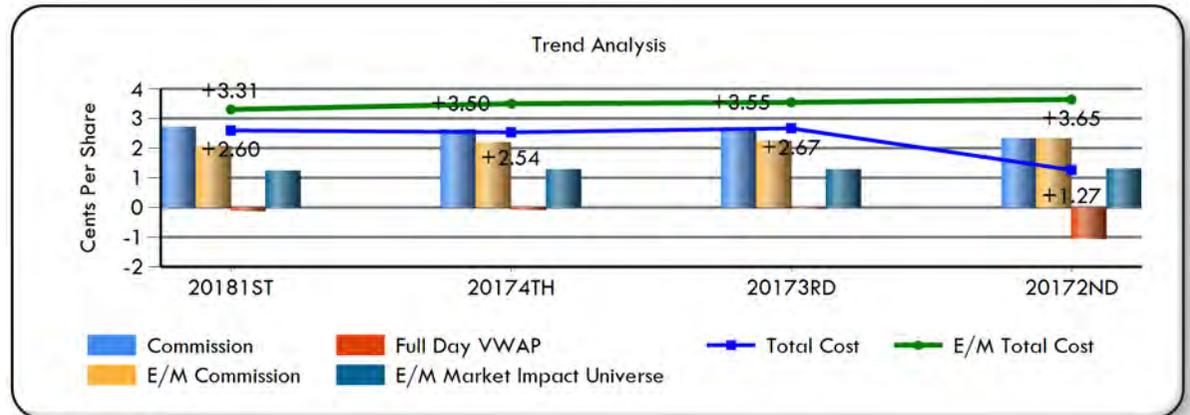
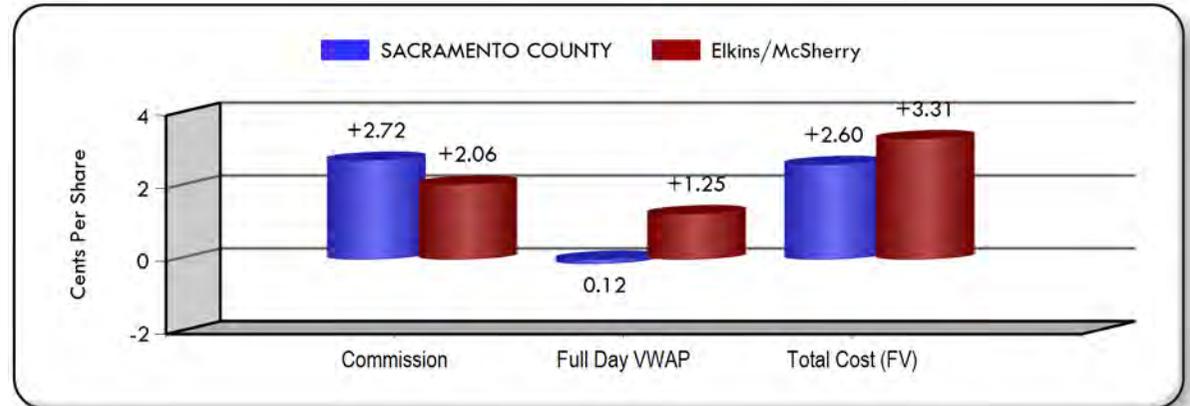
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E - Score (Rank)	E -Score
	Your Avg. Commission (cps)	All Trading Universe (cps)	Bundled Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	(cps)	Commission+ Full Day VWAP (cps)		
Sells	+2.78	+2.06	+3.62	0.29	+1.25	+2.49	0.82	59	0.54
Buys	+2.68	+2.06	+3.62	+0.02	+1.25	+2.70	0.61	64	0.47
Total	+2.72	+2.06	+3.62	0.12	+1.25	+2.60	0.71	62	0.50

TRADING COMPONENTS

	Buys	Sells
Trade Principal	81,619,474	76,724,522
Shares	1,972,375	1,644,761
Unique Names	174	117
Liquidity (% ADV)	0.144	0.115
Avg. Execution Size	2,966	2,927
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	665	562



(+) = Cost

EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded (\$)	Avg. Shares Per Order	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score (Rank)	E - Score	Market Cap Definition
			Your Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	Rank Full Day VWAP	(cps)	Commission+ Full Day VWAP Vs. Universe (cps)			
Giant Cap	39.49 %	3,817	+2.70	+2.06	2.55	+1.33	85 %	+0.15	3.24	60	0.53	Over \$25 B
Mid Cap	32.73 %	2,627	+2.76	+2.06	+1.93	+0.94	31 %	+4.69	+1.69	63	0.48	\$1 B To \$5 B
Large Cap	22.90 %	2,040	+2.40	+2.06	2.56	+1.26	89 %	0.16	3.48	61	0.51	\$5 B To \$25 B
Small Cap	3.72 %	5,261	+3.34	+2.06	0.53	+0.46	74 %	+2.80	+0.29	71	0.38	\$250 M To \$1 B
N.A.	0.97 %	130,115	+2.00	+2.06	2.10	+1.25	94 %	0.10	3.41	70	0.38	
Micro Cap	0.20 %	14,240	+3.00	+2.06	+1.27	+0.34	29 %	+4.27	+1.87	61	0.52	Under \$250 M

Total Cost by Market Cap: (USD)

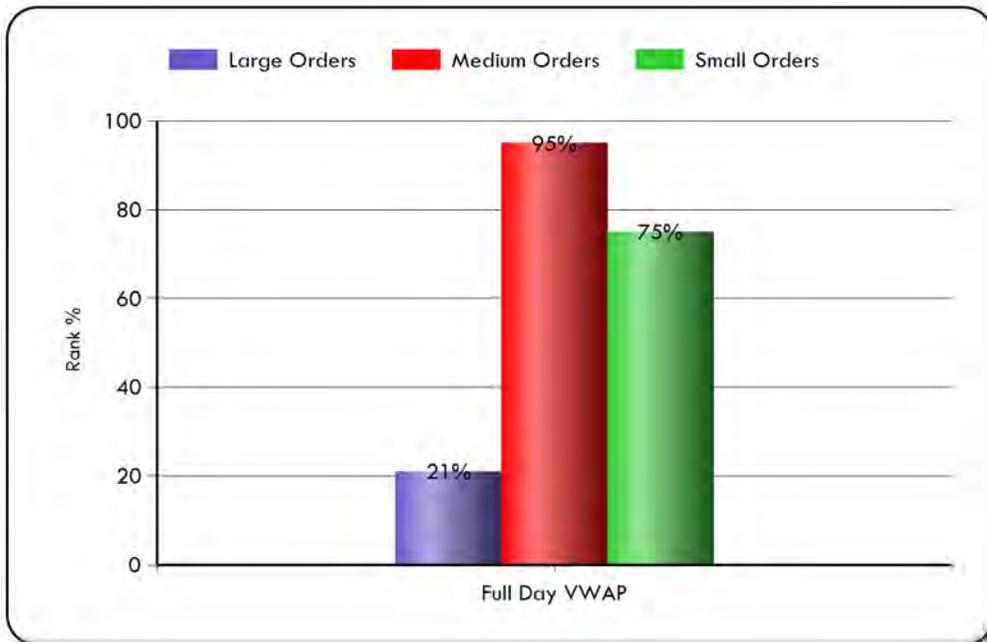


(+) = Cost

EXECUTIVE SUMMARY

ORDER SIZE EVALUATION

Order Size	Total # Of Orders	Avg. Shares Per Order	Avg. Order Completion Time (min)	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score (Rank)	E - Score	Absolute Size (Shares)
				Your Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	Rank Full Day VWAP	(cps)	Commission+Full Day VWAP Vs. Universe (cps)			
Large Orders	4	101,723	N/A	+2.33	+2.06	+3.08	+1.25	21 %	+5.42	+2.11	73	0.34	50K Or More
Med. Orders	54	17,630	N/A	+2.56	+2.06	2.47	+1.25	95 %	+0.10	3.21	55	0.59	10K-50K
Small Orders	1,169	1,932	N/A	+2.86	+2.06	+0.29	+1.25	75 %	+3.15	0.16	62	0.49	10K Or Less





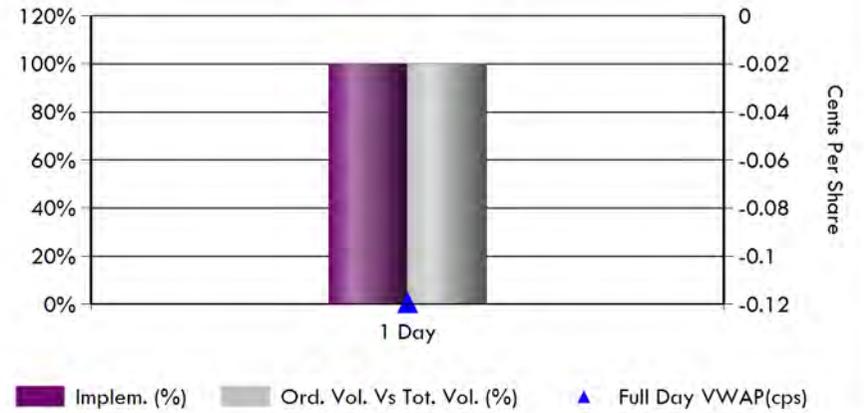
(+) = Cost

EXECUTIVE SUMMARY

IMPLEMENTATION DAYS BY TRADE

Period	Percent Traded (%)	Order Vol. Vs Total Vol. (%)	Full Day VWAP (cps)	E - Score (Rank)	E - Score
1 Day	100.00	100%	0.12	62	0.50

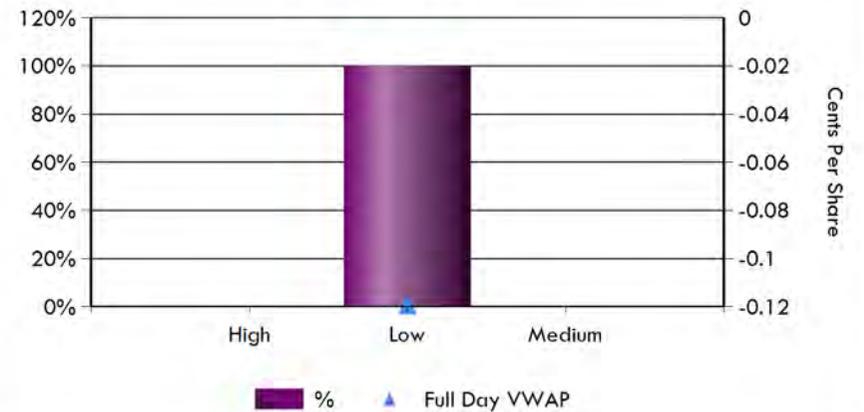
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (cps)	E - Score (Rank)	E - Score
0%~20% of daily vol.	L	100%	0.12	62	0.50

Avg. % of Daily Volume





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EXECUTIVE SUMMARY

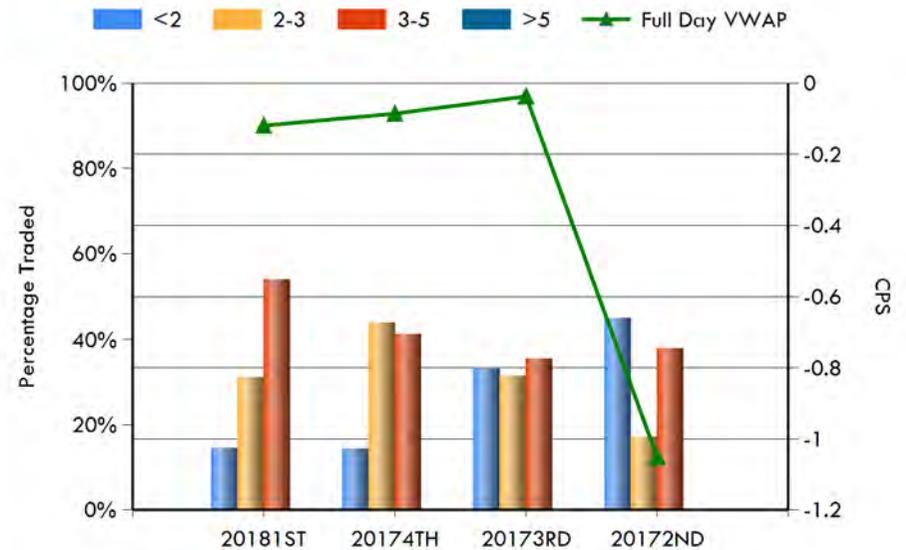
COMMISSION REVIEW

Top 10 Broker

Commission Trends

Broker	Total Commission (\$)	Commission 20181st (cps)	All Trading Universe (cps)	Bundled Universe (cps)	20174TH (cps)	20173RD (cps)	20172ND (cps)
CAPITAL IN	19,865	+2.99	+2.06	+3.62	+3.47	+3.28	+3.24
UBS	6,656	+1.41	+2.06	+3.62	+1.91	+2.09	+1.23
LIQUIDNET	5,818	+2.64	+2.06	+3.62	+2.42	+2.28	+2.60
BROADCORT	5,685	+2.82	+2.06	+3.62	+2.28	+2.88	+2.92
THEMIS TRA	5,307	+3.32	+2.06	+3.62	+1.60	+1.60	+1.71
ITG	5,186	+3.42	+2.06	+3.62	+3.28	+3.21	+3.30
JP MORGAN	4,874	+3.49	+2.06	+3.62	+4.21	+3.98	+0.39
COWEN & CO	4,428	+3.27	+2.06	+3.62	+3.27	+2.45	+3.23
JEFFERIES	3,912	+3.15	+2.06	+3.62	+2.45	+3.35	+3.20
OPPENHEIME	2,522	+3.60	+2.06	+3.62	+3.59	+3.70	+3.55

Commission Category Trend



NOTES

(+) = Cost

TRADE CYCLE DETAIL

Manager Performance (Full Day VWAP)

						COMMISSION		MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Manager	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
EAGLE CAPITAL MANAGE	36	34,060	647,132	61	0.50	+2.72	+2.06	4.26	97 %	4.85	87	96	10
BROWN ADVISORY	31	1,231	249,918	64	0.47	+2.69	+2.06	3.44	96 %	4.06	91	12	31
WEATHERBIE	23	3,124	731,035	67	0.43	+3.39	+2.06	+2.06	32 %	+2.13	79	4	37
HUBER CAPITAL MANAGE	17	5,386	484,700	59	0.54	+0.69	+2.06	+1.21	51 %	1.41	97	95	91
WEDGE CAPITAL MGMT L	17	2,803	437,211	68	0.41	+3.27	+2.06	+1.74	38 %	+1.70	66	79	90
UBS GLOBAL ASSET MGM	13	2,716	418,264	62	0.50	+2.42	+2.06	+2.57	26 %	+1.67	13	96	98
CENTERSQUARE	12	1,034	280,291	46	0.72	+3.39	+2.06	+0.80	59 %	+0.88	68	85	90
DALTON, GREINER, HAR	8	3,623	340,591	60	0.52	+3.53	+2.06	2.70	95 %	2.48	95	93	92
ALLIANCE R 3000 CAPI	2	4,666	27,994	36	0.89	+0.35	+2.06	1.65	93 %	4.61	99	94	96

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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	E - Score Rank	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP		Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)
CAPITAL INSTL SVCS	43	7,311	665,322	62	0.49	19,865	+2.99	+2.06	2.51	95 %	2.84	93	81	21
UBS	17	5,116	470,699	65	0.46	6,656	+1.41	+2.06	+1.15	52 %	0.75	79	76	85
BROADCORT CAPITAL	10	2,924	201,726	64	0.46	5,685	+2.82	+2.06	0.89	90 %	1.38	6	1	98
LIQUIDNET	10	1,868	220,453	58	0.56	5,818	+2.64	+2.06	2.13	94 %	2.80	87	95	30
SC BERNSTEIN	8	1,057	64,447	60	0.53	1,295	+2.01	+2.06	15.12	99 %	16.42	7	46	99
ITG	7	1,503	151,819	63	0.48	5,186	+3.42	+2.06	+1.85	35 %	+1.96	55	97	34
JP MORGAN CHASE	6	2,084	139,630	45	0.75	4,874	+3.49	+2.06	+9.34	1 %	+9.52	34	84	98
THEMIS TRADING LLC	6	2,961	159,869	69	0.40	5,307	+3.32	+2.06	+6.49	6 %	+6.50	92	1	59
GOLDMAN SACHS	4	3,286	108,446	68	0.41	1,579	+1.46	+2.06	4.26	97 %	6.11	9	23	99
WILLIAM BLAIR	4	3,295	65,898	70	0.38	2,352	+3.57	+2.06	1.63	93 %	1.37	99	1	93

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
MORGAN STANLEY	3	1,791	44,775	48	0.70	1,467	+3.28	+2.06	2.96	96 %	3.00	7	98	1
STIFEL NICOLAUS & CO	3	825	48,681	75	0.32	1,788	+3.67	+2.06	+2.86	22 %	+3.22	46	10	97
JEFFERIES & CO	3	2,887	124,130	68	0.41	3,912	+3.15	+2.06	0.36	84 %	0.52	23	97	17
MERRILL LYNCH	3	1,808	94,008	56	0.59	2,320	+2.47	+2.06	+8.28	2 %	+7.43	24	71	98
BAIRD, ROBERT W	3	1,154	27,697	55	0.60	984	+3.55	+2.06	18.53	99 %	18.29	14	75	32
STEPHENS & CO INC	2	10,262	30,787	47	0.71	1,130	+3.67	+2.06	+3.80	15 %	+4.16	98	99	63
CITIGROUP	2	8,911	133,672	34	0.93	418	+0.31	+2.06	+0.72	60 %	2.27	97	99	39
COWEN & CO	2	5,411	135,269	53	0.62	4,428	+3.27	+2.06	+0.71	60 %	+0.68	10	88	97
RBC CAPITAL MARKETS	2	2,824	73,426	53	0.62	2,411	+3.28	+2.06	6.78	98 %	6.81	97	91	97
CREDIT SUISSE	2	2,130	40,465	76	0.31	1,241	+3.07	+2.06	1.51	92 %	1.75	97	3	3

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
CONVERGEX	2	1,662	23,274	80	0.25	1,082	+4.65	+2.06	5.73	98 %	4.39	99	90	91
CANTOR FITZGERALD	2	4,428	48,706	80	0.26	1,705	+3.50	+2.06	1.57	92 %	1.38	32	61	1
WELLS FARGO	2	1,438	44,588	48	0.69	1,648	+3.70	+2.06	+6.06	6 %	+6.45	46	30	94
OPPENHEIMER & CO INC	2	4,670	70,054	66	0.44	2,522	+3.60	+2.06	+1.39	45 %	+1.68	96	98	1
BARCLAYS	1	4,200	75,597	67	0.42	2,511	+3.32	+2.06	+1.28	49 %	+1.29	90	90	95
RAYMOND JAMES	1	4,329	51,947	63	0.48	1,697	+3.27	+2.06	0.50	86 %	0.54	7	97	85
CANACCORD GENUITY	1	5,239	26,197	78	0.28	943	+3.60	+2.06	+6.54	6 %	+6.83	74	6	39
LUMINEX TRADING	<1	2,241	13,445	69	0.39	65	+0.49	+2.06	+8.05	2 %	+5.22	1	99	1
ISI GROUP INC	<1	1,639	18,026	61	0.51	591	+3.28	+2.06	12.85	99 %	12.88	33	29	24
DEUTSCHE BANK	<1	1,845	27,673	39	0.84	477	+1.72	+2.06	2.20	94 %	3.79	99	98	98

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
PIPER JAFFRAY	<1	3,263	13,051	64	0.47	536	+4.11	+2.06	0.74	89 %	+0.06	96	28	1
DIRECT TRADING INSTI	<1	3,042	36,500	80	0.25	730	+2.00	+2.06	2.08	94 %	3.39	-	-	-
KEYBANC	<1	999	15,977	59	0.54	658	+4.12	+2.06	1.19	91 %	0.39	32	95	90
INSTINET	<1	1,937	19,370	62	0.50	264	+1.36	+2.06	+6.57	6 %	+4.62	98	1	-
KEEFE BRUYETTE WOODS	<1	4,735	14,206	48	0.70	227	+1.60	+2.06	8.61	98 %	10.32	-	1	95
GREEN STREET	<1	1,452	8,710	55	0.59	436	+5.00	+2.06	3.55	96 %	1.86	36	99	95
JONES TRADING	<1	1,477	11,813	86	0.17	236	+2.00	+2.06	+1.90	34 %	+0.58	97	94	6
WEEDEN & CO	<1	1,713	10,280	71	0.37	360	+3.50	+2.06	+1.75	38 %	+1.94	93	96	92
NEEDHAM & CO INC	<1	6,311	31,556	75	0.32	1,001	+3.17	+2.06	+4.48	12 %	+4.34	61	7	99
SCOTIA CAPITAL	<1	4,900	4,900	59	0.53	172	+3.50	+2.06	9.70	99 %	9.51	66	-	-

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
B.RILEY & CO	<1	4,600	4,600	95	0.06	161	+3.50	+2.06	+1.50	44 %	+1.69	96	-	-
WOLFE TRAHAN SECS	<1	6,621	13,241	53	0.63	530	+4.00	+2.06	0.90	90 %	0.21	-	-	97
DAVIDSON D.A. & CO	<1	7,170	7,170	91	0.11	323	+4.50	+2.06	5.30	97 %	4.11	-	-	95
MKM PARTNERS	<1	669	4,683	33	0.95	101	+2.16	+2.06	+15.01	1 %	+13.86	73	91	91
MIZUHO	<1	4,275	4,275	46	0.74	171	+4.00	+2.06	+9.00	1 %	+9.69	19	99	9
SANDLER ONEILL	<1	2,209	4,418	89	0.14	169	+3.82	+2.06	0.09	81 %	+0.42	-	99	95
NORTHCOAST RESEARCH	<1	1,009	2,018	74	0.33	91	+4.50	+2.06	+4.33	13 %	+5.52	-	43	-
SEAPORT GROUP SECS	<1	2,702	5,404	48	0.71	162	+3.00	+2.06	+2.75	24 %	+2.44	92	-	98
BTIG LLC	<1	2,523	2,523	55	0.60	101	+4.00	+2.06	+3.87	15 %	+4.56	99	1	90
BMO CAPITAL MARKETS	<1	1,376	1,376	61	0.51	55	+4.00	+2.06	6.17	98 %	5.48	-	97	99

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
MACQUARIE	<1	339	339	3	2.14	17	+5.00	+2.06	52.38	99 %	50.69	-	-	-

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.62	+2.06	+1.19	+1.24	+1.25

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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 Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
MORGAN STANLEY	<1	1,286	2,571	20	1.23	0	+0.00	+2.06	26.63	99 %	29.94	-	-	1
GOLDMAN SACHS	<1	5,887	5,887	84	0.20	0	+0.00	+2.06	+7.55	4 %	+4.24	99	91	99
DEUTSCHE BANK	<1	6,512	19,536	35	0.92	98	+0.50	+2.06	1.14	91 %	3.95	-	-	-
Grand Total	2	4,666	27,994	36	0.89	98	+0.35	+2.06	1.65	93 %	4.61	99	94	96



(+) = Cost

TRADE CYCLE DETAIL

BROWN ADVISORY Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
CAPITAL INSTL SVCS	10	1,573	89,685	68	0.41	2,415	+2.69	+2.06	0.19	82 %	0.81	95	34	48
SC BERNSTEIN	7	816	30,191	59	0.53	524	+1.74	+2.06	34.45	99 %	36.02	26	94	88
STEPHENS & CO INC	2	18,174	18,174	45	0.74	636	+3.50	+2.06	+9.56	1 %	+9.75	99	-	-
BAIRD, ROBERT W	2	821	13,134	57	0.56	460	+3.50	+2.06	26.07	99 %	25.88	4	99	1
STIFEL NICOLAUS & CO	2	568	13,642	71	0.37	474	+3.47	+2.06	+14.89	1 %	+15.06	99	-	88
MORGAN STANLEY	1	487	3,412	70	0.39	79	+2.32	+2.06	+35.09	1 %	+34.10	1	39	19
UBS	1	1,232	9,859	55	0.60	345	+3.50	+2.06	+0.37	74 %	+0.56	1	6	98
ITG	1	670	10,043	68	0.41	201	+2.00	+2.06	+4.28	13 %	+2.97	97	99	99
CREDIT SUISSE	1	1,246	8,723	84	0.20	171	+1.96	+2.06	+2.01	32 %	+0.66	99	-	1
JP MORGAN CHASE	<1	1,733	12,129	61	0.51	391	+3.23	+2.06	4.22	97 %	4.30	1	99	32
LUMINEX TRADING	<1	2,447	12,234	73	0.34	37	+0.30	+2.06	+11.19	1 %	+8.18	-	99	1
WILLIAM BLAIR	<1	3,679	14,715	62	0.49	515	+3.50	+2.06	+8.27	2 %	+8.46	99	-	99
ISI GROUP INC	<1	2,677	5,353	58	0.55	187	+3.50	+2.06	48.23	99 %	48.04	1	-	1
CITIGROUP	<1	1,057	3,172	87	0.17	111	+3.50	+2.06	4.99	97 %	4.81	-	-	95
RAYMOND JAMES	<1	891	1,782	89	0.14	62	+3.50	+2.06	+7.67	3 %	+7.86	99	-	88
JEFFERIES & CO	<1	398	1,195	54	0.61	42	+3.50	+2.06	+57.93	1 %	+58.12	-	97	1
KEYBANC	<1	549	1,646	54	0.61	58	+3.50	+2.06	8.57	98 %	8.38	1	-	22
WELLS FARGO	<1	415	829	23	1.17	17	+2.00	+2.06	27.73	99 %	29.04	99	84	1
Grand Total	31	1,231	249,918	64	0.47	6,725	+2.69	+2.06	3.44	96 %	4.06	91	12	31



(+) = Cost

TRADE CYCLE DETAIL

CENTERSQUARE Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
LIQUIDNET	4	1,028	94,562	51	0.66	2,224	+2.35	+2.06	+1.26	50 %	+0.30	91	90	56
JP MORGAN CHASE	2	1,162	40,685	32	0.98	1,791	+4.40	+2.06	+6.92	5 %	+8.01	48	80	54
WELLS FARGO	1	1,359	38,059	50	0.67	1,432	+3.76	+2.06	+3.62	16 %	+4.07	32	26	95
UBS	<1	803	13,655	44	0.77	603	+4.42	+2.06	2.27	94 %	1.16	14	14	1
DEUTSCHE BANK	<1	678	8,137	42	0.79	379	+4.66	+2.06	4.76	97 %	3.41	-	98	98
CAPITAL INSTL SVCS	<1	1,038	10,376	43	0.78	407	+3.93	+2.06	+7.35	4 %	+7.97	97	97	1
MORGAN STANLEY	<1	1,224	12,239	58	0.55	459	+3.75	+2.06	5.42	98 %	4.98	97	96	97
GREEN STREET	<1	1,452	8,710	55	0.59	436	+5.00	+2.06	3.55	96 %	1.86	36	99	95
ITG	<1	1,003	8,025	51	0.66	241	+3.00	+2.06	15.06	99 %	15.37	95	97	95
MERRILL LYNCH	<1	426	6,386	40	0.83	128	+2.00	+2.06	+2.50	28 %	+1.19	91	93	99
KEYBANC	<1	721	7,931	61	0.51	347	+4.38	+2.06	+1.56	43 %	+2.62	52	95	57
GOLDMAN SACHS	<1	2,569	12,846	44	0.76	432	+3.36	+2.06	13.56	99 %	13.51	87	99	93
MKM PARTNERS	<1	669	4,683	33	0.95	101	+2.16	+2.06	+15.01	1 %	+13.86	73	91	91
RAYMOND JAMES	<1	727	2,181	42	0.80	71	+3.25	+2.06	5.58	98 %	5.64	7	98	81
MIZUHO	<1	4,275	4,275	46	0.74	171	+4.00	+2.06	+9.00	1 %	+9.69	19	99	9
STIFEL NICOLAUS & CO	<1	1,349	2,698	56	0.58	116	+4.28	+2.06	5.41	98 %	4.44	37	93	95
JEFFERIES & CO	<1	418	1,671	59	0.54	66	+3.98	+2.06	9.32	99 %	8.65	34	93	24
BMO CAPITAL MARKETS	<1	1,376	1,376	61	0.51	55	+4.00	+2.06	6.17	98 %	5.48	-	97	99
ISI GROUP INC	<1	1,290	1,290	58	0.55	26	+2.00	+2.06	+4.86	10 %	+3.55	84	29	96
CREDIT SUISSE	<1	62	62	68	0.41	3	+5.00	+2.06	82.01	99 %	80.32	78	1	89
MACQUARIE	<1	339	339	3	2.14	17	+5.00	+2.06	52.38	99 %	50.69	-	-	-



(+) = Cost

TRADE CYCLE DETAIL

CENTERSQUARE Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
RBC CAPITAL MARKETS	<1	105	105	82	0.23	5	+5.00	+2.06	+11.68	1 %	+13.37	-	72	-
Grand Total	12	1,034	280,291	46	0.72	9,510	+3.39	+2.06	+0.80	59 %	+0.88	68	85	90



(+) = Cost

TRADE CYCLE DETAIL

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

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
CONVERGEX	2	1,662	23,274	80	0.25	1,082	+4.65	+2.06	5.73	98 %	4.39	99	90	91
COWEN & CO	1	6,421	83,477	38	0.86	2,907	+3.48	+2.06	1.58	92 %	1.41	52	78	99
RBC CAPITAL MARKETS	1	1,528	22,920	43	0.78	642	+2.80	+2.06	24.22	99 %	24.73	98	85	92
LIQUIDNET	<1	1,279	8,952	61	0.50	313	+3.50	+2.06	9.29	99 %	9.10	52	97	6
CAPITAL INSTL SVCS	<1	13,963	97,744	80	0.26	3,017	+3.09	+2.06	+0.30	74 %	+0.08	88	87	88
ISI GROUP INC	<1	1,423	11,383	64	0.46	378	+3.32	+2.06	+1.78	37 %	+1.79	-	-	41
PIPER JAFFRAY	<1	7,328	7,328	51	0.66	330	+4.50	+2.06	10.62	99 %	9.43	-	88	1
JP MORGAN CHASE	<1	2,323	6,968	41	0.81	295	+4.23	+2.06	+14.65	1 %	+15.57	-	-	92
STIFEL NICOLAUS & CO	<1	1,491	5,963	61	0.51	276	+4.62	+2.06	7.27	98 %	5.95	-	-	96
WOLFE TRAHAN SECS	<1	6,621	13,241	53	0.63	530	+4.00	+2.06	0.90	90 %	0.21	-	-	97
DAVIDSON D.A. & CO	<1	7,170	7,170	91	0.11	323	+4.50	+2.06	5.30	97 %	4.11	-	-	95
STEPHENS & CO INC	<1	9,920	9,920	52	0.64	397	+4.00	+2.06	6.84	98 %	6.15	-	99	91
KEYBANC	<1	6,300	6,300	61	0.51	252	+4.00	+2.06	2.72	96 %	2.03	99	95	95
BAIRD, ROBERT W	<1	2,340	7,020	65	0.46	255	+3.63	+2.06	+1.88	34 %	+2.20	-	35	-
NORTHCOAST RESEARCH	<1	1,009	2,018	74	0.33	91	+4.50	+2.06	+4.33	13 %	+5.52	-	43	-
WEEDEN & CO	<1	942	2,826	41	0.81	99	+3.50	+2.06	+13.61	1 %	+13.80	93	82	93
SANDLER ONEILL	<1	4,218	4,218	95	0.06	169	+4.00	+2.06	+0.51	69 %	+1.20	-	-	94
WILLIAM BLAIR	<1	2,718	5,435	60	0.52	190	+3.50	+2.06	+10.83	1 %	+11.02	-	-	92
LUMINEX TRADING	<1	1,211	1,211	32	0.97	29	+2.37	+2.06	23.69	99 %	24.62	1	-	-
SEAPORT GROUP SECS	<1	2,702	5,404	48	0.71	162	+3.00	+2.06	+2.75	24 %	+2.44	92	-	98
KEEFE BRUYETTE WOODS	<1	1,806	1,806	52	0.64	72	+4.00	+2.06	4.84	97 %	4.15	-	-	98



(+) = Cost

TRADE CYCLE DETAIL

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

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
BTIG LLC	<1	2,523	2,523	55	0.60	101	+4.00	+2.06	+3.87	15 %	+4.56	99	-	-
INSTINET	<1	3,490	3,490	19	1.27	105	+3.00	+2.06	5.70	98 %	6.01	-	-	-
Grand Total	8	3,623	340,591	60	0.52	12,014	+3.53	+2.06	2.70	95 %	2.48	95	93	92



(+) = Cost

TRADE CYCLE DETAIL

EAGLE CAPITAL MANAGEMENT Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
CAPITAL INSTL SVCS	32	27,501	467,517	61	0.51	14,026	+3.00	+2.06	3.76	96 %	4.07	-	-	6
LIQUIDNET	3	49,500	49,500	66	0.45	990	+2.00	+2.06	14.61	99 %	15.92	75	96	-
UBS	2	130,115	130,115	70	0.38	2,602	+2.00	+2.06	2.10	94 %	3.41	-	-	-
Grand Total	36	34,060	647,132	61	0.50	17,618	+2.72	+2.06	4.26	97 %	4.85	87	96	10



(+) = Cost

TRADE CYCLE DETAIL

HUBER CAPITAL MANAGEMENT Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
UBS	13	4,865	301,600	67	0.43	2,564	+0.85	+2.06	+1.98	33 %	0.48	94	91	91
CITIGROUP	2	12,910	129,100	29	1.03	258	+0.20	+2.06	+0.44	71 %	2.67	98	98	33
GOLDMAN SACHS	1	4,713	37,700	60	0.52	75	+0.20	+2.06	3.92	96 %	7.03	93	99	98
JP MORGAN CHASE	<1	1,750	14,000	52	0.64	420	+3.00	+2.06	5.49	98 %	5.80	98	23	81
MERRILL LYNCH	<1	2,200	2,200	4	2.01	13	+0.60	+2.06	+71.59	1 %	+68.87	11	1	33
KEYBANC	<1	100	100	90	0.13	1	+1.00	+2.06	1.02	91 %	3.33	-	-	-
Grand Total	17	5,386	484,700	59	0.54	3,331	+0.69	+2.06	+1.21	51 %	1.41	97	95	91



(+) = Cost

TRADE CYCLE DETAIL

UBS GLOBAL ASSET MGMT Performance (Full Day VWAP)



Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
						Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
BROADCORT CAPITAL	3	3,277	104,854	58	0.55	2,295	+2.19	+2.06	3.19	96 %	4.31	6	1	99
MERRILL LYNCH	2	2,373	85,422	65	0.45	2,179	+2.55	+2.06	+7.08	5 %	+6.32	7	85	84
GOLDMAN SACHS	2	2,738	52,013	73	0.35	1,072	+2.06	+2.06	3.54	96 %	4.79	3	1	99
SC BERNSTEIN	2	1,427	34,256	62	0.50	771	+2.25	+2.06	+1.92	34 %	+0.86	2	52	99
JP MORGAN CHASE	1	7,573	30,290	38	0.86	732	+2.42	+2.06	+29.05	1 %	+28.16	5	84	88
CREDIT SUISSE	<1	2,880	31,680	66	0.44	1,067	+3.37	+2.06	2.33	94 %	2.27	98	5	91
INSTINET	<1	1,764	15,880	64	0.47	159	+1.00	+2.06	+9.27	1 %	+6.96	98	1	-
RBC CAPITAL MARKETS	<1	6,244	24,976	77	0.29	874	+3.50	+2.06	+1.57	42 %	+1.76	-	1	-
MORGAN STANLEY	<1	2,631	13,153	51	0.65	460	+3.50	+2.06	20.60	99 %	20.41	1	99	20
JEFFERIES & CO	<1	3,284	6,567	87	0.17	148	+2.25	+2.06	+3.66	16 %	+2.60	55	99	97
COWEN & CO	<1	2,981	11,925	60	0.52	239	+2.00	+2.06	+9.62	1 %	+8.31	2	97	97
BARCLAYS	<1	2,252	6,755	62	0.49	101	+1.50	+2.06	5.01	97 %	6.82	45	-	-
BAIRD, ROBERT W	<1	493	493	9	1.66	17	+3.50	+2.06	+193.02	1 %	+193.21	93	63	-
Grand Total	13	2,716	418,264	62	0.50	10,114	+2.42	+2.06	+2.57	26 %	+1.67	13	96	98



(+) = Cost

TRADE CYCLE DETAIL

WEATHERBIE Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
THEMIS TRADING LLC	6	2,961	159,869	69	0.40	5,307	+3.32	+2.06	+6.49	6 %	+6.50	92	1	59
ITG	6	1,715	133,751	63	0.48	4,744	+3.55	+2.06	+2.68	25 %	+2.92	16	97	24
WILLIAM BLAIR	3	3,268	45,748	74	0.34	1,647	+3.60	+2.06	6.29	98 %	6.00	99	1	72
LIQUIDNET	2	3,747	67,439	60	0.52	2,291	+3.40	+2.06	+3.21	20 %	+3.30	91	97	15
JEFFERIES & CO	2	3,944	94,650	65	0.45	2,954	+3.12	+2.06	1.32	92 %	1.51	8	97	56
OPPENHEIMER & CO INC	2	4,670	70,054	66	0.44	2,522	+3.60	+2.06	+1.39	45 %	+1.68	96	99	1
CANACCORD GENUITY	1	5,239	26,197	78	0.28	943	+3.60	+2.06	+6.54	6 %	+6.83	66	6	21
COWEN & CO	<1	4,983	39,867	74	0.33	1,283	+3.22	+2.06	+2.86	22 %	+2.77	1	9	9
RAYMOND JAMES	<1	6,855	47,984	60	0.53	1,564	+3.26	+2.06	0.57	87 %	0.62	-	-	-
BAIRD, ROBERT W	<1	2,752	5,504	46	0.72	198	+3.60	+2.06	49.64	99 %	49.35	-	-	11
NEEDHAM & CO INC	<1	6,311	31,556	75	0.32	1,001	+3.17	+2.06	+4.48	12 %	+4.34	61	7	98
PIPER JAFFRAY	<1	1,908	5,723	77	0.30	206	+3.60	+2.06	+11.92	1 %	+12.21	97	3	99
STEPHENS & CO INC	<1	2,693	2,693	75	0.32	97	+3.60	+2.06	+4.21	13 %	+4.50	99	1	3
Grand Total	23	3,124	731,035	67	0.43	24,757	+3.39	+2.06	+2.06	32 %	+2.13	79	4	37



(+) = Cost

TRADE CYCLE DETAIL

WEDGE CAPITAL MGMT LLP Performance (Full Day VWAP)

						COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	RANK TREND - Full Day VWAP		
Broker	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score Rank	E - Score	Commission (USD)	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20174TH (%)	20173RD (%)	20172ND (%)
BROADCORT CAPITAL	7	2,618	96,872	67	0.42	3,391	+3.50	+2.06	+1.60	42 %	+1.79	96	1	91
CANTOR FITZGERALD	2	4,428	48,706	80	0.26	1,705	+3.50	+2.06	1.57	92 %	1.38	32	61	1
BARCLAYS	1	4,589	68,842	68	0.41	2,410	+3.50	+2.06	+1.90	34 %	+2.09	48	95	93
STIFEL NICOLAUS & CO	1	910	26,378	83	0.22	923	+3.50	+2.06	0.24	83 %	0.05	1	1	99
JP MORGAN CHASE	1	3,556	35,558	56	0.58	1,245	+3.50	+2.06	+4.74	11 %	+4.93	77	-	91
DIRECT TRADING INSTI	<1	3,042	36,500	80	0.25	730	+2.00	+2.06	2.08	94 %	3.39	-	-	-
UBS	<1	3,868	15,470	61	0.51	541	+3.50	+2.06	+15.74	1 %	+15.93	13	-	-
JEFFERIES & CO	<1	2,005	20,047	69	0.40	702	+3.50	+2.06	+0.13	79 %	+0.32	83	85	6
RBC CAPITAL MARKETS	<1	4,238	25,425	56	0.57	890	+3.50	+2.06	+0.66	62 %	+0.85	78	99	99
KEEFE BRUYETTE WOODS	<1	6,200	12,400	48	0.71	155	+1.25	+2.06	9.16	99 %	11.21	-	1	11
JONES TRADING	<1	1,477	11,813	86	0.17	236	+2.00	+2.06	+1.90	34 %	+0.58	7	94	-
WEEDEN & CO	<1	2,485	7,454	80	0.25	261	+3.50	+2.06	2.74	96 %	2.55	-	96	92
SCOTIA CAPITAL	<1	4,900	4,900	59	0.53	172	+3.50	+2.06	9.70	99 %	9.51	66	-	-
MORGAN STANLEY	<1	13,400	13,400	42	0.79	469	+3.50	+2.06	+11.44	1 %	+11.63	-	98	-
B.RILEY & CO	<1	4,600	4,600	95	0.06	161	+3.50	+2.06	+1.50	44 %	+1.69	96	-	-
WELLS FARGO	<1	5,700	5,700	45	0.75	200	+3.50	+2.06	+27.27	1 %	+27.46	95	-	-
CITIGROUP	<1	700	1,400	26	1.09	49	+3.50	+2.06	+39.32	1 %	+39.51	-	-	-
BAIRD, ROBERT W	<1	773	1,546	53	0.62	54	+3.50	+2.06	3.89	96 %	3.70	-	-	-
SANDLER ONEILL	<1	200	200	32	0.97	0	+0.00	+2.06	12.61	99 %	15.92	-	99	95
Grand Total	17	2,803	437,211	68	0.41	14,292	+3.27	+2.06	+1.74	38 %	+1.70	66	79	90



(+) = 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)
CMCSA	1	152,875	5,114,464	+3.00	0.38%	0.04	+0.61
BCS	1	130,115	1,528,513	+2.00	1.66%	0.38	2.10
BAC	5	94,900	2,981,721	+2.40	0.02%	0.69	+21.63
GPRO	10	86,967	499,430	+3.00	0.17%	0.33	+0.19
SOI	18	72,580	1,544,607	+3.60	0.79%	0.26	+0.34
CHUBA	8	70,339	1,546,401	+3.41	2.11%	0.53	+5.59
CLNS	6	68,380	422,651	+3.00	0.15%	0.76	1.23
CUZ	5	68,328	614,219	+3.00	0.51%	0.39	1.03
KTOS	13	66,645	743,319	+3.60	0.23%	0.24	0.31
RF	2	62,400	1,216,528	+0.32	0.41%	1.02	4.93

Names Most Traded - Total Orders

							Market Impact
Security	# Orders	Shares	US Dollars	Commission (cps)	% of Volume	E - Score	Full Day VWAP (cps)
ECL	24	32,477	4,275,251	+2.27	0.11%	0.27	+0.08
SHW	16	8,629	3,596,917	+3.26	0.08%	0.43	+44.26
SBUX	10	49,982	2,833,748	+2.91	0.04%	0.46	+0.01
BHF	6	45,700	2,916,524	+0.85	0.76%	0.34	+0.06
BAC	5	94,900	2,981,721	+2.40	0.02%	0.69	+21.63
AMZN	5	3,421	4,950,441	+2.66	0.01%	0.62	494.82
JPM	3	26,100	2,995,663	+2.58	0.07%	1.04	81.19
MAR	2	22,638	3,181,664	+3.00	0.71%	0.23	+3.19
UPS	2	47,975	5,204,910	+3.00	0.39%	0.39	3.26
CMCSA	1	152,875	5,114,464	+3.00	0.38%	0.04	+0.61



(+) = Cost

TRADE CONTRIBUTIONS

Cost\Savings Performance				
Category	Principal USD	# of Trades	Avg. Market Impact (cps)	Percentage of all Cost/Savings
10 High Cost Trades	10,483,407	10	+133.49	28.95%
Cost Trades	82,707,882	612	+24.83	100.00%
Saving Trades	75,636,114	615	33.64	100.00%
10 Low Cost Trades	15,316,204	10	189.48	37.52%





(+) = Cost

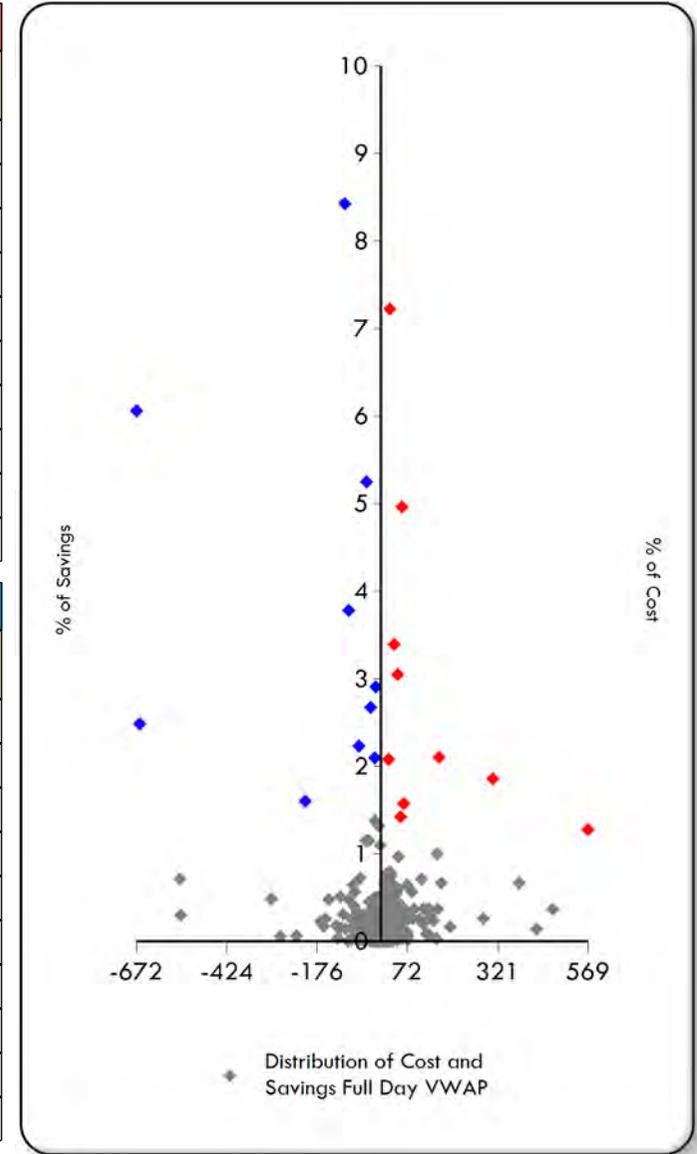
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Cost (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Sell	BAC	2018/02/14	73,100	7.22	0.61	+24.12	EAGLE CAPI	CAPITAL IN
Sell	PEP	2018/03/27	21,109	4.96	1.05	+57.35	EAGLE CAPI	CAPITAL IN
Buy	DKS	2018/03/14	22,990	3.40	0.92	+36.06	UBS GLOBAL	JP MORGAN
Sell	ILG	2018/02/14	16,332	3.05	1.01	+45.60	EAGLE CAPI	CAPITAL IN
Sell	W	2018/02/09	3,225	2.10	0.95	+159.32	WEATHERBIE	ITG
Buy	UPS	2018/02/14	24,725	2.08	0.39	+20.54	EAGLE CAPI	CAPITAL IN
Buy	BABA	2018/02/01	1,478	1.86	0.77	+306.98	BROWN ADVI	CAPITAL IN
Sell	EDIT	2018/03/12	6,169	1.58	0.62	+62.35	UBS GLOBAL	MERRILL LY
Buy	SHOO	2018/01/24	6,478	1.42	1.25	+53.70	UBS GLOBAL	BROADCORT
Sell	AMZN	2018/03/16	549	1.28	0.86	+568.85	EAGLE CAPI	CAPITAL IN

10 Low Cost Trades (Full Day VWAP)

Side	Security	Trade Date	Shares	Savings (%)	E - Score	Full Day VWAP (cps)	Manager	Broker
Sell	JPM	2018/02/14	21,000	8.43	1.16	99.67	EAGLE CAPI	CAPITAL IN
Sell	AMZN	2018/02/13	2,239	6.06	0.49	672.18	EAGLE CAPI	CAPITAL IN
Buy	WFC	2018/03/01	32,575	5.25	0.79	40.01	EAGLE CAPI	CAPITAL IN
Sell	NCNA	2018/01/19	10,554	3.78	0.29	89.07	UBS GLOBAL	BROADCORT
Buy	AER	2018/02/06	49,500	2.91	0.45	14.61	EAGLE CAPI	LIQUIDNET
Buy	UPS	2018/02/08	23,250	2.67	0.39	28.58	EAGLE CAPI	CAPITAL IN
Sell	GOOGL	2018/03/26	931	2.49	0.55	663.64	BROWN ADVI	SC BERNSTE
Buy	PTLA	2018/03/01	9,095	2.23	0.53	61.02	WEATHERBIE	WILLIAM BL
Buy	FOX	2018/02/02	30,000	2.10	0.86	17.38	EAGLE CAPI	CAPITAL IN
Buy	W	2018/02/22	1,910	1.60	0.45	208.61	WEATHERBIE	THEMIS TRA





(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

BAC - 2018/02/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/14/2018 09:30:00	02/14/2018 16:00:00	73,100	31.3718	31.6130	+17,630	+24.12	0.61	0.08



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 7.22% of your market impact cost.

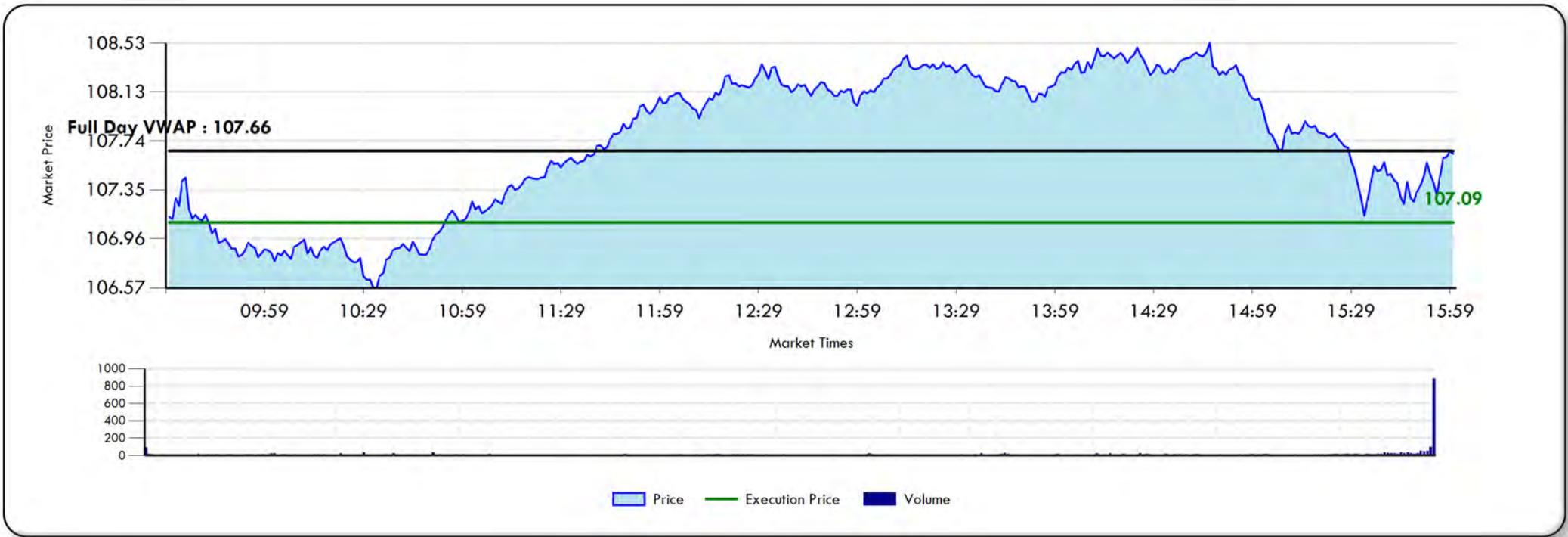


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

PEP - 2018/03/27

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	03/27/2018 09:30:00	03/27/2018 16:00:00	21,109	107.0867	107.6602	+12,107	+57.35	1.05	0.55



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 4.96% of your market impact cost.

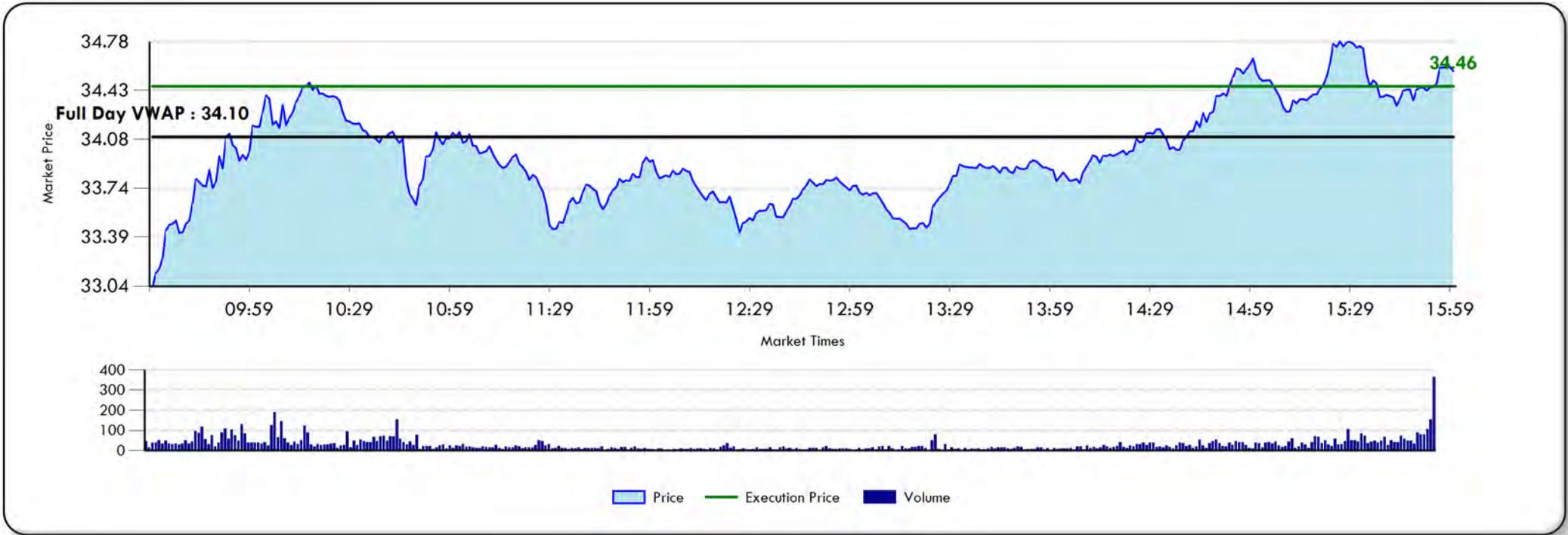


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

DKS - 2018/03/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	UBS GLOBAL ASSET MGMT	JP MORGAN CHASE	03/14/2018 09:30:00	03/14/2018 16:00:00	22,990	34.4611	34.1006	+8,289	+36.06	0.92	0.20



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.40% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

ILG - 2018/02/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/14/2018 09:30:00	02/14/2018 16:00:00	16,332	30.4568	30.9128	+7,447	+45.60	1.01	0.82



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.05% of your market impact cost.

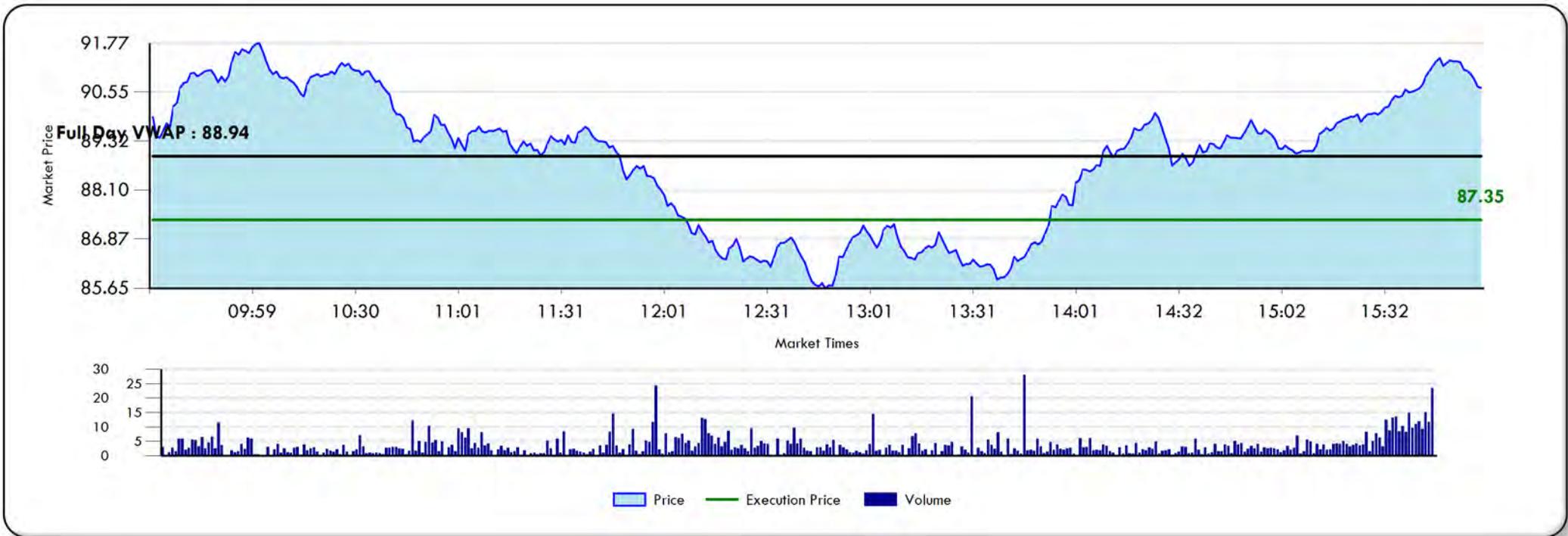


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

W - 2018/02/09

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	WEATHERBIE	ITG	02/09/2018 09:30:00	02/09/2018 16:00:00	3,225	87.3482	88.9414	+5,138	+159.32	0.95	0.23



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.10% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

UPS - 2018/02/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/14/2018 09:30:00	02/14/2018 16:00:00	24,725	106.3353	106.1299	+5,079	+20.54	0.39	0.42



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.08% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

BABA - 2018/02/01

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	BROWN ADVISORY	CAPITAL INSTL SVCS	02/01/2018 09:30:00	02/01/2018 16:00:00	1,478	198.0241	194.9543	+4,537	+306.98	0.77	0.00



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.86% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

EDIT - 2018/03/12

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	UBS GLOBAL ASSET MGMT	MERRILL LYNCH	03/12/2018 09:30:00	03/12/2018 16:00:00	6,169	41.7082	42.3317	+3,846	+62.35	0.62	0.27



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.58% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

SHOO - 2018/01/24

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	UBS GLOBAL ASSET MGMT	BROADCORT CAPITAL	01/24/2018 09:30:00	01/24/2018 16:00:00	6,478	48.8384	48.3014	+3,479	+53.70	1.25	1.01



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.42% of your market impact cost.

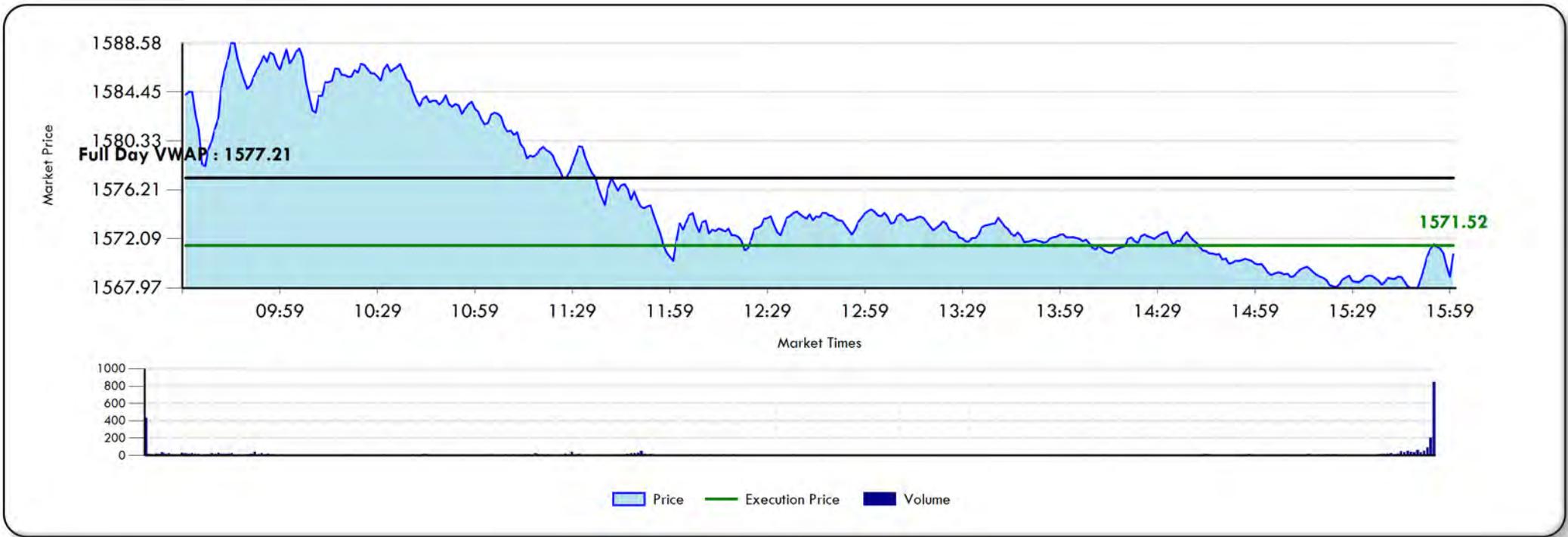


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

AMZN - 2018/03/16

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	03/16/2018 09:30:00	03/16/2018 16:00:00	549	1571.5175	1577.2060	+3,123	+568.85	0.86	0.01



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.28% of your market impact cost.

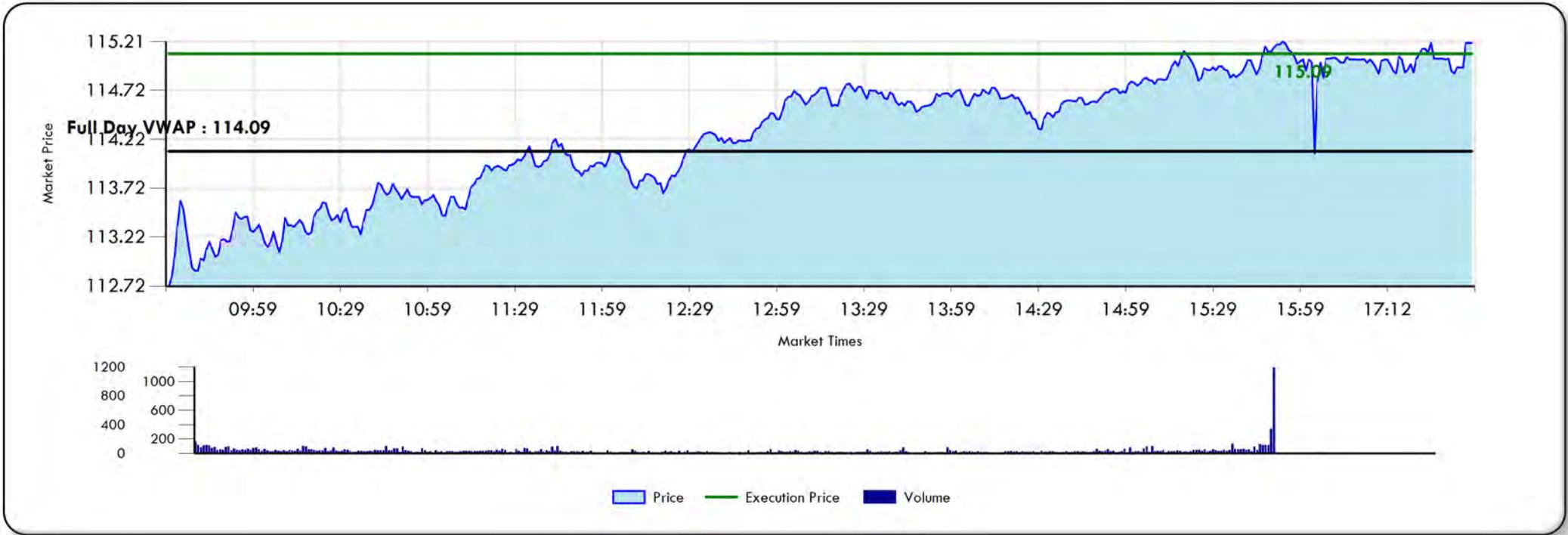


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

JPM - 2018/02/14

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/14/2018 09:30:00	02/14/2018 16:00:00	21,000	115.0903	114.0936	20,931	99.67	1.16	0.15



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 8.43% of your market impact savings.

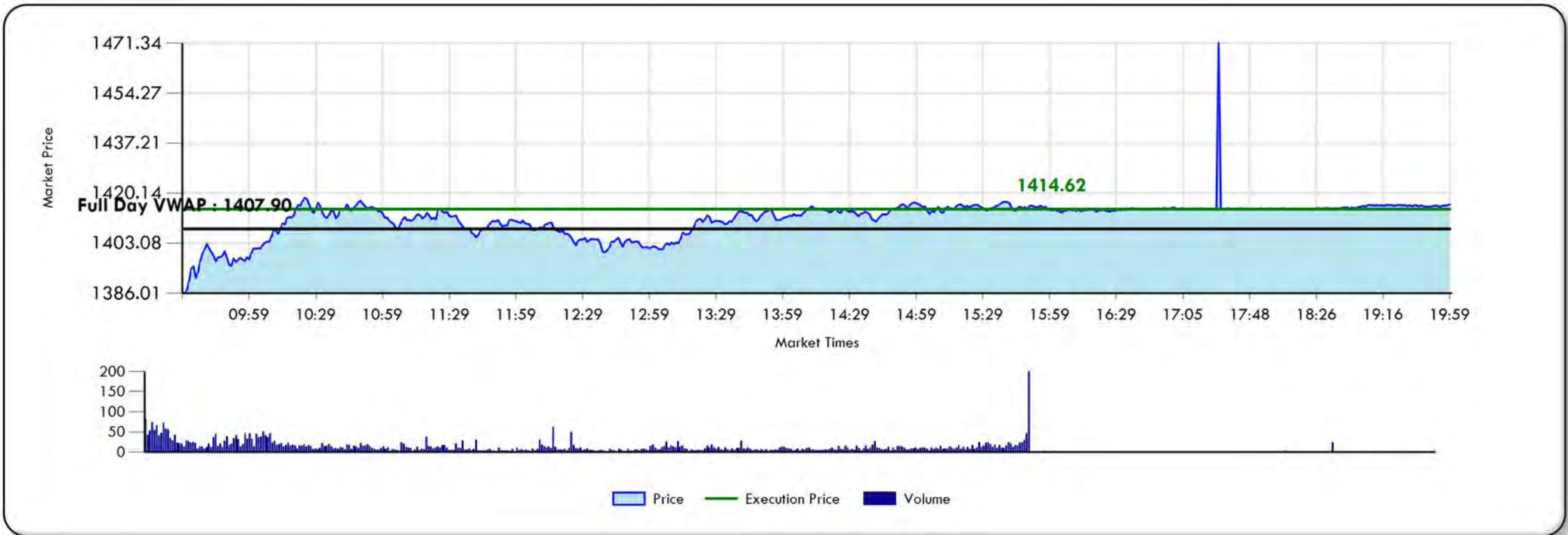


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

AMZN - 2018/02/13

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/13/2018 09:30:00	02/13/2018 16:00:00	2,239	1414.6188	1407.8970	15,050	672.18	0.49	0.04



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 6.06% of your market impact savings.

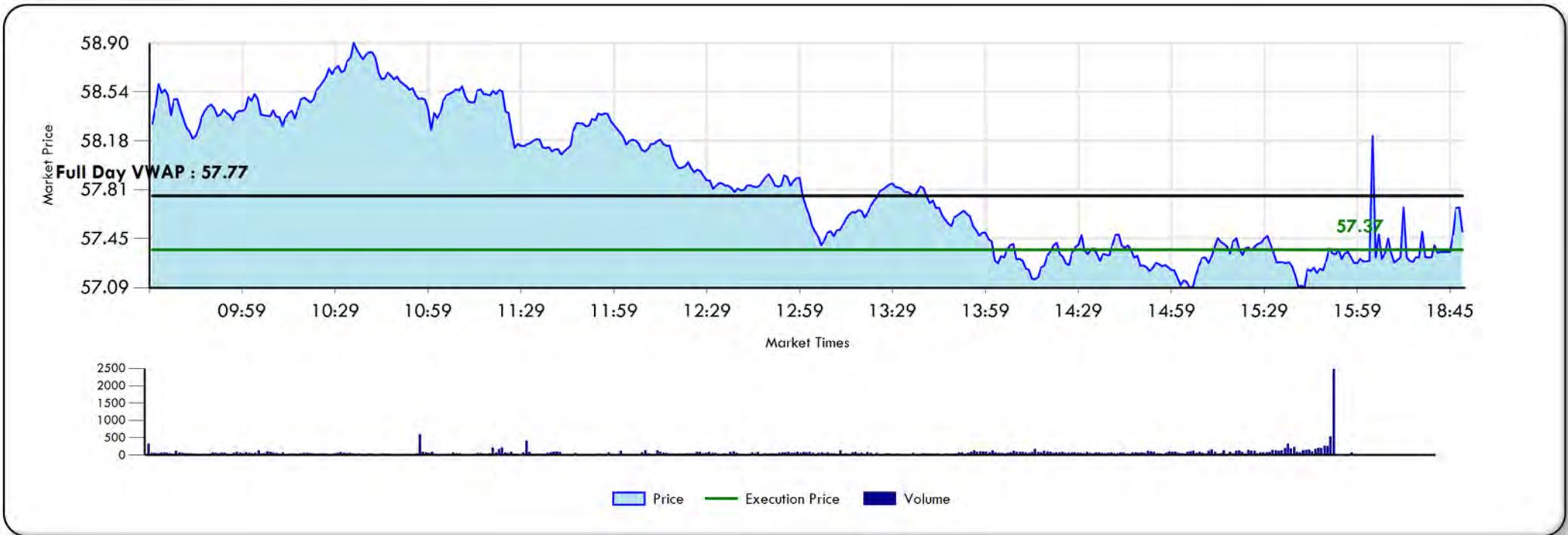


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

WFC - 2018/03/01

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	03/01/2018 09:30:00	03/01/2018 16:00:00	32,575	57.3674	57.7675	13,033	40.01	0.79	0.13



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 5.25% of your market impact savings.

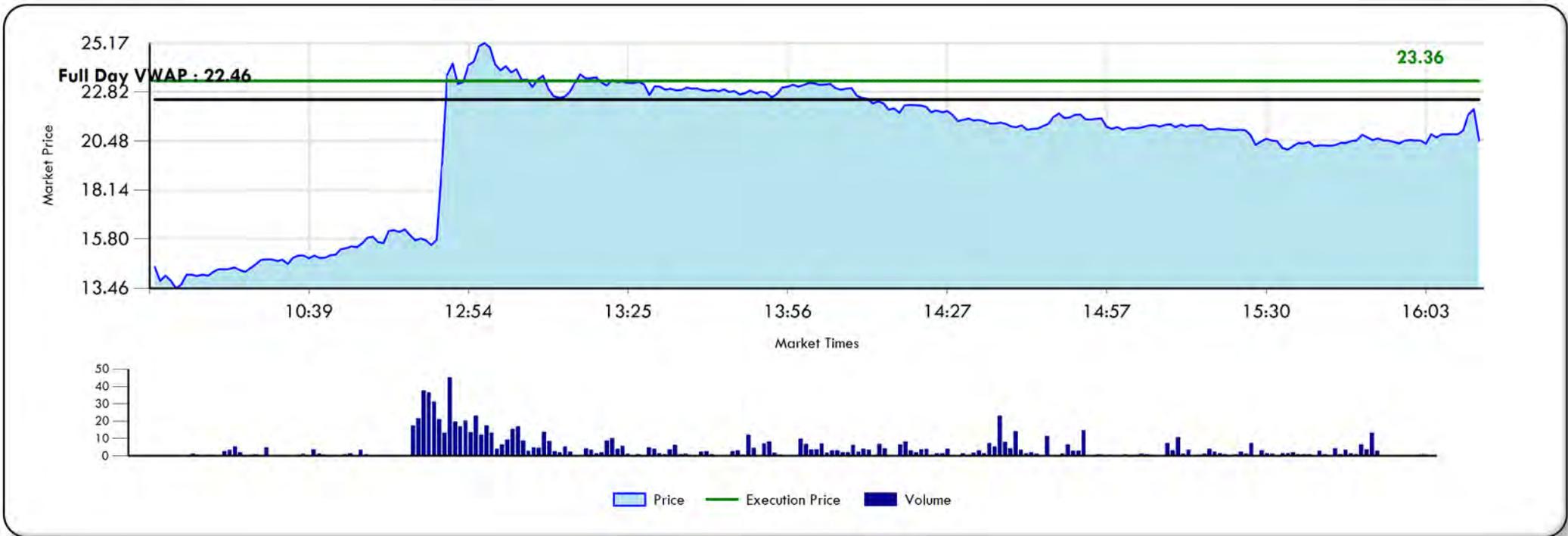


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

NCNA - 2018/01/19

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 (%)
Sell	UBS GLOBAL ASSET MGMT	BROADCORT CAPITAL	01/19/2018 09:30:00	01/19/2018 16:00:00	10,554	23.3554	22.4647	9,400	89.07	0.29	1.11



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.78% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

AER - 2018/02/06

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	LIQUIDNET	02/06/2018 09:30:00	02/06/2018 16:00:00	49,500	51.6491	51.7952	7,229	14.61	0.45	2.99



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.91% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

UPS - 2018/02/08

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/08/2018 09:30:00	02/08/2018 16:00:00	23,250	110.7858	111.0716	6,646	28.58	0.39	0.36



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.67% of your market impact savings.

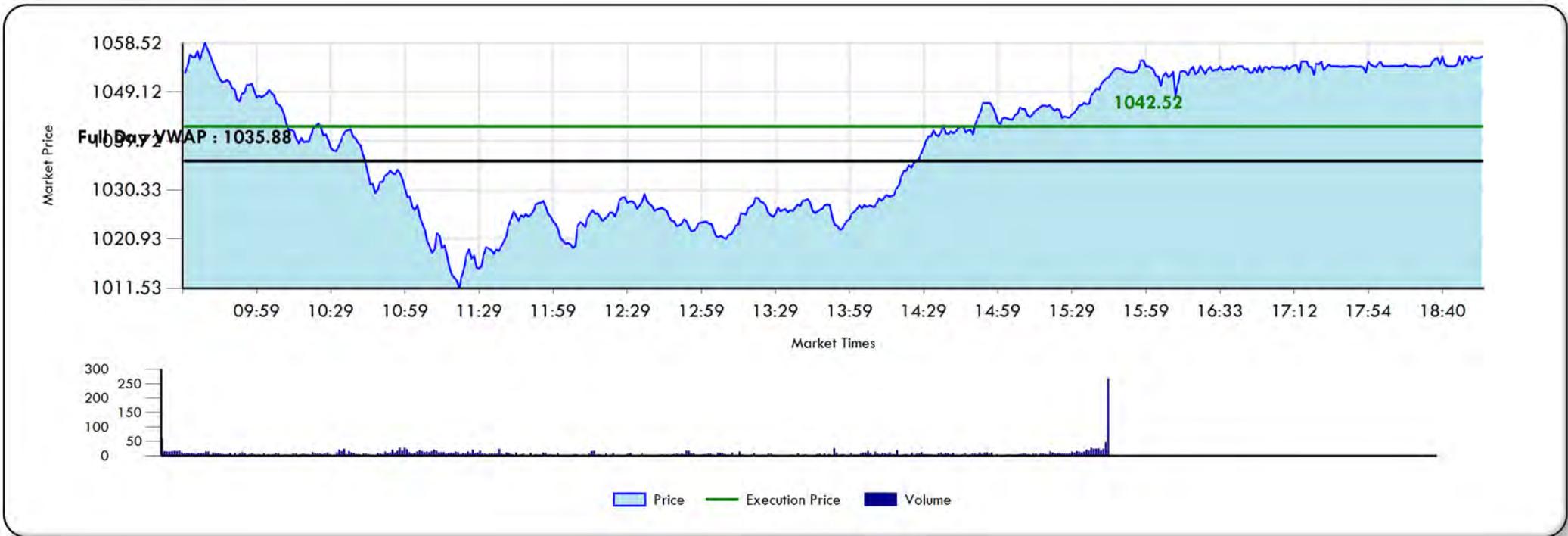


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

GOOGL - 2018/03/26

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Sell	BROWN ADVISORY	SC BERNSTEIN	03/26/2018 09:30:00	03/26/2018 16:00:00	931	1042.5201	1035.8837	6,178	663.64	0.55	0.03



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.49% of your market impact savings.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

PTLA - 2018/03/01

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	WEATHERBIE	WILLIAM BLAIR	03/01/2018 09:30:00	03/01/2018 16:00:00	9,095	30.9191	31.5293	5,550	61.02	0.53	0.10



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.23% of your market impact savings.

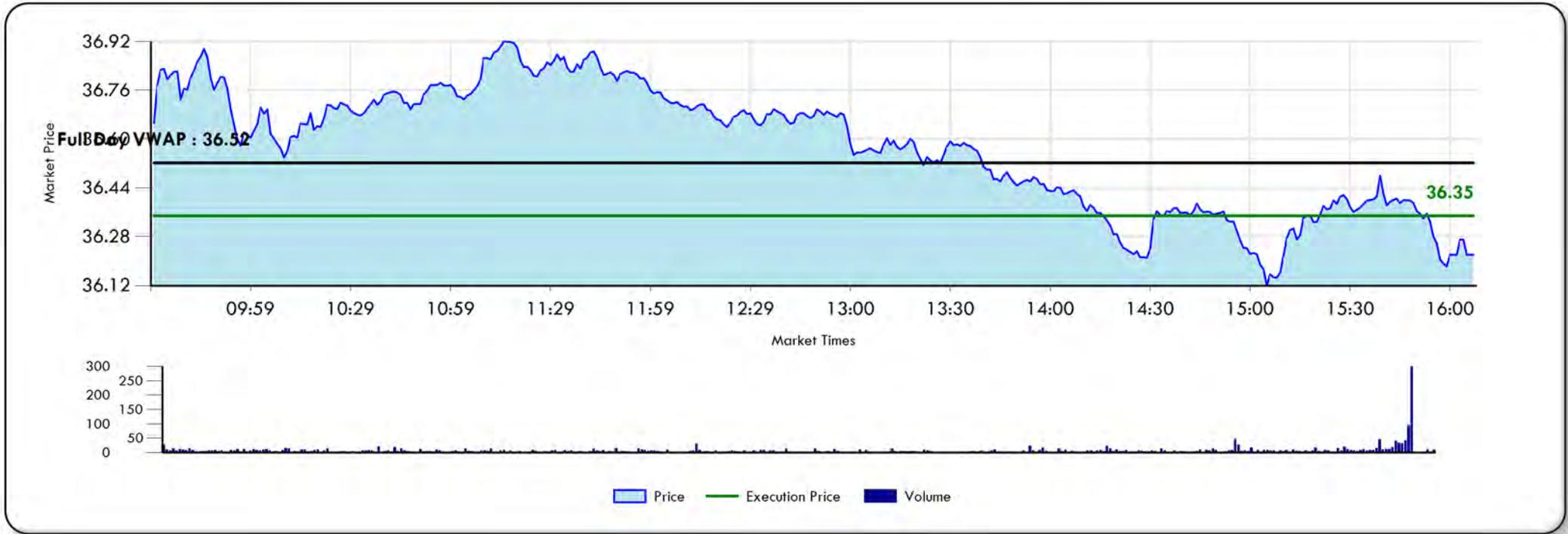


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

FOX - 2018/02/02

Side	Manager	Broker	Time In (EST)	Time Out (EST)	Shares	Client Price (USD)	Full Day VWAP (USD)	Cost Full Day VWAP (USD)	Cost Full Day VWAP (cps)	E - Score	Volume (%)
Buy	EAGLE CAPITAL MANAGEMENT	CAPITAL INSTL SVCS	02/02/2018 09:30:00	02/02/2018 16:00:00	30,000	36.3486	36.5224	5,213	17.38	0.86	1.15



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.10% of your market impact savings.

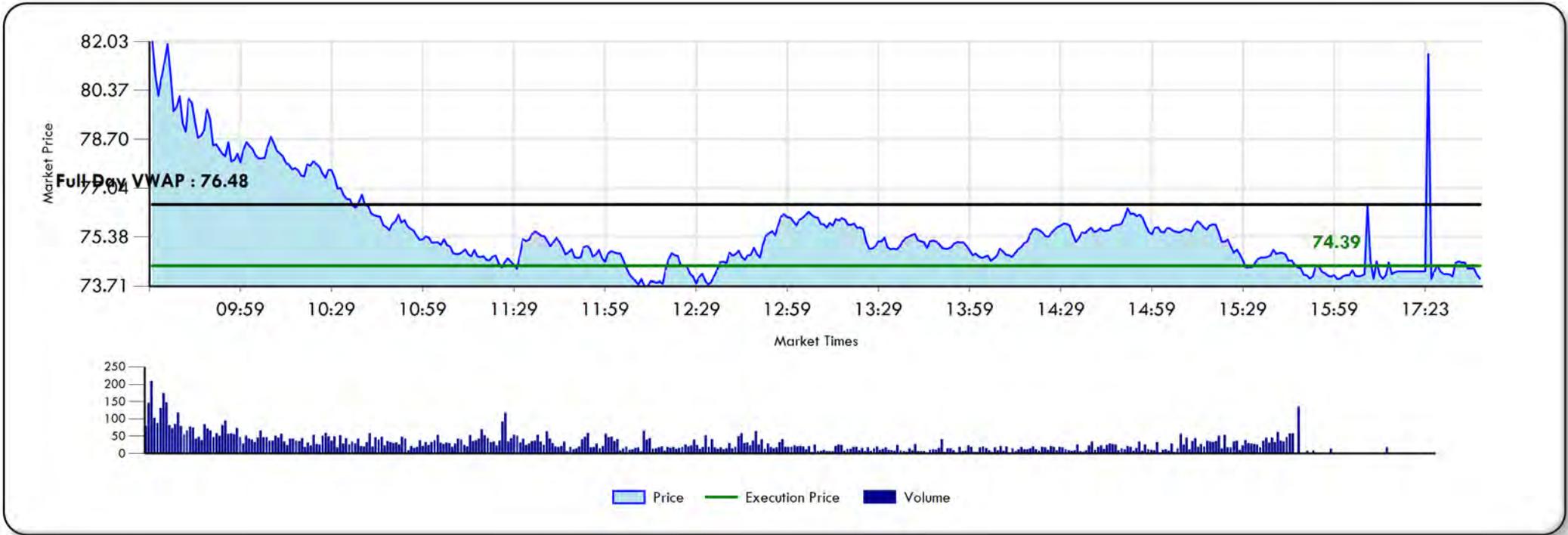


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

W - 2018/02/22

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	THEMIS TRADING LLC	02/22/2018 09:30:00	02/22/2018 16:00:00	1,910	74.3906	76.4767	3,984	208.61	0.45	0.02



NOTES

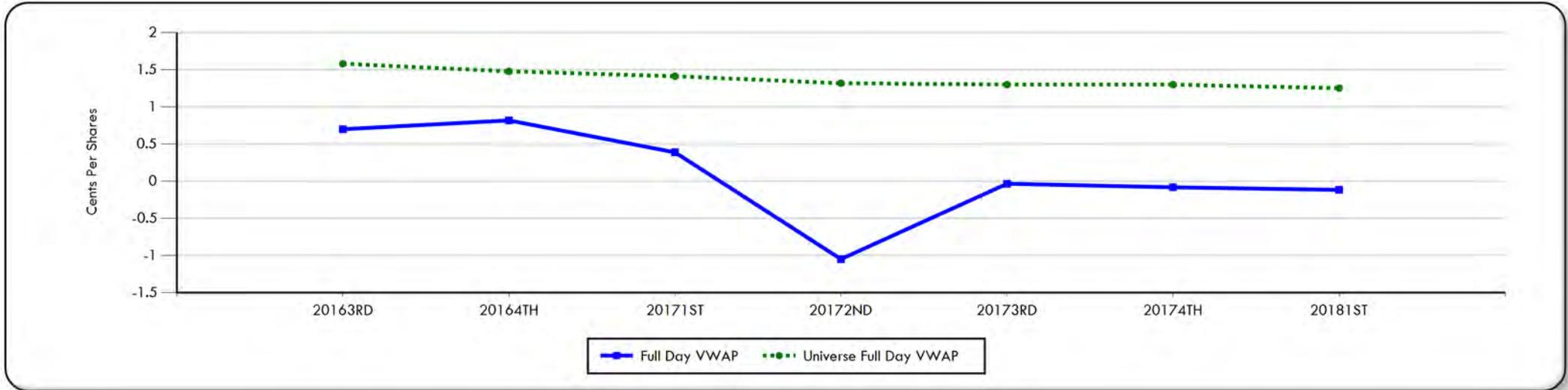
- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.60% of your market impact savings.



(+) = Cost

TRADE HISTORY

Trade History						
Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP	Full Day VWAP Universe Rank
			(cps)	(\$)		
20163RD	3,727,750	130,612,069	+3.24	120,906	+0.70	67
20164TH	3,691,765	124,133,249	+3.16	116,656	+0.82	65
20171ST	3,961,231	140,137,188	+2.63	104,144	+0.39	74
20172ND	5,271,800	199,346,650	+2.32	122,417	1.05	91
20173RD	3,933,837	136,419,896	+2.71	106,661	0.04	82
20174TH	4,135,427	144,811,996	+2.63	108,628	0.09	80
20181ST	3,617,136	158,343,996	+2.72	98,459	0.12	81



Note on Universes:

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

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(+) = 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 January 1, 2018 to March 31, 2018. The analysis included trading of 25,139,015 shares representing \$207.23 million in principal across 30 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 +8.30 bp or \$ +\$172,082 (6.02 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +5.34 bp or \$ +110,683 (0.09 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact savings was 2.52 bp or \$52,186 (9.01 bp better than the Elkins/McSherry Universe) Your overall trading cost of +11.13 bp was 15.12 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 4 countries and lower than the Elkins/McSherry Universe in 30 countries. 13 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 47 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : -0.07



(+) = Cost

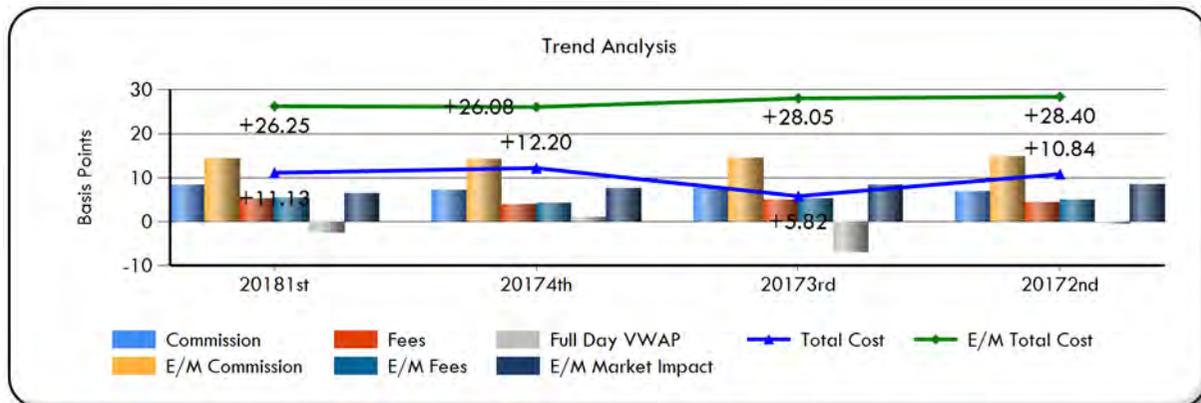
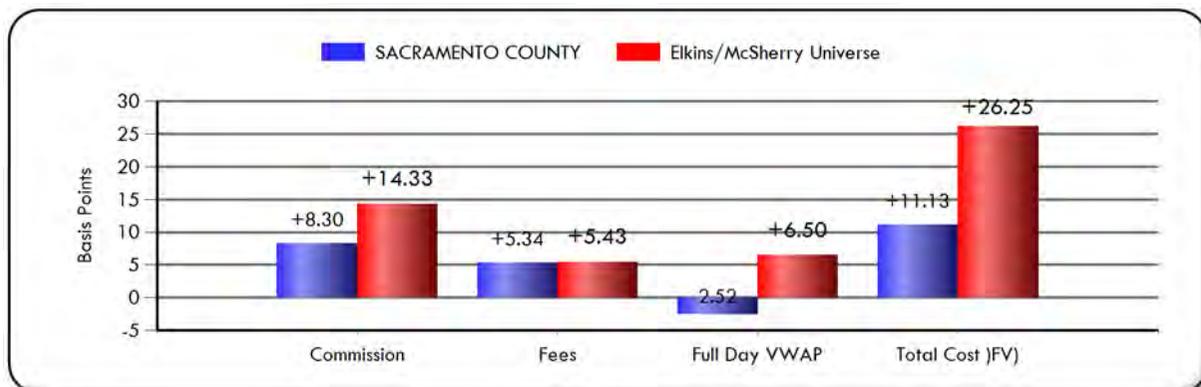
EXECUTIVE SUMMARY

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	+9.08	+14.41	+5.69	+1.35	+1.35	+1.47	+7.51	+11.90	11.37	0.02
Buy	+7.40	+14.23	+5.59	+9.99	+10.18	7.16	+5.32	+10.23	19.49	-0.17
Total	+8.30	+14.33	+5.65	+5.34	+5.43	2.52	+6.50	+11.13	15.12	-0.07

TRADING COMPONENTS

	Buys	Sells
Trade Principal	95,755,780	111,477,058
Shares	11,531,563	13,607,452
Unique Names	211	135
Liquidity (% POV)	0.507	0.973
Avg. Order Size	12,728	14,522
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	906	937





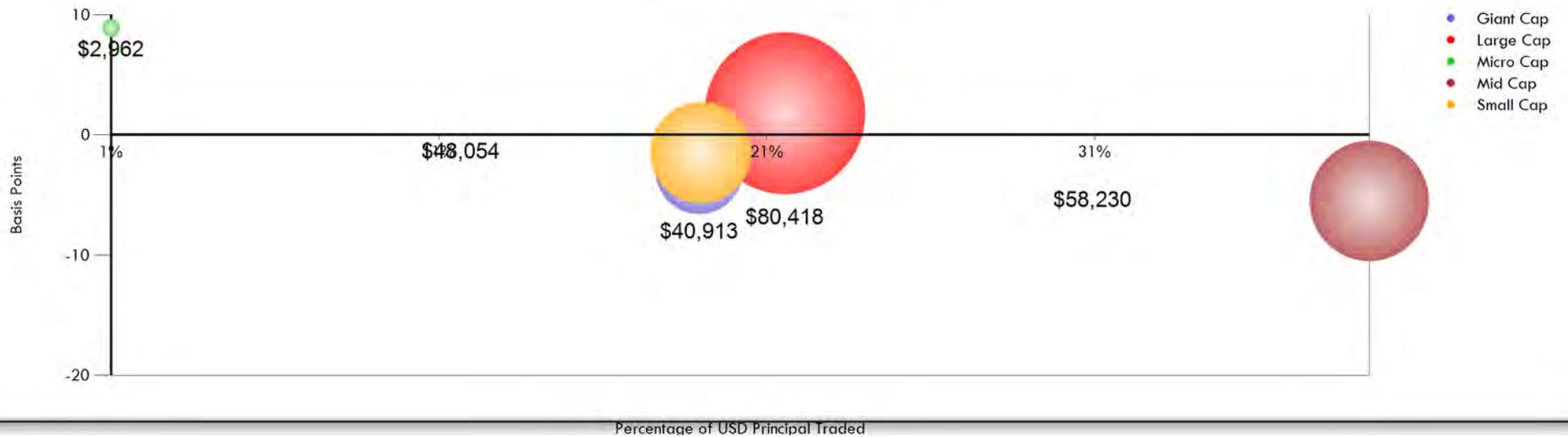
(+) = Cost

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)		
Mid Cap	39.41 %	101,330	+8.35	+14.41	5.49	+6.95	+7.13	18.52	-0.06	\$1 Billion To \$5 Billion
Large Cap	21.58 %	128,885	+10.28	+14.23	+1.81	+6.73	+17.98	8.95	-0.04	\$5 Billion To \$25 Billion
Small Cap	19.01 %	84,737	+7.97	+14.43	1.48	+6.90	+12.20	15.06	-0.04	\$250 Million To \$1 Billion
Giant Cap	18.97 %	206,885	+6.47	+14.17	2.92	+4.87	+10.41	15.58	-0.12	Over \$25 Billion
Micro Cap	1.03 %	60,767	+4.99	+14.18	+8.88	+6.82	+13.91	7.12	-0.05	Under \$250 Million

Total Cost by Market Cap: (USD)





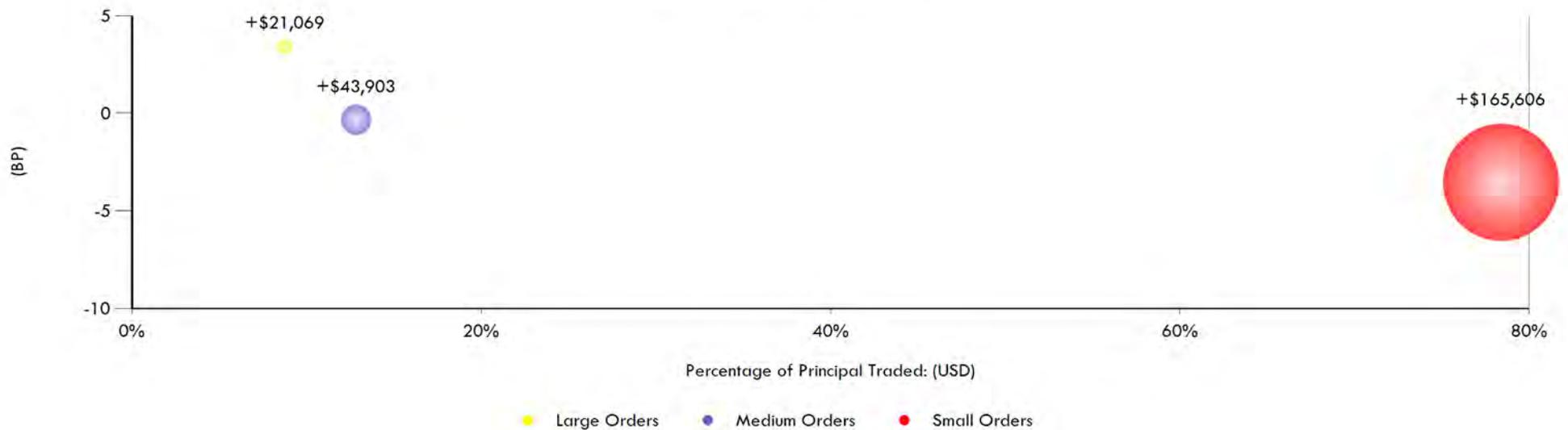
(+) = Cost

EXECUTIVE SUMMARY

ORDER SIZE EVALUATION

Order Size	Total # Of Orders	Avg. Principal Per Order (\$)	Avg. Order Completion Time (min)	COMMISSION		MARKET IMPACT		Total Cost	Total Cost/Savings	E - Score	Absolute Size (Principal)
				Your Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	(bp)	Commission+Fees +Full Day VWAP Vs. Universe (bp)		
Large Orders	11	1,651,408	N/A	+8.18	+13.97	+3.41	+6.83	+11.59	9.24	0.01	1M or Greater
Medium Orders	39	681,831	N/A	+9.99	+14.20	0.33	+7.10	+16.50	11.62	-0.02	Between 500k - 1M
Small Orders	1,793	90,617	N/A	+8.04	+14.38	3.54	+6.36	+10.20	16.35	-0.08	500K or Less

Total Cost By Order Size: (USD)





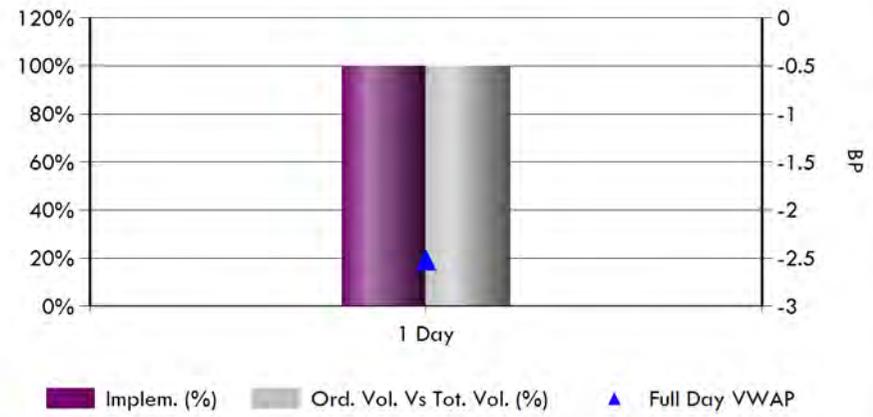
(+) = Cost

EXECUTIVE SUMMARY

IMPLEMENTATION DAYS BY TRADE

Period	Percent Traded (%)	Order Vol. Vs Total Vol. (%)	Full Day VWAP (bp)	E - Score
1 Day	100.00	100%	2.52	-0.06

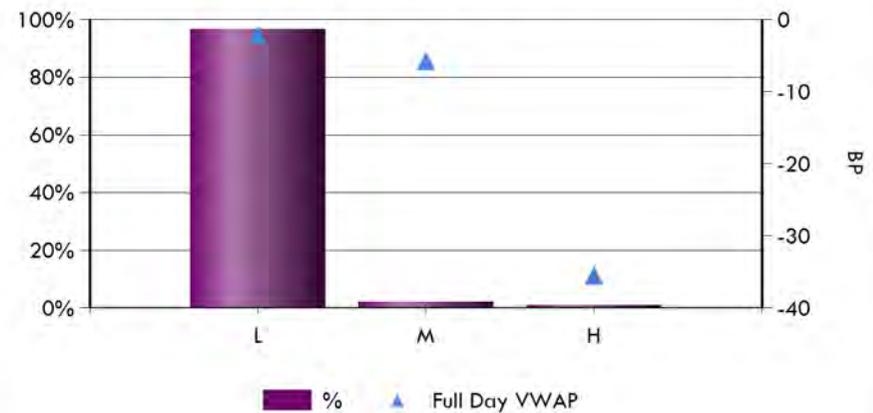
Implementation Days



TRADE DIFFICULTY

Methodology	Liquid. Cat.	Percent Traded (%)	Full Day VWAP (bp)	E - Score
50%+ of daily vol.	H	1%	35.48	-0.57
0%~20% of daily vol.	L	97%	2.10	-0.05
20%~50% of daily vol.	M	2%	5.70	-0.25

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										
CZECH REPUBLIC	1	0.54%	+17.68	+18.60	+0.00	+0.00	+17.15	+4.71	+11.52	0.46
CANADA	16	7.91%	+16.86	+14.71	+0.00	+0.02	+8.38	+5.74	+4.77	-0.10
SINGAPORE	9	4.35%	+10.22	+14.05	+3.97	+3.47	+8.86	+2.97	+2.56	0.38
INDONESIA	<1	0.15%	+5.00	+17.19	+14.80	+8.83	+12.07	+5.08	+0.77	0.35

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										
SOUTH AFRICA - BUYS	<1	0.48%	+8.00	+15.19	+25.07	+23.90	68.13	+7.06	81.21	0.11
KOREA - BUYS	<1	0.31%	+11.40	+17.48	+0.00	+0.00	27.32	+7.80	41.20	-0.23
BRAZIL	1	0.57%	+18.02	+14.60	+3.25	+2.08	32.27	+10.13	37.81	-0.27
U.K. - BUYS	12	5.99%	+5.81	+14.16	+49.67	+50.00	24.80	+2.99	36.47	-0.69
SWITZERLAND	9	4.43%	+5.42	+14.45	+0.00	+0.06	18.04	+5.15	32.28	-0.54
U.K. - SELLS	13	6.41%	+5.75	+14.21	+0.10	+0.00	4.11	+19.22	31.69	-0.05
MEXICO	<1	0.27%	+14.80	+14.72	+0.00	+0.00	27.43	+2.05	29.40	-0.34
THAILAND	<1	0.23%	+7.02	+15.98	+0.73	+0.85	14.90	+4.10	28.08	0.40
IRELAND - BUYS	<1	0.48%	+5.19	+14.11	+100.05	+100.00	9.80	+4.04	22.71	0.00
FINLAND	3	1.33%	+8.30	+13.73	+0.00	+0.02	6.44	+9.30	21.19	-0.11
AUSTRIA	<1	0.19%	+4.00	+13.99	+0.00	+0.05	0.18	+9.65	19.87	-0.03
SWEDEN	9	4.15%	+7.74	+14.00	+0.00	+0.02	10.05	+1.95	18.28	-0.06
AUSTRALIA	13	6.13%	+9.03	+14.89	+0.00	+1.78	4.40	+5.24	17.28	-0.11
SPAIN	2	1.13%	+9.74	+14.13	+0.00	+0.01	7.20	+5.27	16.87	-0.44
FRANCE - BUYS	5	2.19%	+5.07	+13.89	+28.29	+30.00	0.22	+4.50	15.25	-0.10
JAPAN	55	26.59%	+6.79	+13.99	+0.00	+0.02	0.15	+7.76	15.13	-0.03
IRELAND - SELLS	<1	0.40%	+10.21	+13.30	+0.06	+0.00	+12.82	+24.36	14.58	0.99
NORWAY	2	0.75%	+8.73	+12.84	+0.00	+0.03	+1.07	+8.98	12.05	0.22
HONG KONG	12	5.84%	+8.22	+14.11	+10.78	+10.03	4.48	+2.10	11.73	-0.04
BELGIUM	7	3.29%	+9.42	+13.79	+0.00	+0.02	1.41	+5.69	11.50	0.11
INDIA	5	2.31%	+10.14	+15.86	+11.18	+10.61	2.38	+3.72	11.25	0.09
GERMANY	5	2.58%	+5.44	+13.91	+0.00	+0.03	+3.51	+5.67	10.67	0.01
ITALY - BUYS	<1	0.33%	+11.88	+13.76	+10.00	+12.00	1.91	+3.73	9.52	0.29

EXECUTIVE SUMMARY

COUNTRY PERFORMANCE

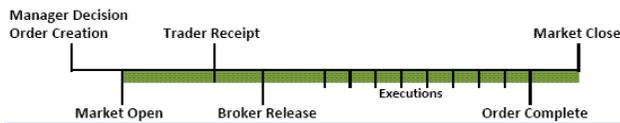
Country	Principal (\$ Millions)	Total Principal Traded (%)	COMMISSION		FEES		MARKET IMPACT		Total Cost Diff. From Universe (bp)	E - Score
			Commission (bp)	Bundled Universe Commission (bp)	Fees (bp)	Universe Fees (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)		
LOWEST COST COUNTRIES - Total Cost Universe Difference										
FRANCE - SELLS	4	1.82%	+4.64	+14.08	+0.00	+0.00	+5.41	+4.63	8.66	-0.11
DENMARK	5	2.25%	+8.79	+13.89	+0.00	+0.00	+5.59	+8.37	7.88	0.17
U.S.	5	2.22%	+3.47	+14.87	+0.09	+0.12	+8.78	+3.32	5.97	-0.07
NEW ZEALAND	<1	0.33%	+15.25	+13.99	+0.00	+0.01	+3.59	+8.86	4.02	0.25
ISRAEL	3	1.23%	+15.87	+20.62	+0.00	+0.09	+7.71	+5.63	2.76	-0.03
NETHERLANDS	5	2.58%	+9.38	+13.78	+0.00	+0.22	+7.95	+5.41	2.08	-0.03
ITALY - SELLS	<1	0.22%	+14.47	+12.85	+0.00	+0.00	+8.55	+10.76	0.59	0.12



(+) = Cost

TRADE CYCLE DETAIL

5 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
S&P GLOBAL INFRAST-I	<1	63	0.13%	4,383	0.07	+2.34	+14.45	+14.41	+4.14	4.65	22.54	17.28	12.03
CBRE CLARION (INTL R	54	309	26.28%	176,278	-0.05	+10.06	+14.20	0.84	+5.71	10.94	25.86	13.37	17.69
LAZARD ASSET MANAGEM	61	341	29.40%	178,680	-0.03	+9.87	+14.20	1.07	+7.83	13.25	6.32	36.08	15.49
WILLIAM BLAIR & COMP	38	405	18.13%	92,757	0.06	+8.90	+14.89	2.07	+6.71	14.73	8.44	16.14	17.40
LSV ASSET MANAGEMENT	54	725	26.05%	74,469	-0.20	+4.38	+14.20	6.25	+5.65	21.78	19.83	19.23	27.69

NOTES

- Manager above made up 100.00 % of principal traded.



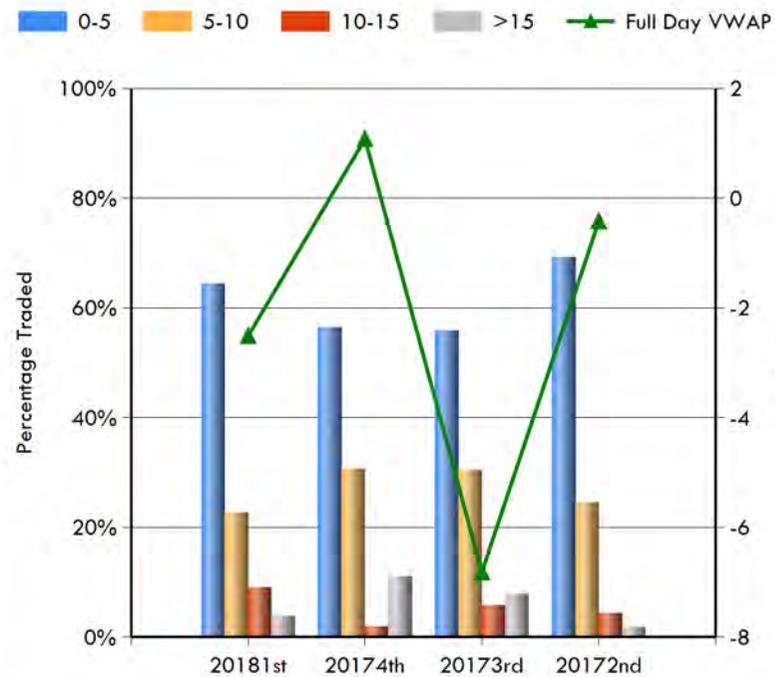
(+) = Cost

COMMISSION REVIEW

COMMISSION REVIEW - Top 20 Brokers (Commission \$)

Broker	Total Commission	Commission (bp)	Bundled Universe (bp)	All Trading Universe (bp)	Commission Trends		
					20174th (bp)	20173rd (bp)	20172nd (bp)
CREDIT SUI	27,006	+9.12	+14.15	+5.42	+5.90	+8.54	+5.63
MORGAN STA	22,577	+20.18	+14.83	+6.32	+7.43	+6.35	+11.38
CITIGROUP	13,922	+6.88	+14.66	+5.73	+5.41	+11.09	+5.37
MERRILL LY	11,987	+6.37	+14.23	+5.30	+6.67	+6.13	+5.01
JP MORGAN	11,023	+10.71	+13.98	+5.67	+9.58	+10.21	+6.43
UBS	9,614	+9.17	+14.60	+5.61	+6.84	+7.49	+5.50
BNP PARIBA	6,580	+7.75	+14.23	+5.77	+7.70	+8.27	+7.22
SMBC SECUR	5,898	+7.17	+13.99	+5.62	+7.72	+9.58	+10.19
RBC DOMINI	4,763	+10.36	+14.71	+7.56	+17.83	+16.26	+14.11
MACQUARIE	4,392	+9.34	+14.24	+5.17	+7.19	+8.88	+7.32
ITG	4,220	+6.52	+14.23	+5.66	+5.53	+4.15	+6.63
DEUTSCHE B	3,873	+8.03	+15.59	+5.75	+8.90	+6.24	+5.07
DAIWA SECU	3,554	+8.93	+14.01	+5.49	+7.74	+9.59	+9.75
INSTINET	3,150	+3.96	+14.07	+5.35	+4.71	+4.61	+6.71
SOCIETE GE	3,122	+5.11	+13.96	+5.09	+6.48	+6.29	+5.91
CREDIT AGR	2,893	+9.70	+14.58	+5.51	+9.39	+9.47	+9.31
GOLDMAN SA	2,578	+6.90	+14.21	+5.15	+9.55	+9.89	+7.72
ABG SECURI	2,485	+11.74	+13.96	+5.67	+12.17	+12.00	+13.24
MIZUHO	2,126	+9.49	+13.99	+5.62	+8.66	+10.43	+10.56
BARCLAYS	2,001	+3.68	+14.21	+4.93	+3.32	+3.84	+3.32

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)	20174th (bp)	20173rd (bp)	20172nd (bp)
LAZARD ASSET MANAGEM	61	341	29.40%	178,680	-0.03	+9.87	+14.20	1.07	+7.83	13.25	6.32	36.08	15.49
CBRE CLARION (INTL R	54	309	26.28%	176,278	-0.05	+10.06	+14.20	0.84	+5.71	10.94	25.86	13.37	17.69
LSV ASSET MANAGEMENT	54	725	26.05%	74,469	-0.20	+4.38	+14.20	6.25	+5.65	21.78	19.83	19.23	27.69
WILLIAM BLAIR & COMP	38	405	18.13%	92,757	0.06	+8.90	+14.89	2.07	+6.71	14.73	8.44	16.14	17.40
S&P GLOBAL INFRAS-T-I	<1	63	0.13%	4,383	0.07	+2.34	+14.45	+14.41	+4.14	4.65	22.54	17.28	12.03

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)	20174th (bp)	20173rd (bp)	20172nd (bp)
CREDIT SUISSE	30	254	14.28%	116,521	-0.05	27,006	+9.12	+14.15	2.92	+5.93	14.02	16.85	15.94	15.19
CITIGROUP	20	226	9.76%	89,489	-0.08	13,922	+6.88	+14.66	+0.16	+5.61	13.67	15.74	16.54	8.36
MERRILL LYNCH	19	111	9.08%	169,442	-0.21	11,987	+6.37	+14.23	6.17	+8.23	22.31	5.02	8.03	19.03
MORGAN STANLEY	11	83	5.40%	134,791	0.09	22,577	+20.18	+14.83	+9.88	+5.89	+9.36	15.30	20.44	7.94
UBS	10	128	5.06%	81,895	-0.12	9,614	+9.17	+14.60	7.21	+5.79	18.64	21.64	14.92	23.30
JP MORGAN CHASE	10	58	4.97%	177,530	0.03	11,023	+10.71	+13.98	+5.82	+5.78	3.86	11.50	13.56	6.94
BNP PARIBAS	8	69	4.10%	123,053	0.16	6,580	+7.75	+14.23	+5.55	+6.23	7.01	24.12	+5.57	23.73
SMBC SECURITIES INC	8	21	3.97%	391,880	0.02	5,898	+7.17	+13.99	0.89	+7.76	15.49	10.54	9.12	1.40
INSTINET	8	98	3.84%	81,217	-0.13	3,150	+3.96	+14.07	2.95	+10.22	23.31	18.01	8.07	12.56
ITG	6	76	3.12%	85,141	0.18	4,220	+6.52	+14.23	+5.78	+6.33	8.16	14.45	2.73	22.92

NOTES

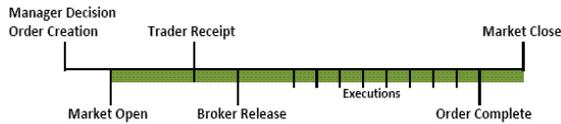
- Brokers above made up 63.57 % of principal traded.



(+) = 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
SOCIETE GENERALE	6	64	2.95%	95,453	-0.19	3,122	+5.11	+13.96	6.04	+8.83	24.04	4.52	28.18	25.94
BARCLAYS	5	68	2.62%	79,951	-0.95	2,001	+3.68	+14.21	32.07	+5.76	48.23	12.30	22.10	42.89
DEUTSCHE BANK	5	55	2.33%	87,715	-0.01	3,873	+8.03	+15.59	7.19	+5.27	20.07	6.03	21.19	21.23
MACQUARIE	5	33	2.27%	142,469	0.20	4,392	+9.34	+14.24	0.35	+2.92	7.89	13.32	15.54	8.45
RBC DOMINION SECS	5	24	2.22%	191,556	0.01	4,763	+10.36	+14.71	+3.28	+5.74	6.83	+10.17	6.61	18.54
SCOTIA CAPITAL	4	67	1.98%	61,353	-0.34	469	+1.14	+14.71	7.88	+5.74	27.21	27.08	33.88	62.42
DAIWA SECURITIES	4	33	1.92%	120,641	-0.10	3,554	+8.93	+14.01	0.19	+6.65	11.80	13.03	3.55	1.86
GOLDMAN SACHS	4	37	1.80%	100,925	0.11	2,578	+6.90	+14.21	+1.16	+8.84	14.07	4.04	14.83	19.70
EXANE	3	26	1.50%	119,394	-0.26	1,643	+5.29	+14.08	7.45	+4.86	21.27	20.52	20.52	22.54
HSBC BANK	3	47	1.46%	64,324	0.00	1,644	+5.44	+14.53	10.37	+6.71	25.63	49.21	29.13	71.14

NOTES

- Brokers above made up 21.05 % 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
CREDIT AGRICOLE	3	23	1.44%	129,717	-0.12	2,893	+9.70	+14.58	11.60	+5.09	22.29	9.30	10.94	5.25
JEFFERIES & CO	2	32	1.17%	75,470	0.03	1,751	+7.25	+14.08	+13.25	+5.42	+0.98	+0.43	13.34	201.47
MIZUHO	2	12	1.08%	186,754	0.32	2,126	+9.49	+13.99	+8.84	+7.76	3.44	9.35	11.23	11.71
ABG SECURITIES	2	8	1.02%	264,575	-0.41	2,485	+11.74	+13.96	27.77	+2.21	32.21	36.56	21.72	26.33
LIQUIDNET	2	17	1.00%	121,509	-0.26	1,084	+5.25	+14.66	15.08	+4.94	29.48	49.00	417.13	6.59
MITSUBISHI UFJ SECS	2	14	0.96%	141,699	0.05	1,777	+8.96	+13.99	+2.14	+7.76	10.67	10.11	9.22	15.60
REDBURN PARTNERS LLP	2	3	0.89%	613,889	0.10	1,071	+5.81	+14.20	1.44	+14.85	24.64	-	15.43	+25.36
SC BERNSTEIN	2	27	0.75%	57,227	-0.11	744	+4.81	+14.44	3.58	+4.74	17.82	4.97	11.07	18.72
INVESTEC BANK	2	22	0.72%	68,244	-0.82	924	+6.15	+14.19	25.20	+13.01	46.11	40.92	-	14.12
DANSKE BANK	1	5	0.70%	288,902	-0.47	1,011	+7.00	+14.00	20.07	+1.95	29.04	-	51.99	-

NOTES

- Brokers above made up 9.72 % 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
NOMURA	<1	3	0.43%	296,595	-0.05	519	+5.83	+13.99	1.21	+7.76	17.15	11.05	-	44.94
PERSHING	<1	2	0.42%	431,362	1.00	1,035	+12.00	+14.00	+7.09	+1.95	+3.12	+24.94	+3.90	-
CIBC WORLD MARKETS	<1	3	0.39%	272,678	0.49	1,602	+19.58	+14.71	+20.61	+5.74	+19.72	-	+11.28	-
GOODBODY STOCKBROKER	<1	1	0.39%	807,980	0.18	404	+5.00	+14.11	+9.61	+4.04	3.52	-	-	52.81
D CARNEGIE AG	<1	6	0.38%	131,908	0.22	554	+7.00	+14.00	+25.37	+1.95	+16.40	11.91	-	22.76
ABN AMRO	<1	1	0.36%	737,521	0.58	885	+12.00	+13.78	+36.55	+5.41	+29.14	-	3.44	19.23
GREEN STREET	<1	4	0.33%	169,419	0.18	813	+12.00	+13.48	+8.40	+19.86	12.85	20.63	30.96	+16.39
DBS VICKERS SECS	<1	2	0.31%	323,383	0.39	647	+10.00	+14.05	+7.79	+2.97	+1.30	11.45	0.10	13.65
TD WATERHOUSE	<1	11	0.30%	55,609	0.13	1,105	+18.07	+14.71	+50.13	+5.74	+47.73	10.24	28.62	36.47
PAVILION GLOBAL MKT	<1	18	0.27%	31,267	-0.27	169	+3.00	+14.71	1.13	+5.74	18.60	32.39	28.46	41.80

NOTES

- Brokers above made up 3.57 % 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
BTIG LLC	<1	4	0.25%	128,281	-0.12	159	+3.09	+14.87	+0.35	+3.32	14.70	36.14	-	-
NESBITT BURNS	<1	3	0.22%	153,715	-1.09	1,513	+32.81	+14.71	9.60	+5.74	+2.74	24.15	46.19	25.26
INVESTEC SECURITIES	<1	1	0.20%	423,884	N/A	339	+8.00	+15.19	153.05	+7.06	166.04	2.65	+12.36	32.98
FOKUS BANK	<1	1	0.18%	367,259	-0.22	257	+7.00	+12.84	28.84	+8.98	43.69	-	-	-
WEEDEN & CO	<1	18	0.16%	17,944	-0.10	249	+7.71	+14.88	22.22	+4.73	35.46	13.37	9.76	9.65
DAVY STOCKBROKERS	<1	1	0.14%	298,994	1.81	209	+7.00	+13.30	+8.00	+24.36	22.61	-	17.63	20.72
PAREL	<1	1	0.14%	287,714	-0.60	144	+5.00	+14.00	117.19	+1.95	128.16	-	-	-
EDELWEISS SECURITIES	<1	1	0.13%	261,639	-0.46	314	+12.00	+15.86	25.19	+3.72	31.22	-	-	+8.98
SKANDINAVISKA ENSKIL	<1	1	0.12%	247,117	-0.15	173	+7.00	+13.89	2.34	+8.37	17.60	40.29	-	-
KEMPEN & CO	<1	1	0.10%	209,144	-1.70	251	+12.00	+13.79	25.03	+5.69	32.53	+4.88	-	-

NOTES

- Brokers above made up 1.64 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

BROKER PERFORMANCE (FULL DAY VWAP)



Broker	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION			MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (\$)	Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	20174th (bp)	20173rd (bp)	20172nd (bp)
STIFEL NICOLAUS & CO	<1	6	0.08%	29,314	N/A	211	+12.00	+14.21	6.53	+19.22	27.50	394.95	20.08	-
LIBERUM CAPITAL LTD	<1	1	0.08%	162,975	0.08	114	+7.00	+14.16	0.53	+2.99	10.60	+29.72	18.56	104.22
KEPLER EQUITIES	<1	1	0.07%	153,072	0.30	77	+5.00	+13.89	+7.80	+4.50	5.59	-	-	-
BRADESCO	<1	4	0.07%	34,605	-0.23	160	+11.55	+14.60	0.10	+10.13	12.11	-	-	-
INDIA INFOLINE LTD	<1	1	0.06%	122,986	-0.54	148	+12.00	+15.86	21.64	+3.72	27.67	-	-	-
ITAU SECURITIES INC	<1	1	0.05%	95,815	-1.21	78	+8.14	+14.87	58.05	+3.32	68.22	-	-	-
KOTAK SECURITIES	<1	1	0.02%	38,393	1.78	46	+12.00	+15.86	+125.74	+3.72	+119.71	-	-	23.29
BANCO ITAU SA	<1	1	0.01%	18,074	0.90	21	+11.55	+14.60	+65.58	+10.13	+53.57	14.08	-	-
AUTREPAT-STK	<1	1	0.01%	13,960	N/A	0	+0.00	+14.16	+347.92	+2.99	+280.77	-	343.84	159.41
SG SECURITIES	<1	2	0.00%	3,576	-1.70	3	+4.00	+14.11	+93.31	+2.10	+82.03	15.08	-	-

NOTES

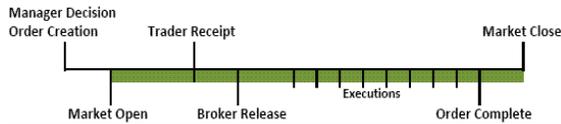
- Brokers above made up 0.45 % of principal traded.



(+) = Cost

TRADE CYCLE DETAIL

CBRE CLARION (INTL RE) 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
GRAND TOTAL	54	309	26.28%	176,278	-0.05	54,808	+10.06	+14.20	0.84	+5.71	10.94	25.86	13.37	17.69
MERRILL LYNCH	8	33	3.67%	230,436	-0.10	4,224	+5.56	+14.11	+2.91	+7.91	13.66	8.38	16.63	28.06
UBS	5	35	2.24%	132,698	0.04	5,107	+11.00	+14.31	+4.70	+4.65	3.70	8.27	13.87	42.30
MACQUARIE	5	30	2.19%	151,007	0.22	4,233	+9.34	+14.20	0.07	+2.86	7.44	15.26	16.16	+4.02
JP MORGAN CHASE	4	15	2.06%	284,735	0.17	5,712	+13.37	+14.07	+13.96	+4.07	+7.92	13.57	6.11	6.73
SMBC SECURITIES INC	3	10	1.45%	300,541	-0.13	3,005	+10.00	+13.99	6.30	+7.76	18.07	22.63	7.44	+15.32
CREDIT SUISSE	3	7	1.30%	385,009	-0.33	4,043	+15.00	+14.72	10.52	+4.54	16.00	6.50	26.74	13.06
DAIWA SECURITIES	3	14	1.28%	189,395	-0.21	2,651	+10.00	+14.03	2.27	+6.10	12.19	21.22	+6.52	+2.09
RBC DOMINION SECS	2	4	1.03%	533,908	-0.17	3,878	+18.16	+14.71	3.16	+5.74	5.47	+39.40	-	-
ABG SECURITIES	2	5	0.98%	407,760	-0.48	2,447	+12.00	+14.00	29.48	+1.95	33.45	38.82	21.72	45.51
CREDIT AGRICOLE	2	9	0.97%	224,395	-0.16	2,020	+10.00	+14.71	17.21	+4.56	27.69	13.82	10.03	3.49



(+) = 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
GRAND TOTAL	61	341	29.40%	178,680	-0.03	60,139	+9.87	+14.20	1.07	+7.83	13.25	6.32	36.08	15.49
CREDIT SUISSE	14	58	6.74%	240,699	0.06	14,653	+10.50	+13.87	+0.15	+6.57	9.85	15.71	7.46	29.99
MERRILL LYNCH	9	44	4.24%	199,730	-0.16	6,068	+6.90	+14.21	10.46	+9.28	27.07	+1.83	1.27	20.64
CITIGROUP	5	31	2.19%	146,143	0.03	3,593	+7.93	+15.04	+16.17	+6.87	+2.14	32.51	11.96	13.85
JP MORGAN CHASE	4	14	2.15%	317,576	0.01	2,857	+6.43	+13.91	+2.32	+7.04	12.26	13.01	22.36	2.47
SMBC SECURITIES INC	4	5	2.03%	843,136	0.16	2,288	+5.43	+13.99	+0.55	+7.76	15.79	14.74	-	13.33
BNP PARIBAS	4	26	1.92%	153,134	-0.02	3,137	+7.88	+13.99	+0.38	+7.76	13.51	39.00	26.97	15.98
MORGAN STANLEY	2	16	1.18%	152,471	0.10	16,575	+67.94	+14.52	+31.54	+6.27	+78.67	+117.93	6.07	+3.34
SOCIETE GENERALE	2	22	1.15%	107,986	-0.02	1,209	+5.09	+13.97	8.94	+13.48	31.28	+0.47	27.60	3.22
RBC DOMINION SECS	2	16	1.08%	139,811	0.16	721	+3.22	+14.71	+6.79	+5.74	10.45	+12.61	21.66	16.12
ITG	2	23	0.98%	88,697	0.03	1,052	+5.16	+14.09	8.23	+8.41	25.57	2.85	+19.25	28.23



(+) = 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
GRAND TOTAL	54	725	26.05%	74,469	-0.20	23,636	+4.38	+14.20	6.25	+5.65	21.78	19.83	19.23	27.69
CITIGROUP	12	162	5.69%	72,826	-0.08	4,854	+4.11	+14.27	1.91	+5.36	17.74	+16.43	6.69	12.93
CREDIT SUISSE	11	157	5.16%	68,092	-0.10	5,478	+5.12	+14.08	2.68	+5.67	17.33	19.42	24.89	19.22
BARCLAYS	4	51	2.02%	81,967	-0.99	1,254	+3.00	+14.16	41.12	+3.61	55.74	29.28	11.07	42.96
INSTINET	4	47	1.99%	87,652	-0.02	1,283	+3.12	+14.04	1.67	+7.46	20.16	22.06	20.65	28.33
SCOTIA CAPITAL	4	64	1.84%	59,710	-0.38	360	+0.94	+14.71	8.87	+5.74	28.40	35.27	34.09	43.04
ITG	3	26	1.59%	126,464	0.28	2,432	+7.40	+14.20	+13.77	+4.90	+2.24	16.93	+6.02	19.53
MORGAN STANLEY	3	23	1.52%	136,777	-0.22	1,455	+4.62	+14.01	+4.43	+6.44	11.38	24.03	30.44	37.62
UBS	3	55	1.23%	46,444	0.01	1,303	+5.10	+14.26	5.53	+5.40	20.30	34.24	+1.76	28.86
SOCIETE GENERALE	2	19	1.09%	118,423	-0.47	1,236	+5.50	+13.87	10.73	+5.03	24.14	14.71	37.56	3.94
HSBC BANK	2	41	0.91%	46,212	-0.11	568	+3.00	+14.16	19.78	+7.61	38.24	49.78	55.66	39.20



(+) = Cost

TRADE CYCLE DETAIL

S&P GLOBAL INFRAS-T-INDEX 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
GRAND TOTAL	<1	63	0.13%	4,383	0.07	65	+2.34	+14.45	+14.41	+4.14	4.65	22.54	17.28	12.03
WEEDEN & CO	<1	17	0.04%	5,056	0.07	12	+1.39	+14.87	+2.78	+3.32	14.14	11.70	12.54	11.01
CREDIT SUISSE	<1	3	0.01%	9,848	0.45	8	+2.77	+14.19	+12.37	+5.00	3.96	16.85	35.12	+7.89
ITG	<1	4	0.01%	5,724	1.54	6	+2.75	+14.01	55.71	+4.76	72.39	24.33	14.08	+60.51
MORGAN STANLEY	<1	6	0.01%	3,770	0.45	6	+2.43	+14.80	+22.27	+4.59	+5.11	39.07	19.50	+15.94
JP MORGAN CHASE	<1	5	0.01%	3,986	-0.14	6	+3.16	+14.24	20.90	+4.87	37.15	7.72	30.59	10.11
INSTINET	<1	6	0.01%	2,977	-2.12	5	+2.56	+14.14	61.57	+4.59	78.20	15.63	61.82	22.92
JEFFERIES & CO	<1	5	0.01%	3,159	-0.30	4	+2.74	+14.01	14.37	+4.85	30.78	-	-	+24.46
AUTREPAT-STK	<1	1	0.01%	13,960	N/A	0	+0.00	+14.16	+347.92	+2.99	+280.77	-	343.84	159.41
CITIGROUP	<1	5	0.01%	2,602	0.07	5	+3.97	+14.66	+34.93	+6.08	+17.31	40.13	22.01	4.72
GOLDMAN SACHS	<1	3	0.01%	3,977	0.12	4	+3.62	+14.62	+0.60	+4.77	16.40	21.58	17.41	-



(+) = 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)	20174th (bp)	20173rd (bp)	20172nd (bp)
GRAND TOTAL	38	405	18.13%	92,757	0.06	33,434	+8.90	+14.89	2.07	+6.71	14.73	8.44	16.14	17.40
MORGAN STANLEY	4	28	2.03%	150,133	0.30	3,746	+8.91	+15.77	+2.36	+5.54	9.84	16.81	+0.73	16.04
UBS	2	27	1.16%	89,327	-0.24	2,019	+8.37	+14.58	15.68	+7.10	28.82	16.21	17.20	12.80
CITIGROUP	2	20	1.14%	117,687	0.04	4,090	+17.38	+16.16	10.18	+5.78	17.04	1.33	14.95	3.29
CREDIT SUISSE	2	29	1.07%	76,576	-0.21	2,825	+12.72	+15.53	14.27	+4.87	21.98	+2.85	5.05	3.32
GOLDMAN SACHS	2	18	0.99%	113,853	0.20	1,461	+7.13	+14.25	+4.52	+10.70	11.26	13.25	16.93	18.07
DEUTSCHE BANK	2	12	0.79%	135,643	0.21	1,628	+10.00	+18.43	1.29	+5.20	14.63	9.18	21.18	25.96
INSTINET	2	30	0.76%	52,554	-0.14	649	+4.12	+14.00	2.85	+7.44	20.15	5.96	+17.20	18.06
JP MORGAN CHASE	2	24	0.75%	64,988	-0.24	2,447	+15.69	+13.91	6.15	+6.84	11.74	6.12	16.63	15.00
BNP PARIBAS	2	17	0.74%	90,538	0.06	1,567	+10.18	+15.25	2.81	+4.99	12.02	0.76	8.68	48.57
DANSKE BANK	1	5	0.70%	288,902	-0.47	1,011	+7.00	+14.00	20.07	+1.95	29.04	-	51.99	-



(+) = Cost

TRADE DETAIL ANALYSIS

Largest Principal Volume Traded

							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Principal (\$)	% of Volume	E - Score	Full Day VWAP (bp)
NEXON CO LTD COMMON STOCK	56	182,100	-5,985,243	5,985,243	0.19%	-0.18	13.22
ANHEUSER BUSCH INBEV SA/NV COM	3	40,975	4,662,536	4,662,536	1.24%	0.31	+6.28
DBS GROUP HOLDINGS LTD COMMON	20	202,900	4,079,688	4,079,688	0.26%	0.36	+6.53
CIE FINANCIERE RICHEMONT REG C	12	46,576	4,072,249	4,072,249	0.39%	-0.14	3.61
TOKYO ELECTRON LTD COMMON STOC	3	20,500	3,714,325	3,861,583	0.31%	0.12	+0.93
ABN AMRO GROUP NV CVA DUTCH CE	18	115,773	-3,760,727	3,760,727	0.51%	-0.29	2.69
FANUC CORP COMMON STOCK	4	13,300	3,448,188	3,595,622	0.19%	0.07	1.19
LONDON STOCK EXCHANGE GROUP CO	12	66,119	3,339,911	3,339,911	1.27%	-0.03	+1.55
SHIRE PLC COMMON STOCK GBP.05	10	69,873	3,301,175	3,301,175	0.45%	-0.23	9.82
NOMURA HOLDINGS INC COMMON STO	2	488,700	-3,262,537	3,262,537	1.29%	-0.08	+8.75

Names Most Traded - Total Orders (\$)

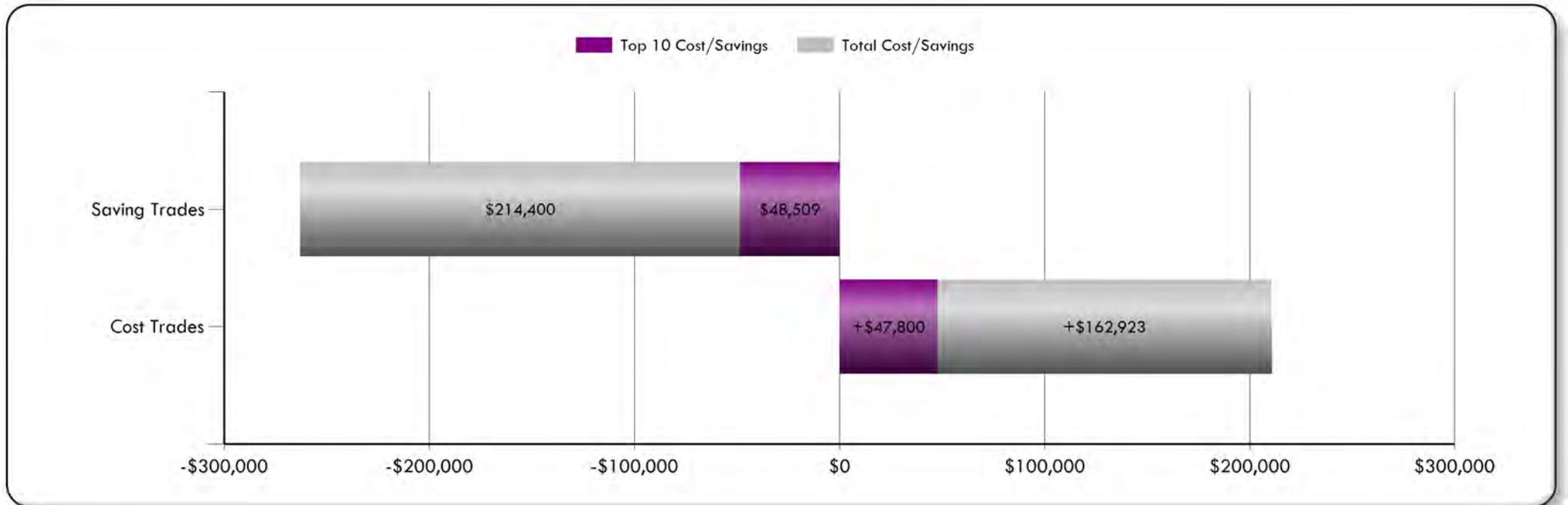
							Market Impact
Name	# Orders	Shares	Net Principal (\$)	Commission (bp)	% of Volume	E - Score	Full Day VWAP (bp)
NEXON CO LTD COMMON STOCK	56	182,100	-5,985,243	+7.19	0.19%	-0.18	13.22
SUPERIOR PLUS CORP COMMON STOC	35	71,900	699,927	+3.31	0.93%	-0.29	9.60
ASSURA PLC REIT GBP.1	34	1,088,797	936,519	+6.95	2.45%	N/A	10.64
TAYLOR WIMPEY PLC COMMON STOCK	31	410,900	-1,090,852	+3.25	0.15%	-0.23	9.29
METSO OYJ COMMON STOCK	28	59,529	2,042,553	+9.18	0.66%	-0.14	10.41
FUJI OIL HOLDINGS INC COMMON S	28	50,400	1,512,722	+5.53	0.58%	0.14	5.47
FUJITEC CO LTD COMMON STOCK	24	52,100	720,916	+4.28	0.93%	-0.36	10.92
KYORIN HOLDINGS INC COMMON STO	24	37,200	708,273	+4.07	0.71%	-0.15	3.66
LOBLAW COMPANIES LTD COMMON ST	24	22,700	-1,188,977	+1.27	0.17%	-0.32	9.03
ST BARBARA LTD COMMON STOCK	23	536,400	-1,598,399	+4.14	0.88%	-0.02	+9.28



(+) = Cost

TRADE CONTRIBUTIONS

Cost/Savings Performance				
Category	Principal USD	# of Trades	Avg. Market Impact (bp)	Percentage of all Cost/Savings
10 High Cost Trades	5,507,733	10	+165.35	22.68%
Cost Trades	93,776,128	760	+25.19	100.00%
Saving Trades	112,404,164	1,080	28.00	100.00%
10 Low Cost Trades	4,339,446	10	140.82	18.45%





(+) = Cost

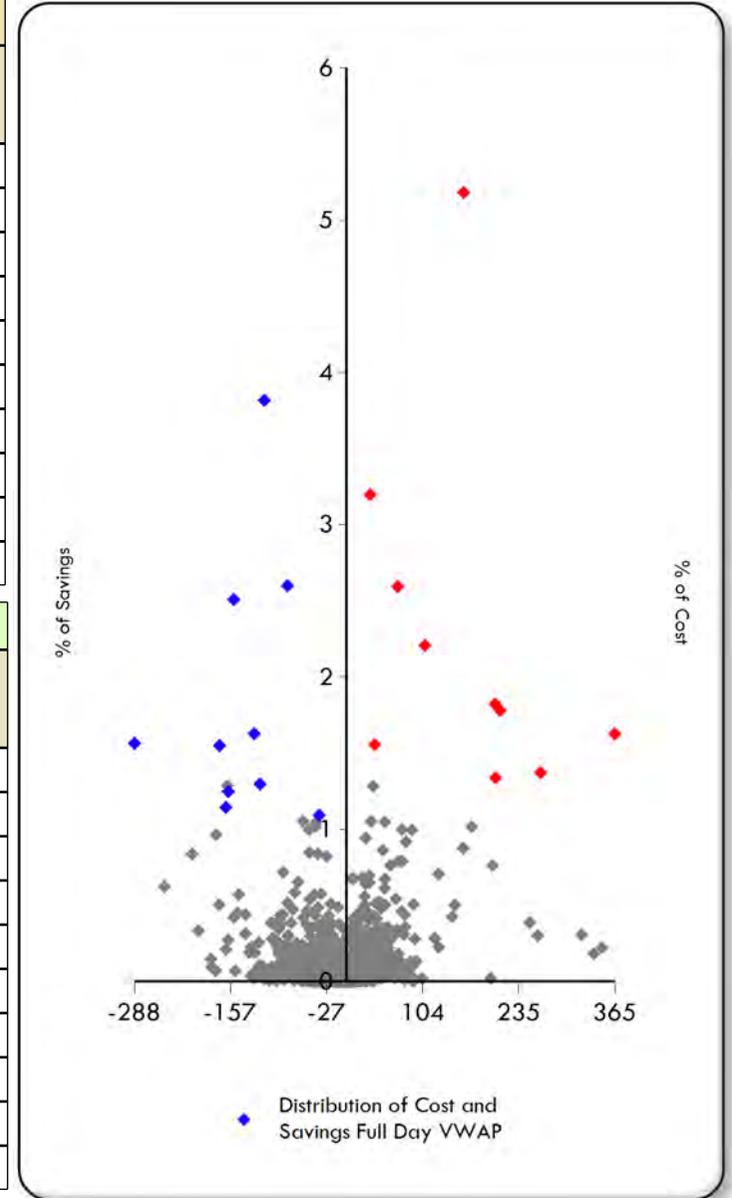
TRADE LEVEL DETAILS

10 High Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Cost (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Sell	CAN	BOMBARDIER	20180207	672,511	5.18%	1.19	+159.79	LAZAR	MORGA
Sell	BEL	ANHEUSER B	20180314	2,064,762	3.20%	1.14	+32.51	LAZAR	CREDI
Buy	US	ACCENTURE	20180322	785,582	2.59%	0.11	+70.00	LAZAR	CITIG
Buy	JAP	JAPAN EXCE	20180130	439,598	2.21%	N/A	+107.09	CBRE	JP MO
Buy	DEN	GENMAB A/S	20180222	193,581	1.82%	2.41	+202.65	LAZAR	CREDI
Sell	CAN	WHITECAP R	20180321	175,504	1.78%	1.14	+209.47	WILLI	TD WA
Sell	CAN	WHITECAP R	20180321	90,450	1.63%	1.77	+365.44	WILLI	ITG
Sell	GER	VONOVIA SE	20180117	843,224	1.56%	1.10	+38.76	CBRE	MERRI
Sell	JAP	KUREHA COR	20180119	106,480	1.37%	2.70	+264.54	LSV A	ITG
Sell	JAP	S FOODS IN	20180112	136,041	1.34%	1.25	+203.25	LSV A	BNP P

10 Low Cost Trades (Full Day VWAP)

Side	Country	Security	Trade Date	Principal (\$)	Savings (%)	E - Score	Full Day VWAP (bp)	Manager	Exbroker
Buy	UK	TATE + LYL	20180125	890,654	3.82%	-2.10	111.40	LSV A	BARCL
Buy	SWE	KLOVERN AB	20180117	847,884	2.60%	-1.31	79.87	CBRE	ABG S
Buy	SAF	CLICKS GRO	20180216	423,884	2.51%	N/A	153.05	WILLI	INVES
Buy	BRZ	AREZZO IND	20180209	337,897	1.63%	-1.19	125.20	WILLI	CITIG
Sell	HKG	HANG LUNG	20180130	147,067	1.57%	-0.64	288.10	CBRE	MACQU
Buy	JAP	NEXON CO L	20180209	232,525	1.55%	-1.16	172.37	LAZAR	MERRI
Buy	SWE	SAAB AB B	20180216	287,714	1.30%	-0.60	117.19	LAZAR	PAREL
Buy	UK	BRITISH AM	20180328	201,429	1.25%	-1.33	160.46	LAZAR	CREDI
Sell	UK	SHIRE PLC	20180108	186,803	1.14%	-0.26	163.77	LAZAR	UBS
Sell	BEL	ANHEUSER B	20180314	783,588	1.09%	-0.14	36.80	LAZAR	JP MO



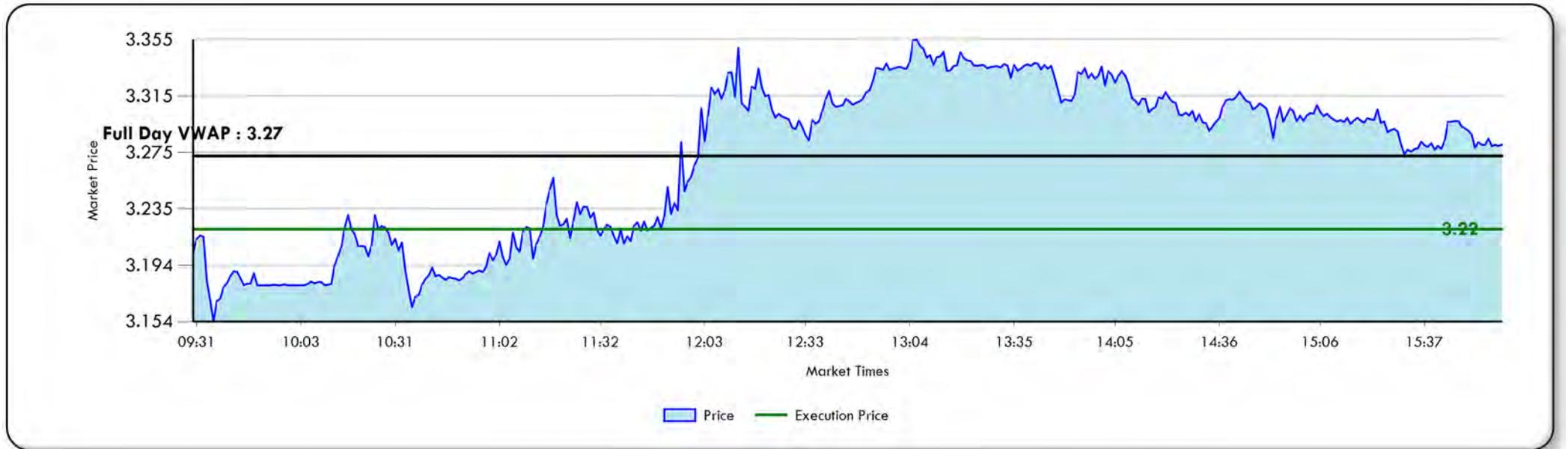


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TRADE LEVEL DETAIL - HIGH COST

BOMBARDIER INC B COMMON STOCK - 20180207

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	MORGAN STANLEY	CAN	CAD	2109723	02/07/2018 09:30:00	02/07/2018 16:00:00	672,511	3.22	3.27	+10,921	+159.79	1.19	2.78



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 5.18% of your market impact cost.

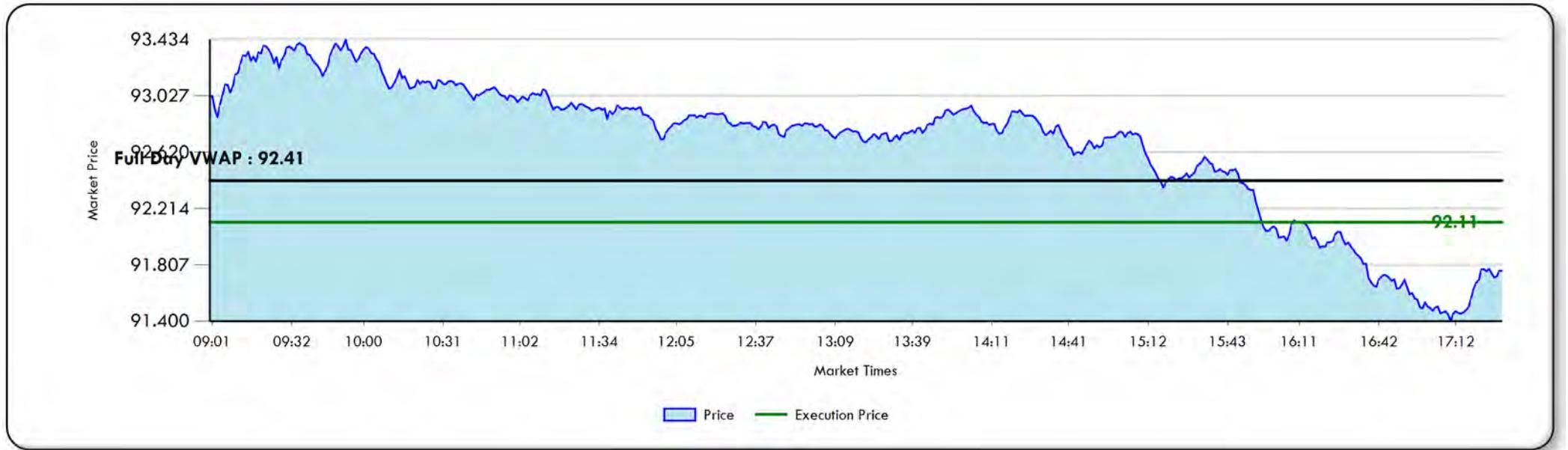


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TRADE LEVEL DETAIL - HIGH COST

ANHEUSER BUSCH INBEV SA/NV COM - 20180314

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LAZARD ASSET MANAGEMENT	CREDIT SUISSE	BEL	EUR	BYYHL23	03/14/2018 09:00:00	03/14/2018 17:30:00	2,064,762	92.11	92.41	+6,734	+32.50	1.14	1.57



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 3.20% of your market impact cost.

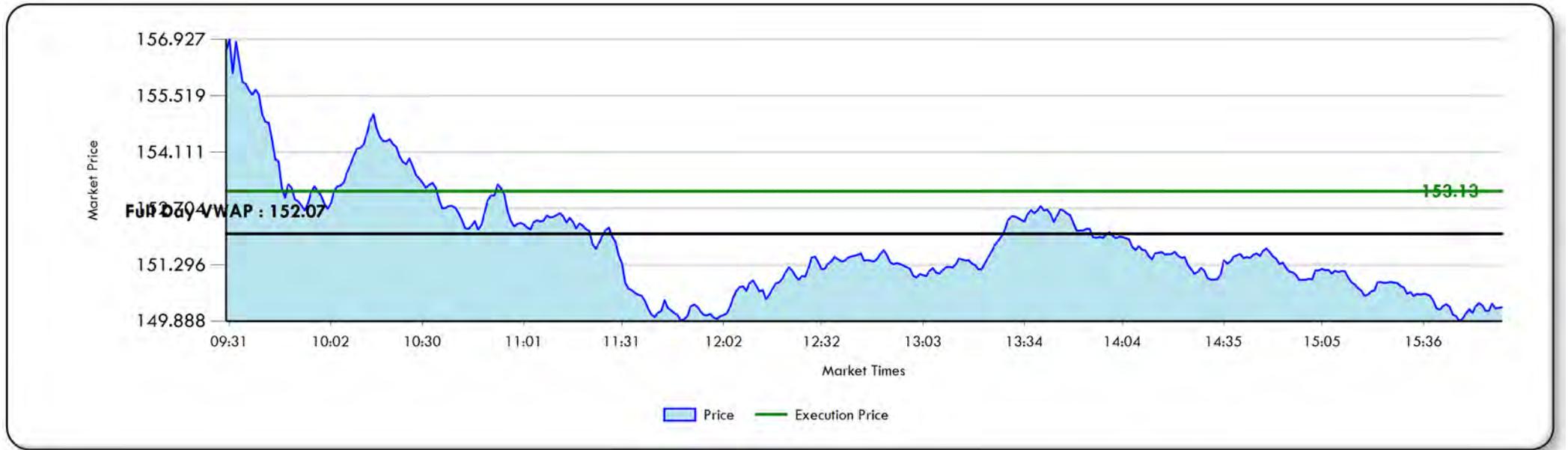


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TRADE LEVEL DETAIL - HIGH COST

ACCENTURE PLC CL A COMMON STOC - 20180322

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	CITIGROUP	US	USD	B4BNMY3	03/22/2018 09:30:00	03/22/2018 16:00:00	785,582	153.13	152.07	+5,461	+69.99	0.11	0.07



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.59% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

JAPAN EXCELLENT INC REIT - 20180130

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	CBRE CLARION (INTL RE)	JP MORGAN CHASE	JAP	JPY	B15T1R2	01/30/2018 09:00:00	01/30/2018 15:00:00	439,598	139481.00	138003.17	+4,658	+107.08	N/A	13.31



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 2.21% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

GENMAB A/S COMMON STOCK DKK1. - 20180222

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LAZARD ASSET MANAGEMENT	CREDIT SUISSE	DEN	DKK	4595739	02/22/2018 09:00:00	02/22/2018 17:00:00	193,581	1198.94	1175.12	+3,845	+202.64	2.41	0.07



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.82% of your market impact cost.

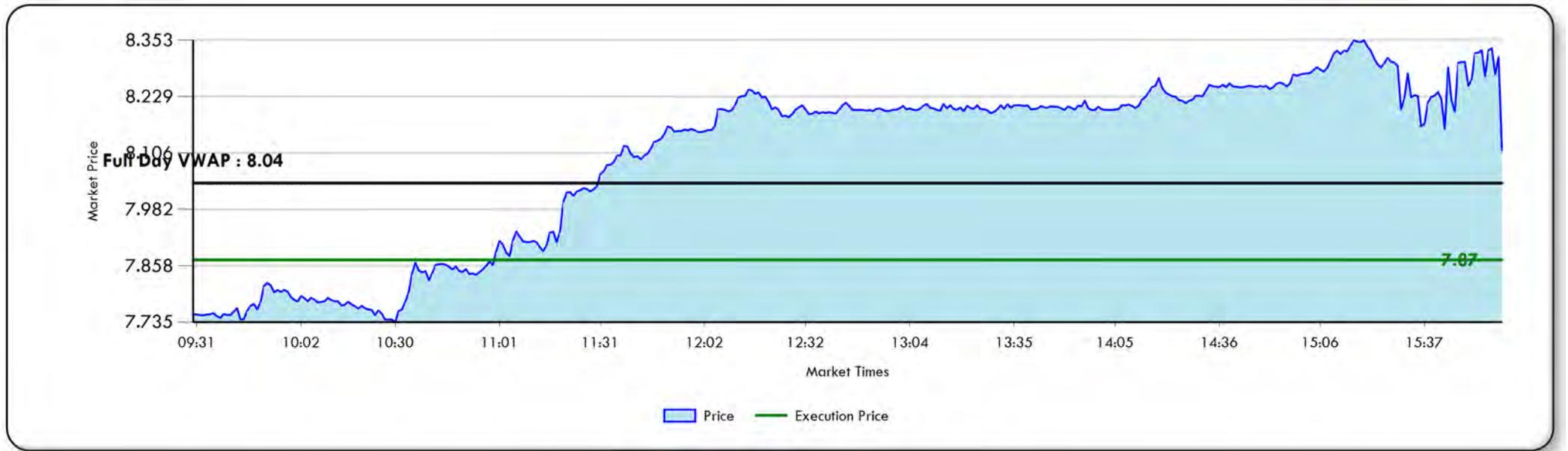


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TRADE LEVEL DETAIL - HIGH COST

WHITECAP RESOURCES INC COMMON - 20180321

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	TD WATERHOUSE	CAN	CAD	B418WK4	03/21/2018 09:30:00	03/21/2018 16:00:00	175,504	7.87	8.04	+3,755	+209.47	1.14	0.71



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.78% of your market impact cost.

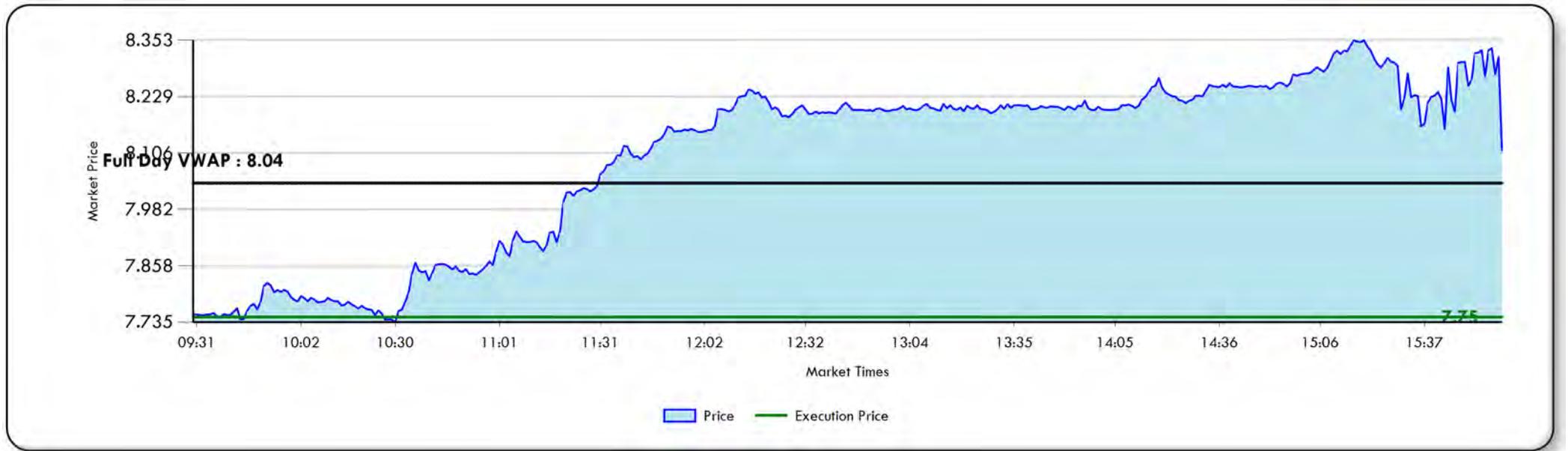


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TRADE LEVEL DETAIL - HIGH COST

WHITECAP RESOURCES INC COMMON - 20180321

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	ITG	CAN	CAD	B418WK4	03/21/2018 09:30:00	03/21/2018 16:00:00	90,450	7.75	8.04	+3,431	+365.44	1.77	0.37



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.

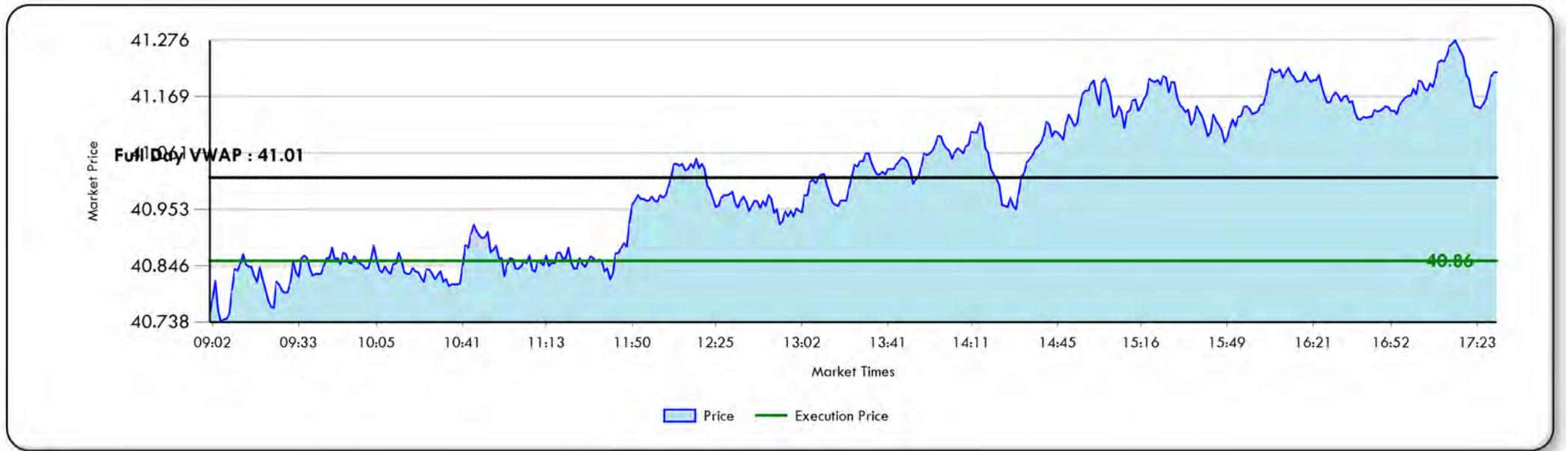


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TRADE LEVEL DETAIL - HIGH COST

VONOVIA SE COMMON STOCK - 20180117

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	CBRE CLARION (INTL RE)	MERRILL LYNCH	GER	EUR	BBJPFY1	01/17/2018 09:00:00	01/17/2018 17:30:00	843,224	40.86	41.01	+3,281	+38.75	1.10	1.76



NOTES

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

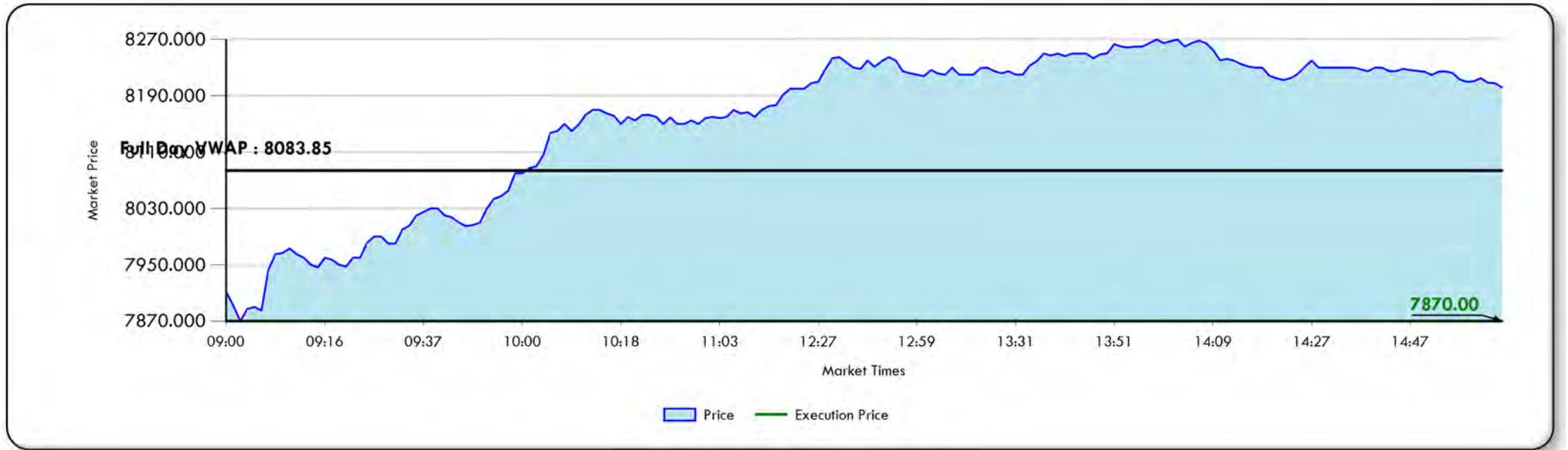


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TRADE LEVEL DETAIL - HIGH COST

KUREHA CORP COMMON STOCK - 20180119

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LSV ASSET MANAGEMENT	ITG	JAP	JPY	6497907	01/19/2018 09:00:00	01/19/2018 15:00:00	106,480	7870.00	8083.85	+2,893	+264.54	2.70	0.71



NOTES

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

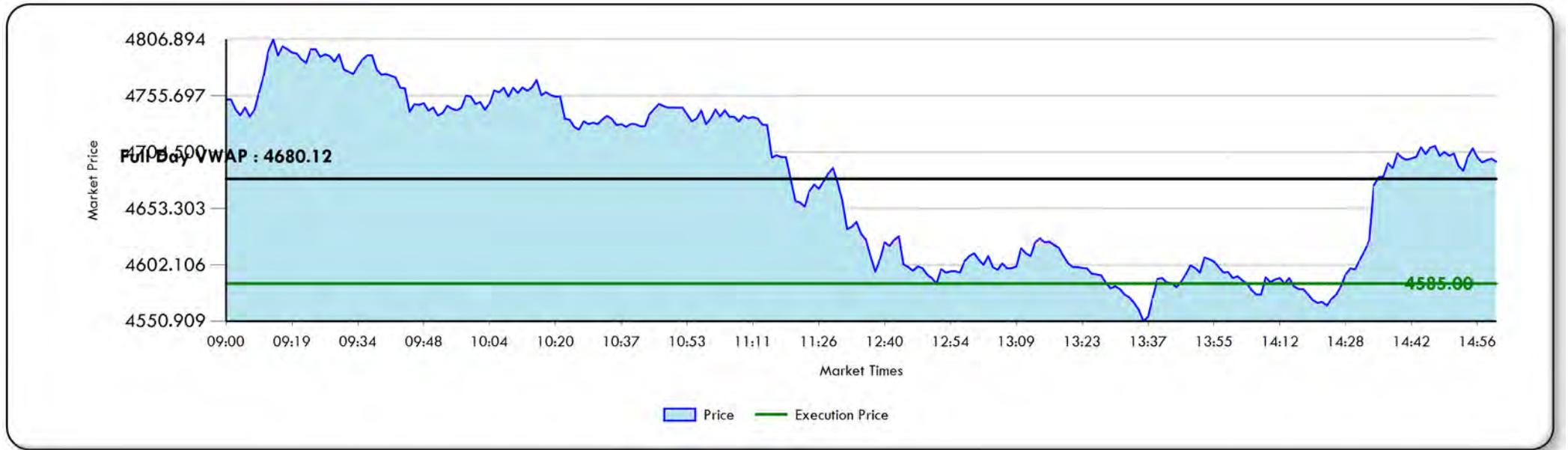


(+) = Cost

TRADE LEVEL DETAIL - HIGH COST

S FOODS INC COMMON STOCK - 20180112

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
S	LSV ASSET MANAGEMENT	BNP PARIBAS	JAP	JPY	6838584	01/12/2018 09:00:00	01/12/2018 15:00:00	136,041	4585.00	4680.12	+2,822	+203.24	1.25	0.75



NOTES

- Out of all your high cost trades that lost to Full Day VWAP, this order made up 1.34% of your market impact cost.

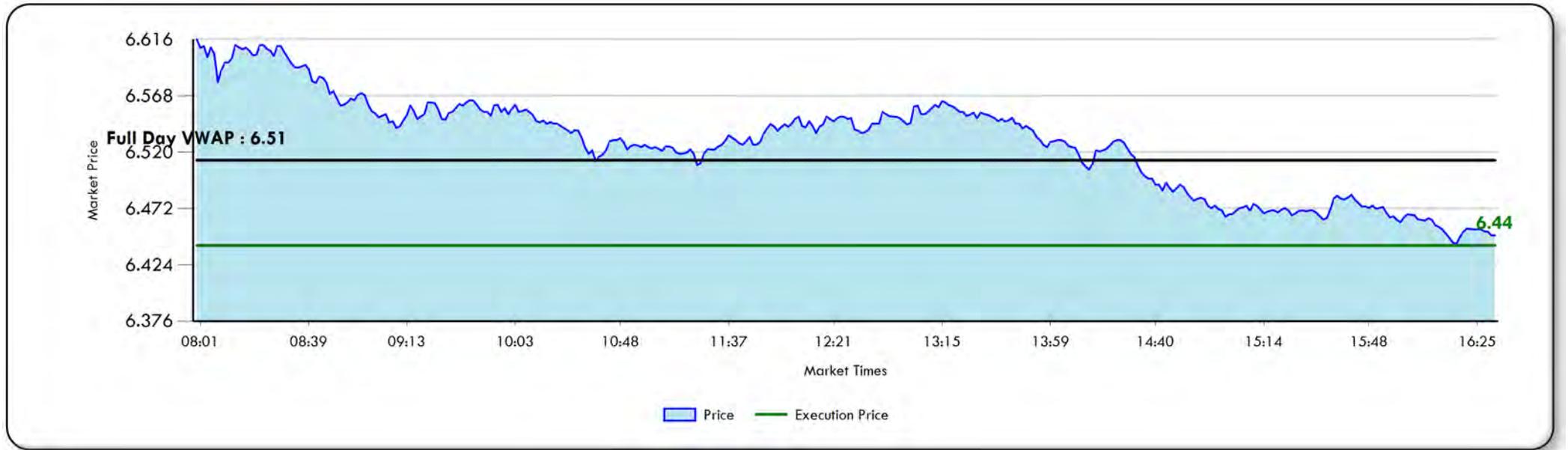


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

TATE + LYLE PLC COMMON STOCK G - 20180125

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	BARCLAYS	UK	GBP	0875413	01/25/2018 08:00:00	01/25/2018 16:30:00	890,654	6.44	6.51	10,034	111.40	-2.10	6.45



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 3.82% of your market impact cost.

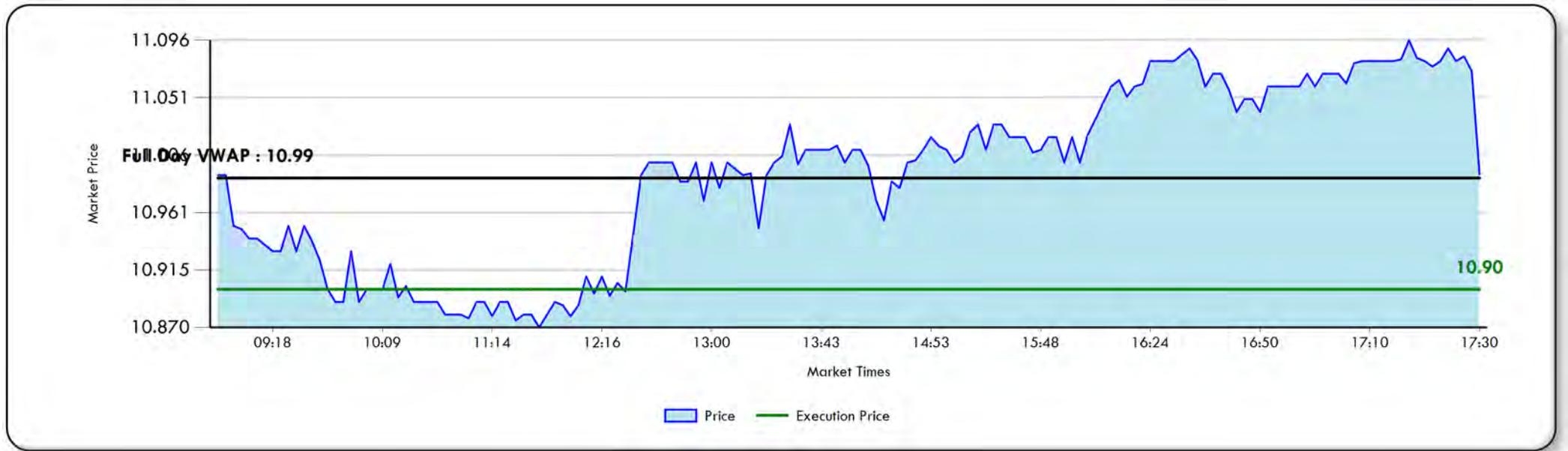


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

KLOVERN AB B SHS COMMON STOCK - 20180117

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	CBRE CLARION (INTL RE)	ABG SECURITIES	SWE	SEK	BTJR9M9	01/17/2018 09:00:00	01/17/2018 17:30:00	847,884	10.90	10.99	6,827	79.87	-1.31	100.00



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.60% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

CLICKS GROUP LTD COMMON STOCK - 20180216

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	WILLIAM BLAIR & COMPANY	INVESTEC SECURITIES	SAF	ZAR	6105578	02/16/2018 09:00:00	02/16/2018 17:00:00	423,884	166.00	168.58	6,588	153.04	N/A	1.75



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 2.51% of your market impact cost.

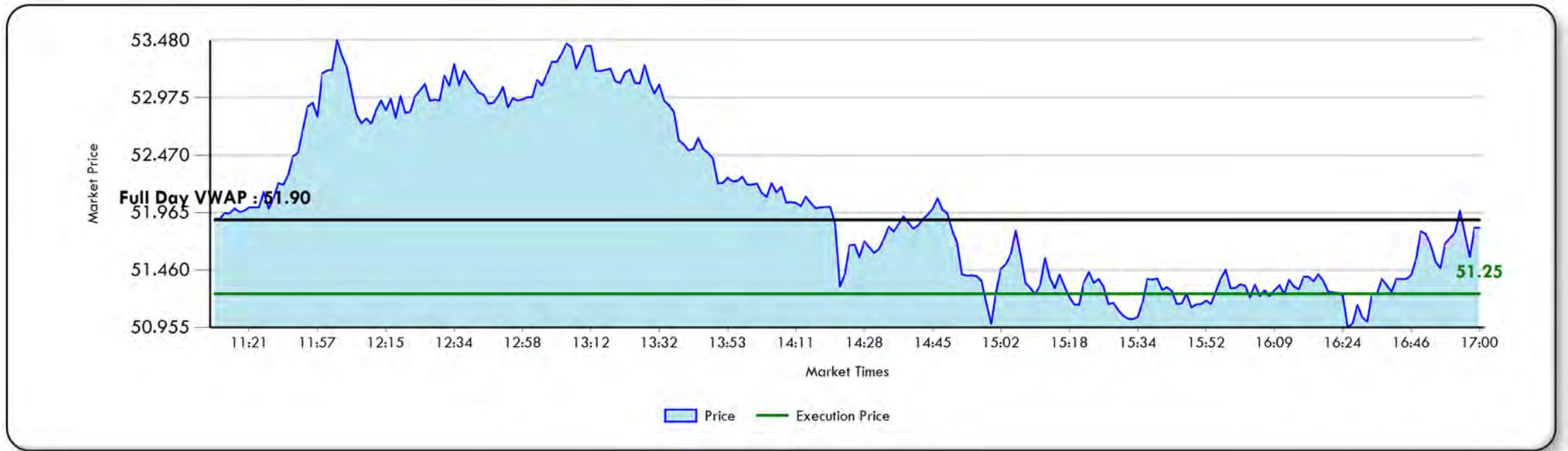


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

AREZZO INDUSTRIA E COMERCIO CO - 20180209

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	WILLIAM BLAIR & COMPANY	CITIGROUP	BRZ	BRL	B3NS1W0	02/09/2018 10:00:00	02/09/2018 17:00:00	337,897	51.25	51.90	4,284	125.19	-1.19	14.02



NOTES

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

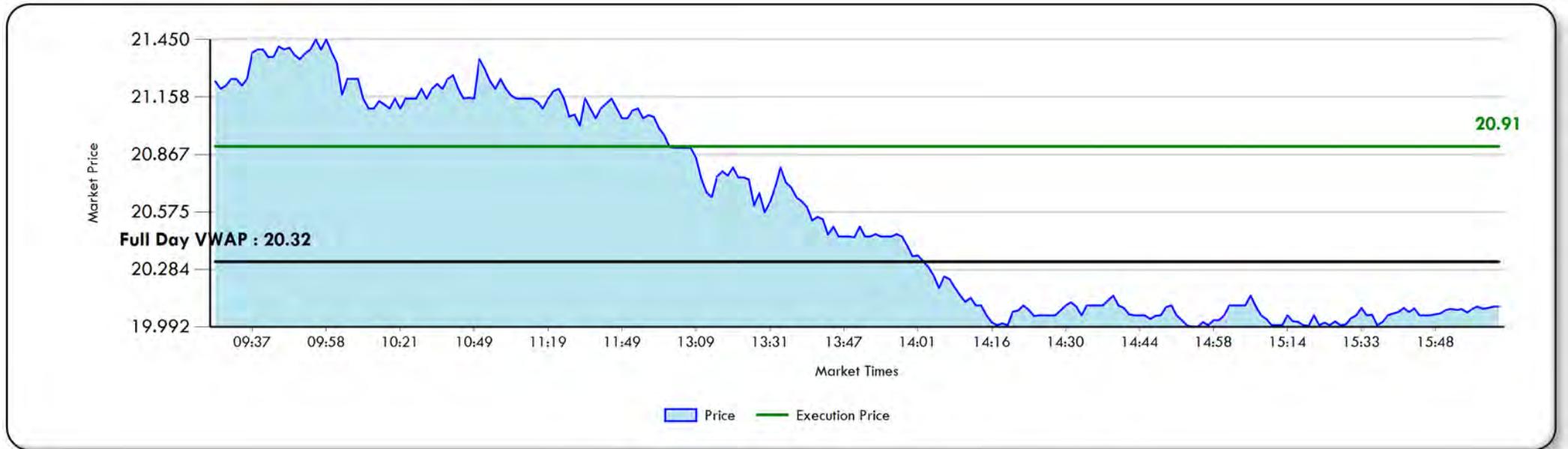


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

HANG LUNG PROPERTIES LTD COMMO - 20180130

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	CBRE CLARION (INTL RE)	MACQUARIE	HKG	HKD	6030506	01/30/2018 09:30:00	01/30/2018 16:00:00	147,067	20.91	20.32	4,118	288.10	-0.64	0.76



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.57% of your market impact cost.

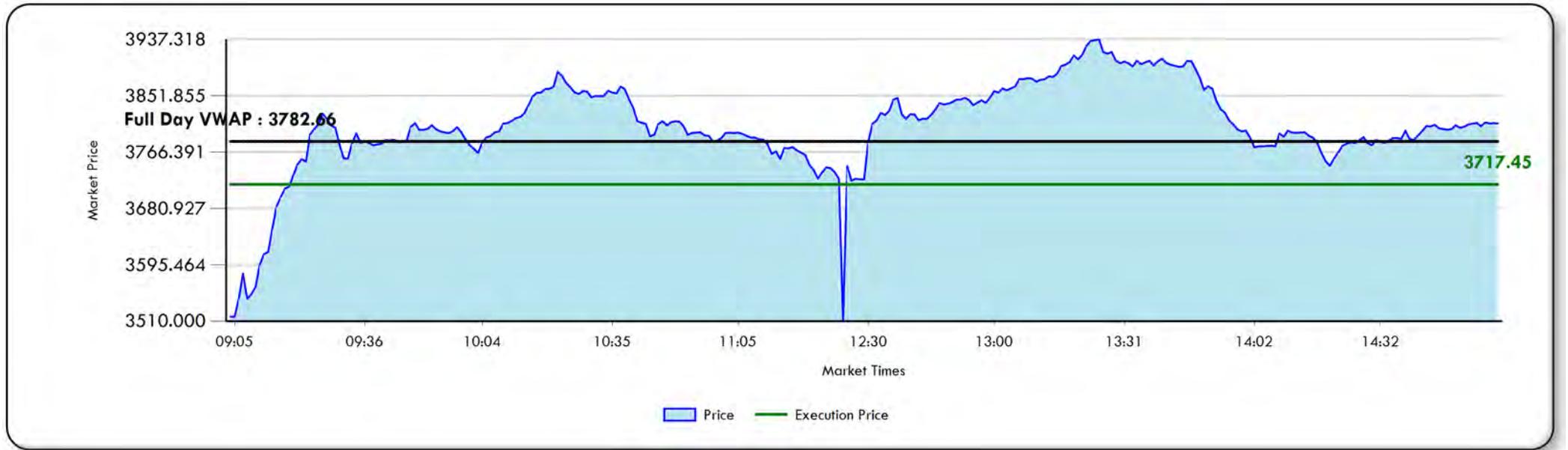


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

NEXON CO LTD COMMON STOCK - 20180209

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	JAP	JPY	B63QM77	02/09/2018 09:00:00	02/09/2018 15:00:00	232,525	3717.45	3782.66	4,078	172.37	-1.16	0.11



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.55% of your market impact cost.

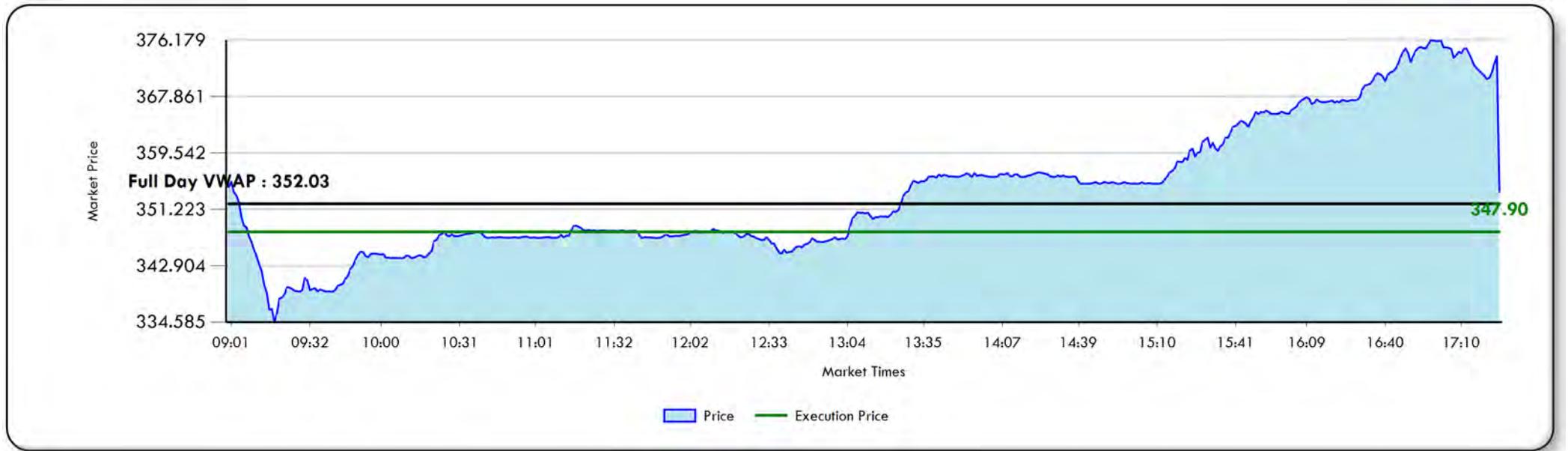


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

SAAB AB B COMMON STOCK - 20180216

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	PAREL	SWE	SEK	5469554	02/16/2018 09:00:00	02/16/2018 17:30:00	287,714	347.90	352.03	3,412	117.18	-0.60	0.47



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.30% of your market impact cost.



(+) = Cost

TRADE LEVEL DETAIL - LOW COST

BRITISH AMERICAN TOBACCO PLC C - 20180328

Side	Manager	Broker	Country	Currency	CUSIP	Time In	Time Out	Principal	Client Price	Full Day VWAP	Cost Full Day VWAP	Cost Full Day VWAP	E - Score	Volume
								(\$)			(\$)	(bp)		(%)
B	LAZARD ASSET MANAGEMENT	CREDIT SUISSE	UK	GBP	0287580	03/28/2018 08:00:00	03/28/2018 16:30:00	201,429	39.20	39.84	3,285	160.46	-1.33	0.08



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.25% of your market impact cost.

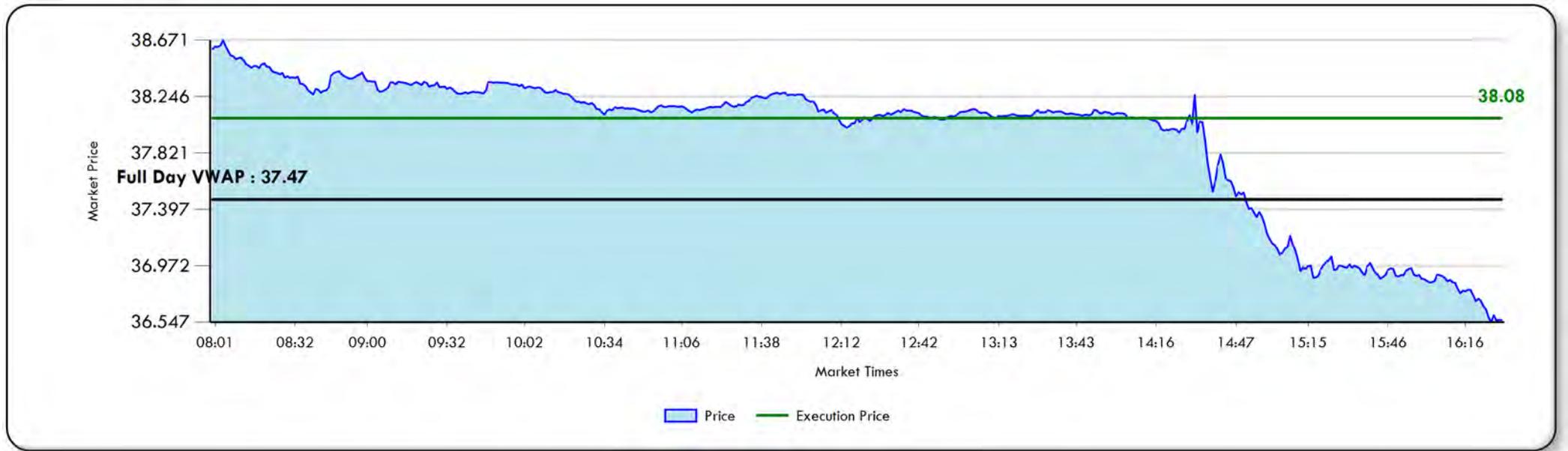


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

SHIRE PLC COMMON STOCK GBP.05 - 20180108

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	UBS	UK	GBP	B2QKY05	01/08/2018 08:00:00	01/08/2018 16:30:00	186,803	38.08	37.47	3,010	163.77	-0.26	0.11



NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.14% of your market impact cost.

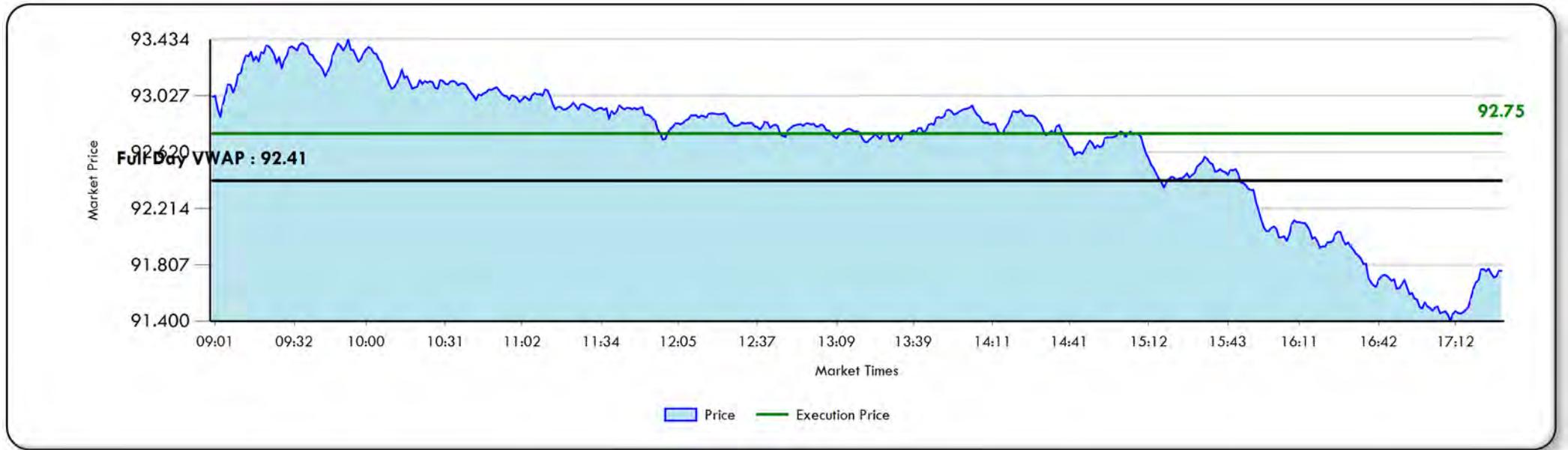


(+) = Cost

TRADE LEVEL DETAIL - LOW COST

ANHEUSER BUSCH INBEV SA/NV COM - 20180314

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	BEL	EUR	BYYHL23	03/14/2018 09:00:00	03/14/2018 17:30:00	783,588	92.75	92.41	2,873	36.79	-0.14	0.59

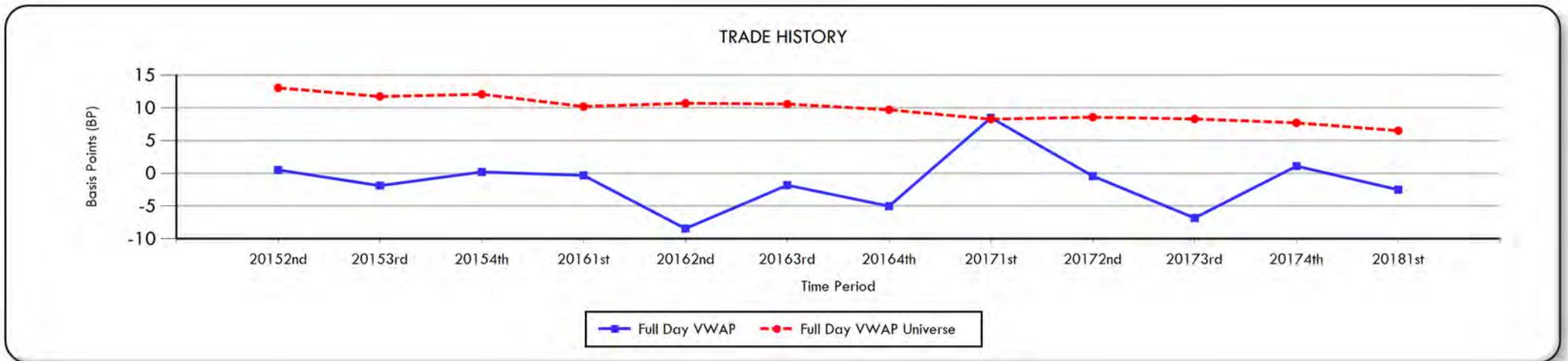


NOTES

- Out of all your low cost trades that beat to Full Day VWAP, this order made up 1.09% 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)
20152nd	105,915,243	+8.16	+17.11	+6.69	+6.43	+0.51	+13.04	21.21
20153rd	125,280,679	+8.08	+15.73	+6.43	+6.85	1.90	+11.72	21.69
20154th	149,071,955	+8.39	+15.71	+3.87	+4.30	+0.20	+12.06	19.60
20161st	122,988,471	+7.80	+15.62	+4.75	+5.22	0.33	+10.19	18.81
20162nd	188,544,188	+7.40	+16.20	+5.32	+5.52	8.45	+10.68	28.14
20163rd	170,434,065	+7.69	+16.36	+6.62	+6.96	1.82	+10.56	21.39
20164th	200,915,200	+7.12	+16.08	+5.97	+6.25	5.02	+9.68	23.94
20171st	193,287,065	+8.16	+15.81	+6.67	+6.60	+8.47	+8.26	7.37
20172nd	199,438,944	+6.90	+14.86	+4.37	+4.99	0.43	+8.55	17.56
20173rd	186,109,779	+7.65	+14.45	+5.00	+5.31	6.83	+8.29	22.23
20174th	198,018,280	+7.13	+14.19	+3.98	+4.19	+1.09	+7.70	13.88
20181st	207,232,838	+8.30	+14.33	+5.34	+5.43	2.52	+6.50	15.12



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	6.40 BP	14.89 BP	1.78 BP	5.24 BP	21.91 BP
AUSTRIA	25.15 BP	13.99 BP	0.05 BP	9.65 BP	23.69 BP
BELGIUM	77.11 BP	13.79 BP	0.02 BP	5.69 BP	19.50 BP
BRAZIL	6.75 BP	14.60 BP	2.08 BP	10.13 BP	26.81 BP
CANADA	13.13 BP	14.71 BP	0.02 BP	5.74 BP	20.47 BP
CHILE	0.36 BP	17.97 BP	0.74 BP	5.70 BP	24.41 BP
CHINA	3.44 BP	14.94 BP	3.62 BP	2.75 BP	21.31 BP
COLOMBIA	0.86 BP	24.93 BP	0.70 BP	15.55 BP	41.18 BP
CZECH REPUBLIC	13.30 BP	18.60 BP	0.00 BP	4.71 BP	23.31 BP
DENMARK	67.79 BP	13.89 BP	0.00 BP	8.37 BP	22.26 BP
EGYPT	1.01 BP	32.35 BP	3.31 BP	11.28 BP	46.94 BP
FINLAND	20.08 BP	13.73 BP	0.02 BP	9.30 BP	23.05 BP
FRANCE - BUYS	53.00 BP	13.89 BP	30.00 BP	4.50 BP	48.39 BP
FRANCE - SELLS	53.29 BP	14.08 BP	0.00 BP	4.63 BP	18.71 BP
GERMANY	50.43 BP	13.91 BP	0.03 BP	5.67 BP	19.61 BP
GREECE	2.78 BP	15.53 BP	2.34 BP	19.74 BP	37.61 BP
HONG KONG	2.25 BP	14.11 BP	10.03 BP	2.10 BP	26.24 BP
HUNGARY	17.37 BP	18.52 BP	0.03 BP	3.97 BP	22.52 BP
INDONESIA	0.38 BP	17.19 BP	8.83 BP	5.08 BP	31.10 BP

Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
INDIA	8.71 BP	15.86 BP	10.61 BP	3.72 BP	30.19 BP
IRELAND - BUYS	0.30 BP	14.11 BP	100.00 BP	4.04 BP	118.15 BP
IRELAND - SELLS	5.58 BP	13.30 BP	0.00 BP	24.36 BP	37.66 BP
ISRAEL	5.99 BP	20.62 BP	0.09 BP	5.63 BP	26.34 BP
ITALY - BUYS	5.98 BP	13.76 BP	12.00 BP	3.73 BP	29.49 BP
ITALY - SELLS	8.65 BP	12.85 BP	0.00 BP	10.76 BP	23.61 BP
JAPAN	16.28 BP	13.99 BP	0.02 BP	7.76 BP	21.77 BP
KOREA - BUYS	63.22 BP	17.48 BP	0.00 BP	7.80 BP	25.28 BP
KOREA - SELLS	102.91 BP	18.95 BP	27.77 BP	4.40 BP	51.12 BP
LUXEMBOURG	10.48 BP	28.98 BP	0.09 BP	46.76 BP	75.83 BP
MALAYSIA	1.41 BP	15.39 BP	3.38 BP	2.28 BP	21.05 BP
MEXICO	2.43 BP	14.72 BP	0.00 BP	2.05 BP	16.77 BP
NORWAY	15.00 BP	12.84 BP	0.03 BP	8.98 BP	21.85 BP
NETHERLANDS	36.90 BP	13.78 BP	0.22 BP	5.41 BP	19.41 BP
NEW ZEALAND	3.36 BP	13.99 BP	0.01 BP	8.86 BP	22.86 BP
PERU	1.11 BP	19.00 BP	0.00 BP	8.20 BP	27.20 BP
PHILIPPINES - BUYS	0.48 BP	18.65 BP	3.93 BP	3.09 BP	25.67 BP
PHILIPPINES - SELLS	0.61 BP	21.47 BP	50.67 BP	1.69 BP	73.83 BP
POLAND	10.30 BP	14.31 BP	0.00 BP	6.39 BP	20.70 BP
PORTUGAL	8.63 BP	13.85 BP	0.02 BP	9.75 BP	23.62 BP

Elkins/McSherry Global Universe

Country	Price	Commission	Fees	Market Impact	Total
RUSSIA	0.03 BP	0.00 BP	0.01 BP	24.09 BP	24.10 BP
SOUTH AFRICA - BUYS	11.47 BP	15.19 BP	23.90 BP	7.06 BP	46.15 BP
SOUTH AFRICA - SELLS	7.43 BP	14.62 BP	0.05 BP	5.28 BP	19.95 BP
SINGAPORE	2.72 BP	14.05 BP	3.47 BP	2.97 BP	20.49 BP
SPAIN	7.55 BP	14.13 BP	0.01 BP	5.27 BP	19.41 BP
SWEDEN	14.98 BP	14.00 BP	0.02 BP	1.95 BP	15.97 BP
SWITZERLAND	62.12 BP	14.45 BP	0.06 BP	5.15 BP	19.66 BP
TAIWAN - BUYS	2.02 BP	15.24 BP	0.00 BP	2.50 BP	17.74 BP
TAIWAN - SELLS	2.44 BP	18.66 BP	29.35 BP	4.77 BP	52.78 BP
THAILAND	2.29 BP	15.98 BP	0.85 BP	4.10 BP	20.93 BP
TURKEY	2.51 BP	14.85 BP	0.02 BP	6.13 BP	21.00 BP
U.K. - BUYS	7.19 BP	14.16 BP	50.00 BP	2.99 BP	67.15 BP
U.K. - SELLS	8.65 BP	14.21 BP	0.00 BP	19.22 BP	33.43 BP
U.S.	47.79 BP	14.87 BP	0.12 BP	3.32 BP	18.31 BP
VENEZUELA	10.50 BP	43.22 BP	9.10 BP	31.03 BP	83.35 BP
TOTAL: 55	16.65 BP	16.79 BP	7.08 BP	8.48 BP	32.34 BP

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SACRAMENTO COUNTY

US Fixed Income Analysis

Period End March 31, 2018



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates U.S. fixed income executions from January 01,2018 to March 31,2018. The analysis included trading of 1,608 trades in 992 different issues representing \$1,666,648,587 in principal across municipals, mortgages, governments And corporates.

Methodology:

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

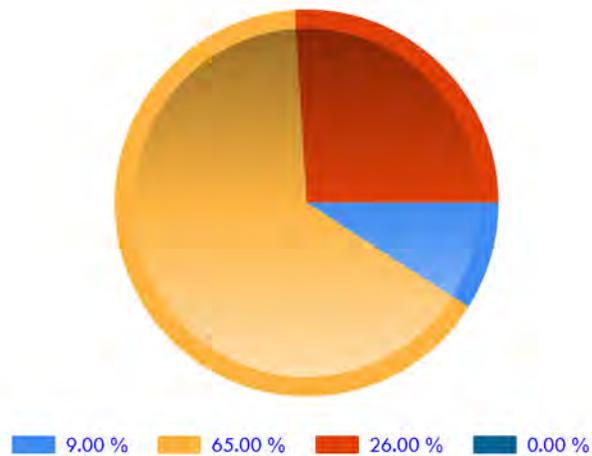
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q4 2017	Q3 2017	Q2 2017	Q1 2017
BUYS	926	451	205	+773.32	+8.36	+7.48	+80.99	+0.88	+9.82	+5.81	+8.74	+7.88
SELLS	741	1,157	914	660.19	8.91	+10.64	1,448.39	19.55	10.65	7.15	8.67	5.46
GRAND TOTAL	1,667	1,608	992	+113.13	+0.68	+8.88	1,367.40	8.20	0.60	0.96	0.14	+1.25

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	Q4 2017	Q3 2017	Q2 2017	Q1 2017
Governments	1,081	494	146	+442.40	+4.09	+9.15	546.70 5.06	+0.03	+0.10	+0.20	+0.12
Mortgages	442	922	673	80.19	1.82	+6.68	375.02 8.50	2.65	2.35	1.17	+1.58
Corporates	143	189	170	249.76	17.49	+13.55	443.21 31.04	+1.35	+6.87	+4.11	+6.12
Municipals	2	3	3	+0.67	+3.87	+18.17	2.48 14.30	+0.24	-	+34.00	-

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	603	1,380	957	236.44	3.92	+11.21	912.05	15.13
2~5	509	163	90	50.60	0.99	+8.97	507.05	9.96
5~10	338	49	36	+143.36	+4.24	+5.93	57.12	1.69
10~50	218	16	15	+256.80	+11.81	+6.80	+108.82	+5.01



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	1,081	494	146	+442.40	+4.09	+9.15	546.70	5.06
Mtge-High Yield	431	884	635	94.09	2.18	+6.17	360.01	8.35
Corp-INVESTMENT GRADE	133	180	162	218.73	16.44	+13.36	396.49	29.80
Mtge-INVESTMENT GRADE	11	38	38	+13.90	+12.96	+26.94	15.00	13.98
Corp-High Yield	7	7	7	18.19	27.79	+17.96	29.94	45.75
Muni-INVESTMENT GRADE	2	3	3	+0.67	+3.87	+18.17	2.48	14.30



EXECUTIVE SUMMARY

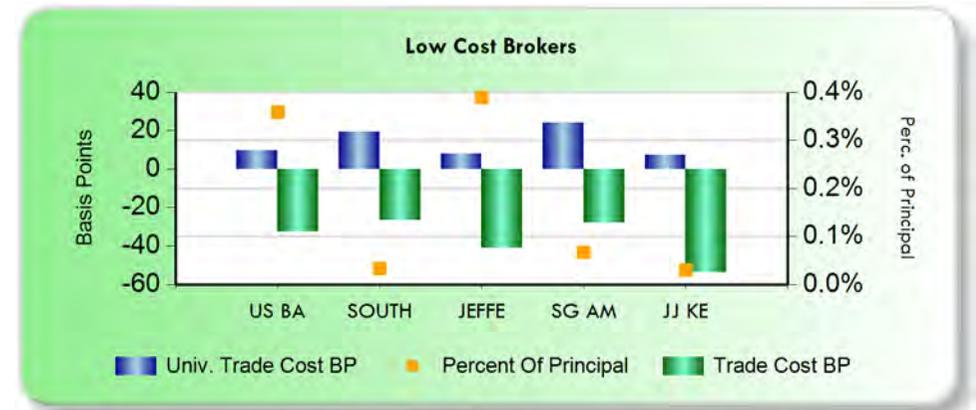
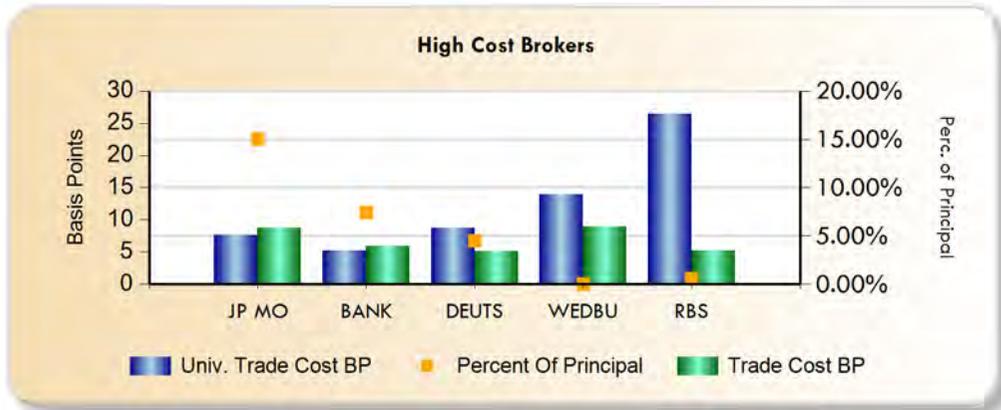
RATING SUMMARY

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	1,098.23	520	169	+436.20	+3.97	+9.30	584.64	5.33
NR	429.00	883	634	115.94	2.70	+6.15	379.65	8.85
BBB+	34.94	49	46	65.51	18.75	+11.96	107.31	30.71
BBB	23.08	36	33	41.60	18.02	+12.30	69.98	30.32
BBB-	22.31	26	22	24.88	11.15	+23.02	76.24	34.17
A+	16.24	34	32	21.94	13.51	+10.66	39.26	24.17
A-	15.73	21	19	29.11	18.51	+10.70	45.93	29.21
A	8.75	13	12	7.64	8.73	+13.87	19.77	22.60
BB+	5.62	5	5	18.55	33.00	+18.63	29.02	51.63
AA+	3.52	9	9	2.22	6.29	+13.38	6.93	19.67



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)								
JP MORGAN CHASE	251	141	99	+218.47	+8.71	+7.59	+28.09	+1.12
BANK OF AMERICA	124	69	50	+73.25	+5.91	+5.28	+7.82	+0.63
DEUTSCHE BANK	75	35	33	+38.36	+5.10	+8.69	27.02	3.59
WEDBUSH MORGAN SEC	<1	1	1	+0.65	+8.96	+13.90	0.36	4.94
RBS	10	9	7	+5.16	+5.21	+26.49	21.08	21.28
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
US BANCORP	6	9	9	19.43	32.49	+9.51	25.11	42.00
SOUTHWEST SECURITIES	<1	1	1	1.46	26.43	+19.32	2.53	45.75
JEFFERIES & CO	6	11	8	26.56	40.98	+8.00	31.74	48.98
SG AMERICAS	1	3	3	3.12	28.04	+23.95	5.79	51.99
JJ KENNY DRAKE INC	<1	1	1	2.69	53.66	+7.24	3.06	60.90





COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country	Side	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
								(Thous. \$)	BP
								UNITED STATES	SELLS
	BUYS	926	451	205	+773.32	+8.36	+7.48	+80.99	+0.88

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		Q4 2017	Q3 2017	Q2 2017	Q1 2017
NEUBERGER BERMAN	862	1,181	889	+119.72	+1.39	+6.71	458.87	5.32	+0.04	2.33	+0.75	+1.51
METROPOLITAN WEST MG	721	339	107	+32.40	+0.45	+11.95	829.38	11.50	0.89	0.65	0.41	+1.15
BARCLAYS 1-10 YR TIP	83	88	27	38.99	4.70	+4.84	79.16	9.54	0.86	+1.53	2.32	2.44

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		Q4 2017	Q3 2017	Q2 2017	Q1 2017
GOLDMAN SACHS	325	174	113	+19.25	+0.59	+8.42	254.05	7.83	1.06	2.20	+0.50	1.12
JP MORGAN CHASE	251	141	99	+218.47	+8.71	+7.59	+28.09	+1.12	2.93	1.28	0.27	+3.33
NOMURA	199	273	229	+42.25	+2.12	+11.95	196.06	9.83	1.34	0.20	0.26	+0.69
CITIGROUP	181	338	289	77.21	4.25	+9.06	241.59	13.31	1.44	0.61	+1.26	+0.10
CREDIT SUISSE	160	43	32	28.28	1.77	+7.88	154.31	9.65	+2.95	0.91	0.12	+3.00
BANK OF AMERICA	124	69	50	+73.25	+5.91	+5.28	+7.82	+0.63	+0.93	+0.04	1.41	0.56
DEUTSCHE BANK	75	35	33	+38.36	+5.10	+8.69	27.02	3.59	0.57	0.59	+1.52	+0.97
BARCLAYS	66	45	37	18.62	2.81	+10.97	91.31	13.78	3.67	0.54	0.21	+1.22
BNP PARIBAS	43	173	150	24.58	5.72	+8.96	63.05	14.68	+2.53	3.23	6.63	0.47
WELLS FARGO	39	119	101	27.43	6.97	+11.65	73.27	18.62	4.33	4.29	0.85	1.81
UBS	33	25	19	28.44	8.52	+5.15	45.65	13.67	+0.35	+0.93	4.65	+1.93
MORGAN STANLEY	29	27	26	+3.27	+1.11	+11.08	29.25	9.97	+6.05	3.19	0.56	+1.67
FEDERAL RESERVE BANK	26	6	3	+0.25	+0.09	+0.90	2.12	0.81	-	-	-	-
PERSHING	20	33	33	12.35	6.05	+11.90	36.62	17.95	11.71	+5.67	+1.17	+9.23
MIZUHO	19	8	6	8.58	4.48	+5.69	19.46	10.17	+20.25	-	1.76	43.98
RBC CAPITAL MARKETS	16	10	9	0.52	0.32	+12.74	20.75	13.06	+6.79	1.66	+2.37	+1.90
RBS	10	9	7	+5.16	+5.21	+26.49	21.08	21.28	2.00	1.27	0.80	+0.55
NESBITT BURNS	8	5	5	0.95	1.16	+8.58	7.95	9.74	+6.16	-	4.08	+3.01
HSBC BANK	8	10	9	1.00	1.29	+22.78	18.58	24.07	+2.73	+1.99	+1.07	-
JEFFERIES & CO	6	11	8	26.56	40.98	+8.00	31.74	48.98	9.38	+0.61	+5.09	+17.01

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	912810RB US TREASURY N/B 05/43 2.875	Govt	02/21/2018 05/15/2043	NEUBERGER BERMA JP MORGAN CHASE	US	USD	12,350,560	95.004	94.255	+78.85	+97,387
B	912810RT US TREASURY N/B 08/46 2.25	Govt	02/21/2018 08/15/2046	NEUBERGER BERMA JP MORGAN CHASE	US	USD	8,260,196	82.602	81.841	+92.07	+76,053
B	01F03264 FNCL 3.5 4/11	Mtge	03/27/2018 12/31/2099	METROPOLITAN WE JP MORGAN CHASE	US	USD	7,991,250	99.891	99.287	+60.48	+48,330
B	912828U2 US TREASURY N/B 11/26 2	Govt	02/21/2018 11/15/2026	NEUBERGER BERMA BANK OF AMERICA	US	USD	13,020,056	93.000	92.698	+32.49	+42,300
B	912810QK US TREASURY N/B	Govt	02/21/2018 08/15/2040	NEUBERGER BERMA GOLDMAN SACHS	US	USD	4,768,815	112.207	111.431	+69.21	+33,004
B	912828N3 US TREASURY N/B 12/22 2.125	Govt	01/09/2018 12/31/2022	METROPOLITAN WE JP MORGAN CHASE	US	USD	7,064,500	99.500	99.048	+45.40	+32,074
S	912828WJ US TREASURY N/B 05/24 2.5	Govt	03/01/2018 05/15/2024	NEUBERGER BERMA NOMURA	US	USD	10,704,203	98.656	98.923	+27.06	+28,964
B	912828P4 US TREASURY N/B 02/26 1.625	Govt	02/21/2018 02/15/2026	NEUBERGER BERMA DEUTSCHE BANK	US	USD	9,107,071	91.071	90.801	+29.56	+26,922
B	912828B6 US TREASURY N/B 02/24 2.75	Govt	02/21/2018 02/15/2024	NEUBERGER BERMA BANK OF AMERICA	US	USD	14,995,372	99.969	99.791	+17.85	+26,765
S	9128283U US TREASURY N/B 01/23 2.375	Govt	03/27/2018 01/31/2023	METROPOLITAN WE NOMURA	US	USD	16,113,383	98.977	99.125	+14.99	+24,150
B	912828W4 US TREASURY N/B 02/24 2.125	Govt	02/21/2018 02/29/2024	NEUBERGER BERMA GOLDMAN SACHS	US	USD	12,057,667	96.461	96.274	+19.46	+23,464
B	105667AB BRAVO MORTGAGE ASSET TRUST B	Mtge	02/22/2018 07/25/2036	METROPOLITAN WE NOMURA	US	USD	1,793,207	99.766	98.550	+121.85	+21,850
B	01F04264 FNCL 4.5 4/10	Mtge	03/07/2018 12/31/2099	METROPOLITAN WE CREDIT SUISSE	US	USD	7,323,259	104.469	104.163	+29.31	+21,468
B	912828WJ US TREASURY N/B 05/24 2.5	Govt	02/21/2018 05/15/2024	NEUBERGER BERMA DEUTSCHE BANK	US	USD	9,841,446	98.414	98.205	+21.32	+20,986



B	01F02243 FNCI 2.5 3/13	Mtge	02/16/2018 12/30/1899	NEUBERGER BERMA NOMURA	US	USD	4,058,915	97.688	97.205	+49.36	+20,035
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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	9128283C US TREASURY N/B 10/22 2	Govt	01/09/2018 10/31/2022	METROPOLITAN WE JP MORGAN CHASE	US	USD	7,278,509	99.027	98.582	44.99	32,749
S	01F04263 FNCL 4.5 3/10	Mtge	02/28/2018 12/30/1899	METROPOLITAN WE CREDIT SUISSE	US	USD	7,334,486	104.629	104.204	40.66	29,821
B	9128282Y US TREASURY N/B 09/24 2.125	Govt	03/01/2018 09/30/2024	NEUBERGER BERMA NOMURA	US	USD	10,047,566	96.149	96.415	27.71	27,839
S	21H03063 GNMA II TBA 30 YR 3 JUMBOS	Mtge	02/21/2018 12/30/1899	NEUBERGER BERMA CITIGROUP	US	USD	5,686,094	97.699	97.260	44.96	25,563
S	01F04261 FNCL 4.5 1/11	Mtge	01/04/2018 12/30/1899	METROPOLITAN WE CREDIT SUISSE	US	USD	7,461,542	106.441	106.130	29.26	21,830
S	21H03263 G2SF 3.5 3/11	Mtge	02/21/2018 12/30/1899	NEUBERGER BERMA CITIGROUP	US	USD	4,961,217	100.531	100.140	38.92	19,308
S	21H03263 G2SF 3.5 3/11	Mtge	02/21/2018 12/30/1899	NEUBERGER BERMA NOMURA	US	USD	4,383,162	100.531	100.140	38.92	17,059
S	912810RZ US TREASURY N/B 11/47 2.75	Govt	02/09/2018 11/15/2047	METROPOLITAN WE CITIGROUP	US	USD	3,938,627	92.348	91.948	43.30	17,055
S	01F03263 FNCL 3.5 3/11	Mtge	02/28/2018 12/30/1899	METROPOLITAN WE CREDIT SUISSE	US	USD	4,040,506	99.643	99.230	41.38	16,718
S	00206RCP AT+T INC SR UNSECURED 05/35	Corp	02/21/2018 05/15/2035	NEUBERGER BERMA BARCLAYS	US	USD	2,566,394	96.481	95.892	61.04	15,666
S	01F04262 FNCL 4.5 2/10	Mtge	02/06/2018 12/30/1899	METROPOLITAN WE GOLDMAN SACHS	US	USD	7,384,596	105.344	105.128	20.48	15,124
S	01F02243 FNCL 2.5 3/13	Mtge	02/21/2018 12/30/1899	NEUBERGER BERMA NOMURA	US	USD	4,052,098	97.523	97.161	37.22	15,080
S	912810RZ US TREASURY N/B 11/47 2.75	Govt	02/09/2018 11/15/2047	METROPOLITAN WE GOLDMAN SACHS	US	USD	4,846,545	92.227	91.948	30.31	14,691
B	9128284A US TREASURY N/B 02/23 2.625	Govt	03/07/2018 02/28/2023	METROPOLITAN WE JP MORGAN CHASE	US	USD	10,199,437	99.750	99.890	14.03	14,312
S	912828N3 US TREASURY N/B 12/22 2.125	Govt	03/05/2018 12/31/2022	METROPOLITAN WE JP MORGAN CHASE	US	USD	6,106,425	97.859	97.668	19.55	11,940



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	143	189	170	249.76	17.49	+13.55	443.21	31.04

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	1,081	494	146	+442.40	+4.09	+9.15	546.70	5.06

GOVERNMENTS



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous.\$)	BP
MORTGAGES	442	922	673	80.19	1.82	+6.68	375.02	8.50



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	2	3	3	+0.67	+3.87	+18.17	2.48	14.30





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	1,081	494	146	+442.40	+4.09	+9.15	546.70	5.06

RATING BY EACH BOND TYPE

MORTGAGES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
NR	429	883	634	115.94	2.70	+6.15	379.65	8.85
AAA	7	11	11	+7.67	+11.66	+28.89	11.34	17.23
A+	2	20	20	+3.10	+15.47	+21.42	1.19	5.94
BB	2	1	1	+21.85	+121.85	+12.35	+19.64	+109.50
AA+	1	6	6	+4.56	+36.67	+7.02	+3.69	+29.65
BBB-	<1	1	1	1.43	15.92	+52.55	6.16	68.47

RATING BY EACH BOND TYPE

CORPORATES - 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
BBB+	35	49	46	65.51	18.75	+11.96	107.31	30.71
BBB	23	36	33	41.60	18.02	+12.30	69.98	30.32
BBB-	21	24	20	23.47	11.11	+21.48	68.84	32.59
A-	16	21	19	29.11	18.51	+10.70	45.93	29.20
A+	14	14	12	25.04	17.58	+9.15	38.07	26.73
AAA	10	14	11	13.87	13.43	+11.47	25.73	24.90
A	9	13	12	7.64	8.73	+13.87	19.77	22.59
BB+	6	5	5	18.55	33.00	+18.63	29.02	51.63
A- *-	3	2	1	12.84	39.96	+12.25	16.78	52.21
AA+	2	3	3	6.78	29.74	+16.85	10.62	46.60
AA-	2	5	5	9.25	44.04	+20.12	13.48	64.15
BB	<1	1	1	+1.16	+13.67	+9.75	+0.33	+3.92
AA	<1	1	1	+3.53	+76.87	+6.48	+3.24	+70.39
CCC+	<1	1	1	0.80	102.34	+58.67	1.25	161.01

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
AA-	<1	1	1	+0.65	+8.96	+13.90	0.36	4.95
AAA	<1	1	1	+0.00	+0.00	+12.20	0.88	12.20
BBB-	<1	1	1	+0.02	+0.85	+43.51	1.24	42.66

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
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	1,666,649	1608		+113.13	+0.68	+8.88	1,367.40	8.20
10/01/2017-12/31/2017	624,736	649	254	37.30	0.60	+6.59	448.75	7.19
07/01/2017-09/30/2017	733,365	712	245	70.43	0.96	+7.13	593.40	8.09
04/01/2017-06/30/2017	789,018	849	277	11.21	0.14	+6.26	504.99	6.40
01/01/2017-03/31/2017	710,311	779	281	+88.61	+1.25	+7.07	413.59	5.82
Year-Ending 2017	2,857,429	2989		30.32	0.11	+6.76	1,960.73	6.86
10/01/2016-12/31/2016	711,667	646	221	68.72	0.97	+6.26	514.24	7.23
07/01/2016-09/30/2016	589,731	684	203	14.71	0.25	+6.35	389.30	6.60
04/01/2016-06/30/2016	619,130	801	269	67.81	1.10	+8.74	608.75	9.84
01/02/2016-03/31/2016	710,978	1117	262	193.39	2.72	+6.08	625.45	8.80
Year-Ending 2016	2,631,505	3248		344.62	1.31	+6.81	2,137.74	8.12
10/01/2015-12/31/2015	820,526	980	212	138.86	1.69	+8.52	837.57	10.21
07/01/2015-09/30/2015	992,841	1625	204	225.86	2.27	+3.74	596.77	6.01
04/01/2015-06/30/2015	1,141,971	1504	246	310.14	2.72	+7.36	1,150.64	10.08
01/01/2015-03/31/2015	944,141	1100	191	8.38	0.09	+6.57	628.26	6.66
Year-Ending 2015	3,899,478	5209		683.23	1.75	+6.49	3,213.25	8.24
10/01/2014-12/31/2014	676,216	885	213	+41.55	+0.61	+5.86	354.40	5.25
07/01/2014-09/30/2014	905,295	785	133	+534.89	+5.91	+6.85	85.46	0.94
04/01/2014-06/30/2014	727,152	957	240	48.64	0.67	+7.04	560.46	7.71
01/02/2014-03/31/2014	920,513	1033	210	131.04	1.42	+6.54	733.34	7.96
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

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	
04/01/2013-06/30/2013	937,180	803	217	51.74	0.55	+7.82	784.80	8.37
01/02/2013-03/31/2013	635,964	613	190	+89.06	+1.40	+8.12	427.14	6.72
Year-Ending 2013	3,155,775	3040		+13.07	+0.04	+6.90	2,164.88	6.86
10/01/2012-12/31/2012	528,034	613	192	215.02	4.07	+7.49	610.46	11.56
07/01/2012-09/30/2012	567,084	722	230	+18.83	+0.33	+8.56	466.39	8.23
04/01/2012-06/30/2012	520,106	739	204	+102.98	+1.98	+8.39	333.44	6.41
01/02/2012-03/31/2012	136,055	131	54	+29.91	+2.20	+7.08	66.46	4.88
Year-Ending 2012	1,751,279	2205		63.30	0.36	+8.07	1,476.76	8.43
10/01/2011-12/31/2011	91,474	88	43	18.39	2.01	+6.04	73.67	8.05
07/01/2011-09/30/2011	101,872	106	49	47.22	4.64	+4.74	95.51	9.38
04/01/2011-06/30/2011	100,523	97	54	4.28	0.43	+4.90	53.56	5.33
01/02/2011-03/31/2011	205,267	171	56	143.81	7.01	+7.08	289.08	14.09
Year-Ending 2011	499,136	462		213.70	4.28	+5.97	511.82	10.25
10/01/2010-12/31/2010	184,240	138	57	8.71	0.47	+5.73	114.34	6.20
07/01/2010-09/30/2010	219,586	151	60	20.80	0.95	+4.97	129.88	5.92
04/01/2010-06/30/2010	161,213	123	50	+101.24	+6.28	+7.34	17.15	1.06
01/02/2010-03/31/2010	221,701	181	70	+60.21	+2.72	+11.49	194.49	8.77
Year-Ending 2010	786,740	593		+131.95	+1.68	+7.47	455.85	5.79



BENCHMARK VENDOR REPORT

Bonds	Number of Trades	Number of Issues	Vendor Benchmark	Percent Of Principal
CORPORATES	170	160	BLOOMBERGTERMINAL	89.45 %
	14	14	MARKETAXESS-TRADES	8.34 %
	5	5	ISSUE PRICE	2.21 %
GOVERNMENTS	492	145	BLOOMBERGTERMINAL	99.97 %
	2	2	ISSUE PRICE	0.03 %
MORTGAGES	730	638	BLOOMBERGTERMINAL	54.28 %
	192	35	TULLET PREBON	45.72 %
MUNICIPALS	3	3	MSRB-TRADES	100.00 %

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SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End March 31, 2018



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates global fixed income executions from January 01,2018 to March 31,2018. The analysis included trading of 127 trades in 70 different issues representing \$51,290,880 in principal across mortgages, governments And corporates.

Methodology:

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

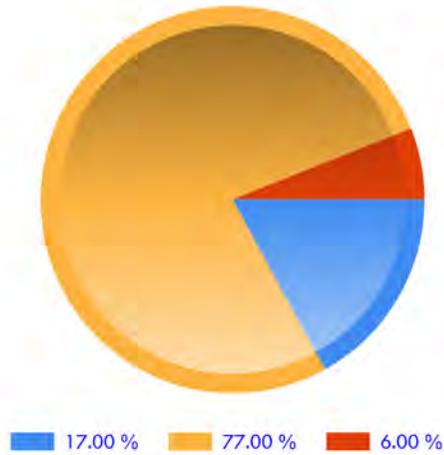
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q4 2017	Q3 2017	Q2 2017	Q1 2017
BUYS	26	69	39	4.95	1.88	+10.02	31.28	11.90	+0.15	1.96	0.87	0.80
SELLS	25	58	41	+3.95	+1.58	+10.17	21.49	8.59	9.10	+5.23	+5.09	+6.72
GRAND TOTAL	51	127	70	1.01	0.20	+10.09	52.77	10.29	4.64	+1.49	+1.65	+2.75

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	Q4 2017	Q3 2017	Q2 2017	Q1 2017
Governments	39	92	37	+8.67	+2.21	+10.07	30.85 7.86	+0.05	+1.09	+0.35	0.02
Corporates	9	24	23	+7.66	+8.64	+10.17	1.35 1.53	2.85	+4.20	+5.70	+9.80
Mortgages	3	11	10	17.33	54.51	+10.17	20.57 64.68	29.94	5.72	-	9.17

Bonds by Principal Traded



Historical Trade Cost Trend





EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

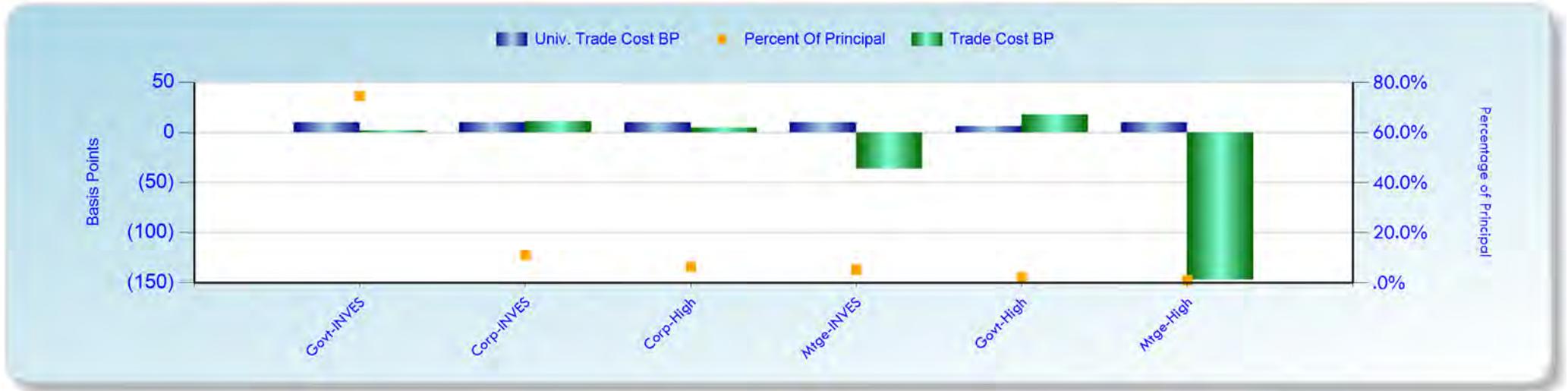
Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	49	126	69	3.54	0.72	+10.09	53.24	10.81
2~5	2	1	1	+2.53	+12.51	+10.17	+0.47	+2.34



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	38	90	35	+6.81	+1.78	+10.17	32.06	8.39
Corp-INVESTMENT GRADE	6	15	14	+6.11	+10.82	+10.17	+0.37	+0.65
Corp-High Yield	3	9	9	+1.55	+4.82	+10.17	1.72	5.35
Mtge-INVESTMENT GRADE	3	10	9	9.60	36.17	+10.17	12.30	46.34
Govt-High Yield	1	2	2	+1.86	+18.02	+6.30	+1.21	+11.72
Mtge-High Yield	<1	1	1	7.74	147.09	+10.17	8.27	157.26



EXECUTIVE SUMMARY

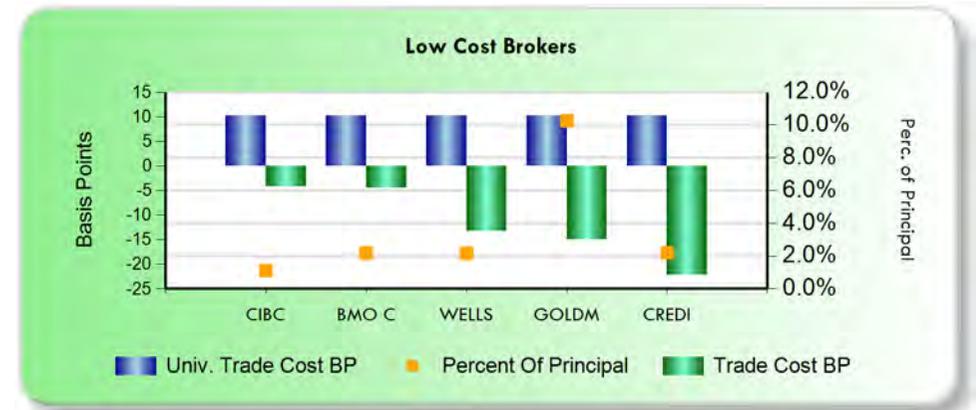
RATING SUMMARY

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	Cost Diff. from Universe BP
AAA	40.87	100	44	2.79	0.68	+10.17	44.35	10.85
BBB	2.76	4	4	+3.47	+12.57	+10.17	+0.66	+2.40
BB-	1.95	4	4	+0.44	+2.26	+10.17	1.54	7.91
B	1.52	2	2	+1.53	+10.07	+6.32	+0.57	+3.75
BBB-	1.37	5	4	+0.85	+6.18	+10.17	0.55	3.99
A-	<1	1	1	+1.07	+13.33	+10.17	+0.25	+3.16
BBB+	<1	4	4	+0.65	+9.63	+10.17	0.04	0.54
CCC	<1	1	1	7.74	147.09	+10.17	8.27	157.26
NR	<1	1	1	+0.33	+11.48	+16.61	0.15	5.13
CCC+	<1	1	1	+0.75	+42.74	+10.17	+0.57	+32.57



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)								
BANCA IMI SECURITIES	<1	1	1	+1.18	+34.67	+10.17	+0.84	+24.50
HSBC BANK	<1	1	1	+1.53	+20.55	+2.31	+1.36	+18.24
BNY MELLON	<1	1	1	+0.61	+15.49	+10.17	+0.21	+5.32
MILLER TABAK ROBERTS	<1	1	1	+0.16	+12.68	+10.17	+0.03	+2.51
FTN FINANCIAL	<1	2	2	+0.33	+9.54	+10.17	0.02	0.63
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
CIBC WORLD MARKETS	<1	2	2	0.24	4.19	+10.17	0.82	14.36
BMO CAPITAL MARKETS	1	4	4	0.50	4.46	+10.17	1.64	14.63
WELLS FARGO	1	2	2	1.48	13.27	+10.17	2.61	23.44
GOLDMAN SACHS	5	9	8	7.85	14.92	+10.17	13.20	25.09
CREDIT SUISSE	1	4	3	2.51	22.22	+10.17	3.65	32.39



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	Q4 2017	Q3 2017	Q2 2017	Q1 2017
UNITED STATES	50	125	68	2.87	0.57	+10.17	53.98 10.74	4.97	+1.48	+1.65	+2.75
GERMANY	<1	1	1	+1.53	+20.55	+2.31	+1.36 +18.24	-	-	-	+2.36
ARGENTINA	<1	1	1	+0.33	+11.48	+16.61	0.15 5.13	+3.12	-	-	-

COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country	Side	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
								(Thous. \$)	BP
UNITED STATES	SELLS	25	58	41	+3.95	+1.58	+10.17	21.49	8.59
	BUYS	25	67	37	6.81	2.70	+10.17	32.49	12.87
GERMANY	BUYS	<1	1	1	+1.53	+20.55	+2.31	+1.36	+18.24
ARGENTINA	BUYS	<1	1	1	+0.33	+11.48	+16.61	0.15	5.13

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	Q4 2017	Q3 2017	Q2 2017	Q1 2017
PRUDENTIAL INVESTMEN	51	127	70	1.01	0.20	+10.09	52.77 10.29	4.64	+1.49	+1.65	+2.75

BROKER PERFORMANCE

BROKER	BROKER PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
	Principal	No. of	No. of	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe		Q4	Q3	Q2	Q1
	(Mil. \$)	Trades	Issues	(Thous. \$)	BP	Cost BP	(Thous. \$)	BP	2017	2017	2017	2017
JP MORGAN CHASE	12	17	13	+3.21	+2.71	+10.17	8.81	7.46	0.97	0.81	+1.14	+16.69
GOLDMAN SACHS	5	9	8	7.85	14.92	+10.17	13.20	25.09	+6.45	1.23	+2.07	1.83
CITIGROUP	5	13	9	0.78	1.53	+10.17	5.94	11.70	68.48	0.69	0.94	1.42
NOMURA	4	7	6	+0.22	+0.57	+10.17	3.75	9.60	+0.34	+1.11	+1.88	+0.27
TD SECURITIES	4	7	7	0.06	0.16	+10.17	4.00	10.33	+0.35	+2.52	0.63	0.76
DEUTSCHE BANK	4	8	8	+0.62	+1.73	+10.17	3.01	8.44	7.93	8.53	4.97	2.68
JEFFERIES & CO	3	7	5	+1.63	+5.71	+10.17	1.27	4.46	0.03	+7.07	+15.79	+53.68
BARCLAYS	2	11	11	+1.16	+5.09	+10.17	1.16	5.08	6.14	+4.04	+3.98	+5.85
MORGAN STANLEY	2	7	4	0.04	0.17	+11.02	2.43	11.19	1.71	0.11	+2.24	+4.01
BANK OF AMERICA	2	9	9	+1.04	+6.51	+10.17	0.58	3.66	+0.30	+2.20	+5.18	0.39
RBC CAPITAL MARKETS	1	7	7	+0.40	+2.92	+10.17	1.00	7.25	+2.57	+4.95	+5.08	+14.09
CREDIT SUISSE	1	4	3	2.51	22.22	+10.17	3.65	32.39	+1.23	+8.77	-	+2.39
BMO CAPITAL MARKETS	1	4	4	0.50	4.46	+10.17	1.64	14.63	-	-	0.55	+2.06
WELLS FARGO	1	2	2	1.48	13.27	+10.17	2.61	23.44	+1.90	+10.58	+7.31	+2.51
CANTOR FITZGERALD	<1	2	2	+0.68	+7.93	+10.17	0.19	2.24	-	-	-	+18.60
BNP PARIBAS	<1	5	5	0.32	4.02	+10.17	1.13	14.19	+6.71	-	18.99	+3.73
HSBC BANK	<1	1	1	+1.53	+20.55	+2.31	+1.36	+18.24	-	-	-	-
CIBC WORLD MARKETS	<1	2	2	0.24	4.19	+10.17	0.82	14.36	-	1.26	-	-
BNY MELLON	<1	1	1	+0.61	+15.49	+10.17	+0.21	+5.32	+0.00	+4.73	+0.00	21.79
FTN FINANCIAL	<1	2	2	+0.33	+9.54	+10.17	0.02	0.63	-	-	-	-
BANCA IMI SECURITIES	<1	1	1	+1.18	+34.67	+10.17	+0.84	+24.50	-	-	-	-
MILLER TABAK ROBERTS	<1	1	1	+0.16	+12.68	+10.17	+0.03	+2.51	-	-	-	-

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

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	9128283F US TREASURY N/B 11/27 2.25	Govt	02/08/2018 11/15/2027	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	947,499	94.750	95.025	+29.08	+2,755
S	949746RG WELLS FARGO + COMPANY JR SUB	Corp	03/05/2018 12/31/2099	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	2,022,450	104.250	104.380	+12.51	+2,530
S	9128283F US TREASURY N/B 11/27 2.25	Govt	02/12/2018 11/15/2027	PRUDENTIAL INVE NOMURA	US	USD	1,206,268	94.535	94.730	+20.63	+2,488
B	9128283F US TREASURY N/B 11/27 2.25	Govt	02/06/2018 11/15/2027	PRUDENTIAL INVE CREDIT SUISSE	US	USD	359,194	95.785	95.353	+45.08	+1,619
B	BD2CBK1 HELLENIC REPUBLIC BONDS REGS	Govt	03/19/2018 01/30/2042	PRUDENTIAL INVE HSBC BANK	GER	EUR	744,387	89.600	89.416	+20.55	+1,529
S	9128283P US TREASURY N/B 12/24 2.25	Govt	01/29/2018 12/31/2024	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	1,604,646	97.547	97.635	+9.06	+1,454
B	465410BG ITALY GOV T INT BOND SR UNSE	Govt	03/28/2018 06/15/2033	PRUDENTIAL INVE BANCA IMI SECUR	US	USD	340,881	115.553	115.152	+34.67	+1,182
B	9128283F US TREASURY N/B 11/27 2.25	Govt	01/19/2018 11/15/2027	PRUDENTIAL INVE WELLS FARGO	US	USD	531,996	96.727	96.529	+20.44	+1,088
B	912810RY US TREASURY N/B 08/47 2.75	Govt	02/02/2018 08/15/2047	PRUDENTIAL INVE BARCLAYS	US	USD	305,195	93.906	93.578	+34.98	+1,068
S	582839AG MEAD JOHNSON NUTRITION C COM	Corp	03/16/2018 06/01/2044	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	800,222	101.294	101.429	+13.33	+1,067
B	9128283F US TREASURY N/B 11/27 2.25	Govt	02/01/2018 11/15/2027	PRUDENTIAL INVE JEFFERIES & CO	US	USD	535,237	95.578	95.399	+18.78	+1,005
S	912810QL US TREASURY N/B	Govt	03/12/2018 11/15/2040	PRUDENTIAL INVE TD SECURITIES	US	USD	374,800	118.984	119.269	+23.92	+896
S	9128283J US TREASURY N/B 11/24 2.125	Govt	01/02/2018 11/30/2024	PRUDENTIAL INVE CITIGROUP	US	USD	1,007,740	98.316	98.402	+8.73	+880
S	912828N3 US TREASURY N/B 12/22 2.125	Govt	01/29/2018 12/31/2022	PRUDENTIAL INVE JEFFERIES & CO	US	USD	888,879	98.219	98.314	+9.69	+862



B	836205AR REPUBLIC OF SOUTH AFRICA SR	Govt	01/22/2018 09/16/2025	PRUDENTIAL INVE CITIGROUP	US	USD	251,850	109.500	109.151	+31.84	+802
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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	3622MDAA GSAMP TRUST GSAMP 2007 HE1 A	Mtge	02/02/2018 03/25/2047	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	525,920	94.500	95.890	147.09	7,736
S	50190DAJ LADDER CAPITAL COMMERCIAL MO	Mtge	02/01/2018 07/12/2050	PRUDENTIAL INVE CREDIT SUISSE	US	USD	427,739	100.645	99.570	106.76	4,567
B	9128283W US TREASURY N/B 02/28 2.75	Govt	02/08/2018 02/15/2028	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	946,196	99.078	99.364	28.85	2,730
S	95000XAF WELLS FARGO COMMERCIAL MORTG	Mtge	01/19/2018 09/15/2050	PRUDENTIAL INVE WELLS FARGO	US	USD	580,323	100.926	100.480	44.17	2,563
B	912828V9 US TREASURY N/B 02/27 2.25	Govt	02/12/2018 02/15/2027	PRUDENTIAL INVE NOMURA	US	USD	1,295,843	94.934	95.117	19.28	2,499
B	9128283V US TREASURY N/B 01/25 2.5	Govt	01/29/2018 01/31/2025	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	1,600,587	99.108	99.198	9.08	1,453
B	9128283P US TREASURY N/B 12/24 2.25	Govt	01/02/2018 12/31/2024	PRUDENTIAL INVE CITIGROUP	US	USD	1,000,846	99.094	99.184	9.10	911
B	9128283U US TREASURY N/B 01/23 2.375	Govt	01/29/2018 01/31/2023	PRUDENTIAL INVE JEFFERIES & CO	US	USD	879,429	99.371	99.468	9.78	860
S	9128283F US TREASURY N/B 11/27 2.25	Govt	02/07/2018 11/15/2027	PRUDENTIAL INVE CITIGROUP	US	USD	247,650	95.250	94.944	32.15	796
S	12593GAF COMM MORTGAGE TRUST COMM 201	Mtge	02/01/2018 07/10/2050	PRUDENTIAL INVE MORGAN STANLEY	US	USD	207,609	103.805	103.410	38.02	789
S	95001ABC WELLS FARGO COMMERCIAL MORTG	Mtge	02/06/2018 11/15/2050	PRUDENTIAL INVE BARCLAYS	US	USD	392,843	98.211	98.020	19.44	764
S	912810QL US TREASURY N/B	Govt	01/08/2018 11/15/2040	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	346,585	126.031	125.765	21.16	733
B	912810RN US TREASURY N/B 08/45 2.875	Govt	03/12/2018 08/15/2045	PRUDENTIAL INVE TD SECURITIES	US	USD	228,033	95.014	95.300	30.08	686
S	912810RY US TREASURY N/B 08/47 2.75	Govt	02/12/2018 08/15/2047	PRUDENTIAL INVE TD SECURITIES	US	USD	675,478	92.531	92.449	8.88	600
B	9128283P US TREASURY N/B 12/24 2.25	Govt	01/02/2018 12/31/2024	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	629,229	99.091	99.184	9.35	588



AGENCIES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
CORPORATES	9	24	23	+7.66	+8.64	+10.17	1.35	1.53

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	39	92	37	+8.67	+2.21	+10.07	30.85	7.86

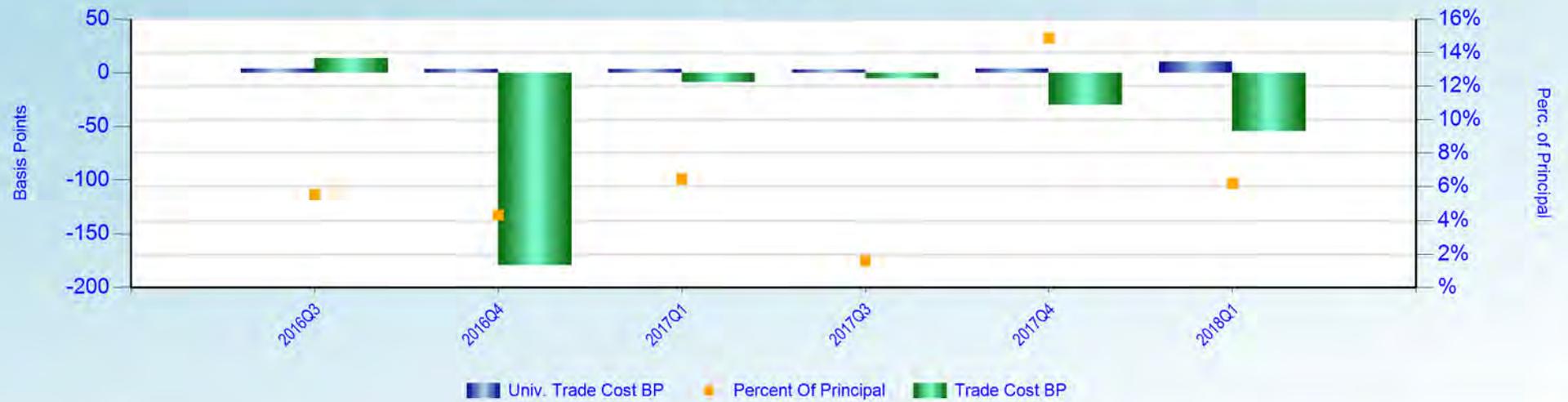
GOVERNMENTS



BOND TYPE PERFORMANCE

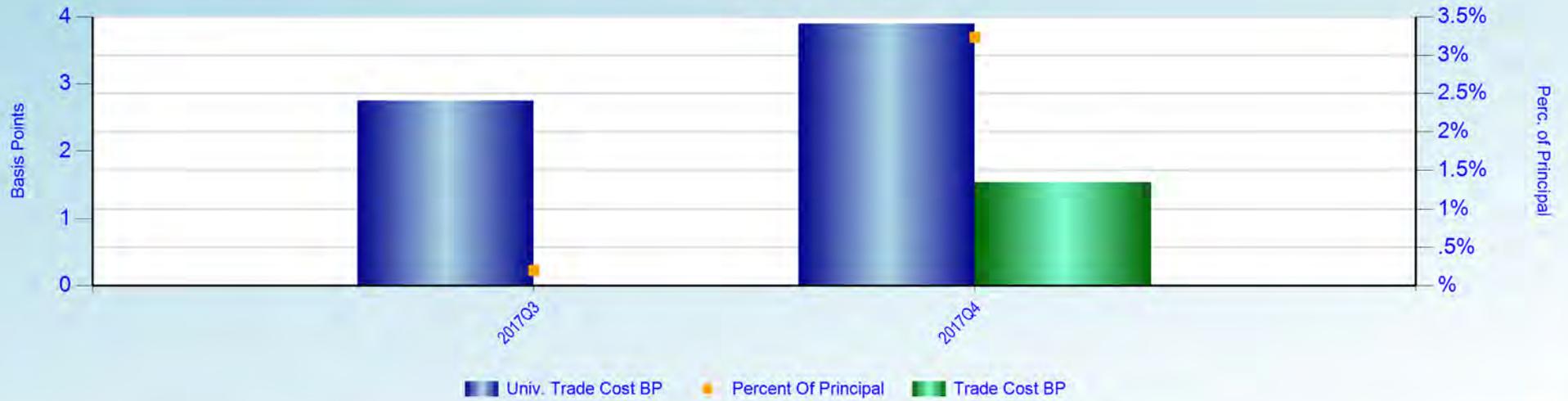
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
MORTGAGES	3	11	10	17.33	54.51	+10.17	20.57	64.68

MORTGAGES





MUNICIPALS





UNCLASSIFIED



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	38	90	35	+6.81	+1.78	+10.17	32.06	8.39
B	<1	1	1	+1.53	+20.55	+2.31	+1.36	+18.24
NR	<1	1	1	+0.33	+11.48	+16.61	0.15	5.13

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
BBB	3	4	4	+3.47	+12.57	+10.17	+0.66	+2.40
BB-	2	4	4	+0.44	+2.26	+10.17	1.54	7.91
BBB-	1	5	4	+0.85	+6.18	+10.17	0.55	3.99
A-	<1	1	1	+1.07	+13.33	+10.17	+0.25	+3.16
B	<1	1	1	+0.00	+0.00	+10.17	0.79	10.17
BBB+	<1	4	4	+0.65	+9.63	+10.17	0.04	0.54
CCC+	<1	1	1	+0.75	+42.74	+10.17	+0.57	+32.57
BB+	<1	1	1	+0.18	+11.05	+10.17	+0.01	+0.88
B+	<1	1	1	+0.16	+12.68	+10.17	+0.03	+2.51
A	<1	1	1	+0.08	+18.81	+10.17	+0.04	+8.64
BB	<1	1	1	+0.02	+6.90	+10.17	0.01	3.27

RATING BY EACH BOND TYPE

MORTGAGES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
AAA	3	10	9	9.60	36.17	+10.17	12.30	46.34
CCC	<1	1	1	7.74	147.09	+10.17	8.27	157.26

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	38	90	35	+6.81	+1.78	+10.17	32.06	8.39
GERMANY	<1	1	1	+1.53	+20.55	+2.31	+1.36	+18.24
ARGENTINA	<1	1	1	+0.33	+11.48	+16.61	0.15	5.13



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	9	24	23	+7.66	+8.64	+10.17	1.35	1.53



COUNTRIES BY EACH BOND TYPE

MORTGAGES								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous. \$)	BP
UNITED STATES	3	11	10	17.33	54.51	+10.17	20.57	64.68

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
01/01/2018-03/31/2018	51,291	127	70	1.01	0.20	+10.09	52.77	10.29
Year-Ending 2018	51,291	127		1.01	0.20	+10.09	52.77	10.29
10/01/2017-12/31/2017	47,359	119	46	21.97	4.64	+4.00	40.93	8.64
07/01/2017-09/30/2017	74,271	178	73	+11.09	+1.49	+2.75	9.35	1.26
04/01/2017-06/30/2017	65,905	139	61	+10.87	+1.65	+3.17	10.02	1.52
01/01/2017-03/31/2017	88,323	207	89	+24.27	+2.75	+3.32	5.07	0.57
Year-Ending 2017	275,858	643		+24.27	+0.88	+3.25	65.38	2.37
10/01/2016-12/31/2016	59,762	110	50	5.73	0.96	+3.49	26.57	4.45
07/01/2016-09/30/2016	44,927	135	53	+9.79	+2.18	+3.58	6.28	1.40
04/01/2016-06/30/2016	76,455	102	58	+22.49	+2.94	+5.97	23.17	3.03
01/02/2016-03/31/2016	91,594	125	57	42.69	4.66	+4.69	85.61	9.35
Year-Ending 2016	272,738	472		16.14	0.59	+4.60	141.63	5.19
10/01/2015-12/31/2015	43,193	60	34	29.83	6.91	+7.18	60.85	14.09
07/01/2015-09/30/2015	20,663	41	24	68.34	33.07	+4.30	77.22	37.37
04/01/2015-06/30/2015	143,060	122	71	98.11	6.86	+5.55	177.48	12.41
01/01/2015-03/31/2015	116,093	109	56	60.79	5.24	+5.51	124.75	10.75
Year-Ending 2015	323,008	332		257.06	7.96	+5.67	440.30	13.63
10/01/2014-12/31/2014	48,315	72	50	+9.25	+1.91	+5.72	18.39	3.81
07/01/2014-09/30/2014	266,740	204	99	216.37	8.11	+7.08	405.13	15.19
04/01/2014-06/30/2014	244,265	204	138	+42.48	+1.74	+8.55	166.48	6.81
01/02/2014-03/31/2014	187,634	187	128	+186.20	+9.92	+8.13	+33.59	+1.79
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

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
04/01/2013-06/30/2013	157,154	129	98	+104.81	+6.67	+1.44	+82.21	+5.23
01/02/2013-03/31/2013	281,064	206	156	+366.87	+13.05	+1.56	+323.04	+11.49
Year-Ending 2013	769,183	613		+575.98	+7.49	+4.05	+264.35	+3.44
10/01/2012-12/31/2012	132,722	116	90	+470.95	+35.48	+2.11	+442.94	+33.37
07/01/2012-09/30/2012	120,859	101	77	+125.20	+10.36	+2.09	+99.92	+8.27
04/01/2012-06/30/2012	85,150	85	60	+71.84	+8.44	+2.27	+52.54	+6.17
01/02/2012-03/31/2012	31,666	13	9	0.75	0.24	+7.38	24.12	7.62
Year-Ending 2012	370,398	315		+667.24	+18.01	+2.59	+571.28	+15.42
10/01/2011-12/31/2011	54,456	22	11	+249.88	+45.89	+3.18	+232.57	+42.71
07/01/2011-09/30/2011	45,561	26	10	+31.66	+6.95	+4.14	+12.80	+2.81
04/01/2011-06/30/2011	40,214	15	6	+83.99	+20.88	+4.01	+67.86	+16.87
01/02/2011-03/31/2011	45,680	23	3	+2.18	+0.48	+5.21	21.63	4.73
Year-Ending 2011	185,912	86		+367.70	+19.78	+4.09	+291.59	+15.68
10/01/2010-12/31/2010	57,022	27	11	152.30	26.71	+8.46	200.51	35.17
Year-Ending 2010	57,022	27		152.30	26.71	+8.46	200.51	35.16



BENCHMARK VENDOR REPORT

Bonds	Number of Trades	Number of Issues	Vendor Benchmark	Percent Of Principal
CORPORATES	21	20	BLOOMBERGTERMINAL	79.47 %
	2	2	ISSUE PRICE	17.47 %
	1	1	MARKETAXESS-TRADES	3.05 %
GOVERNMENTS	87	32	BLOOMBERGTERMINAL	94.64 %
	5	5	ISSUE PRICE	5.36 %
MORTGAGES	11	10	BLOOMBERGTERMINAL	100.00 %

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