



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 13

MEETING DATE: August 18, 2021

SUBJECT: Trading Cost Analysis Report -
Fourth Quarter 2020 and First Quarter 2021

SUBMITTED FOR: Consent Deliberation and Action Receive and File

RECOMMENDATION

Staff recommends the Board receive and file the Quarterly Trading Cost Analysis Reports for the quarters ending December 31, 2020 and March 31, 2021.

PURPOSE

This agenda item complies with SCERS' investment policy statement reporting requirements and contributes to the effective management and oversight of investment activities.

SUMMARY

SCERS utilizes the services of Elkins/McSherry, a trading cost consultant and wholly owned subsidiary of State Street, to monitor the trading costs of SCERS' public equity and fixed income managers. As noted during the education presentation at the April 2021 Board Meeting, this report will summarize the key details of the Transaction Cost Analysis reports from Elkins/McSherry (E/M). The E/M reports analyze costs across both explicit and implicit costs, including commission trading costs, fees, and market impact costs¹. As detailed below, across all asset classes, SCERS' trading costs generated a net savings versus E/M benchmark costs of \$961,000 and \$1,154,000 for the fourth quarter 2020 and first quarter 2021, respectively. Summary versions of the reports are included as attachments, with expanded reports available upon request. The summary notes below are categorized by asset class for each quarter. Comments below are summarized at a high level by asset class, and specific manager issues, if any, will be noted in compliance with SCERS' Transaction Cost Analysis policy.

¹ Market Impact Costs measure the difference between a manager's trade price and a market benchmark, such as the volume weighted average price (VWAP).

Fourth Quarter 2020

- U.S. Equity ([E/M Summary Report](#))
 - SCERS' total trading cost was +1.49 cents per share (cps)², which was 2.03 cps lower than the E/M benchmark costs of +3.52 cps.
 - SCERS' U.S. equity managers outperformed on both commissions (+0.87 cps) and market impact (+0.62 cps) versus the benchmark costs of +1.54 cps and +1.99 cps, respectively.
 - As measured in basis points (bp), SCERS' total trading cost was +2.45 bp, which was 3.36 bp lower than the E/M benchmark costs of +5.81 bp.
 - Based on 2.7 million shares traded during the quarter (\$163 million principal), SCERS' U.S. equity managers produced savings of approximately \$55,000 compared to E/M benchmark costs.
 - SCERS' small cap equity manager, Weatherbie Capital, has ranked in the bottom quartile versus the E/M benchmark over the past several quarters. SCERS' Staff has held discussions with Weatherbie to understand their trading practices and review their analysis versus data received from E/M. Based on Weatherbie's internal review, which evaluates trading performance based on when trades are entered and executed (i.e. available VWAP versus daily VWAP), Weatherbie is in the top 50% with trade cost savings versus their benchmark. SCERS will continue to monitor trade costs for Weatherbie and address issues as they arise. No other manager specific issues were noted.

- Global Equity ([E/M Summary Report](#))
 - SCERS' total global equity trading costs were +18.88 basis points (bp), 1.01 basis points lower than the E/M benchmark costs of +19.89 bp.
 - SCERS' commission costs (+8.22 bp) were significantly lower than benchmark costs (+13.38 bp), while costs for fees (+5.56 bp) and market impact (+5.10 bp) trailed the benchmark costs of +4.52 bp and +1.99 bp, respectively.
 - Total principal traded was \$123.2 million across 21 countries, resulting in a savings of approximately \$12,000 compared to E/M benchmark costs.
 - No manager specific issues were noted, with all managers delivering generally consistent cost savings versus E/M benchmarks over the past several quarters.

- U.S. Fixed Income ([E/M Summary Report](#))
 - SCERS' U.S. Fixed Income trade costs were -2.02 basis points during the quarter, significantly below the E/M benchmark costs of +10.68 bp.
 - Total trade volume was approximately \$712 million in principal. The trade costs versus the benchmark represented a savings of approximately \$904,000 versus average benchmark costs.
 - Trade costs were lower than the benchmark across all security types, with the majority of savings generated in trading of government and mortgage securities.

² Transaction Cost Analysis (TCA) is presented in either cents per share (cps) or basis points (bp). Cents per share is typically used for U.S. Equity analysis, while basis points is used across other asset classes. Cents per share is the cost for executing transactions on a per share basis, while basis points represent costs based on principal amount traded, with 1 basis point equal to 1/100th of one percent.

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- No manager specific issues were noted, with all managers delivering cost savings versus E/M benchmarks over the past several quarters.
 - Global Fixed Income ([E/M Summary Report](#))
 - SCERS' Global Fixed Income trade costs were +13.57 bp, higher than the benchmark average costs of +11.66 bp.
 - Trade volume during the quarter was approximately \$57 million. Trade costs of +1.91 bp above the benchmark resulted in costs higher by approximately \$11,000 compared to average benchmark costs.
 - This is the first quarter in several years where trade costs for Global Fixed Income have been above the benchmark, so it is not a cause for concern at this time. Staff will continue to monitor trade costs and discuss with the manager as needed.
 - Despite slightly higher costs versus the benchmark in Q4 2020, SCERS' global fixed income manager (Prudential) has typically delivered significant cost savings versus the E/M benchmark. SCERS will continue to monitor trade performance, but no concerns are noted at this time.
 - Commission Recapture
 - For the fourth quarter 2020, SCERS received a rebate of \$5,344, which represents approximately 43% of the commissions generated during the quarter.
 - For the full year ending December 2020, SCERS received a rebate of \$25,768, which was 49% of the commissions generated through the commission recapture program.
 - Total commissions and the rebate returned back to SCERS continues to decline due to lower commission rates and changing market dynamics.

First Quarter 2021

- U.S. Equity ([E/M Summary Report](#))
 - SCERS' total trading cost was +1.13 cents per share (cps), which was 2.37 cps lower than the E/M benchmark costs of +3.50 cps.
 - SCERS' U.S. equity managers outperformed on both commissions (+0.71 cps) and market impact (+0.42 cps) versus the benchmark costs of +1.51 cps and +1.99 cps, respectively.
 - As measured in basis points (bp), SCERS' total trading cost was +1.75 bp, which was 3.68 bp lower than the E/M benchmark costs of +5.43 bp.
 - Based on 3.1 million shares traded during the quarter (\$202 million principal), SCERS' U.S. equity managers produced savings of approximately \$74,000 compared to E/M benchmark costs.
 - No manager specific issues are noted. Weatherbie Capital, which as of Q4 2020 had several quarters of poor trading results versus the E/M benchmark, delivered strong trading results in the current quarter, ranking in the top 5% for market impact costs/savings versus the VWAP.
- Global Equity ([E/M Summary Report](#))
 - SCERS' total global equity trading costs were +13.30 basis points (bp), 6.94 basis points lower than the E/M benchmark costs of +20.24 bp.

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- SCERS' commission costs (+6.55 bp) were significantly lower than benchmark costs (+14.68 bp), while costs for fees (+4.53 bp) and market impact (+2.22 bp) trailed the benchmark costs of +3.63 bp and +1.93 bp, respectively.
 - Total principal traded was \$137 million across 27 countries, resulting in a savings of approximately \$95,000 compared to E/M benchmark costs.
 - No manager specific issues were noted, with all managers delivering generally consistent cost savings versus E/M benchmarks over the past several quarters.
 - U.S. Fixed Income ([E/M Summary Report](#))
 - SCERS' U.S. Fixed Income trade costs were a +0.40 basis points during the quarter, significantly below the E/M benchmark costs of +7.91 bp.
 - Total trade volume was approximately \$1.2 billion in principal. The trade costs versus the benchmark represented a savings of approximately \$923,000 versus average benchmark costs.
 - Trade costs were lower than the benchmark across all security types, with the majority of principal traded and savings generated via the trading of government and mortgage securities.
 - No manager specific issues were noted, with all managers delivering cost savings versus E/M benchmarks over the past several quarters.
 - Global Fixed Income ([E/M Summary Report](#))
 - SCERS' Global Fixed Income trade costs were +1.04 bp, lower than the benchmark average costs of +11.71 bp.
 - Trade volume during the quarter was approximately \$58 million. Trade costs of +10.67 bp below the benchmark resulted in cost savings of approximately \$62,000 compared to average benchmark costs.
 - Global fixed income trading costs were significantly below the benchmark, which is consistent with results over the past several years. The results from the fourth quarter 2020 were the exception over this time period, when costs slightly exceeded the benchmark.
 - No manager specific issues were noted. SCERS' global fixed income manager (Prudential) delivered significant cost savings versus the E/M benchmark.
 - Commission Recapture
 - For the first quarter 2021, SCERS received a rebate of \$1,030, which represents approximately 58% of the commissions generated during the quarter.
 - Total commissions and the rebate returned back to SCERS continues to decline due to lower commission rates and changing market dynamics. The rebate received in the first quarter is over 80% below the amount received in the first quarter of 2020.

Staff has received and reviewed the full reports from Elkins/McSherry. The summary reports attached include key pages from these reports. The full reports are available upon request.

As noted in the recent Board education presentation, Staff is currently in process of evaluating TCA service providers. Any change to service providers may affect future Board reporting, including evaluation of managers and reports available for analysis. Staff will follow up with additional details on the evaluation of the service providers over the next several months.

ATTACHMENTS

- Board Order
- Elkins / McSherry Trading Cost Summary reports for the quarters ending December 31, 2020 and March 31, 2021, for U.S. equity, international equity, U.S. fixed income, and global fixed income.

Prepared by:

/S/

Brian Miller
Senior Investment Officer

Reviewed by:

/S/

Steve Davis
Chief Investment Officer

/S/

Eric Stern
Chief Executive Officer



Retirement Board Order

Sacramento County Employees' Retirement System

**Before the Board of Retirement
August 18, 2021**

MOTION:

Trading Cost Analysis Report – Fourth Quarter 2020 and First Quarter 2021

THE BOARD OF RETIREMENT hereby accepts the recommendation of staff to receive and file the Trading Cost Analysis Report – Fourth Quarter 2020 and First Quarter 2021.

I HEREBY CERTIFY that the above order was passed and adopted on August 18, 2021 by the following vote of the Board of Retirement, to wit:

AYES:

NOES:

ABSENT:

ABSTAIN:

ALTERNATES (Present but not voting):

Richard B. Fowler II
Board President

Eric Stern
Chief Executive Officer and
Board Secretary



SACRAMENTO COUNTY

Trade Cost Summary - U.S. Equity Trading

Period End December 31, 2020





(+) = Cost

EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analysis to institutional investors since 1991, serving many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global equity market and Universe data, Elkins/McSherry has produced a Trading Cost Analysis on behalf of SACRAMENTO COUNTY. This study evaluates U.S. equity executions from October 1 , 2020 to December 31, 2020. The analysis included trading of 2,686,090 shares representing \$163.02 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 +0.87 cps (+1.43 bp) or +\$23,254 (0.67 cps (1.11 bp) better than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact cost was +0.62 cps (+1.02 bp) or 1.37 cps (2.25 bp) better than the Elkins/McSherry Universe Your overall trading cost of +1.49 cps (+2.45 bp) was 2.04 cps (3.36 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 70% Total Cost Universe Rank: 74% 	<ul style="list-style-type: none"> E-Score : 0.02

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program		Full Day VWAP
+3.81	+1.54	+1.19	+1.57	Median	+1.99
				75 %	+0.03
				25 %	+4.50



(+) = Cost

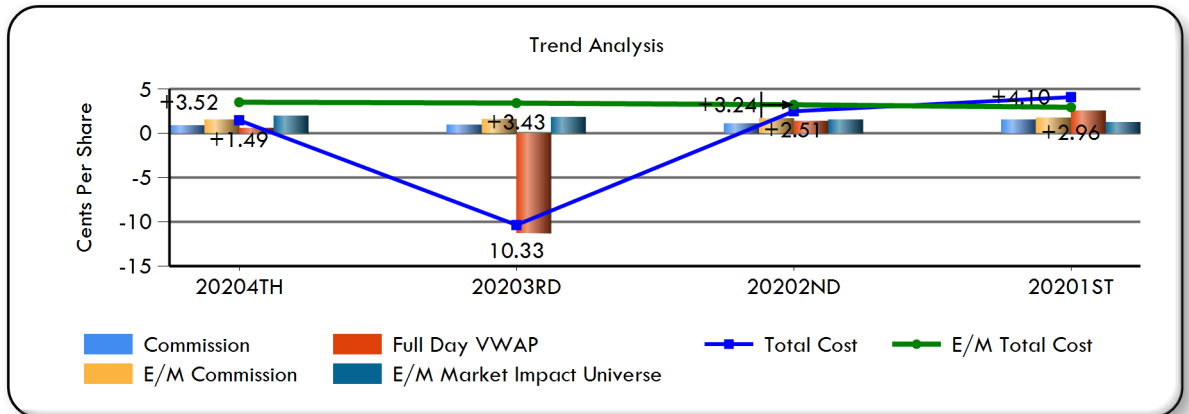
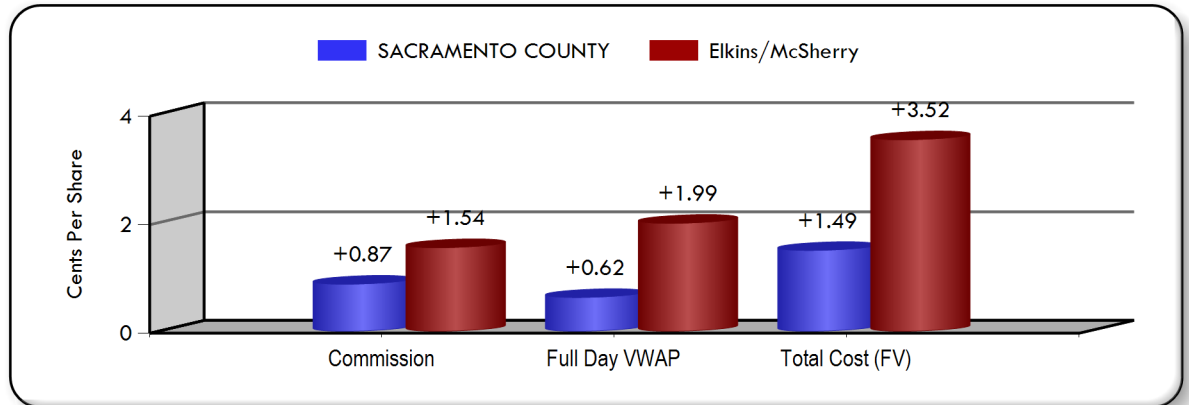
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E -Score
	Your Avg. Commission (cps)	All Trading Universe (cps)	Bundled Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	(cps)	Commission+ Full Day VWAP (cps)	
Sells	+0.89	+1.54	+3.81	+0.33	+1.99	+1.22	2.30	0.03
Buys	+0.84	+1.54	+3.81	+0.89	+1.99	+1.73	1.79	0.01
Total	+0.87	+1.54	+3.81	+0.62	+1.99	+1.49	2.04	0.02

TRADING COMPONENTS

	Buys	Sells
Trade Principal	79,031,437	83,992,268
Shares	1,392,524	1,293,566
Unique Names	246	236
Liquidity (% ADV)	0.05	0.046
Avg. Execution Size	2,196	2,418
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	634	535



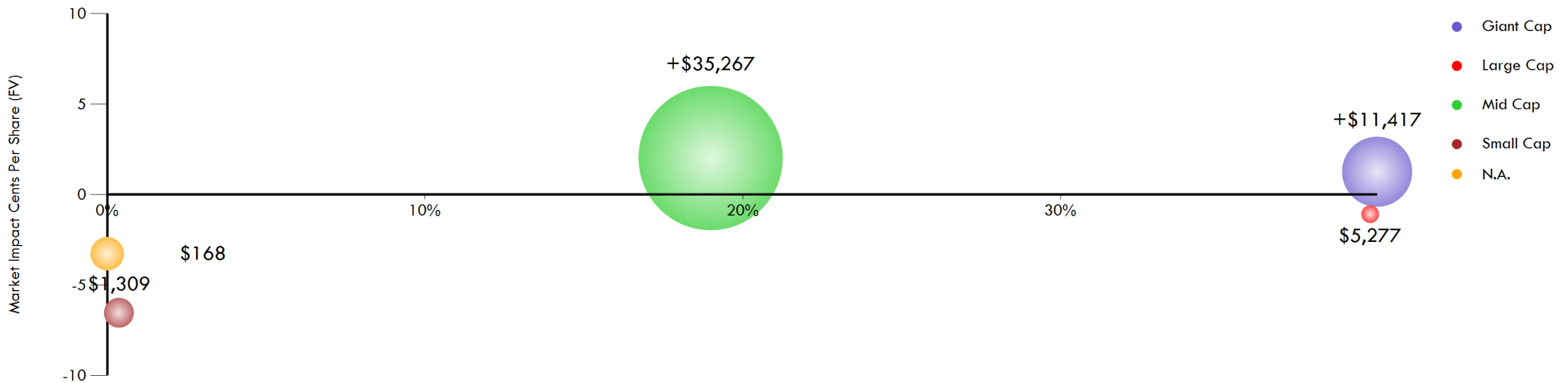
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EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded	Avg. Shares Per Order	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score	Market Cap Definition
			Your Commission	All Trading Universe	Full Day VWAP	Universe Full Day VWAP	Rank Full Day VWAP	(cps)	Commission+ Full Day VWAP Vs. Universe		
	(\$)		(cps)	(cps)	(cps)	(cps)		(cps)			
Giant Cap	40.15 %	2,327	+0.36	+1.54	+1.26	+3.13	63 %	+1.62	3.05	0.02	Over \$25 B
Large Cap	39.93 %	2,151	+0.54	+1.54	1.09	+2.41	74 %	0.55	4.50	0.01	\$5 B To \$25 B
Mid Cap	19.18 %	2,441	+1.53	+1.54	+2.02	+1.91	47 %	+3.55	+0.10	0.04	\$1 B To \$5 B
Small Cap	0.56 %	2,096	+1.33	+1.54	6.54	+0.88	93 %	5.21	7.62	0.05	\$250 M To \$1 B
N.A.	0.19 %	2,632	+0.08	+1.54	3.27	+1.99	88 %	3.20	6.72	-0.03	

Total Cost by Market Cap: (USD)





(+) = Cost

TRADE CYCLE DETAIL

Manager Performance (Full Day VWAP)

					COMMISSION	MARKET IMPACT	TOTAL COST/SAVIN GS	RANK TREND - Full Day VWAP				
Manager	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20203RD (%)	20202ND (%)	20201ST (%)
AQR	113	2,795	1,830,607	0.02	+0.08	+1.54	+0.58	71 %	2.87	58	55	40
WEATHERBIE	39	1,336	661,147	0.06	+2.52	+1.54	+5.84	19 %	+4.84	18	6	7
EAGLE CAPITAL MANAGE	9	28,352	170,112	-0.13	+3.00	+1.54	11.94	98 %	12.46	96	98	8
ALLIANCE R 3000 CAPI	2	1,863	24,224	0.07	+0.33	+1.54	50.54	99 %	53.73	99	2	67

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.81	+1.54	+1.19	+1.57	+1.99

NOTES

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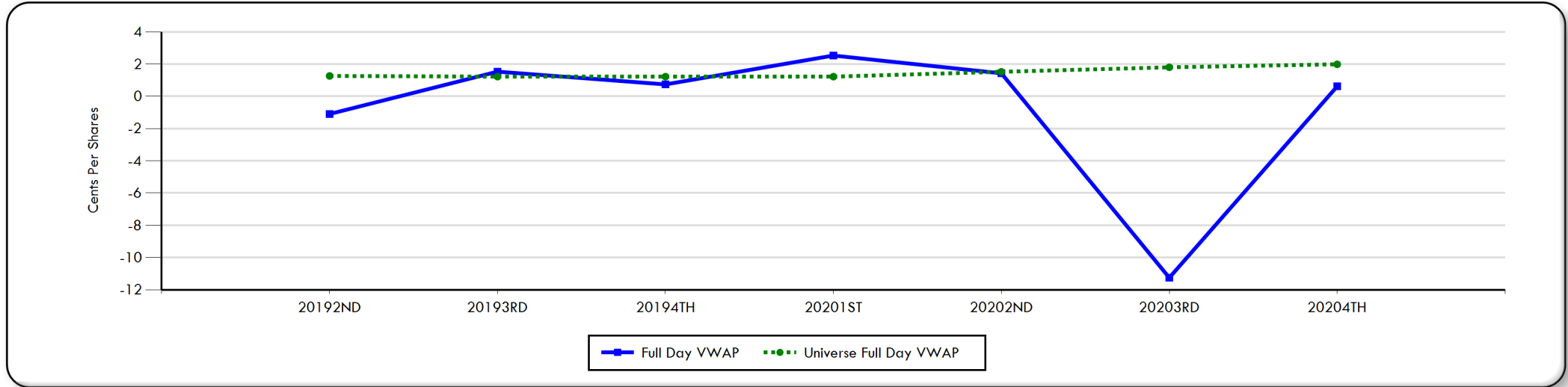


(+) = Cost

TRADE HISTORY

Trade History

Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP (cps)	Full Day VWAP Universe Rank (%)
			(cps)	(\$)		
20192ND	3,647,786	171,841,719	+1.45	52,944	1.10	81
20193RD	4,500,167	228,793,910	+1.16	52,110	+1.53	46
20194TH	3,275,124	155,418,903	+1.49	48,930	+0.74	58
20201ST	4,059,692	198,207,205	+1.57	63,827	+2.53	33
20202ND	7,218,058	279,989,271	+1.08	77,872	+1.43	51
20203RD	6,287,580	365,734,518	+0.93	58,162	11.26	99
20204TH	2,686,090	163,023,705	+0.87	23,254	+0.62	70



Note on Universes:

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



SACRAMENTO COUNTY

Trade Cost Summary - Global Equity Trading

Period End December 31, 2020





(+) = Cost

EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analysis to institutional investors since 1991, serving many of the world's largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an unmatched collection of global equity market and Universe data, Elkins/McSherry has produced a Trading Cost Analysis on behalf of SACRAMENTO COUNTY. This study evaluates global equity executions from October 1, 2020 to December 31, 2020. The analysis included trading of 10,732,325 shares representing \$123.20 million in principal across 21 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 :

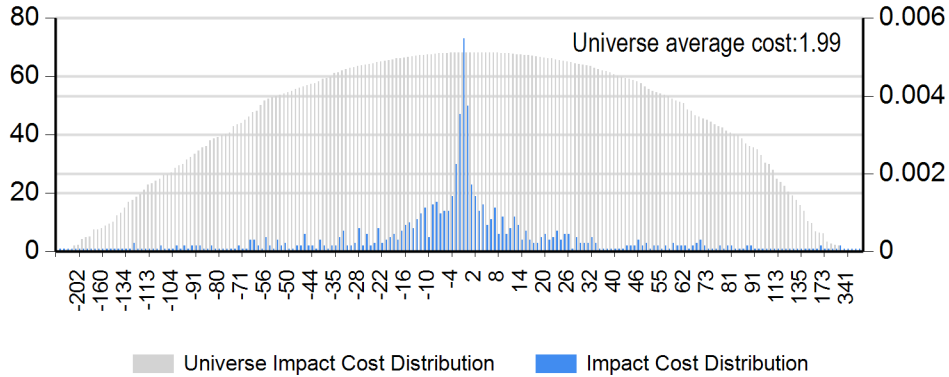
BENCHMARK PERFORMANCE			E - Score
Commission	Fees	Full Day VWAP	
<ul style="list-style-type: none"> Your commission cost was +8.22 bp or \$ +\$101,298 (5.15 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +5.56 bp or \$ +68,512 (+1.03 bp worse than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact cost was +5.10 bp or \$+62,797 (+3.10 bp worse than the Elkins/McSherry Universe) Your overall trading cost of +18.88 bp was 1.01 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 10 countries and lower than the Elkins/McSherry Universe in 14 countries. 14 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 28 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : 0.04



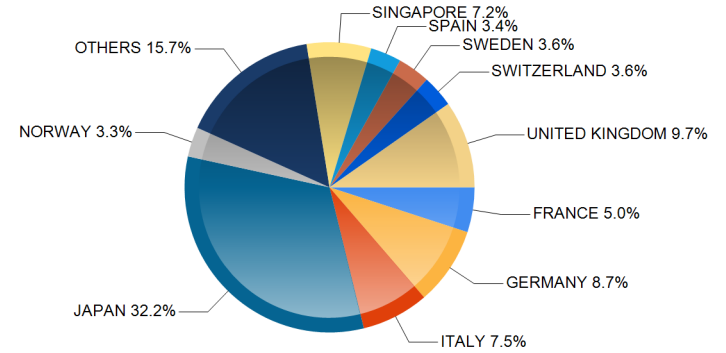
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EXECUTIVE SUMMARY

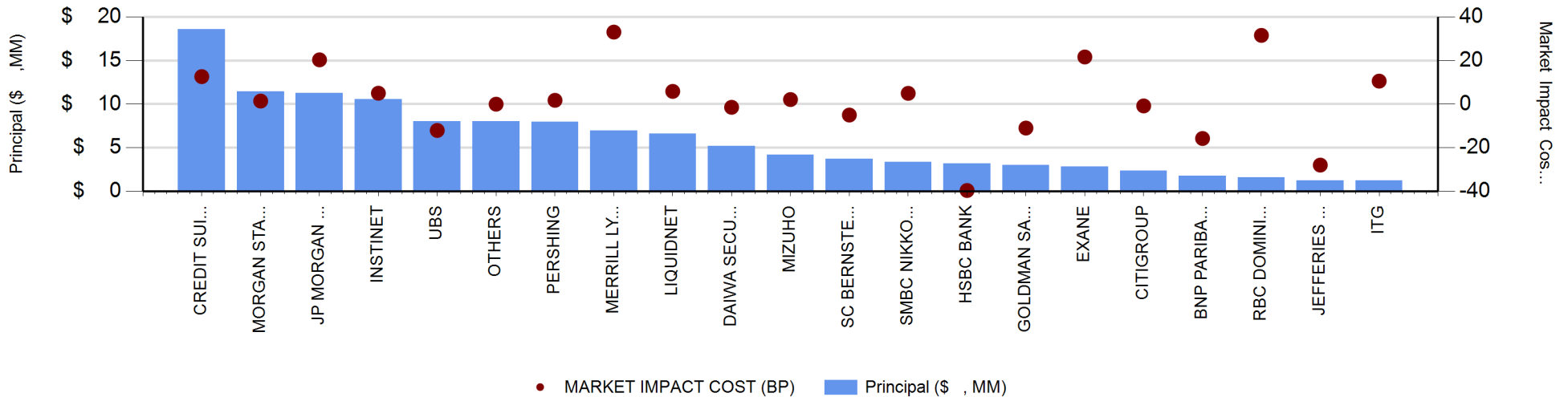
Cost Distribution



Principal Across Country



Top 20 Brokers in Principal Traded





(+) = Cost

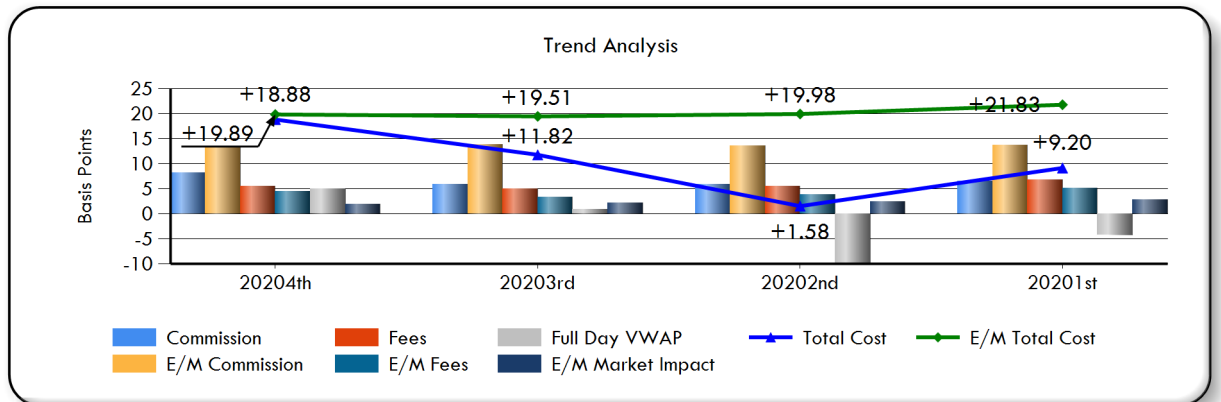
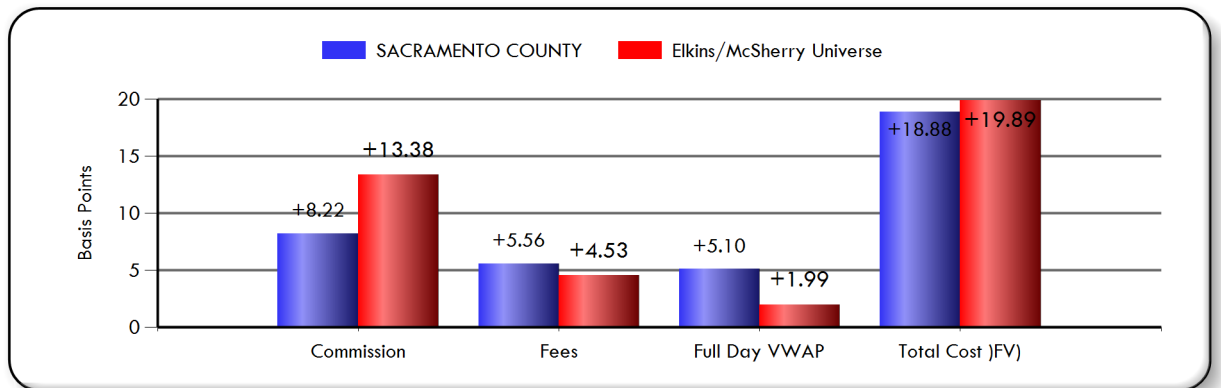
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			Fees		MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E - Score
	Your Avg. Commission	Bundled Universe	All Trading Universe	Fees	Universe	Full Day VWAP	Universe Full Day VWAP		Commission+Fees Full Day VWAP	
	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	
Sell	+8.19	+13.21	+4.41	+0.48	+0.50	+1.96	+2.32	+10.63	5.40	-0.03
Buy	+8.26	+13.54	+4.77	+10.75	+8.65	+8.30	+1.64	+27.32	+3.48	0.10
Total	+8.22	+13.38	+4.58	+5.56	+4.53	+5.10	+1.99	+18.88	1.01	0.04

TRADING COMPONENTS

	Buys	Sells
Trade Principal	60,936,708	62,261,301
Shares	7,372,031	3,360,294
Unique Names	67	48
Liquidity (% POV)	0.513	0.129
Avg. Order Size	14,259	8,594
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	517	391





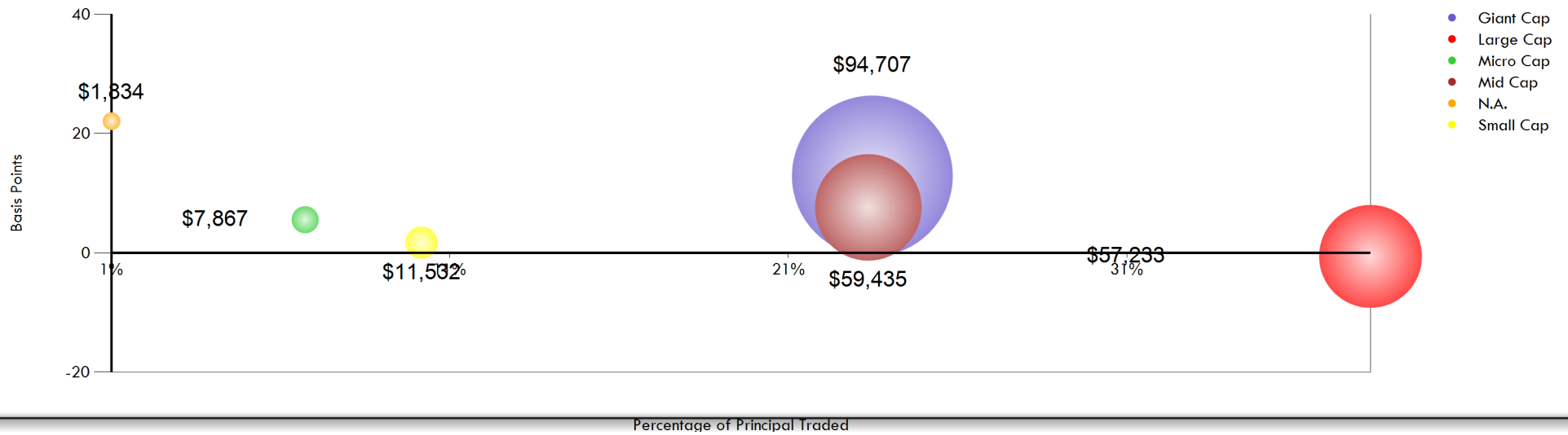
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EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded	Avg. Principal Per Order	COMMISSION		MARKET IMPACT		Total Cost	Total Cost/Savings	E - Score	Market Cap Definition
			Your Commission	Bundled Universe	Full Day VWAP	Universe Full Day VWAP				
	(%)	(\$)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)		
Large Cap	37.71 %	190,416	+6.93	+12.88	0.60	+1.95	+12.32	7.09	-0.05	\$5 Billion To \$25 Billion
Giant Cap	22.99 %	198,093	+9.12	+13.80	+12.88	+1.81	+33.44	+8.44	-0.01	Over \$25 Billion
Mid Cap	22.87 %	100,284	+11.37	+13.55	+7.62	+2.07	+21.10	+3.48	0.23	\$1 Billion To \$5 Billion
Small Cap	9.67 %	81,623	+6.03	+14.30	+1.70	+2.22	+9.68	8.73	-0.01	\$250 Million To \$1 Billion
Micro Cap	6.23 %	83,480	+4.69	+12.73	+5.55	+2.20	+10.24	4.79	0.03	Under \$250 Million
N.A.	0.51 %	316,085	+7.00	+13.12	+22.06	+1.70	+29.06	+14.21	0.31	

Total Cost by Market Cap





(+) = 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)	20203rd (bp)	20202nd (bp)	20201st (bp)
LAZARD ASSET MANAGEM	43	136	34.59%	313,343	0.02	+9.81	+13.55	+12.37	+1.74	+9.50	6.83	37.35	2.99
WILLIAM BLAIR & COMP	31	224	25.21%	138,627	-0.01	+5.87	+13.85	0.24	+2.06	9.78	+3.03	5.01	24.86
LSV ASSET MANAGEMENT	29	492	23.24%	58,193	-0.03	+4.37	+13.09	2.81	+2.26	12.96	10.56	10.18	17.73
WALTER SCOTT INTL EA	21	56	16.96%	373,210	0.22	+13.76	+12.70	+9.06	+1.99	+6.98	17.09	-	29.89

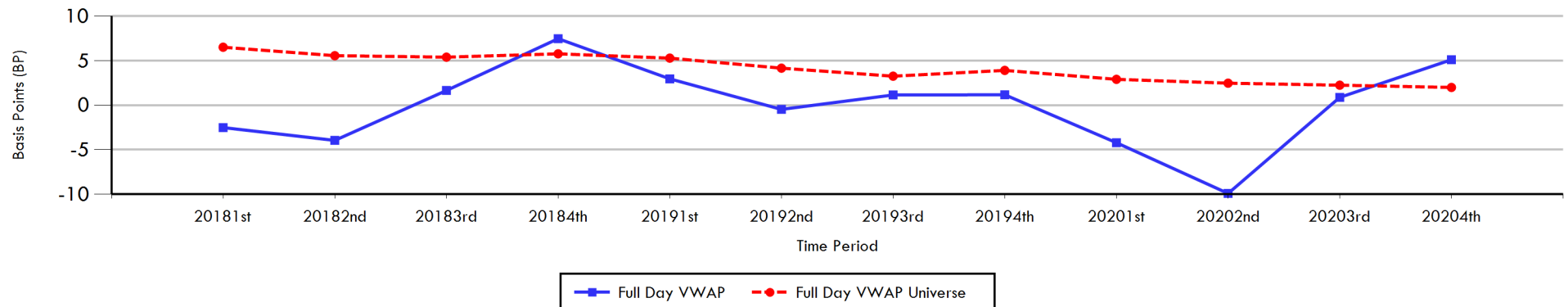
NOTES

- Manager above made up 100.00 % of principal traded.

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)
20181st	207,232,838	+8.30	+14.33	+5.34	+5.43	2.52	+6.50	15.12
20182nd	152,374,616	+7.46	+14.16	+10.17	+6.65	3.96	+5.55	12.69
20183rd	84,663,286	+6.92	+13.97	+5.95	+3.81	+1.64	+5.39	8.65
20184th	132,282,303	+7.47	+14.63	+4.94	+3.67	+7.46	+5.76	4.18
20191st	75,137,208	+7.16	+13.73	+6.74	+5.73	+2.95	+5.28	7.88
20192nd	70,813,093	+5.93	+14.19	+8.58	+8.20	0.48	+4.15	12.50
20193rd	79,515,054	+5.84	+14.32	+3.19	+3.04	+1.14	+3.25	10.44
20194th	151,282,246	+6.63	+13.69	+4.01	+2.96	+1.16	+3.90	8.74
20201st	150,544,093	+6.57	+13.82	+6.85	+5.12	4.22	+2.90	12.63
20202nd	87,805,344	+5.99	+13.63	+5.49	+3.89	9.91	+2.47	18.40
20203rd	111,885,782	+5.88	+13.92	+5.08	+3.34	+0.87	+2.24	7.68
20204th	123,198,008	+8.22	+13.38	+5.56	+4.53	+5.10	+1.99	1.01

TRADE HISTORY





SACRAMENTO COUNTY

US Fixed Income Analysis

Period End December 31, 2020



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates U.S. fixed income executions from October 01,2020 to December 31,2020. The analysis included trading of 425 trades in 128 different issues representing \$712,135,040 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.

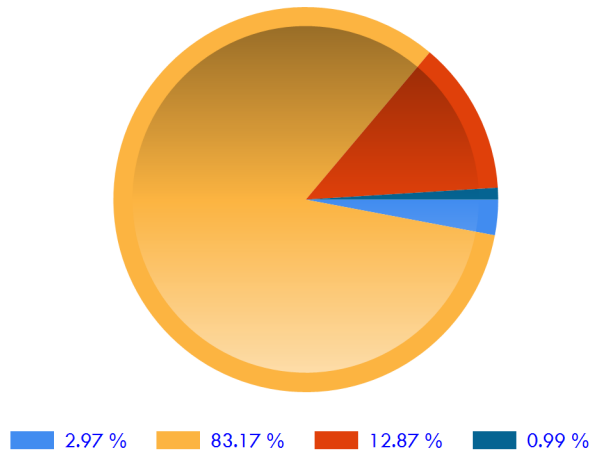
Results:

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	Q3 2020	Q2 2020	Q1 2020	Q4 2019
BUYS	385	221	66	108.82	2.83	+12.00	570.64	14.83	+1.63	+1.31	+3.35	+0.75
SELLS	327	204	82	35.11	1.07	+9.12	333.53	10.19	+0.26	+0.29	+0.32	1.10
GRAND TOTAL	712	425	128	143.93	2.02	+10.68	904.17	12.70	+1.06	+0.78	+1.89	0.23

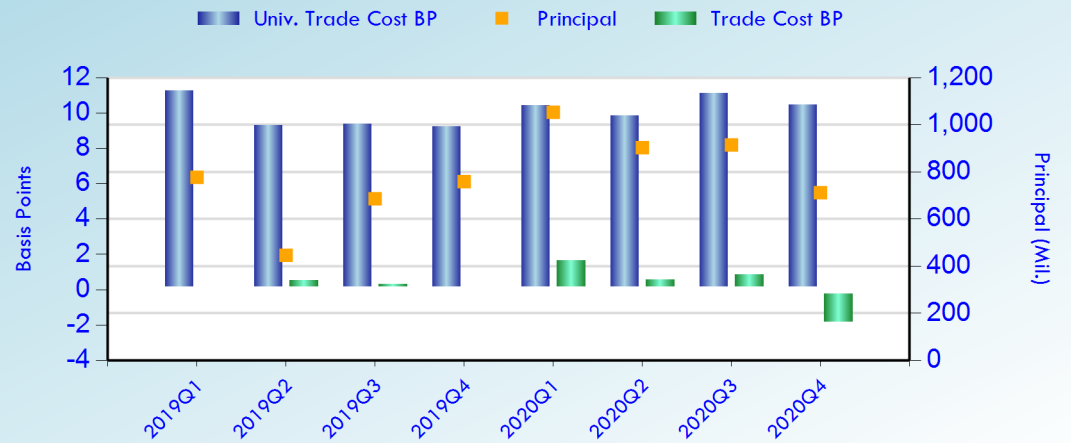
EXECUTIVE SUMMARY

BOND TYPES PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	Q3 2020	Q2 2020	Q1 2020	Q4 2019
Governments	595	299	52	38.95	0.65	+9.54	606.88 10.19	0.15	0.30	+1.45	0.45
Mortgages	91	58	17	121.83	13.38	+14.31	252.17 27.69	+3.82	+1.78	+4.23	-
Corporates	22	57	48	+14.70	+6.66	+25.78	42.20 19.12	+6.88	+3.48	15.65	+5.42
Municipals	4	11	11	+2.15	+5.99	+14.11	2.92 8.12	-	+0.51	+4.13	-

Bonds by Principal Traded



Historical Trade Cost Trend

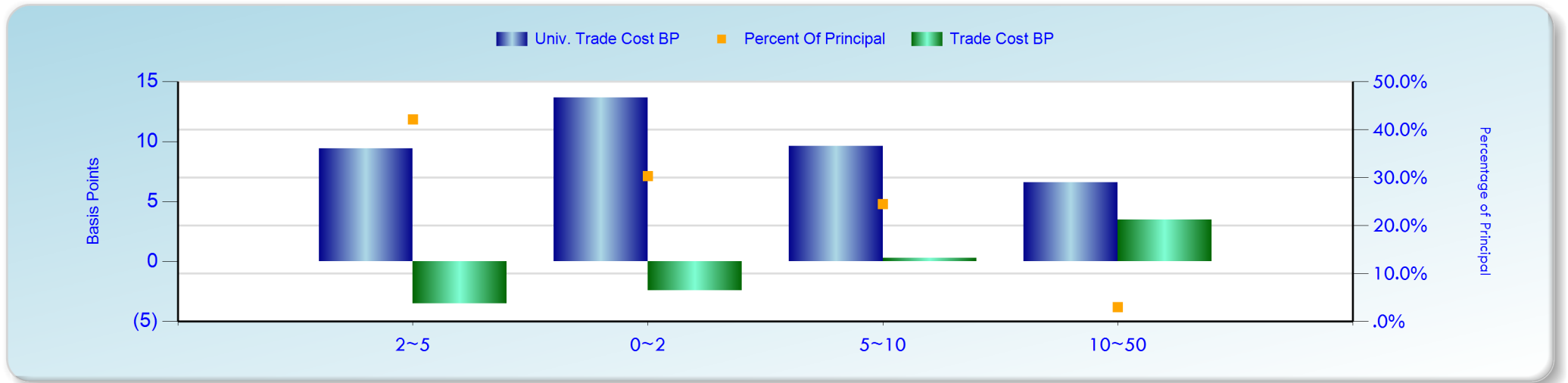




EXECUTIVE SUMMARY

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
2~5	300	98	34	104.65	3.49	+9.42	387.22	12.91
0~2	216	299	116	51.76	2.40	+13.66	346.78	16.06
5~10	175	26	15	+4.93	+0.28	+9.65	163.50	9.37
10~50	22	2	2	+7.55	+3.51	+6.61	6.67	3.10



Manager PERFORMANCE

Manager PERFORMANCE									TRADE COST HISTORICAL PERFORMANCE			
Manager	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP		Q3 2020	Q2 2020	Q1 2020	Q4 2019
METROPOLITAN WEST MG	600	369	99	144.00	2.40	+11.09	809.72	13.49	+0.98	+0.00	0.64	0.57
NEUBERGER BERMAN	80	29	16	11.60	1.45	+7.89	74.72	9.34	+1.62	+3.06	+2.66	+0.29
BARCLAYS 1-10 YR TIP	32	27	19	+11.67	+3.68	+9.89	19.73	6.21	+1.53	+0.00	+70.62	2.19

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	
10/01/2020-12/31/2020	712,135	425	128	143.93	2.02	+10.68	904.17	12.70
07/01/2020-09/30/2020	914,835	532	159	+97.11	+1.06	+11.35	940.79	10.29
04/01/2020-06/30/2020	903,498	445	148	+70.23	+0.78	+10.08	840.37	9.30
01/02/2020-03/31/2020	1,053,957	691	217	+198.86	+1.89	+10.64	922.37	8.75
Year-Ending 2020	3,584,426	2093		+222.27	+0.62	+10.69	3,607.70	10.06
10/01/2019-12/31/2019	759,298	479	127	17.36	0.23	+9.45	734.68	9.68
07/01/2019-09/30/2019	686,683	408	111	+37.19	+0.54	+9.59	621.19	9.05
04/01/2019-06/30/2019	446,471	355	107	+32.98	+0.74	+9.54	392.87	8.80
01/01/2019-03/31/2019	777,794	441	181	19.31	0.25	+11.49	913.04	11.74
Year-Ending 2019	2,670,246	1683		+33.50	+0.13	+10.09	2,661.79	9.97
10/01/2018-12/31/2018	713,870	364	137	+23.27	+0.33	+8.75	601.62	8.42
07/01/2018-09/30/2018	578,565	315	150	+2.45	+0.04	+7.31	420.64	7.27
04/01/2018-06/30/2018	779,482	378	169	+203.86	+2.62	+9.58	542.73	6.96
01/01/2018-03/31/2018	1,666,649	1608	992	+113.13	+0.68	+8.88	1,367.40	8.20
Year-Ending 2018	3,738,566	2665		+342.70	+0.92	+8.76	2,932.39	7.84
10/01/2017-12/31/2017	624,736	649	254	37.30	0.60	+6.59	448.75	7.19
07/01/2017-09/30/2017	733,365	712	245	70.43	0.96	+7.13	593.40	8.09
04/01/2017-06/30/2017	789,018	849	277	11.21	0.14	+6.26	504.99	6.40
01/01/2017-03/31/2017	710,311	779	281	+88.61	+1.25	+7.07	413.59	5.82
Year-Ending 2017	2,857,429	2989		30.32	0.11	+6.76	1,960.73	6.86
10/01/2016-12/31/2016	711,667	646	221	68.72	0.97	+6.26	514.24	7.23
07/01/2016-09/30/2016	589,731	684	203	14.71	0.25	+6.35	389.30	6.60
04/01/2016-06/30/2016	619,130	801	269	67.81	1.10	+8.74	608.75	9.84
01/02/2016-03/31/2016	710,978	1117	262	193.39	2.72	+6.08	625.45	8.80



SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End December 31, 2020



EXECUTIVE SUMMARY

Elkins/McSherry has been providing trading cost analyses to institutional investors since 1991. During that time we have produced Post-Trade Cost Analyses for many of the worlds largest investment managers, pension funds, banks, and broker dealers. Using this vast experience combined with an un-matched collection of global fixed income market and Universe data, Elkins/McSherry has recently produced a Trading Cost Analysis on behalf of Sacramento County. This study evaluates global fixed income executions from October 01,2020 to December 31,2020. The analysis included trading of 102 trades in 61 different issues representing \$57,483,122 in principal across mortgages, governments And corporates.

Methodology:

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

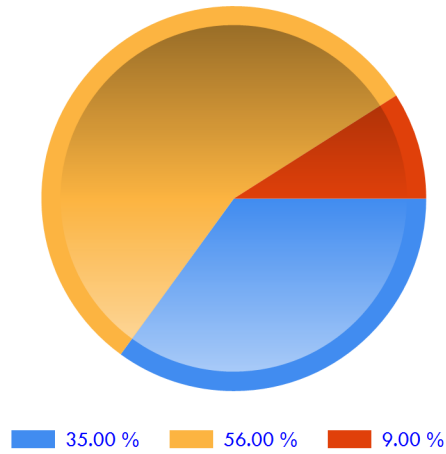
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q3 2020	Q2 2020	Q1 2020	Q4 2019
BUYS	25	59	34	+48.59	+19.81	+11.46	+20.48	+8.35	22.89	36.44	+0.64	5.06
SELLS	33	43	29	+29.40	+8.92	+11.81	9.51	2.89	+26.95	+7.87	1.14	+0.47
GRAND TOTAL	57	102	61	+77.99	+13.57	+11.66	+10.97	+1.91	3.02	21.32	0.14	2.22

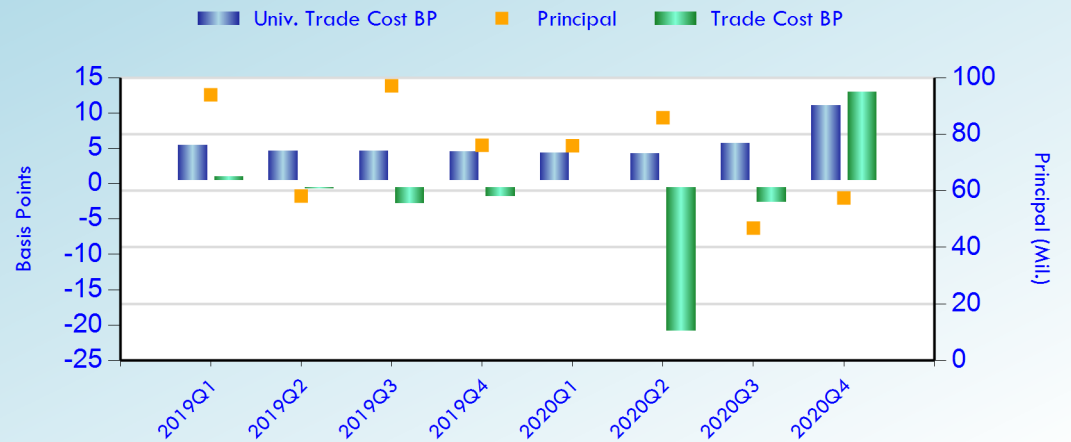
EXECUTIVE SUMMARY

BOND TYPES PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	Q3 2020	Q2 2020	Q1 2020	Q4 2019
Governments	32	45	15	+3.93	+1.22	+11.81	34.19 10.59	+15.68	0.04	+7.72	6.76
Corporates	20	48	39	6.73	3.32	+11.46	29.93 14.78	8.93	38.87	8.37	+8.24
Mortgages	5	9	7	+80.79	+162.55	+11.46	+75.09 +151.09	192.36	15.84	2.04	-

Bonds by Principal Traded



Historical Trade Cost Trend

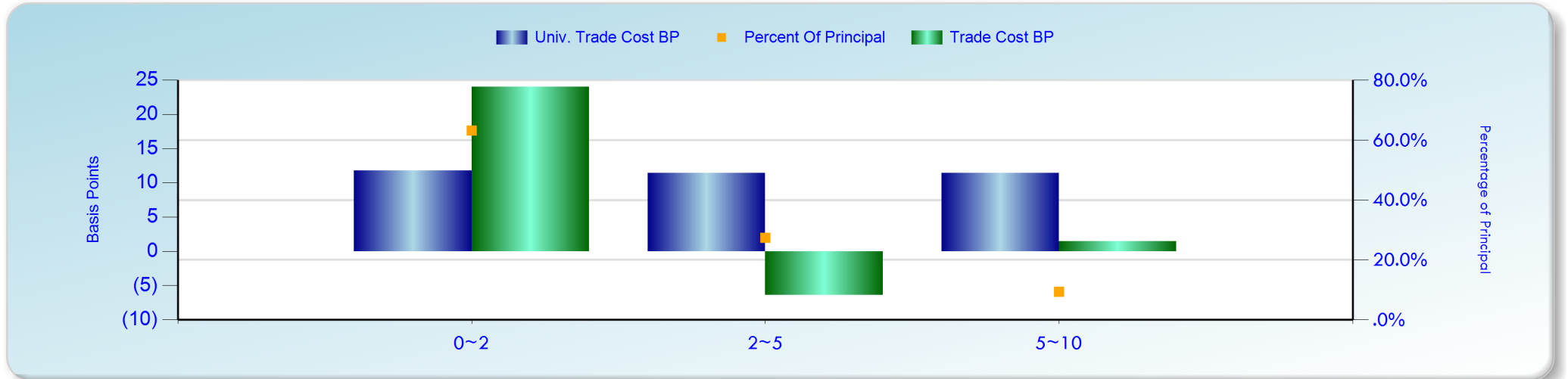




EXECUTIVE SUMMARY

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	36	96	59	+87.31	+24.03	+11.77	+44.53	+12.26
2~5	16	5	5	10.10	6.41	+11.46	28.15	17.87
5~10	5	1	1	+0.78	+1.45	+11.46	5.40	10.01



Manager PERFORMANCE

Manager PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE			
Manager	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	Q3 2020	Q2 2020	Q1 2020	Q4 2019
PRUDENTIAL INVESTMEN	57	102	61	+77.99	+13.57	+11.66	+10.97 +1.91	3.02	21.32	0.14	2.22

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
10/01/2020-12/31/2020	57,483	102	61	+77.99	+13.57	+11.66	+10.97	+1.91
07/01/2020-09/30/2020	46,840	61	47	14.12	3.02	+6.30	43.63	9.32
04/01/2020-06/30/2020	85,881	143	98	183.09	21.32	+4.82	224.49	26.14
01/02/2020-03/31/2020	75,943	157	84	1.05	0.14	+4.93	38.49	5.07
Year-Ending 2020	266,147	463		120.27	4.52	+6.59	295.65	11.11
10/01/2019-12/31/2019	76,119	174	90	16.90	2.22	+5.07	55.50	7.29
07/01/2019-09/30/2019	97,170	144	79	31.64	3.26	+5.17	81.92	8.43
04/01/2019-06/30/2019	58,138	153	87	6.84	1.18	+5.19	37.02	6.37
01/01/2019-03/31/2019	93,964	228	119	+14.36	+1.53	+6.02	42.17	4.49
Year-Ending 2019	325,391	699		41.02	1.26	+5.40	216.61	6.66
10/01/2018-12/31/2018	66,814	146	75	+9.69	+1.45	+7.24	38.71	5.79
07/01/2018-09/30/2018	37,664	102	50	+0.18	+0.05	+5.24	19.56	5.19
04/01/2018-06/30/2018	77,479	217	112	+12.54	+1.62	+5.51	30.15	3.89
01/01/2018-03/31/2018	51,291	127	70	1.01	0.20	+10.09	52.77	10.29
Year-Ending 2018	233,248	592		+21.40	+0.92	+6.97	141.19	6.05
10/01/2017-12/31/2017	47,359	119	46	21.97	4.64	+4.00	40.93	8.64
07/01/2017-09/30/2017	74,271	178	73	+11.09	+1.49	+2.75	9.35	1.26
04/01/2017-06/30/2017	65,905	139	61	+10.87	+1.65	+3.17	10.02	1.52
01/01/2017-03/31/2017	88,323	207	89	+24.27	+2.75	+3.32	5.07	0.57
Year-Ending 2017	275,858	643		+24.27	+0.88	+3.25	65.38	2.37
10/01/2016-12/31/2016	59,762	110	50	5.73	0.96	+3.49	26.57	4.45
07/01/2016-09/30/2016	44,927	135	53	+9.79	+2.18	+3.58	6.28	1.40
04/01/2016-06/30/2016	76,455	102	58	+22.49	+2.94	+5.97	23.17	3.03
01/02/2016-03/31/2016	91,594	125	57	42.69	4.66	+4.69	85.61	9.35



SACRAMENTO COUNTY

Trade Cost Summary - U.S. Equity Trading

Period End March 31, 2021





(+) = 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 , 2021 to March 31, 2021. The analysis included trading of 3,135,094 shares representing \$202.04 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 +0.71 cps (+1.10 bp) or +\$22,268 (0.80 cps (1.25 bp) better than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact cost was +0.42 cps (+0.64 bp) or 1.57 cps (2.44 bp) better than the Elkins/McSherry Universe Your overall trading cost of +1.13 cps (+1.75 bp) was 2.37 cps (3.68 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 71% Total Cost Universe Rank: 76% 	<ul style="list-style-type: none"> E-Score : 0.02

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program		Full Day VWAP
+3.73	+1.51	+1.24	+1.62	Median	+1.99
				75 %	0.19
				25 %	+4.80



(+) = Cost

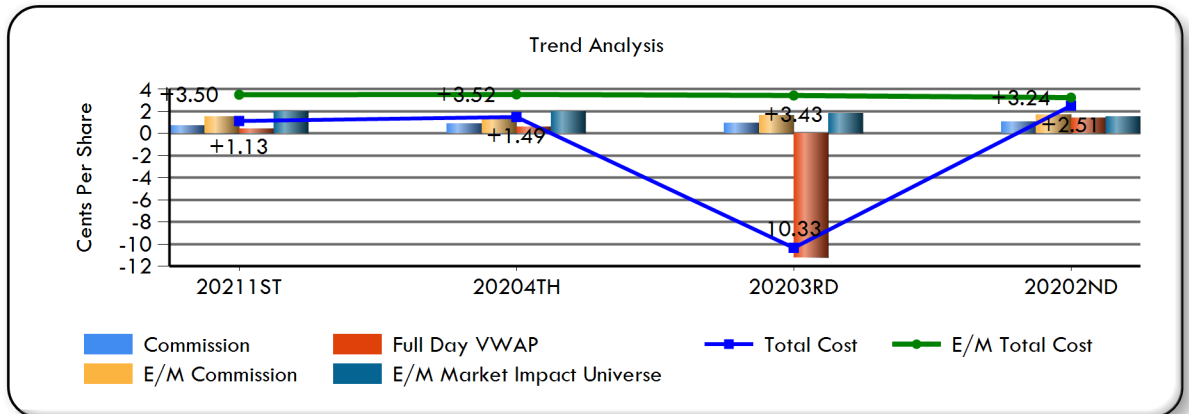
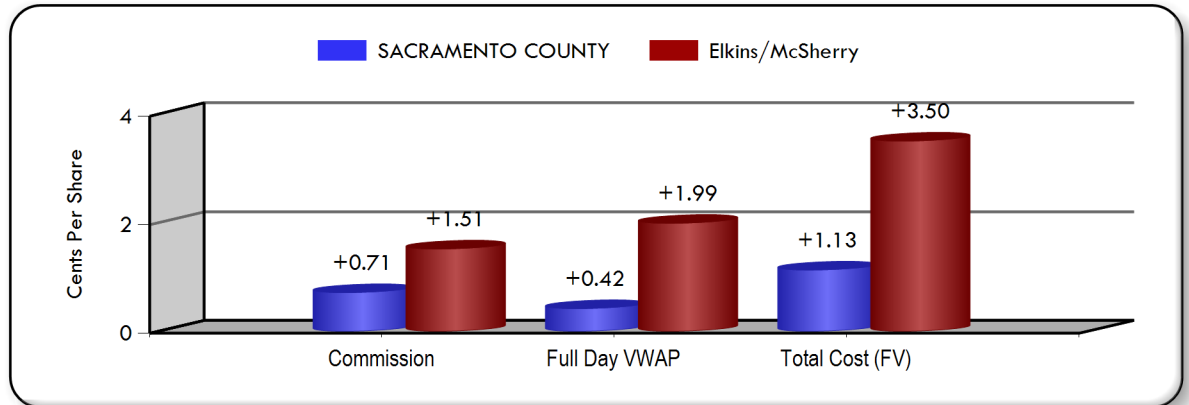
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E -Score
	Your Avg. Commission (cps)	All Trading Universe (cps)	Bundled Universe (cps)	Full Day VWAP (cps)	Universe Full Day VWAP (cps)	(cps)	Commission+ Full Day VWAP (cps)	
Sells	+0.60	+1.51	+3.73	+1.06	+1.99	+1.66	1.84	0.01
Buys	+0.80	+1.51	+3.73	0.14	+1.99	+0.67	2.83	0.02
Total	+0.71	+1.51	+3.73	+0.42	+1.99	+1.13	2.37	0.02

TRADING COMPONENTS

	Buys	Sells
Trade Principal	105,471,654	96,571,949
Shares	1,689,566	1,445,528
Unique Names	267	262
Liquidity (% ADV)	0.059	0.061
Avg. Execution Size	2,226	2,682
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	759	539



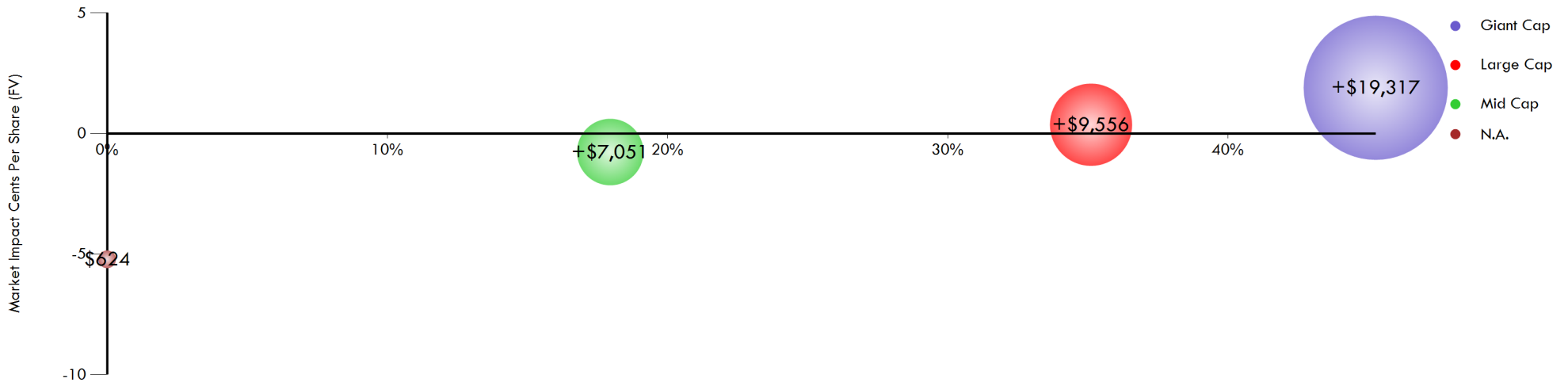
(+) = Cost

EXECUTIVE SUMMARY

MARKET CAPITALIZATION

Market Cap	% Traded	Avg. Shares Per Order	COMMISSION		MARKET IMPACT			Total Cost	Total Cost/Savings	E - Score	Market Cap Definition
			Your Commission	All Trading Universe	Full Day VWAP	Universe Full Day VWAP	Rank Full Day VWAP	(cps)	Commission+ Full Day VWAP Vs. Universe		
	(\$)		(cps)	(cps)	(cps)	(cps)		(cps)			
Giant Cap	45.69 %	2,550	+0.25	+1.51	+1.90	+3.77	62 %	+2.15	3.14	-0.02	Over \$25 B
Large Cap	35.53 %	2,922	+0.42	+1.51	+0.36	+2.26	67 %	+0.78	3.00	0.06	\$5 B To \$25 B
Mid Cap	18.37 %	1,902	+1.48	+1.51	0.77	+2.27	79 %	+0.71	3.07	0.03	\$1 B To \$5 B
N.A.	0.42 %	4,981	+1.05	+1.51	5.23	+1.99	91 %	4.18	7.68	-0.07	

Total Cost by Market Cap: (USD)





(+) = Cost

TRADE CYCLE DETAIL

Manager Performance (Full Day VWAP)

					COMMISSION	MARKET IMPACT	TOTAL COST/SAVIN GS	RANK TREND - Full Day VWAP				
Manager	Principal Traded (USD/Mil)	Shares Per Order	Total Shares	E - Score	Your Avg. Commission (cps)	All Trading Universe (cps)	Full Day VWAP (cps)	Rank Full Day VWAP	Commission + Full Day VWAP Vs. Universe	20204TH (%)	20203RD (%)	20202ND (%)
AQR	141	3,338	2,400,174	0.04	+0.08	+1.51	+2.02	50 %	1.40	71	58	55
WEATHERBIE	37	1,037	567,083	0.01	+3.14	+1.51	7.98	95 %	8.34	19	18	6
EAGLE CAPITAL MANAGE	21	7,100	127,796	-0.17	+1.89	+1.51	19.51	99 %	21.12	98	96	98
ALLIANCE R 3000 CAPI	3	2,860	40,041	0.42	+0.41	+1.51	+86.76	1 %	+83.67	99	99	2

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.73	+1.51	+1.24	+1.62	+1.99

NOTES

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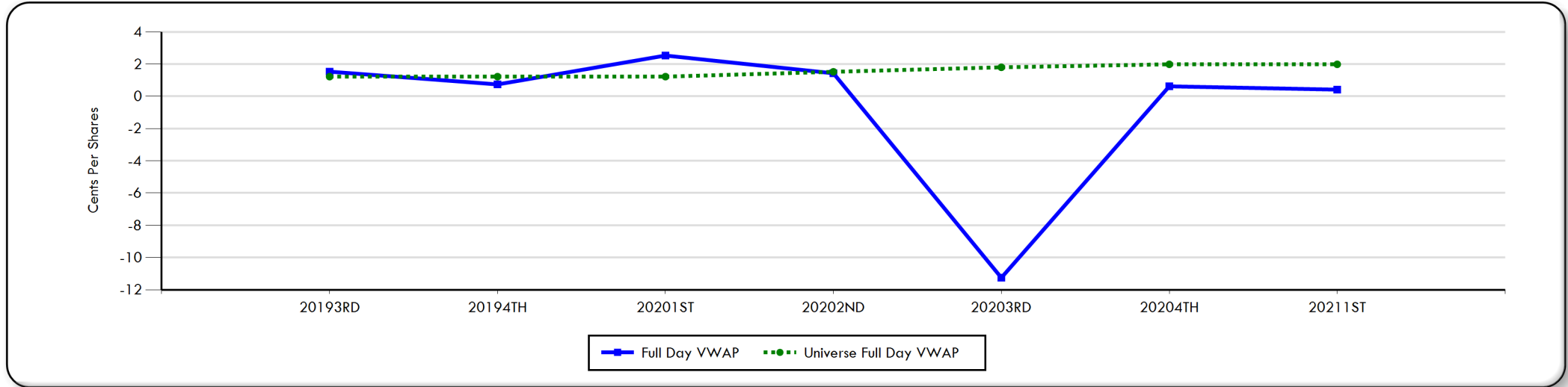


(+) = Cost

TRADE HISTORY

Trade History

Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP (cps)	Full Day VWAP Universe Rank (%)
			(cps)	(\$)		
20193RD	4,500,167	228,793,910	+1.16	52,110	+1.53	46
20194TH	3,275,124	155,418,903	+1.49	48,930	+0.74	58
20201ST	4,059,692	198,207,205	+1.57	63,827	+2.53	33
20202ND	7,218,058	279,989,271	+1.08	77,872	+1.43	51
20203RD	6,287,580	365,734,518	+0.93	58,162	11.26	99
20204TH	2,686,090	163,023,705	+0.87	23,254	+0.62	70
20211ST	3,135,094	202,043,603	+0.71	22,268	+0.42	71



Note on Universes:

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



SACRAMENTO COUNTY

Trade Cost Summary - Global Equity Trading

Period End March 31, 2021





(+) = 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, 2021 to March 31, 2021. The analysis included trading of 11,923,455 shares representing \$137.00 million in principal across 27 countries.

Methodology :

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

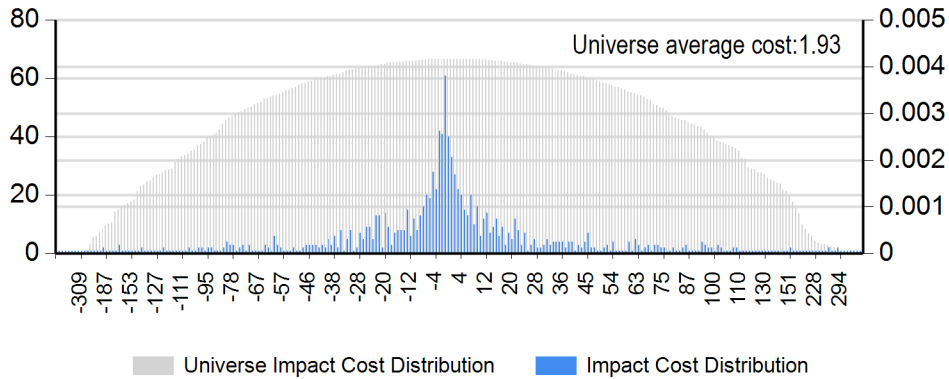
Results :

BENCHMARK PERFORMANCE			E - Score
Commission	Fees	Full Day VWAP	
<ul style="list-style-type: none"> Your commission cost was +6.55 bp or \$ +\$89,771 (8.12 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +4.53 bp or \$ +62,002 (+0.89 bp worse than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact cost was +2.22 bp or \$+30,480 (+0.29 bp worse than the Elkins/McSherry Universe) Your overall trading cost of +13.30 bp was 6.94 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 10 countries and lower than the Elkins/McSherry Universe in 20 countries. 15 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 41 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : -0.02

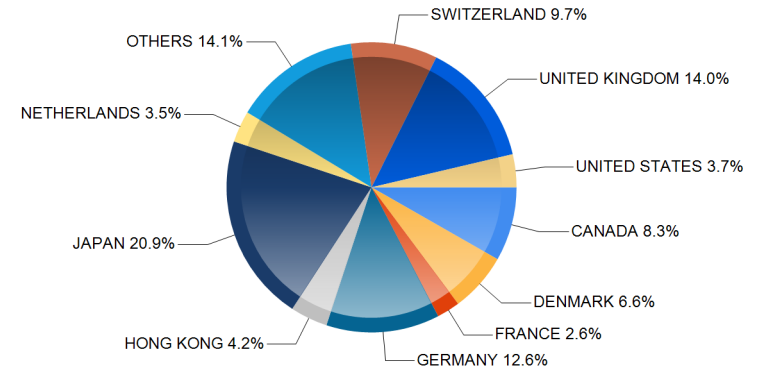
(+) = Cost

EXECUTIVE SUMMARY

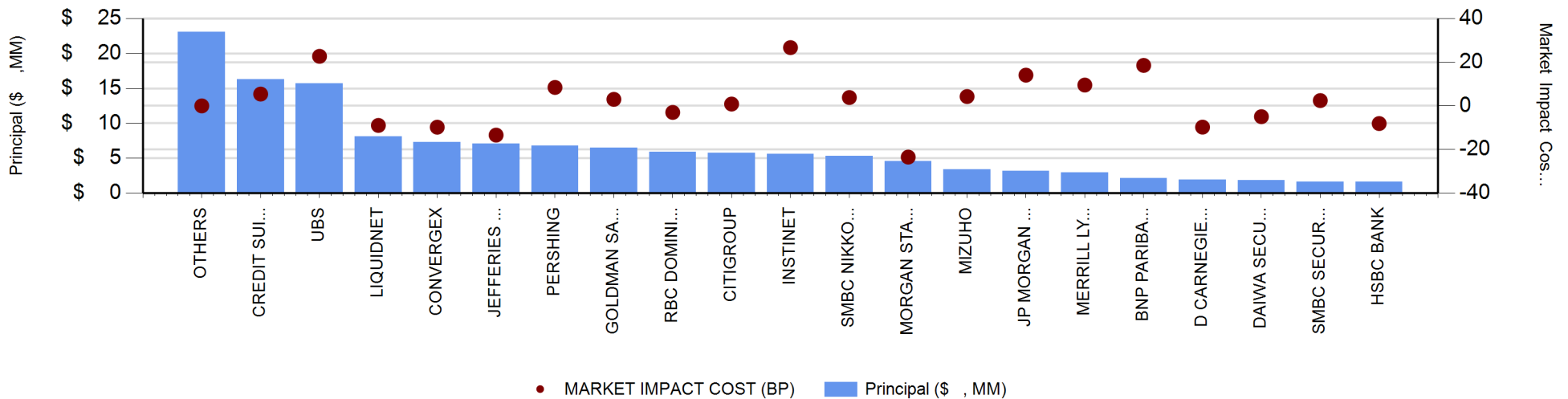
Cost Distribution



Principal Across Country



Top 20 Brokers in Principal Traded





(+) = Cost

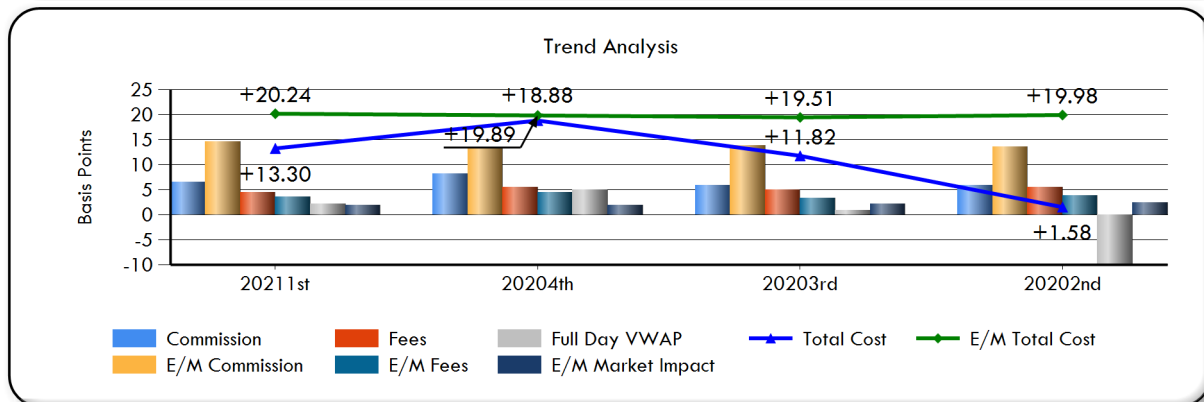
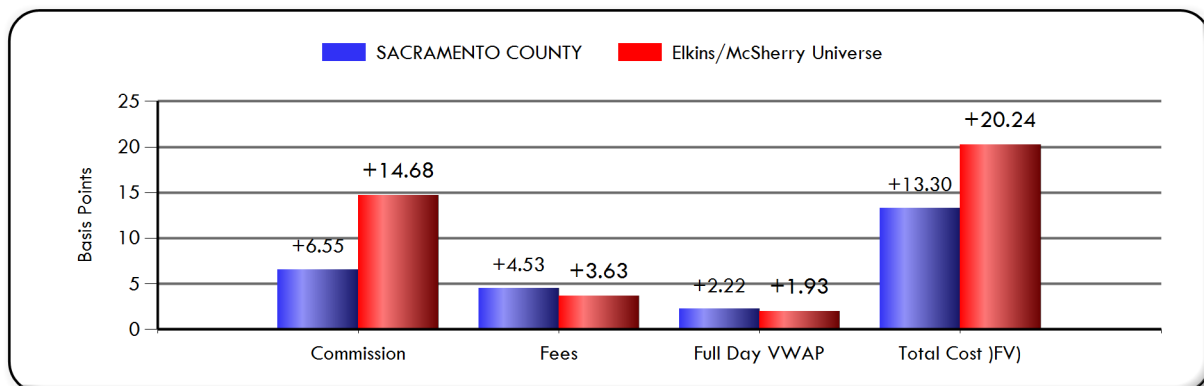
EXECUTIVE SUMMARY

TOTAL PORTFOLIO COST PERFORMANCE

Side	COMMISSION			Fees		MARKET IMPACT		Total Cost	Total Cost/Savings Vs. Universe	E - Score
	Your Avg. Commission	Bundled Universe	All Trading Universe	Fees	Universe	Full Day VWAP	Universe Full Day VWAP		Commission+Fees Full Day VWAP	
	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	(bp)	
Sell	+6.66	+14.93	+4.37	+0.67	+0.64	+2.13	+2.24	+9.46	8.35	-0.05
Buy	+6.43	+14.38	+4.55	+8.98	+7.09	+2.33	+1.57	+17.74	5.30	0.01
Total	+6.55	+14.68	+4.45	+4.53	+3.63	+2.22	+1.93	+13.30	6.94	-0.02

TRADING COMPONENTS

	Buys	Sells
Trade Principal	63,566,503	73,430,567
Shares	9,687,983	2,235,472
Unique Names	79	103
Liquidity (% POV)	0.597	0.186
Avg. Order Size	14,859	4,619
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	652	484



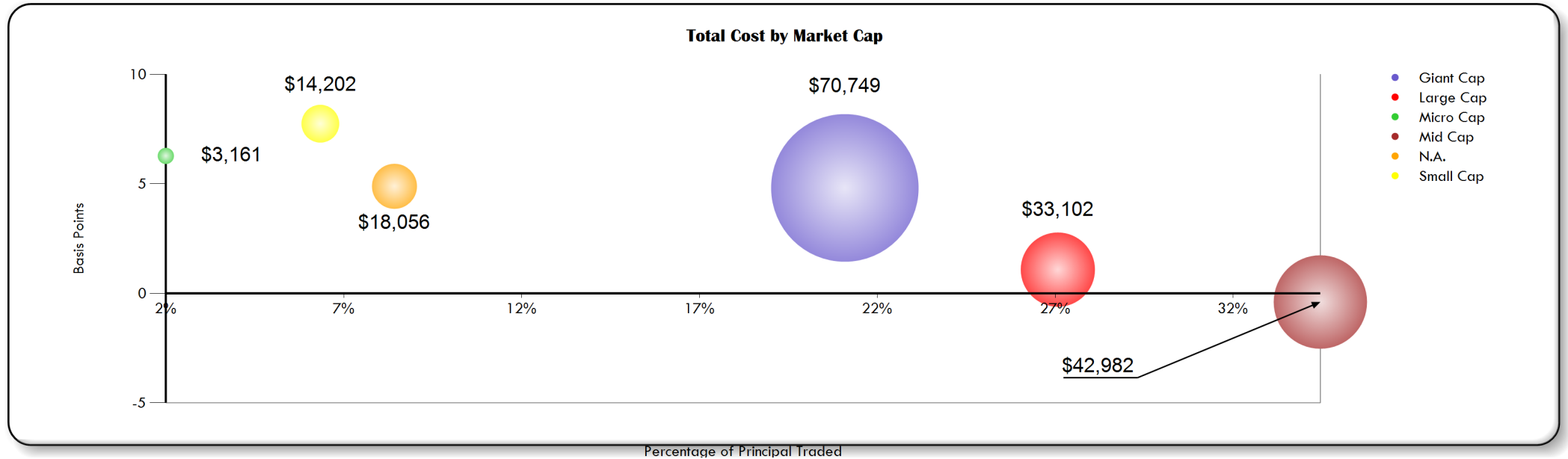


(+) = Cost

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	34.55 %	99,452	+6.59	+14.67	0.40	+2.36	+9.08	10.29	-0.02	\$1 Billion To \$5 Billion
Large Cap	27.18 %	159,786	+6.69	+14.03	+1.08	+2.00	+8.89	7.99	-0.13	\$5 Billion To \$25 Billion
Giant Cap	21.19 %	210,355	+6.74	+14.30	+4.81	+1.45	+24.37	0.43	-0.01	Over \$25 Billion
N.A.	8.53 %	111,291	+5.77	+17.39	+4.89	+1.51	+15.45	7.94	0.11	
Small Cap	6.45 %	72,392	+6.78	+15.41	+7.75	+1.60	+16.07	4.41	0.12	\$250 Million To \$1 Billion
Micro Cap	2.10 %	46,477	+4.67	+13.51	+6.28	+1.46	+10.97	7.42	0.11	Under \$250 Million





(+) = 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)	20204th (bp)	20203rd (bp)	20202nd (bp)
WILLIAM BLAIR & COMP	46	439	33.84%	105,612	0.04	+6.38	+15.12	+0.13	+2.18	10.89	9.78	+3.03	5.01
LAZARD ASSET MANAGEM	44	243	32.36%	182,462	-0.14	+8.38	+14.57	0.01	+1.66	5.88	+9.50	6.83	37.35
LSV ASSET MANAGEMENT	37	427	27.22%	87,319	0.14	+4.31	+14.79	+7.57	+1.86	3.72	12.96	10.56	10.18
WALTER SCOTT INTL EA	9	27	6.58%	333,706	-0.21	+7.74	+12.43	+1.87	+2.25	5.08	+6.98	17.09	-

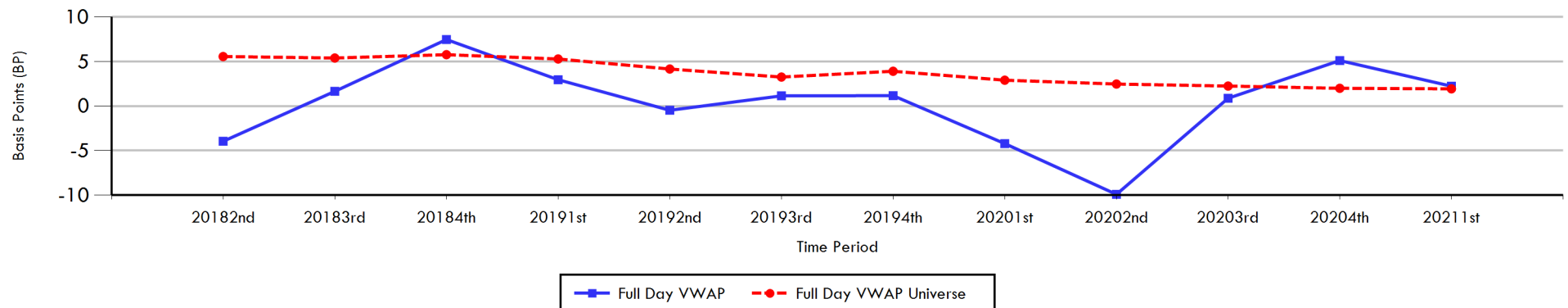
NOTES

- Manager above made up 100.00 % of principal traded.

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)
20182nd	152,374,616	+7.46	+14.16	+10.17	+6.65	3.96	+5.55	12.69
20183rd	84,663,286	+6.92	+13.97	+5.95	+3.81	+1.64	+5.39	8.65
20184th	132,282,303	+7.47	+14.63	+4.94	+3.67	+7.46	+5.76	4.18
20191st	75,137,208	+7.16	+13.73	+6.74	+5.73	+2.95	+5.28	7.88
20192nd	70,813,093	+5.93	+14.19	+8.58	+8.20	0.48	+4.15	12.50
20193rd	79,515,054	+5.84	+14.32	+3.19	+3.04	+1.14	+3.25	10.44
20194th	151,282,246	+6.63	+13.69	+4.01	+2.96	+1.16	+3.90	8.74
20201st	150,544,093	+6.57	+13.82	+6.85	+5.12	4.22	+2.90	12.63
20202nd	87,805,344	+5.99	+13.63	+5.49	+3.89	9.91	+2.47	18.40
20203rd	111,885,782	+5.88	+13.92	+5.08	+3.34	+0.87	+2.24	7.68
20204th	123,198,008	+8.22	+13.38	+5.56	+4.53	+5.10	+1.99	1.01
20211st	136,997,071	+6.55	+14.68	+4.53	+3.63	+2.22	+1.93	6.94

TRADE HISTORY





SACRAMENTO COUNTY

US Fixed Income Analysis

Period End March 31, 2021



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 01,2021 to March 31,2021. The analysis included trading of 773 trades in 156 different issues representing \$1,228,669,980 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.

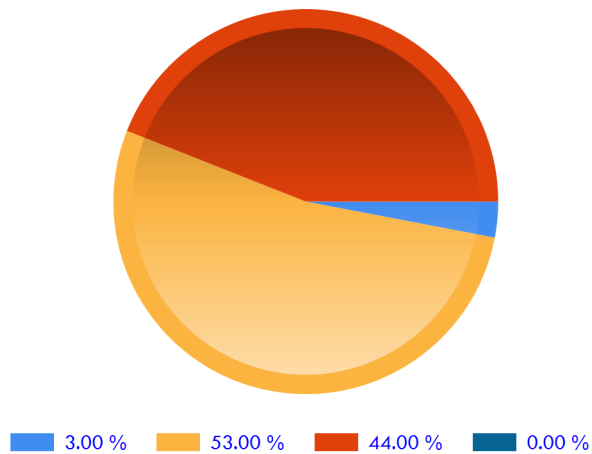
Results:

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 2020	Q3 2020	Q2 2020	Q1 2020
BUYS	646	386	107	21.76	0.34	+8.91	597.55	9.25	2.83	+1.63	+1.31	+3.35
SELLS	582	387	80	+71.30	+1.22	+6.81	325.28	5.59	1.07	+0.26	+0.29	+0.32
GRAND TOTAL	1,229	773	156	+49.54	+0.40	+7.91	922.83	7.51	2.02	+1.06	+0.78	+1.89

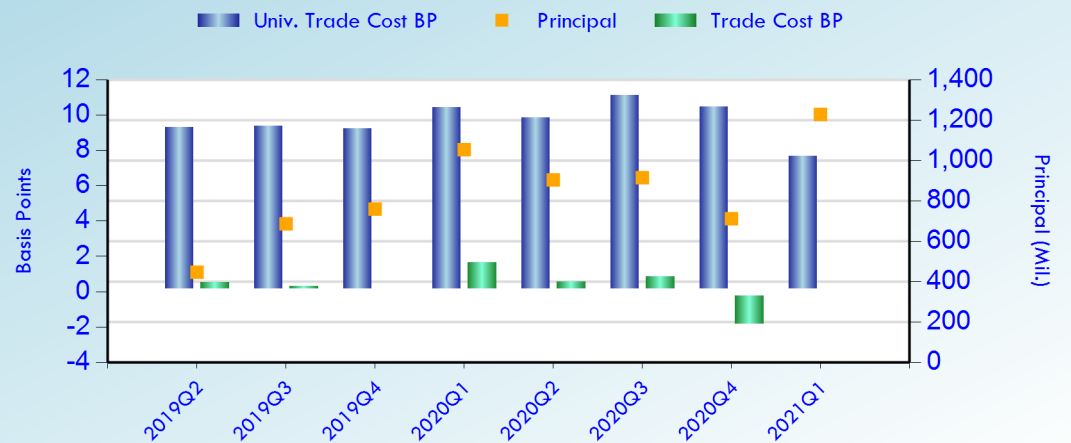
EXECUTIVE SUMMARY

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 2020	Q3 2020	Q2 2020	Q1 2020
Governments	651	347	48	+100.17	+1.54	+6.15	300.47	4.61	0.65	0.15	0.30	+1.45
Mortgages	541	333	32	57.17	1.06	+9.54	573.16	10.60	13.38	+3.82	+1.78	+4.23
Corporates	32	75	65	+0.50	+0.15	+15.54	49.93	15.39	+6.66	+6.88	+3.48	15.65
Municipals	4	18	11	+6.04	+14.62	+12.87	+0.72	+1.75	+5.99	-	+0.51	+4.13

Bonds by Principal Traded



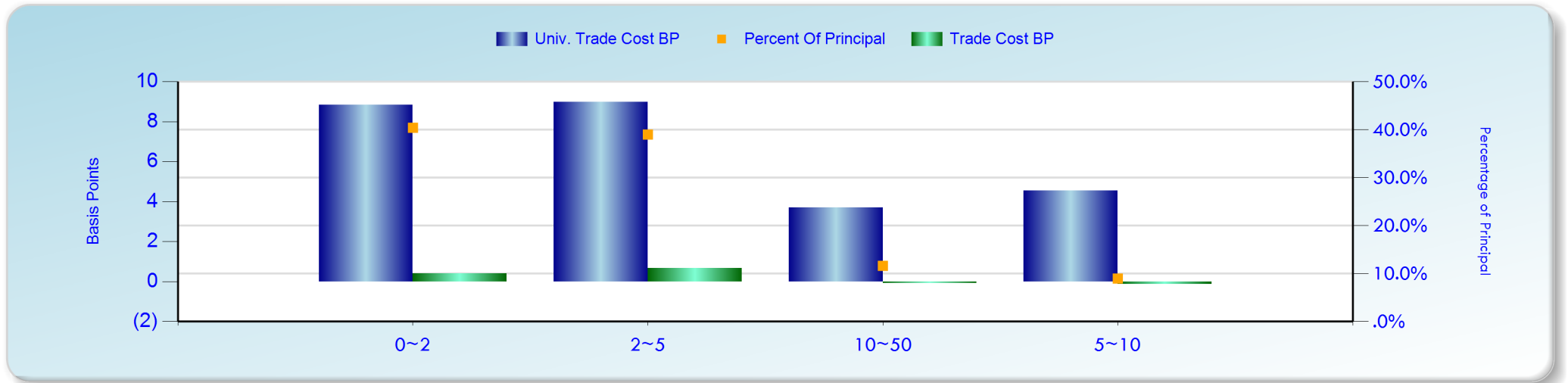
Historical Trade Cost Trend



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	496	584	145	+20.12	+0.41	+8.84	418.76	8.43
2~5	479	163	37	+32.19	+0.67	+8.99	398.33	8.32
10~50	143	10	10	1.26	0.09	+3.70	54.17	3.79
5~10	110	16	10	1.52	0.14	+4.54	51.56	4.68



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 2020	Q3 2020	Q2 2020	Q1 2020
METROPOLITAN WEST MG	1,089	725	127	+14.63	+0.13	+8.13	870.55	8.00	2.40	+0.98	+0.00	0.64
NEUBERGER BERMAN	117	27	12	+38.35	+3.27	+6.00	32.10	2.73	1.45	+1.62	+3.06	+2.66
BARCLAYS 1-10 YR TIP	22	21	20	3.44	1.53	+7.47	20.18	9.00	+3.68	+1.53	+0.00	+70.62

HISTORICAL DATA

Quarter	Principal (Thous. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe	
							(Thous. \$)	BP
01/01/2021-03/31/2021	1,228,670	773	156	+49.54	+0.40	+7.91	922.83	7.51
Year-Ending 2021	1,228,670	773		+49.54	+0.40	+7.91	922.83	7.51
10/01/2020-12/31/2020	712,135	425	128	143.93	2.02	+10.68	904.17	12.70
07/01/2020-09/30/2020	914,835	532	159	+97.11	+1.06	+11.35	940.79	10.29
04/01/2020-06/30/2020	903,498	445	148	+70.23	+0.78	+10.08	840.37	9.30
01/02/2020-03/31/2020	1,053,957	691	217	+198.86	+1.89	+10.64	922.37	8.75
Year-Ending 2020	3,584,426	2093		+222.27	+0.62	+10.69	3,607.70	10.06
10/01/2019-12/31/2019	759,298	479	127	17.36	0.23	+9.45	734.68	9.68
07/01/2019-09/30/2019	686,683	408	111	+37.19	+0.54	+9.59	621.19	9.05
04/01/2019-06/30/2019	446,471	355	107	+32.98	+0.74	+9.54	392.87	8.80
01/01/2019-03/31/2019	777,794	441	181	19.31	0.25	+11.49	913.04	11.74
Year-Ending 2019	2,670,246	1683		+33.50	+0.13	+10.09	2,661.79	9.97
10/01/2018-12/31/2018	713,870	364	137	+23.27	+0.33	+8.75	601.62	8.42
07/01/2018-09/30/2018	578,565	315	150	+2.45	+0.04	+7.31	420.64	7.27
04/01/2018-06/30/2018	779,482	378	169	+203.86	+2.62	+9.58	542.73	6.96
01/01/2018-03/31/2018	1,666,649	1608	992	+113.13	+0.68	+8.88	1,367.40	8.20
Year-Ending 2018	3,738,566	2665		+342.70	+0.92	+8.76	2,932.39	7.84
10/01/2017-12/31/2017	624,736	649	254	37.30	0.60	+6.59	448.75	7.19
07/01/2017-09/30/2017	733,365	712	245	70.43	0.96	+7.13	593.40	8.09
04/01/2017-06/30/2017	789,018	849	277	11.21	0.14	+6.26	504.99	6.40
01/01/2017-03/31/2017	710,311	779	281	+88.61	+1.25	+7.07	413.59	5.82
Year-Ending 2017	2,857,429	2989		30.32	0.11	+6.76	1,960.73	6.86
10/01/2016-12/31/2016	711,667	646	221	68.72	0.97	+6.26	514.24	7.23
07/01/2016-09/30/2016	589,731	684	203	14.71	0.25	+6.35	389.30	6.60



SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End March 31, 2021



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 01,2021 to March 31,2021. The analysis included trading of 140 trades in 85 different issues representing \$58,367,024 in principal across mortgages, governments, corporates And agencies.

Methodology:

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

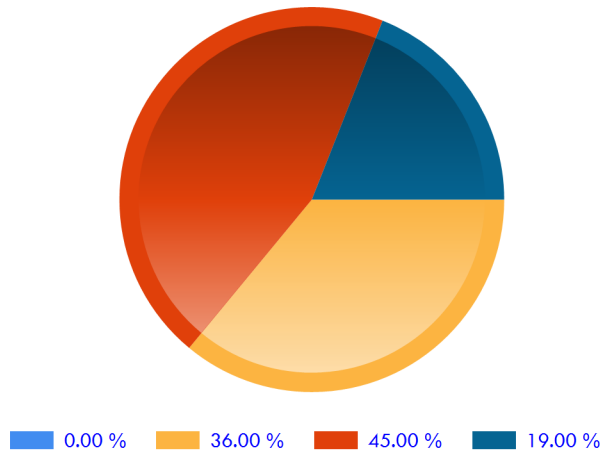
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe		Q4	Q3	Q2	Q1
							(Thous. \$)	BP	2020	2020	2020	2020
BUYS	27	40	30	19.25	7.15	+11.68	50.70	18.83	+19.81	22.89	36.44	+0.64
SELLS	31	100	57	+25.34	+8.06	+11.74	11.59	3.68	+8.92	+26.95	+7.87	1.14
GRAND TOTAL	58	140	85	+6.08	+1.04	+11.71	62.28	10.67	+13.57	3.02	21.32	0.14

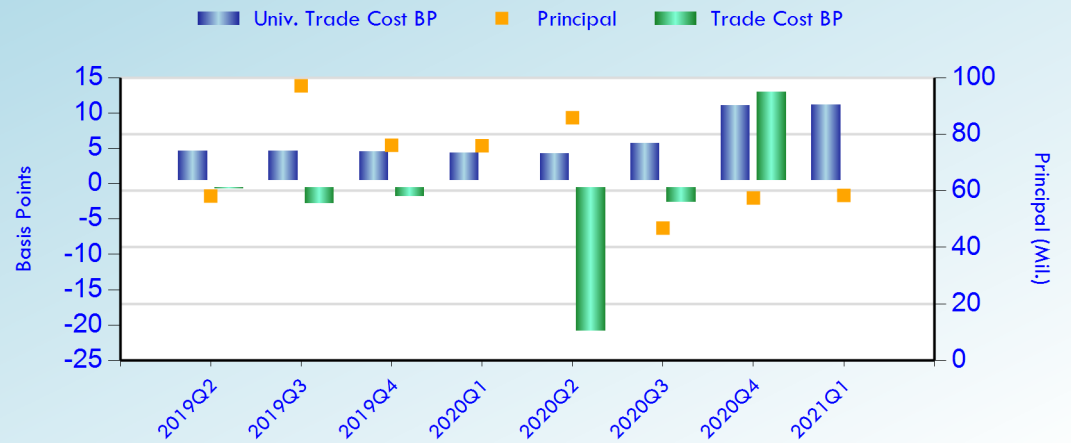
EXECUTIVE SUMMARY

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 2020	Q3 2020	Q2 2020	Q1 2020
Governments	26	39	22	2.29	0.87	+11.76	33.10 12.63	+1.22	+15.68	0.04	+7.72
Corporates	21	88	53	+9.38	+4.48	+11.68	15.08 7.20	3.32	8.93	38.87	8.37
Mortgages	11	12	9	1.52	1.38	+11.68	14.39 13.06	+162.55	192.36	15.84	2.04
Agencies	<1	1	1	+0.51	+26.42	+11.68	+0.28 +14.74	-	-	-	-

Bonds by Principal Traded



Historical Trade Cost Trend

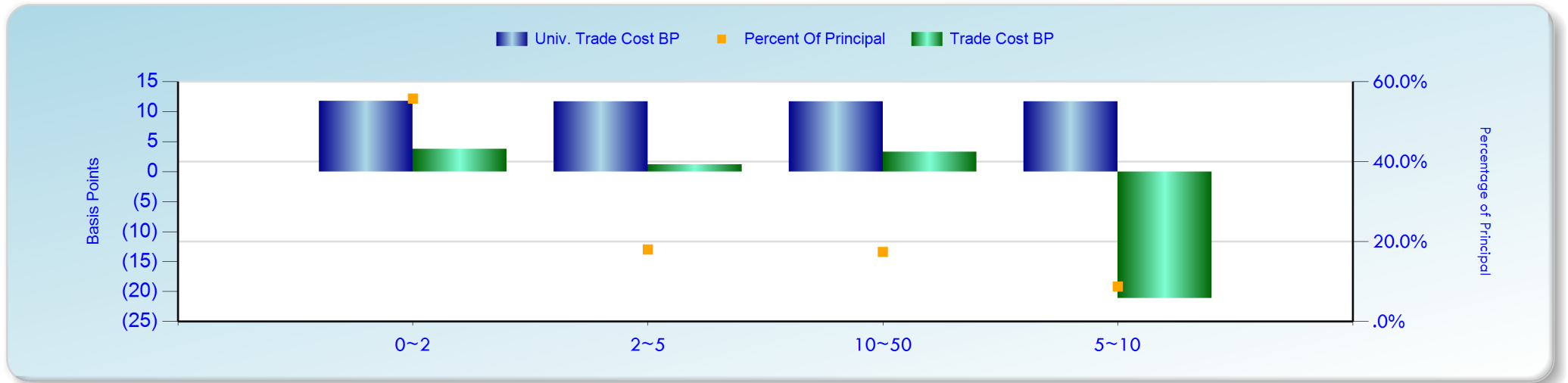




EXECUTIVE SUMMARY

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	33	134	80	+12.21	+3.75	+11.74	26.01	7.99
2~5	11	4	3	+1.30	+1.23	+11.68	10.99	10.45
10~50	10	1	1	+3.38	+3.32	+11.68	8.51	8.36
5~10	5	1	1	10.80	21.10	+11.68	16.78	32.78



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 2020	Q3 2020	Q2 2020	Q1 2020
PRUDENTIAL INVESTMEN	58	140	85	+6.08	+1.04	+11.71	62.28 10.67	+13.57	3.02	21.32	0.14

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
01/01/2021-03/31/2021	58,367	140	85	+6.08	+1.04	+11.71	62.28	10.67
Year-Ending 2021	58,367	140		+6.08	+1.04	+11.71	62.28	10.67
10/01/2020-12/31/2020	57,483	102	61	+77.99	+13.57	+11.66	+10.97	+1.91
07/01/2020-09/30/2020	46,840	61	47	14.12	3.02	+6.30	43.63	9.32
04/01/2020-06/30/2020	85,881	143	98	183.09	21.32	+4.82	224.49	26.14
01/02/2020-03/31/2020	75,943	157	84	1.05	0.14	+4.93	38.49	5.07
Year-Ending 2020	266,147	463		120.27	4.52	+6.59	295.65	11.11
10/01/2019-12/31/2019	76,119	174	90	16.90	2.22	+5.07	55.50	7.29
07/01/2019-09/30/2019	97,170	144	79	31.64	3.26	+5.17	81.92	8.43
04/01/2019-06/30/2019	58,138	153	87	6.84	1.18	+5.19	37.02	6.37
01/01/2019-03/31/2019	93,964	228	119	+14.36	+1.53	+6.02	42.17	4.49
Year-Ending 2019	325,391	699		41.02	1.26	+5.40	216.61	6.66
10/01/2018-12/31/2018	66,814	146	75	+9.69	+1.45	+7.24	38.71	5.79
07/01/2018-09/30/2018	37,664	102	50	+0.18	+0.05	+5.24	19.56	5.19
04/01/2018-06/30/2018	77,479	217	112	+12.54	+1.62	+5.51	30.15	3.89
01/01/2018-03/31/2018	51,291	127	70	1.01	0.20	+10.09	52.77	10.29
Year-Ending 2018	233,248	592		+21.40	+0.92	+6.97	141.19	6.05
10/01/2017-12/31/2017	47,359	119	46	21.97	4.64	+4.00	40.93	8.64
07/01/2017-09/30/2017	74,271	178	73	+11.09	+1.49	+2.75	9.35	1.26
04/01/2017-06/30/2017	65,905	139	61	+10.87	+1.65	+3.17	10.02	1.52
01/01/2017-03/31/2017	88,323	207	89	+24.27	+2.75	+3.32	5.07	0.57
Year-Ending 2017	275,858	643		+24.27	+0.88	+3.25	65.38	2.37
10/01/2016-12/31/2016	59,762	110	50	5.73	0.96	+3.49	26.57	4.45
07/01/2016-09/30/2016	44,927	135	53	+9.79	+2.18	+3.58	6.28	1.40