



Board of Retirement Regular Meeting

Sacramento County Employees' Retirement System

Agenda Item 12

MEETING DATE: December 8, 2021

SUBJECT: Trading Cost Analysis Report—Third 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 quarter ending September 30, 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 (E/M), a trading cost consultant and wholly owned subsidiary of State Street, to monitor the trading costs of SCERS' public equity and fixed income managers, whose assets are held at the custodian, State Street (commingled fund trading costs are not covered by E/M). This report will summarize the key details of the Transaction Cost Analysis reports from 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 \$1.4 million for the third quarter 2021. 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 the 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).

Third Quarter 2021

- U.S. Equity ([E/M Summary Report](#))
 - SCERS' total trading cost was +2.35 cents per share (cps)², which was 1.48 cps lower than the E/M benchmark costs of +3.83 cps.
 - SCERS' U.S. equity managers outperformed on both commissions (+1.19 cps) and market impact (+1.17 cps) versus the benchmark costs of +1.61 cps and +2.22 cps, respectively.
 - As measured in basis points (bp), SCERS' total trading cost was +3.36 bp, which was 2.11 bp lower than the E/M benchmark costs of +5.47 bp.
 - Based on 3.4 million shares traded during the quarter (\$239 million principal), SCERS' U.S. equity managers produced savings of approximately \$51,000 compared to E/M benchmark costs.
 - All of SCERS' U.S. equity managers outperformed the benchmark for market impact during the quarter, as measured by full day VWAP, with the exception of Eagle Capital. This is the first quarter that Eagle has underperformed the benchmark over the past year, with performance generally in the top decile or quartile. No concerns are noted.

- Global Equity ([E/M Summary Report](#))
 - SCERS' total global equity trading costs were +8.75 basis points (bp), 11.19 basis points lower than the E/M benchmark costs of +19.94 bp.
 - SCERS' equity managers generated market impact savings of -1.05 bps, which was better than market impact costs of +1.62 for the benchmark (2.67 bps better than the benchmark), as measured by the full day VWAP.
 - SCERS' commission costs (+6.84 bp) were significantly lower than benchmark costs (+15.28 bp), while costs for fees (+2.96 bp) were also slightly lower than the benchmark (+3.03).
 - Total principal traded was \$128.8 million across 23 countries, resulting in a savings of approximately \$144,000 compared to E/M benchmark costs.
 - No manager specific issues were noted, with all managers delivering 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 +0.25 basis points during the quarter, significantly below the E/M benchmark costs of +8.43 bp.
 - Total trade volume was approximately \$1.50 billion in principal, with 784 trades executed across 166 different securities.
 - The trade costs versus the benchmark represented a savings of approximately \$1.2 million versus average benchmark costs.
 - Trade costs were lower than the benchmark across all security types traded during the quarter, with significant savings generated in trading of government, mortgage, and corporate bonds.

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.
 - Global Fixed Income ([E/M Summary Report](#))
 - SCERS' Global Fixed Income trade costs were +1.58 bp, which was 2.26 bp lower than the benchmark costs of +3.84 bp.
 - Trade volume during the quarter was approximately \$55 million, with 94 trades executed across 62 different securities.
 - Trade costs of 2.26 bp below the benchmark resulted in cost savings of approximately \$12,000 compared to average benchmark costs.
 - SCERS' global fixed income manager (Prudential) has typically delivered significant cost savings versus the E/M benchmark, with only one quarter over the past year where costs were notably higher than the E/M benchmark. No concerns are noted at this time.
 - Commission Recapture
 - For the third quarter 2021, SCERS received a rebate of \$10,985, which represents approximately 52% of the commissions generated during the quarter.
 - Year to date through September 2021, SCERS received a rebate of \$15,498, which was 52% 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.

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.

ATTACHMENTS

- Board Order
- Elkins / McSherry Trading Cost Summary reports for the quarter ending September 30, 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
December 8, 2021**

MOTION:

Trading Cost Analysis Report – Third Quarter 2021

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

I HEREBY CERTIFY that the above order was passed and adopted on December 8, 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 September 30, 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 July 1, 2021 to September 30, 2021. The analysis included trading of 3,421,487 shares representing \$239.34 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 +1.19 cps (+1.70 bp) or +\$40,598 (0.42 cps (0.60 bp) better than the Elkins/McSherry All Trading Universe) 	<ul style="list-style-type: none"> Your market impact cost was +1.17 cps (+1.67 bp) or 1.06 cps (1.51 bp) better than the Elkins/McSherry Universe Your overall trading cost of +2.35 cps (+3.36 bp) was 1.48 cps (2.11 bp) better than the Elkins/McSherry Universe Full Day VWAP Universe Rank: 63% Total Cost Universe Rank: 66% 	<ul style="list-style-type: none"> E-Score : 0.00

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)	
Bundled	All Trading	Execution Only	Program	Median	Full Day VWAP
+3.32	+1.61	+1.33	+1.57	75 %	+2.22
				25 %	+4.67



(+) = Cost

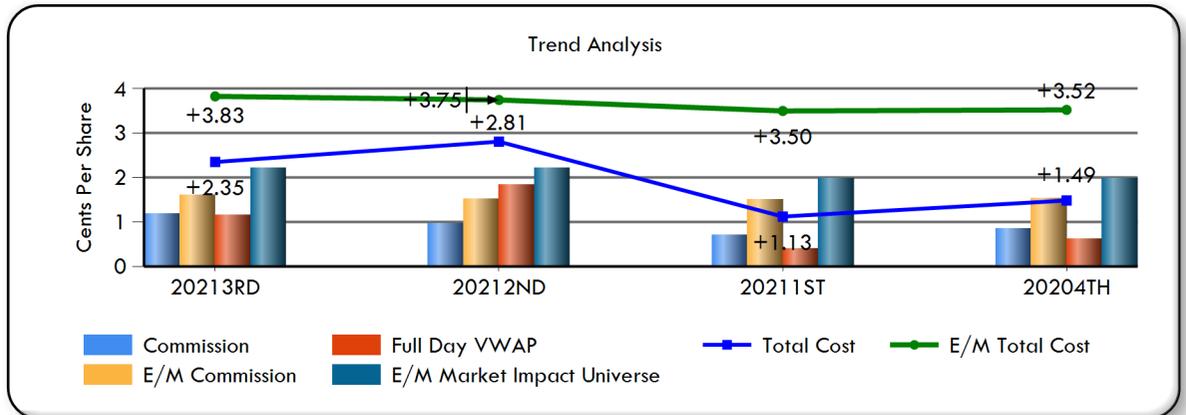
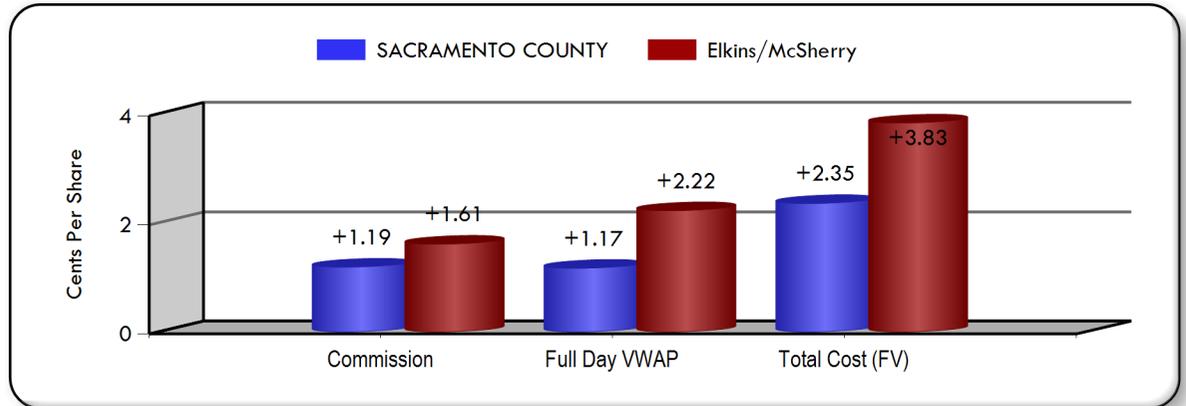
EXECUTIVE SUMMARY

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	+0.98	+1.61	+3.32	0.36	+2.22	+0.62	3.21	0.01
Buys	+1.37	+1.61	+3.32	+2.52	+2.22	+3.88	+0.06	0.00
Total	+1.19	+1.61	+3.32	+1.17	+2.22	+2.35	1.48	0.00

TRADING COMPONENTS

	Buys	Sells
Trade Principal	122,835,270	116,505,598
Shares	1,816,224	1,605,263
Unique Names	440	281
Liquidity (% ADV)	0.045	0.058
Avg. Execution Size	1,683	2,524
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	1,079	636



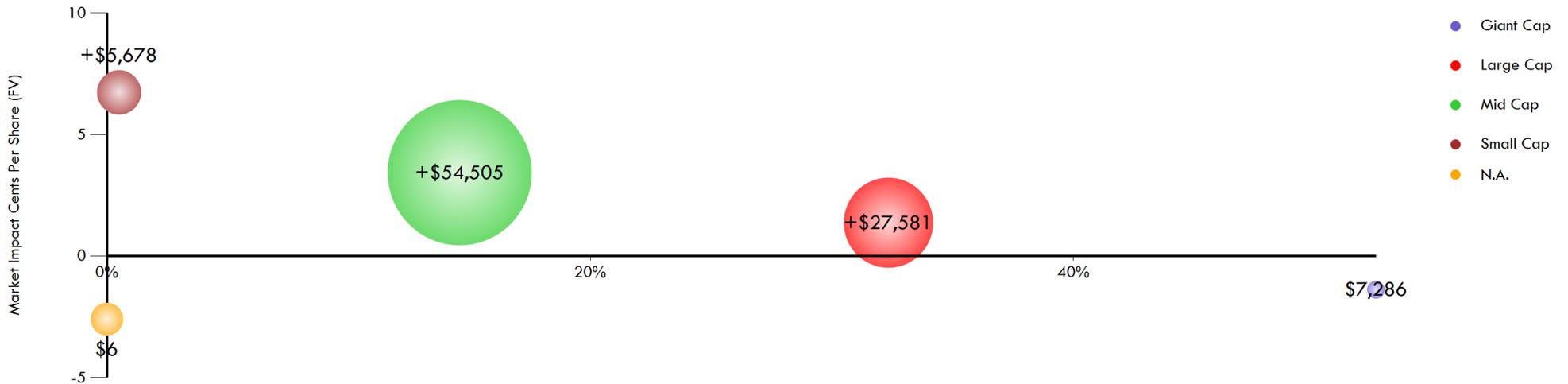
(+) = Cost

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	52.52 %	1,671	+0.74	+1.61	1.39	+3.50	73 %	0.65	5.76	-0.03	Over \$25 B
Large Cap	32.35 %	2,081	+0.88	+1.61	+1.37	+2.14	59 %	+2.24	1.50	0.03	\$5 B To \$25 B
Mid Cap	14.61 %	2,353	+1.93	+1.61	+3.43	+1.91	32 %	+5.36	+1.84	0.06	\$1 B To \$5 B
Small Cap	0.51 %	2,715	+3.23	+1.61	+6.73	+0.87	7 %	+9.96	+7.49	0.18	\$250 M To \$1 B
N.A.	0.01 %	135	+0.53	+1.61	2.61	+2.22	82 %	2.08	5.91	-0.13	

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	2021 2ND (%)	2021 1ST (%)	2020 4TH (%)
AQR	146	2,692	2,026,717	0.00	+0.07	+1.61	+0.20	72 %	3.56	70	50	71
WEATHERBIE	55	1,513	783,664	0.03	+3.49	+1.61	+1.32	60 %	+0.98	5	95	19
EAGLE CAPITAL MANAGE	16	12,567	276,484	0.03	+3.00	+1.61	+9.89	4 %	+9.06	87	99	98
SNYDER CAPITAL	13	1,605	263,140	-0.08	+1.18	+1.61	+0.25	71 %	2.39	53	-	-
ALLIANCE R 3000 CAPI	9	277	71,482	-0.06	+0.47	+1.61	3.48	83 %	6.83	71	1	99

ELKINS/MCSHERRY UNIVERSE VALUES

Commission (cps)				Market Impact (cps)
Bundled	All Trading	Execution Only	Program	Full Day VWAP
+3.32	+1.61	+1.33	+1.57	+2.22

NOTES

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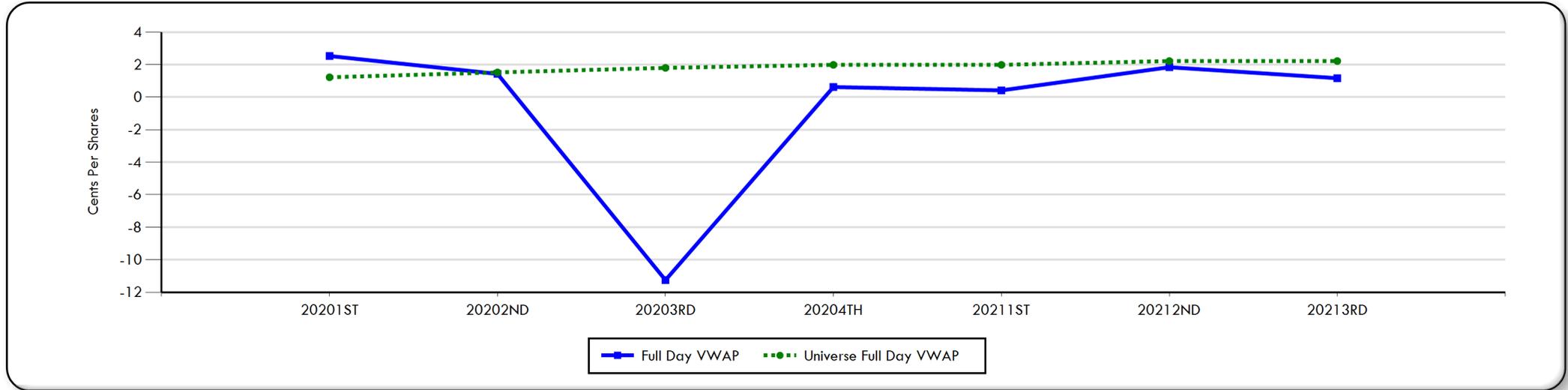


(+) = Cost

TRADE HISTORY

Trade History

Period	Total Shares	Total Dollars Traded	Commission		Full Day VWAP (cps)	Full Day VWAP Universe Rank (%)
			(cps)	(\$)		
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
20212ND	4,562,592	321,911,989	+0.97	44,270	+1.84	53
20213RD	3,421,487	239,340,867	+1.19	40,598	+1.17	63



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 September 30, 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 July 1, 2021 to September 30, 2021. The analysis included trading of 12,909,702 shares representing \$128.82 million in principal across 23 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 :

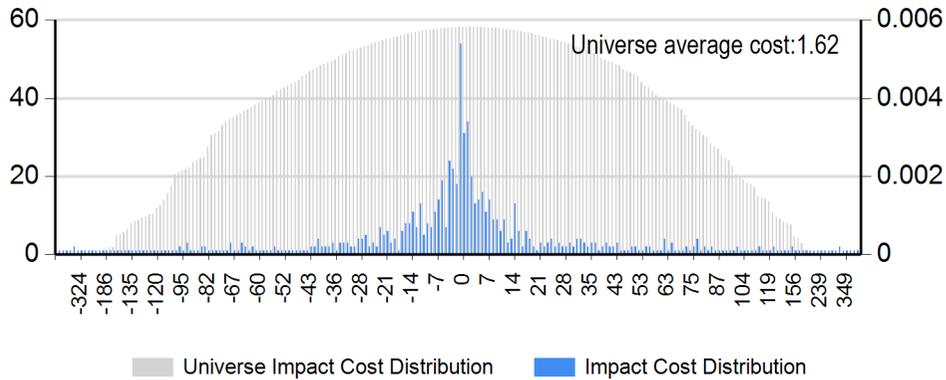
BENCHMARK PERFORMANCE			E - Score
Commission	Fees	Full Day VWAP	
<ul style="list-style-type: none"> Your commission cost was +6.84 bp or \$ +\$88,157 (8.44 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your fee cost was +2.96 bp or \$ +38,177 (0.07 bp better than the Elkins/McSherry Universe) 	<ul style="list-style-type: none"> Your market impact savings was 1.05 bp or \$13,580 (2.67 bp better than the Elkins/McSherry Universe) Your overall trading cost of +8.75 bp was 11.19 bp better than the Elkins/McSherry Universe. Sacramento County trading was higher than the Elkins/McSherry Universe in 9 countries and lower than the Elkins/McSherry Universe in 17 countries. 13 of your brokers had trading cost higher than summary universe of countries (principal weighted) in which they traded. 31 of your brokers had lower trading cost. 	<ul style="list-style-type: none"> E - Score : 0.01



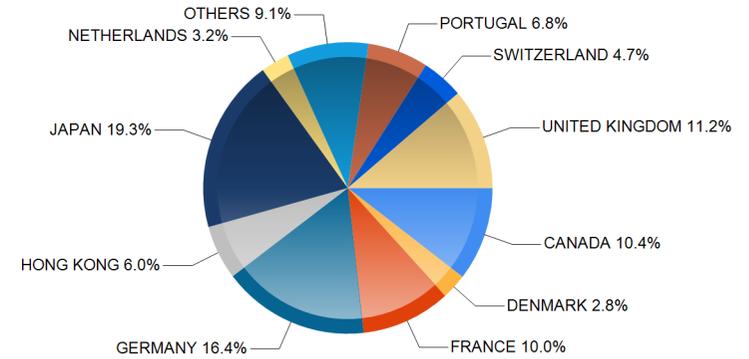
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EXECUTIVE SUMMARY

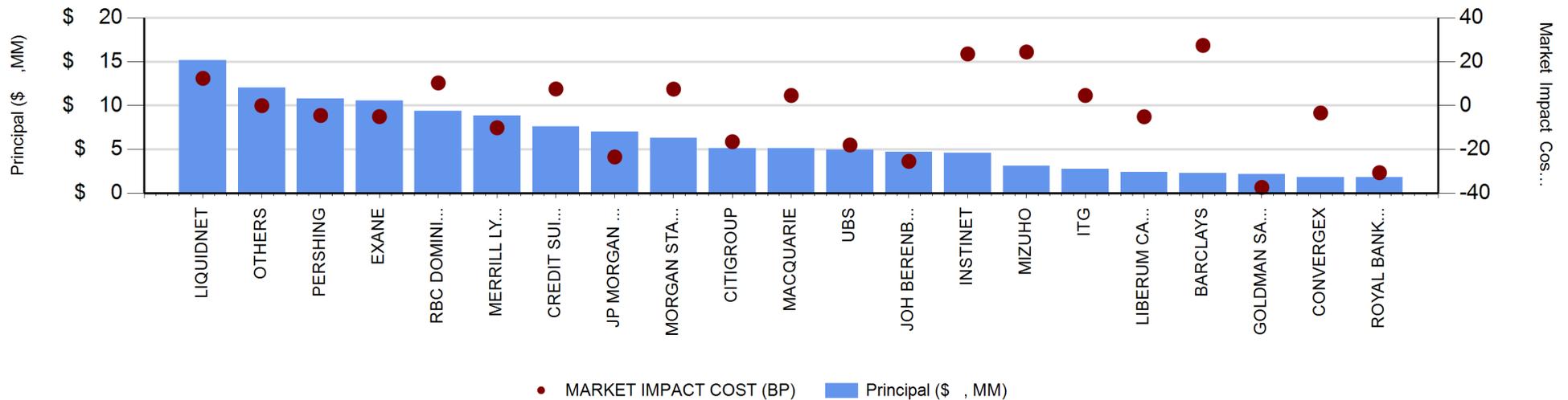
Cost Distribution



Principal Across Country



Top 20 Brokers in Principal Traded





(+) = Cost

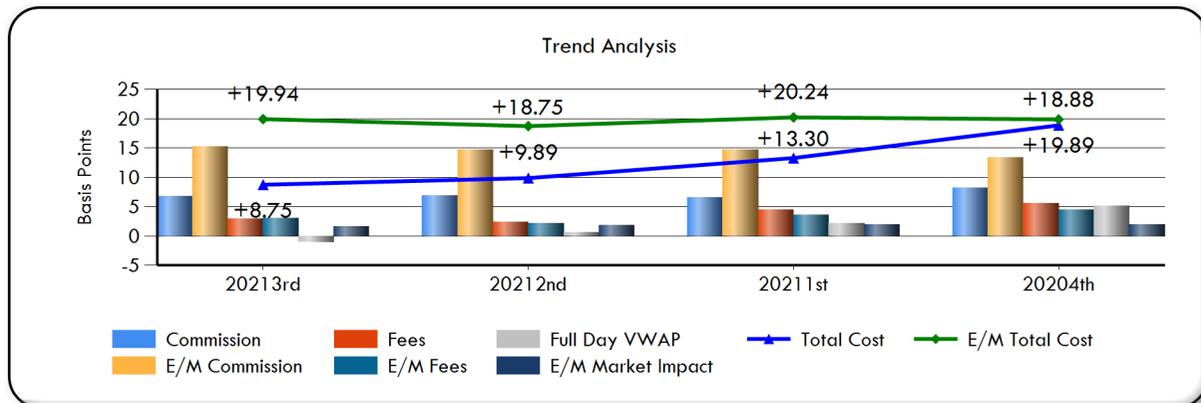
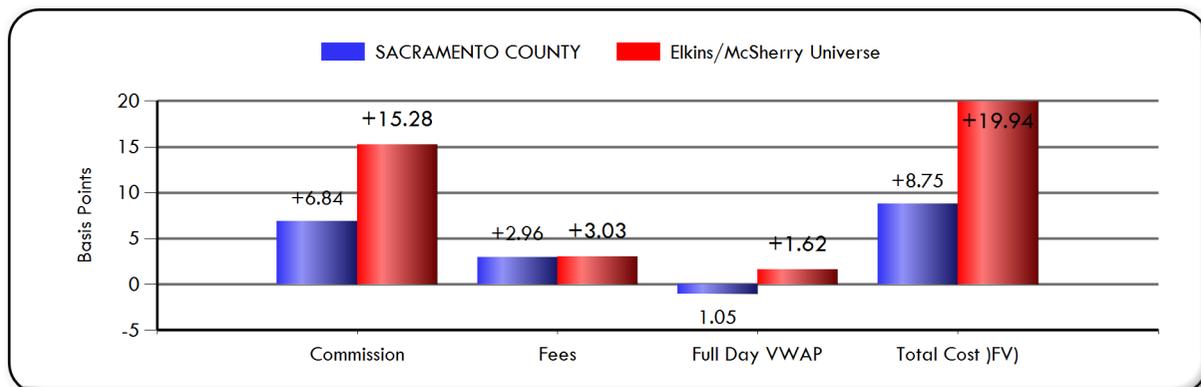
EXECUTIVE SUMMARY

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	+7.47	+15.79	+3.76	+1.51	+1.27	5.24	+1.89	+3.75	15.20	-0.04
Buy	+6.11	+14.68	+4.03	+4.67	+5.11	+3.85	+1.31	+14.62	6.48	0.06
Total	+6.84	+15.28	+3.88	+2.96	+3.03	1.05	+1.62	+8.75	11.19	0.01

TRADING COMPONENTS

	Buys	Sells
Trade Principal	59,299,520	69,520,242
Shares	4,708,132	8,201,570
Unique Names	82	37
Liquidity (% POV)	0.454	0.410
Avg. Order Size	11,345	22,470
Avg. Order Completion Time (min)	N/A	N/A
Total Number of Trades	415	365





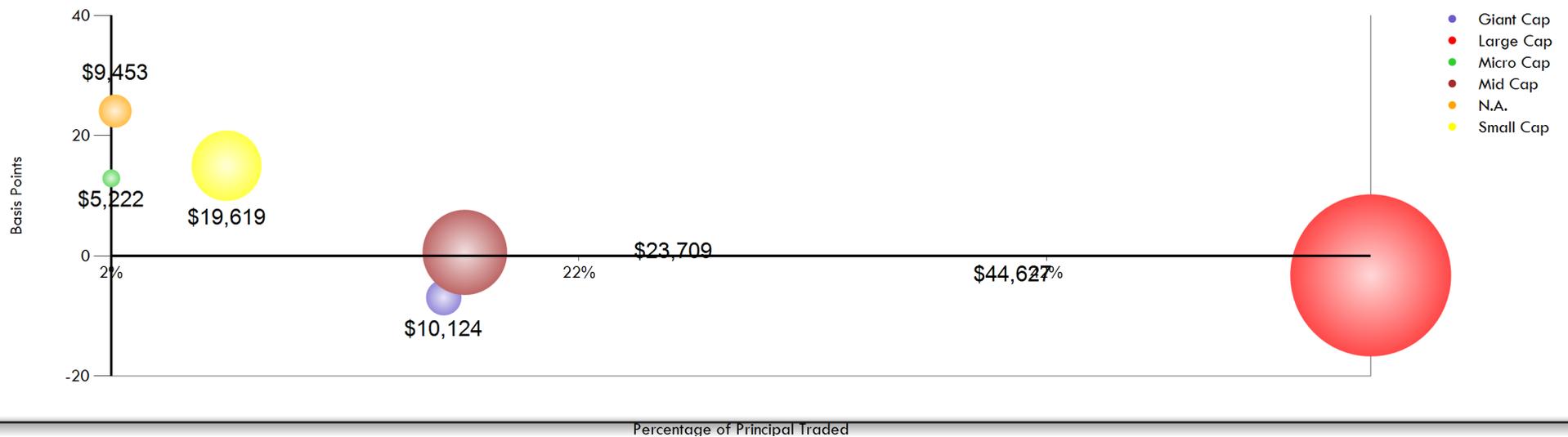
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EXECUTIVE SUMMARY

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	55.81 %	234,953	+6.77	+15.59	3.26	+1.80	+6.21	13.53	-0.07	\$5 Billion To \$25 Billion
Mid Cap	17.07 %	111,056	+6.43	+14.68	+0.57	+1.56	+10.78	9.25	0.04	\$1 Billion To \$5 Billion
Giant Cap	16.17 %	297,545	+7.05	+15.64	6.95	+1.31	+4.85	16.59	0.12	Over \$25 Billion
Small Cap	6.88 %	52,765	+6.49	+14.00	+14.99	+1.20	+22.14	+3.10	0.14	\$250 Million To \$1 Billion
N.A.	2.12 %	340,949	+10.61	+14.33	+24.09	+1.30	+34.71	+19.02	0.95	
Micro Cap	1.95 %	83,824	+7.87	+14.31	+12.89	+1.43	+20.78	+0.48	0.03	Under \$250 Million

Total Cost by Market Cap





(+) = Cost

TRADE CYCLE DETAIL

4 LOWEST COST MANAGER (Full Day VWAP)



Manager	Principal Traded (\$ Millions)	Total Orders Traded	% Principal	Avg. Principal (\$)	E - Score	COMMISSION		MARKET IMPACT		TOTAL COST/SAVINGS	Commission+Fees+Full Day VWAP Vs. Universe TREND		
						Commission (bp)	Bundled Universe (bp)	Full Day VWAP (bp)	Universe Full Day VWAP (bp)	Commission +Fees+Full Day VWAP Vs. Universe (bp)	2021 2nd (bp)	2021 1st (bp)	2020 4th (bp)
LSV ASSET MANAGEMENT	36	295	28.10%	122,724	0.36	+4.98	+17.00	+13.53	+1.66	0.18	3.65	3.72	12.96
WALTER SCOTT INTL EA	24	68	18.40%	348,490	-0.17	+5.60	+15.77	+4.35	+2.09	7.59	5.34	5.08	+6.98
WILLIAM BLAIR & COMP	18	186	14.01%	97,060	-0.02	+6.40	+14.48	1.58	+1.37	13.36	8.33	10.89	9.78
LAZARD ASSET MANAGEM	51	231	39.49%	220,197	-0.19	+8.91	+14.11	13.77	+1.47	19.93	16.82	5.88	+9.50

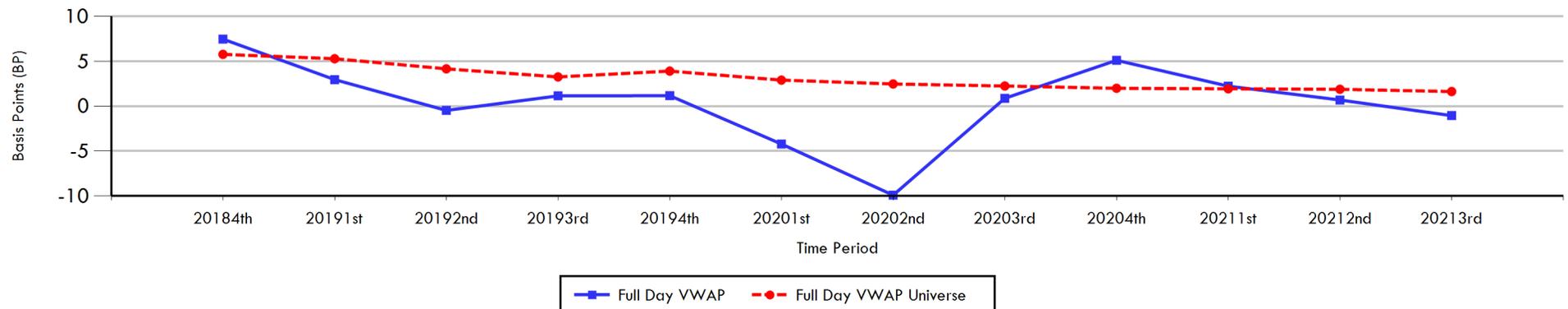
NOTES

- 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)
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
20212nd	108,155,071	+6.85	+14.69	+2.35	+2.18	+0.68	+1.88	8.86
20213rd	128,819,762	+6.84	+15.28	+2.96	+3.03	1.05	+1.62	11.19

TRADE HISTORY





SACRAMENTO COUNTY

US Fixed Income Analysis

Period End September 30, 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 July 01,2021 to September 30,2021. The analysis included trading of 784 trades in 166 different issues representing \$1,498,166,203 in principal across mortgages, governments And corporates.

Methodology:

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

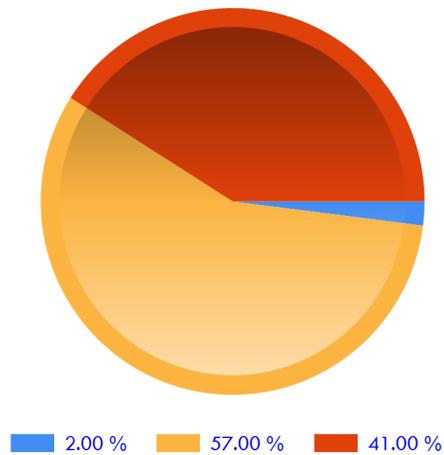
Results:

GRAND TOTAL PERFORMANCE								TRADE COST HISTORICAL PERFORMANCE				
Buy/Sell	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP	Q2 2021	Q1 2021	Q4 2020	Q3 2020
BUYS	729	379	110	58.60	0.80	+9.99	786.35	10.79	1.76	0.34	2.83	+1.63
SELLS	769	405	105	+95.96	+1.25	+6.96	439.67	5.71	+1.93	+1.22	1.07	+0.26
GRAND TOTAL	1,498	784	166	+37.36	+0.25	+8.43	1,226.02	8.18	+0.07	+0.40	2.02	+1.06

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	Q2 2021	Q1 2021	Q4 2020	Q3 2020
Governments	852	423	86	+14.84	+0.17	+7.38	614.07 7.21	+0.12	+1.54	0.65	0.15
Mortgages	614	295	27	+7.75	+0.13	+9.29	563.07 9.16	+0.11	1.06	13.38	+3.82
Corporates	32	66	53	+14.77	+4.68	+20.17	48.88 15.49	2.05	+0.15	+6.66	+6.88

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	622	219	48	11.42	0.18	+8.97	568.93	9.15
0~2	517	526	146	+25.75	+0.50	+7.90	383.10	7.40
10~50	211	16	14	+27.28	+1.29	+6.42	107.92	5.13
5~10	148	23	19	4.25	0.29	+10.91	166.07	11.20



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	852	423	86	+14.84	+0.17	+7.38	614.07	7.21
Mtge-N.R.	611	293	25	+13.83	+0.23	+9.27	552.92	9.04
Corp-INVESTMENT GRADE	32	66	53	+14.77	+4.68	+20.17	48.88	15.49
Mtge-High Yield	2	1	1	5.16	26.00	+12.56	7.66	38.56
Mtge-INVESTMENT GRADE	1	1	1	0.92	7.36	+12.56	2.49	19.92



EXECUTIVE SUMMARY

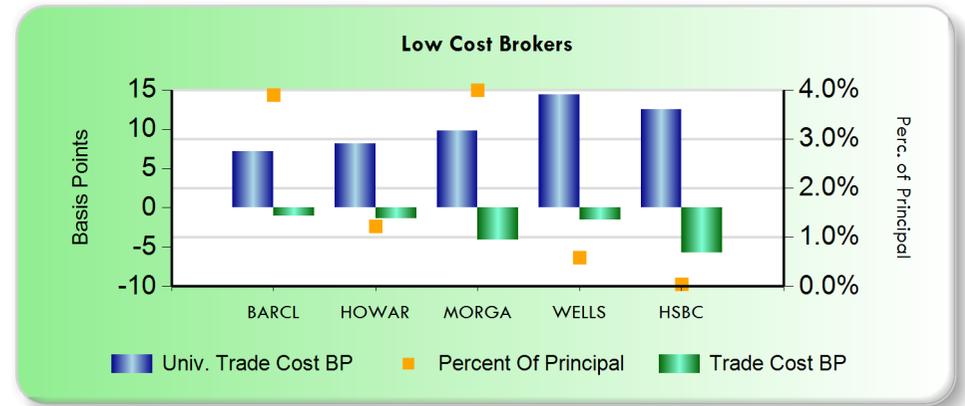
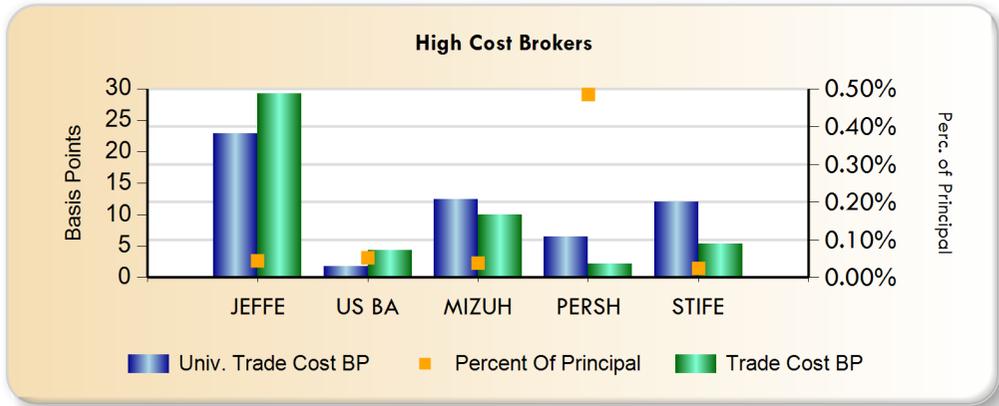
RATING SUMMARY

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	853.48	424	87	+13.92	+0.16	+7.39	616.56	7.23
NR	611.14	293	25	+13.83	+0.23	+9.27	552.92	9.04
BBB+	8.77	16	14	+5.65	+6.44	+17.76	9.93	11.32
A-	8.57	15	12	+1.73	+2.02	+12.39	8.89	10.37
A+	5.16	7	5	+1.97	+3.81	+40.00	18.68	36.19
BBB-	3.11	11	8	+1.87	+6.02	+18.08	3.75	12.06
A	2.59	7	5	+0.33	+1.27	+27.59	6.82	26.32
BBB	2.57	9	8	+2.88	+11.22	+15.17	1.01	3.95
CCC	1.99	1	1	5.16	26.00	+12.56	7.66	38.56
AA-	<1	1	1	+0.34	+4.31	+1.73	+0.20	+2.58



EXECUTIVE SUMMARY

BROKER	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous.\$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
5 HIGHEST COST BROKERS (Sorted By Trade Cost BP)								
JEFFERIES & CO	<1	3	3	+1.94	+29.25	+22.89	+0.42	+6.36
US BANCORP	<1	1	1	+0.34	+4.31	+1.73	+0.20	+2.58
MIZUHO	<1	1	1	+0.57	+9.99	+12.48	0.14	2.49
PERSHING	7	4	4	+1.55	+2.14	+6.52	3.19	4.38
STIFEL NICOLAUS & CO	<1	1	1	+0.20	+5.34	+12.08	0.25	6.74
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
BARCLAYS	58	43	28	6.02	1.03	+7.17	47.87	8.20
HOWARD TAYLOR & COMP	18	10	6	2.41	1.32	+8.19	17.44	9.51
MORGAN STANLEY	60	28	18	24.52	4.10	+9.76	82.93	13.86
WELLS FARGO	9	18	17	1.33	1.51	+14.40	14.00	15.91
HSBC BANK	<1	1	1	0.41	5.71	+12.54	1.30	18.25





COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country	Side	Principal	No. of	No. of	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
		(Mil. \$)	Trades	Issues	(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
UNITED STATES	BUYS	729	379	110	58.60	0.80	+9.99	786.35	10.79
	SELLS	769	405	105	+95.96	+1.25	+6.96	439.67	5.71

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		Q2 2021	Q1 2021	Q4 2020	Q3 2020
METROPOLITAN WEST MG	1,121	652	106	+0.51	+0.00	+8.71	975.92	8.71	0.04	+0.13	2.40	+0.98
NEUBERGER BERMAN	330	87	42	+3.08	+0.09	+8.07	262.94	7.98	+0.31	+3.27	1.45	+1.62
BARCLAYS 1-10 YR TIP	47	45	24	+33.77	+7.20	+4.46	+12.84	+2.74	+2.08	1.53	+3.68	+1.53

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		Q2 2021	Q1 2021	Q4 2020	Q3 2020
JP MORGAN CHASE	283	88	57	+11.54	+0.41	+5.95	156.99	5.54	+0.74	+3.41	+0.01	1.35
GOLDMAN SACHS	253	127	64	+19.99	+0.79	+11.02	258.45	10.23	2.52	0.05	0.90	0.13
CREDIT SUISSE	244	96	25	+5.64	+0.23	+9.24	219.68	9.01	+0.21	0.83	1.52	+0.63
BANK OF AMERICA	230	120	47	+12.95	+0.56	+8.44	180.91	7.88	2.80	0.33	1.16	+0.64
CITIGROUP	122	79	40	+4.04	+0.33	+7.31	84.80	6.98	+0.18	0.01	+0.51	+2.88
NOMURA	77	49	35	+11.60	+1.51	+6.18	35.87	4.67	0.14	1.12	+0.18	0.17
MORGAN STANLEY	60	28	18	24.52	4.10	+9.76	82.93	13.86	2.23	+2.96	+1.91	+4.32
BARCLAYS	58	43	28	6.02	1.03	+7.17	47.87	8.20	+2.19	+2.92	0.59	+3.45
DEUTSCHE BANK	29	24	21	+1.69	+0.59	+15.10	41.51	14.51	+1.17	+0.30	3.71	1.68
CIBC WORLD MARKETS	26	8	6	+1.07	+0.41	+6.42	15.58	6.01	-	-	-	-
UBS	20	22	13	1.00	0.50	+8.98	18.91	9.48	3.87	0.89	12.58	+1.08
HOWARD TAYLOR & COMP	18	10	6	2.41	1.32	+8.19	17.44	9.51	0.72	+0.76	+1.86	3.02
MORTON HALL & ROUNDS	17	4	4	0.47	0.27	+0.25	0.89	0.52	0.83	+9.61	+3.82	-
CITADEL SECURITIES	15	15	11	+1.60	+1.08	+17.14	23.87	16.06	+1.93	2.53	1.17	+1.26
BNP PARIBAS	15	24	13	1.38	0.94	+6.21	10.49	7.15	+0.52	+1.78	0.35	+2.16
JJ KENNY DRAKE INC	12	14	7	+0.09	+0.08	+7.68	8.79	7.60	+3.08	-	+16.78	-
WELLS FARGO	9	18	17	1.33	1.51	+14.40	14.00	15.91	0.59	+1.11	136.12	+8.76
PERSHING	7	4	4	+1.55	+2.14	+6.52	3.19	4.38	+20.55	18.43	6.09	+2.44
WACHOVIA BANK	1	2	2	+0.06	+0.51	+2.94	0.27	2.43	+1.06	+1.57	+2.42	+0.99
US BANCORP	<1	1	1	+0.34	+4.31	+1.73	+0.20	+2.58	-	-	-	-

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	912810RB US TREASURY N/B 05/43 2.875	Govt	09/23/2021 05/15/2043	NEUBERGER BERMA BANK OF AMERICA	US	USD	12,856,100	118.000	118.432	+36.58	+47,027
B	912810SX US TREASURY N/B 05/51 2.375	Govt	07/19/2021 05/15/2051	METROPOLITAN WE BANK OF AMERICA	US	USD	3,383,479	112.772	111.641	+101.26	+34,260
S	912810SJ US TREASURY N/B 08/49 2.25	Govt	09/17/2021 08/15/2049	NEUBERGER BERMA GOLDMAN SACHS	US	USD	5,376,943	107.324	107.827	+46.81	+25,167
S	912810SX US TREASURY N/B 05/51 2.375	Govt	08/12/2021 05/15/2051	METROPOLITAN WE HOWARD TAYLOR &	US	USD	3,785,824	107.705	108.373	+62.08	+23,502
S	912810RJ US TREASURY N/B 11/44 3	Govt	09/09/2021 11/15/2044	NEUBERGER BERMA JP MORGAN CHASE	US	USD	6,185,196	120.335	120.709	+31.15	+19,265
B	912810SX US TREASURY N/B 05/51 2.375	Govt	07/19/2021 05/15/2051	METROPOLITAN WE NOMURA	US	USD	1,584,576	112.781	111.641	+101.14	+16,026
S	91282CCB US TREASURY N/B 05/31 1.625	Govt	08/12/2021 05/15/2031	Multiple Mgrs. GOLDMAN SACHS	US	USD	19,805,303	102.598	102.661	+6.76	+13,391
S	912810SX US TREASURY N/B 05/51 2.375	Govt	08/12/2021 05/15/2051	METROPOLITAN WE GOLDMAN SACHS	US	USD	5,134,700	108.094	108.373	+25.39	+13,038
B	912810SJ US TREASURY N/B 08/49 2.25	Govt	09/14/2021 08/15/2049	NEUBERGER BERMA CITADEL SECURIT	US	USD	1,646,733	108.695	107.919	+71.44	+11,765
S	912810SU US TREASURY N/B 02/51 1.875	Govt	09/29/2021 02/15/2051	NEUBERGER BERMA DEUTSCHE BANK	US	USD	2,161,820	95.234	95.733	+52.34	+11,314
B	912810SZ US TREASURY N/B 08/51 2	Govt	08/13/2021 08/15/2051	METROPOLITAN WE JP MORGAN CHASE	US	USD	1,665,984	100.969	100.307	+65.58	+10,925
B	912810SX US TREASURY N/B 05/51 2.375	Govt	07/07/2021 05/15/2051	NEUBERGER BERMA GOLDMAN SACHS	US	USD	2,361,687	110.102	109.620	+43.75	+10,331
S	912810RD US TREASURY N/B 11/43 3.75	Govt	09/15/2021 11/15/2043	NEUBERGER BERMA JP MORGAN CHASE	US	USD	3,014,266	135.473	135.925	+33.39	+10,065
B	01F0206A FNMA TBA 30 YR 2 SINGLE FAMI	Mtge	08/20/2021 12/30/1899	METROPOLITAN WE CREDIT SUISSE	US	USD	10,697,273	101.156	101.070	+8.53	+9,121



S	91282CCF US TREASURY N/B 05/26 0.75	Govt	08/17/2021 05/31/2026	METROPOLITAN WE BANK OF AMERICA	US	USD	11,626,485	100.011	100.083	+7.00	+8,141
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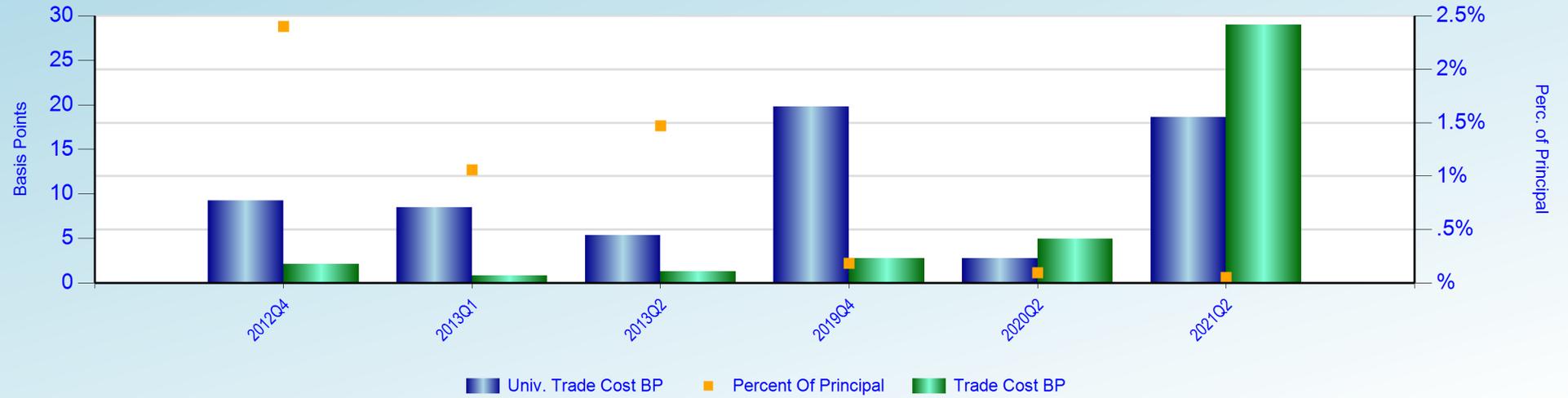


TRADE DETAILS

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	912810RK US TREASURY N/B 02/45 2.5	Govt	09/23/2021 02/15/2045	NEUBERGER BERMA BANK OF AMERICA	US	USD	11,848,878	111.414	111.842	38.40	45,497
S	912810SU US TREASURY N/B 02/51 1.875	Govt	07/19/2021 02/15/2051	METROPOLITAN WE BANK OF AMERICA	US	USD	3,261,530	100.976	99.917	104.87	34,205
B	912810SZ US TREASURY N/B 08/51 2	Govt	08/12/2021 08/15/2051	METROPOLITAN WE HOWARD TAYLOR &	US	USD	3,642,137	99.106	99.813	71.31	25,972
B	912810RZ US TREASURY N/B 11/47 2.75	Govt	09/17/2021 11/15/2047	NEUBERGER BERMA GOLDMAN SACHS	US	USD	5,838,002	117.465	117.978	43.70	25,511
B	912810RE US TREASURY N/B 02/44 3.625	Govt	09/09/2021 02/15/2044	NEUBERGER BERMA JP MORGAN CHASE	US	USD	6,564,262	131.813	132.175	27.50	18,053
B	912810SZ US TREASURY N/B 08/51 2	Govt	08/12/2021 08/15/2051	METROPOLITAN WE GOLDMAN SACHS	US	USD	4,944,248	99.482	99.813	33.24	16,432
S	912810SU US TREASURY N/B 02/51 1.875	Govt	07/19/2021 02/15/2051	METROPOLITAN WE NOMURA	US	USD	1,524,702	100.974	99.917	104.63	15,953
S	912810SK US TREASURY N/B 11/49 2.375	Govt	09/14/2021 11/15/2049	NEUBERGER BERMA CITADEL SECURIT	US	USD	1,641,959	111.652	110.864	70.60	11,592
S	912810RV US TREASURY N/B 02/47 3	Govt	07/07/2021 02/15/2047	NEUBERGER BERMA GOLDMAN SACHS	US	USD	2,758,877	122.074	121.567	41.53	11,459
B	912810SY US TREASURY N/B 05/41 2.25	Govt	09/15/2021 05/15/2041	NEUBERGER BERMA JP MORGAN CHASE	US	USD	3,103,854	107.586	107.977	36.31	11,269
S	912810SX US TREASURY N/B 05/51 2.375	Govt	08/13/2021 05/15/2051	METROPOLITAN WE JP MORGAN CHASE	US	USD	1,732,506	109.652	108.957	63.41	10,986
B	912810SA US TREASURY N/B 02/48 3	Govt	09/29/2021 02/15/2048	NEUBERGER BERMA DEUTSCHE BANK	US	USD	2,542,195	118.794	119.286	41.39	10,523
S	91282CCB US TREASURY N/B 05/31 1.625	Govt	07/19/2021 05/15/2031	METROPOLITAN WE MORGAN STANLEY	US	USD	2,108,306	104.063	103.556	48.65	10,257
S	01F02069 FNMA TBA 30 YR 2 SINGLE FAMI	Mtge	08/20/2021 12/30/1899	METROPOLITAN WE CREDIT SUISSE	US	USD	10,716,481	101.338	101.250	8.67	9,294
B	91282CCP US TREASURY N/B 07/26 0.625	Govt	08/17/2021 07/31/2026	METROPOLITAN WE BANK OF AMERICA	US	USD	11,208,045	99.318	99.388	6.99	7,834



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	32	66	53	+14.77	+4.68	+20.17	48.88	15.49

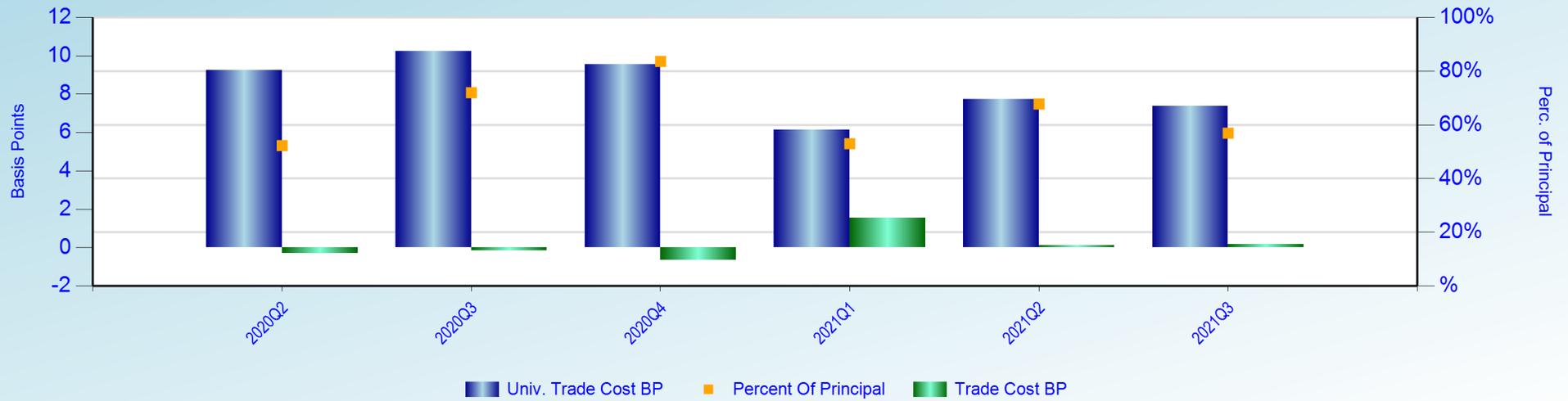
CORPORATES



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	852	423	86	+14.84	+0.17	+7.38	614.07	7.21

GOVERNMENTS





BOND TYPE PERFORMANCE

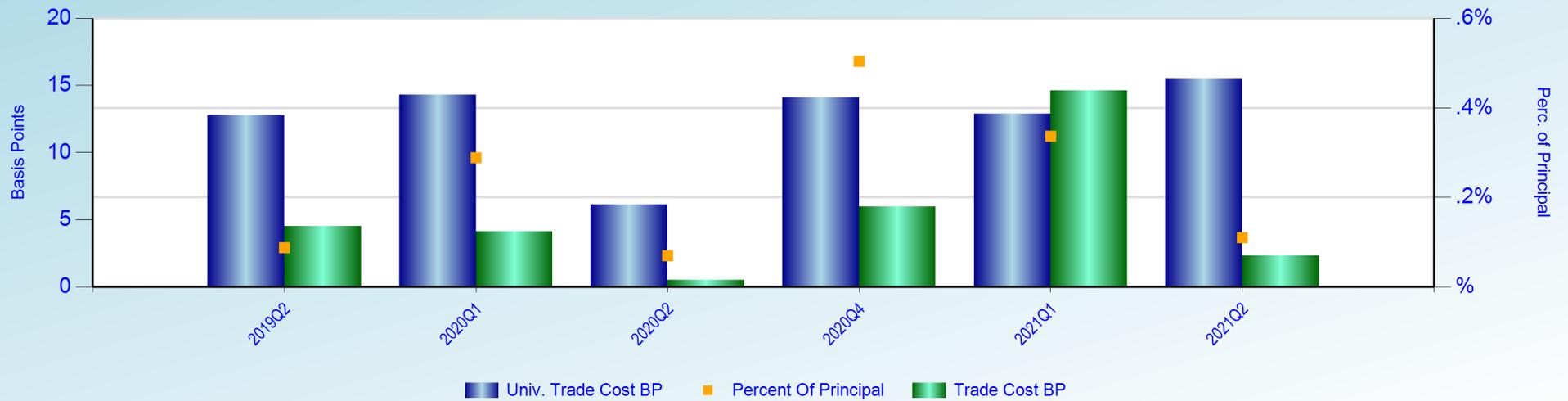
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
MORTGAGES	614	295	27	+7.75	+0.13	+9.29	563.07	9.16

MORTGAGES





MUNICIPALS





RATING BY EACH BOND TYPE

GOVERNMENTS - RATING DETAILS

Rating	Principal	No. of	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
	(Mil. \$)	Trades		(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
AAA	852	423	86	+14.84	+0.17	+7.38	614.07	7.21



RATING BY EACH BOND TYPE

MORTGAGES - 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
NR	611	293	25	+13.83	+0.23	+9.27	552.92	9.05
CCC	2	1	1	5.16	26.00	+12.56	7.66	38.56
AAA	1	1	1	0.92	7.36	+12.56	2.49	19.92

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+	9	16	14	+5.65	+6.44	+17.76	9.93	11.32
A-	9	15	12	+1.73	+2.02	+12.39	8.89	10.37
A+	5	7	5	+1.97	+3.81	+40.00	18.68	36.19
BBB-	3	11	8	+1.87	+6.02	+18.08	3.75	12.06
A	3	7	5	+0.33	+1.27	+27.59	6.82	26.32
BBB	3	9	8	+2.88	+11.22	+15.17	1.01	3.94
AA-	<1	1	1	+0.34	+4.31	+1.73	+0.20	+2.58

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
07/01/2021-09/30/2021	1,498,166	784	166	+37.36	+0.25	+8.43	1,226.02	8.18
04/01/2021-06/30/2021	1,140,626	714	146	+8.51	+0.07	+12.30	1,394.68	12.23
01/01/2021-03/31/2021	1,228,670	773	156	+49.54	+0.40	+7.91	922.83	7.51
Year-Ending 2021	3,867,462	2271		+95.42	+0.25	+9.41	3,543.53	9.16
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

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	
10/01/2016-12/31/2016	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
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

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
10/01/2011-12/31/2011	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	49	39	MARKETAXESS-TRADES	66.94 %
	14	13	BVAL	26.44 %
	3	3	ISSUE PRICE	6.62 %
GOVERNMENTS	414	80	TULLET PREBON	96.97 %
	9	6	BVAL	3.03 %
MORTGAGES	295	27	BLOOMBERGTERMINAL	100.00 %

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SACRAMENTO COUNTY

Global Fixed Income Analysis

Period End September 30, 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 July 01,2021 to September 30,2021. The analysis included trading of 94 trades in 62 different issues representing \$54,919,920 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.

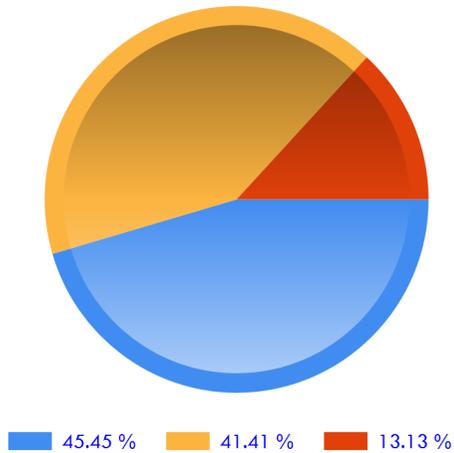
Results:

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	Q2 2021	Q1 2021	Q4 2020	Q3 2020
BUYS	35	51	32	+8.51	+2.41	+3.84	5.05	1.43	1.71	7.15	+19.81	22.89
SELLS	20	43	32	+0.17	+0.09	+3.83	7.35	3.74	+3.27	+8.06	+8.92	+26.95
GRAND TOTAL	55	94	62	+8.68	+1.58	+3.84	12.40	2.26	+0.07	+1.04	+13.57	3.02

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	Q2 2021	Q1 2021	Q4 2020	Q3 2020
Corporates	25	52	37	+4.28	+1.72	+3.85	5.29 2.13	+7.89	+4.48	3.32	8.93
Governments	23	34	21	+5.05	+2.22	+3.83	3.66 1.61	3.12	0.87	+1.22	+15.68
Mortgages	7	8	4	.64	0.88	+3.83	3.45 4.71	+4.05	1.38	+162.55	192.36

Bonds by Principal Traded



Historical Trade Cost Trend





EXECUTIVE SUMMARY

EXECUTION PERFORMANCE SUMMARY

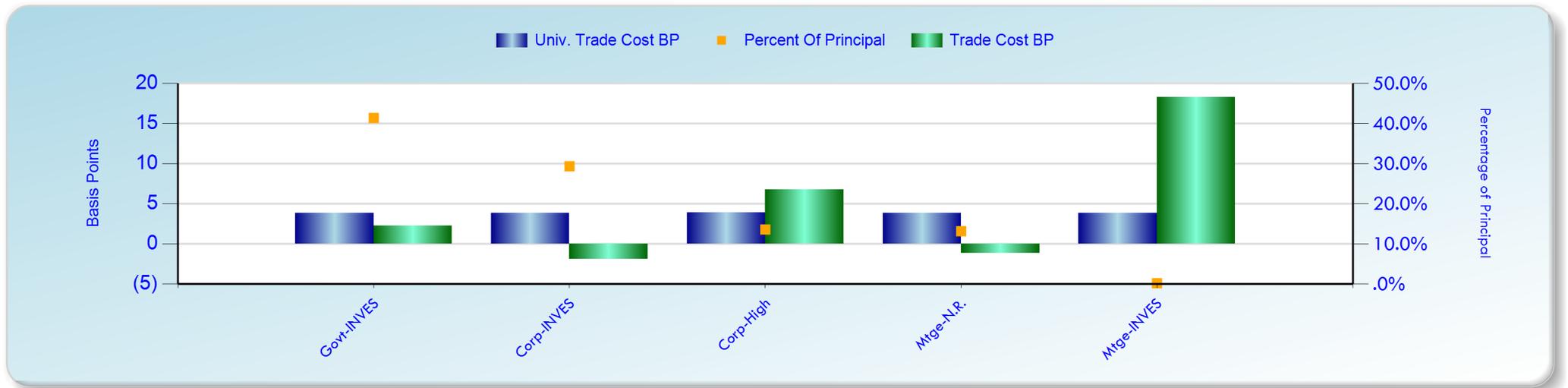
Trade Size (Millions)	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$)	BP
0~2	37	88	59	+9.92	+2.69	+3.84	4.27	1.15
2~5	12	5	5	+0.60	+0.50	+3.83	4.00	3.33
5~10	6	1	1	1.83	3.05	+3.83	4.13	6.88



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	23	34	21	+5.05	+2.22	+3.83	3.66	1.61
Corp-INVESTMENT GRADE	16	29	22	3.07	1.90	+3.83	9.24	5.73
Corp-High Yield	7	20	14	+5.03	+6.74	+3.90	+2.12	+2.84
Mtge-N.R.	7	7	3	0.83	1.16	+3.83	3.60	4.99
Mtge-INVESTMENT GRADE	<1	1	1	+0.19	+18.32	+3.83	+0.15	+14.49



EXECUTIVE SUMMARY

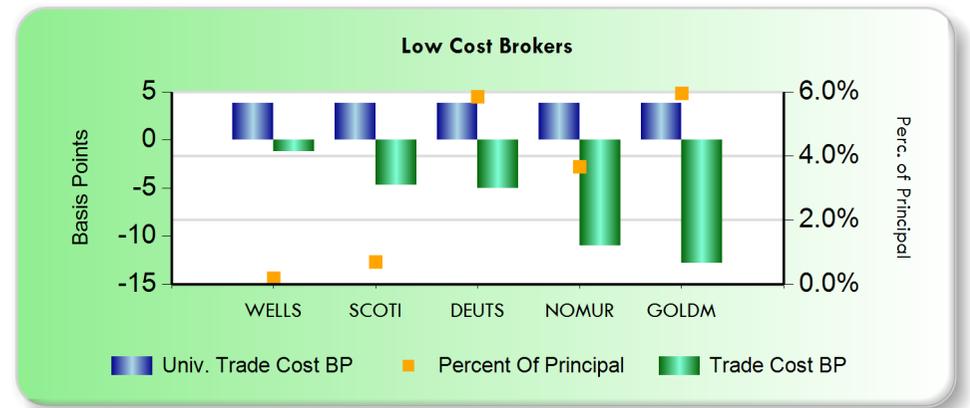
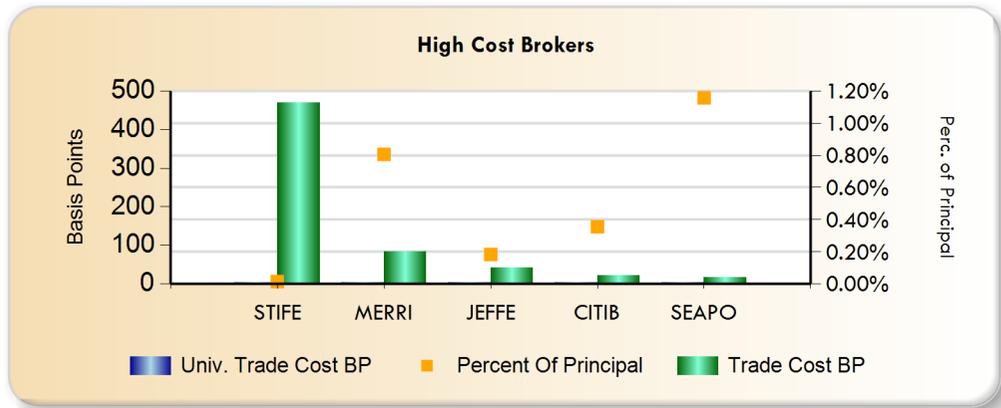
RATING SUMMARY

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	22.73	34	21	+5.05	+2.22	+3.83	3.66	1.61
NR	7.21	7	3	0.83	1.16	+3.83	3.60	4.99
BBB+	6.75	14	7	3.27	4.84	+3.83	5.85	8.67
A-	5.49	8	8	+1.31	+2.39	+3.83	0.79	1.44
BB+	5.13	9	5	+4.67	+9.10	+3.82	+2.71	+5.28
BBB	3.42	5	5	1.37	4.02	+3.83	2.69	7.85
BB-	1.36	8	6	+1.38	+10.18	+4.22	+0.81	+5.96
BB- *+	1.30	3	1	+2.32	+17.88	+3.83	+1.82	+14.05
B-	<1	1	1	+0.04	+0.70	+3.83	0.18	3.13
BB	<1	2	2	1.06	26.54	+3.83	1.22	30.37



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)								
STIFEL NICOLAUS & CO	<1	1	1	+0.38	+468.75	+3.84	+0.38	+464.91
MERRILL LYNCH	<1	2	2	+3.75	+84.60	+3.83	+3.58	+80.77
JEFFERIES & CO	<1	2	2	+0.42	+41.91	+3.83	+0.38	+38.08
CITIBANK	<1	1	1	+0.44	+22.38	+3.83	+0.36	+18.55
SEAPORT GROUP SECS	<1	1	1	+1.04	+16.41	+3.83	+0.80	+12.58
5 LOWEST COST BROKERS (Sorted By Trade Cost BP)								
WELLS FARGO	<1	1	1	0.01	1.23	+3.83	0.05	5.06
SCOTIA CAPITAL	<1	4	2	0.18	4.68	+3.83	0.33	8.51
DEUTSCHE BANK	3	2	2	1.62	5.04	+3.83	2.85	8.87
NOMURA	2	3	3	2.22	11.01	+3.83	2.99	14.84
GOLDMAN SACHS	3	4	4	4.19	12.80	+3.83	5.44	16.63



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. \$)		Q2 2021	Q1 2021	Q4 2020	Q3 2020
UNITED STATES	54	91	60	+2.42	+0.45	+3.83	18.15	3.38	0.15	+1.13	+13.61	3.02
FRANCE	1	2	1	+6.21	+56.52	+3.79	+5.79	+52.73	-	-	-	-
ISRAEL	<1	1	1	+0.06	+5.54	+9.00	0.04	3.46	-	+4.61	-	-



COUNTRY PERFORMANCE BASED ON BUYS AND SELLS

Country									
		Principal	No. of	No. of	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
	Side	(Mil. \$)	Trades	Issues	(Thous. \$)	BP	Cost BP	(Thous. \$)	BP
UNITED STATES	SELLS	20	43	32	+0.17	+0.09	+3.83	7.35	3.74
	BUYS	34	48	30	+2.25	+0.66	+3.83	10.80	3.17
FRANCE	BUYS	1	2	1	+6.21	+56.52	+3.79	+5.79	+52.73
ISRAEL	BUYS	<1	1	1	+0.06	+5.54	+9.00	0.04	3.46

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	Q2 2021	Q1 2021	Q4 2020	Q3 2020
PRUDENTIAL INVESTMEN	55	94	62	+8.68	+1.58	+3.84	12.40	2.26	+0.07	+1.04	+13.57	3.02

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		Q2 2021	Q1 2021	Q4 2020	Q3 2020
BANK OF AMERICA	12	15	15	+0.63	+0.52	+3.83	4.04	3.31	+11.76	10.16	+10.13	18.80
HSBC BANK	11	12	6	+1.43	+1.31	+3.83	2.75	2.52	0.49	-	+7.26	+47.70
JP MORGAN CHASE	6	7	5	+5.73	+9.32	+3.82	+3.38	+5.50	1.49	+5.20	9.82	21.30
CITIGROUP	5	8	7	0.35	0.66	+3.83	2.36	4.49	8.04	10.78	3.56	+0.18
MORGAN STANLEY	4	9	7	+1.19	+2.93	+3.83	0.37	0.90	4.76	23.09	6.05	156.64
BARCLAYS	3	11	11	+1.31	+3.78	+3.98	0.07	0.20	2.10	+88.04	18.72	+0.60
GOLDMAN SACHS	3	4	4	4.19	12.80	+3.83	5.44	16.63	+3.81	+18.34	9.68	+0.72
DEUTSCHE BANK	3	2	2	1.62	5.04	+3.83	2.85	8.87	+14.92	+6.16	+0.28	30.77
NOMURA	2	3	3	2.22	11.01	+3.83	2.99	14.84	+2.80	-	+284.35	261.74
ROYAL BANK OF CANADA	1	3	1	+0.85	+6.64	+3.83	+0.36	+2.81	-	-	-	-
BNP PARIBAS	<1	4	4	0.08	0.80	+3.83	0.44	4.63	+1.64	+8.95	-	+0.00
SEAPORT GROUP SECS	<1	1	1	+1.04	+16.41	+3.83	+0.80	+12.58	-	80.72	+34.61	-
MERRILL LYNCH	<1	2	2	+3.75	+84.60	+3.83	+3.58	+80.77	+9.27	+4.94	+12.79	-
SCOTIA CAPITAL	<1	4	2	0.18	4.68	+3.83	0.33	8.51	-	-	-	-
CITIBANK	<1	1	1	+0.44	+22.38	+3.83	+0.36	+18.55	-	-	-	-
CITADEL SECURITIES	<1	2	2	+0.02	+1.54	+3.83	0.03	2.29	+1.20	+0.17	-	+0.23
RBC CAPITAL MARKETS	<1	2	1	+0.12	+9.36	+3.83	+0.07	+5.53	+41.60	+10.51	+0.76	12.43
JEFFERIES & CO	<1	2	2	+0.42	+41.91	+3.83	+0.38	+38.08	+0.92	+1.38	+4.59	+35.45
WELLS FARGO	<1	1	1	0.01	1.23	+3.83	0.05	5.06	9.65	2.65	+16.40	+9.32
STIFEL NICOLAUS & CO	<1	1	1	+0.38	+468.75	+3.84	+0.38	+464.91	203.19	-	-	-

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	912810SX US TREASURY N/B 05/51 2.375	Govt	08/13/2021 05/15/2051	PRUDENTIAL INVE CITIGROUP	US	USD	636,459	109.734	108.957	+70.84	+4,509
B	BL9YL28 VERALLIA SA COMPANY GUAR REG	Corp	09/24/2021 05/14/2028	PRUDENTIAL INVE JP MORGAN CHASE	FRA	EUR	732,487	104.125	103.518	+58.26	+4,267
B	06051GJE BANK OF AMERICA CORP SR UNSE	Corp	07/19/2021 06/19/2041	PRUDENTIAL INVE BANK OF AMERICA	US	USD	1,428,454	98.855	98.611	+24.68	+3,526
B	912810SY US TREASURY N/B 05/41 2.25	Govt	09/20/2021 05/15/2041	PRUDENTIAL INVE BANK OF AMERICA	US	USD	1,694,199	107.911	107.701	+19.43	+3,292
S	912810RJ US TREASURY N/B 11/44 3	Govt	07/01/2021 11/15/2044	PRUDENTIAL INVE HSBC BANK	US	USD	2,171,437	117.375	117.516	+11.98	+2,602
S	BYZPK29 PROVINCIA DE BUENOS AIRE SR	Govt	07/23/2021 06/09/2021	PRUDENTIAL INVE MERRILL LYNCH	US	USD	325,910	50.140	50.536	+78.96	+2,573
B	912810SX US TREASURY N/B 05/51 2.375	Govt	08/13/2021 05/15/2051	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	279,914	109.771	108.957	+74.11	+2,074
B	BL9YL28 VERALLIA SA COMPANY GUAR REG	Corp	09/22/2021 05/14/2028	PRUDENTIAL INVE JP MORGAN CHASE	FRA	EUR	365,422	104.000	103.448	+53.03	+1,938
S	025816CH AMERICAN EXPRESS CO JR SUBOR	Corp	08/05/2021 12/30/1899	PRUDENTIAL INVE CITIGROUP	US	USD	1,183,057	101.550	101.697	+14.44	+1,709
B	125523CJ CIGNA CORP SR UNSECURED 03/4	Corp	07/06/2021 03/15/2040	PRUDENTIAL INVE CITIGROUP	US	USD	443,557	105.609	105.220	+36.87	+1,635
B	BNCONN2 NEXI SPA SR UNSECURED REGS 0	Corp	09/24/2021 04/30/2029	PRUDENTIAL INVE MORGAN STANLEY	US	EUR	496,737	100.875	100.568	+30.48	+1,514
B	01F0206B FNMA TBA 30 YR 2 SINGLE FAMI	Mtge	09/20/2021 12/30/1899	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	1,514,589	100.973	100.890	+8.19	+1,240
S	BDRVJG5 ARAB REPUBLIC OF EGYPT SR UN	Govt	09/28/2021 04/16/2026	PRUDENTIAL INVE MERRILL LYNCH	US	EUR	116,865	100.000	101.003	+100.32	+1,172
S	06051GEU BANK OF AMERICA CORP SR UNSE	Corp	08/04/2021 01/11/2023	PRUDENTIAL INVE BANK OF AMERICA	US	USD	2,752,648	104.267	104.309	+4.07	+1,119



S	45138LBF IDAHO POWER CO 1ST MORTGAGE	Corp	07/09/2021 03/01/2048	PRUDENTIAL INVE SEAPORT GROUP S	US	USD	635,870	123.470	123.673	+16.41	+1,044
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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	38141GYJ GOLDMAN SACHS GROUP INC SR U	Corp	07/14/2021 07/21/2032	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	1,280,000	100.000	100.340	34.00	4,352
S	912810SU US TREASURY N/B 02/51 1.875	Govt	08/13/2021 02/15/2051	PRUDENTIAL INVE CITIGROUP	US	USD	613,134	98.102	97.410	70.48	4,321
B	025816CH AMERICAN EXPRESS CO JR SUBOR	Corp	07/27/2021 12/30/1899	PRUDENTIAL INVE CITIGROUP	US	USD	1,165,000	100.000	100.352	35.19	4,100
S	06051GHU BANK OF AMERICA CORP SR UNSE	Corp	07/19/2021 04/23/2040	PRUDENTIAL INVE BANK OF AMERICA	US	USD	1,619,093	118.182	117.927	21.56	3,490
S	912810RC US TREASURY N/B 08/43 3.625	Govt	09/20/2021 08/15/2043	PRUDENTIAL INVE BANK OF AMERICA	US	USD	1,679,934	133.328	133.053	20.66	3,470
S	912810SU US TREASURY N/B 02/51 1.875	Govt	08/13/2021 02/15/2051	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	269,871	98.135	97.410	73.86	1,993
B	91282CCD US TREASURY N/B 05/23 0.125	Govt	07/13/2021 05/31/2023	PRUDENTIAL INVE HSBC BANK	US	USD	6,002,077	99.785	99.816	3.05	1,832
B	01F0206B FNMA TBA 30 YR 2 SINGLE FAMI	Mtge	09/30/2021 12/30/1899	PRUDENTIAL INVE NOMURA	US	USD	1,500,937	100.063	100.180	11.74	1,763
B	912810SY US TREASURY N/B 05/41 2.25	Govt	07/01/2021 05/15/2041	PRUDENTIAL INVE DEUTSCHE BANK	US	USD	2,340,443	103.789	103.859	6.78	1,586
B	294429AT EQUIFAX INC SR UNSECURED 09/	Corp	08/11/2021 09/15/2031	PRUDENTIAL INVE BANK OF AMERICA	US	USD	2,253,920	99.731	99.796	6.56	1,479
B	031162DC AMGEN INC SR UNSECURED 01/52	Corp	08/05/2021 01/15/2052	PRUDENTIAL INVE MORGAN STANLEY	US	USD	536,695	99.388	99.632	24.60	1,320
B	38144GAG GOLDMAN SACHS GROUP INC JR S	Corp	07/21/2021 12/30/1899	PRUDENTIAL INVE GOLDMAN SACHS	US	USD	375,000	100.000	100.286	28.61	1,073
B	912810SY US TREASURY N/B 05/41 2.25	Govt	08/17/2021 05/15/2041	PRUDENTIAL INVE BARCLAYS	US	USD	519,520	107.118	107.300	17.03	885
B	65535HAX NOMURA HOLDINGS INC SR UNSEC	Corp	07/06/2021 07/14/2031	PRUDENTIAL INVE NOMURA	US	USD	205,000	100.000	100.301	30.14	618
B	01F0206B FNMA TBA 30 YR 2 SINGLE FAMI	Mtge	09/29/2021 12/30/1899	PRUDENTIAL INVE JP MORGAN CHASE	US	USD	1,499,941	99.996	100.030	3.39	509



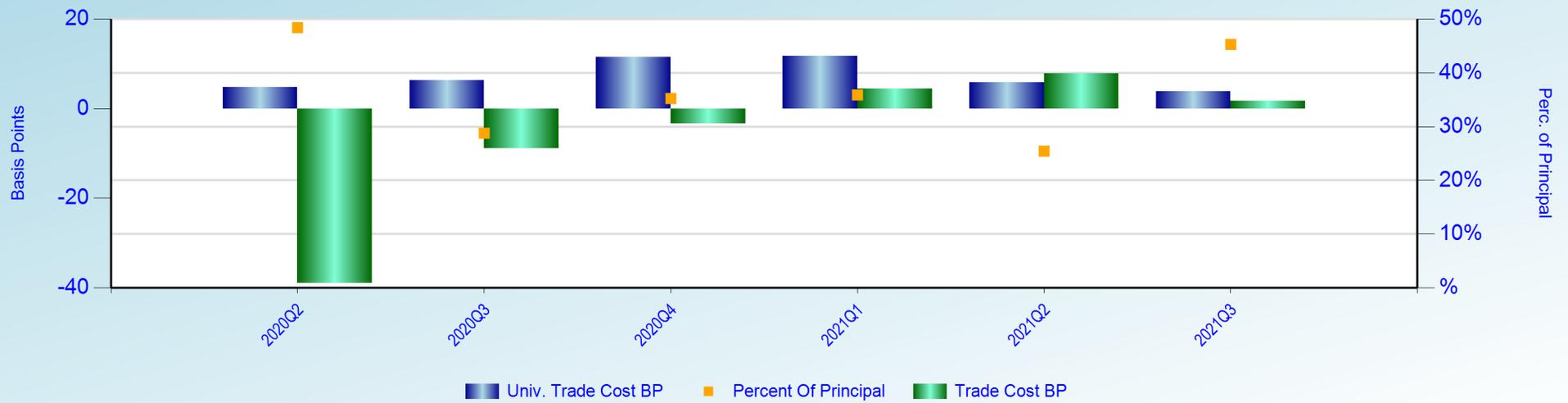
AGENCIES



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	25	52	37	+4.28	+1.72	+3.85	5.29	2.13

CORPORATES



BOND TYPE PERFORMANCE

Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
GOVERNMENTS	23	34	21	+5.05	+2.22	+3.83	3.66	1.61

GOVERNMENTS



BOND TYPE PERFORMANCE

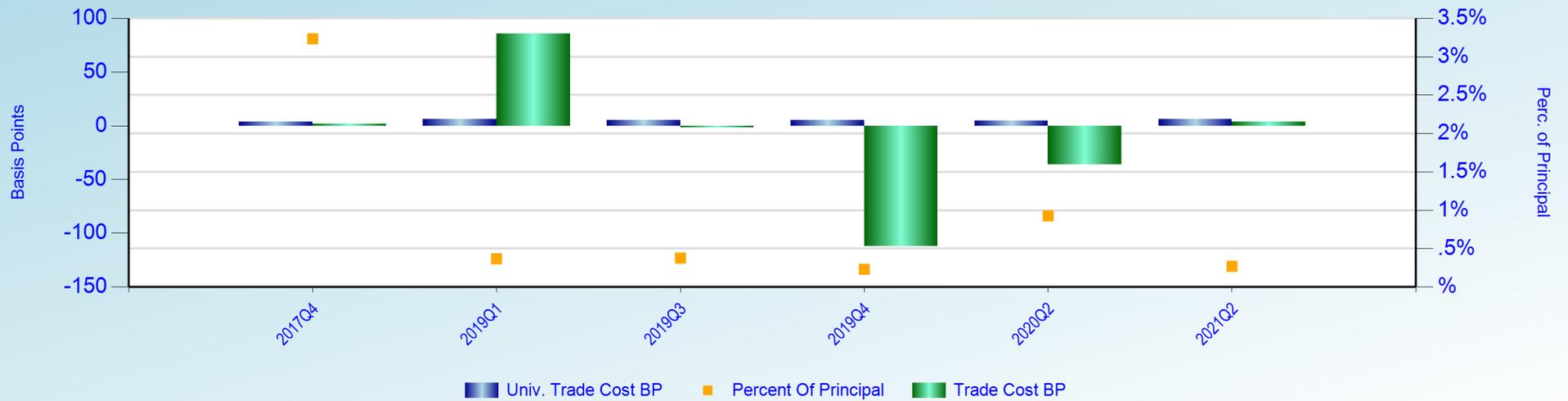
Bond Type	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost	Trade Cost	Univ. Trade	Cost Diff. from Universe	
				(Thous. \$)	BP	Cost BP	(Thous.\$)	BP
MORTGAGES	7	8	4	0.64	0.88	+3.83	3.45	4.71

MORTGAGES



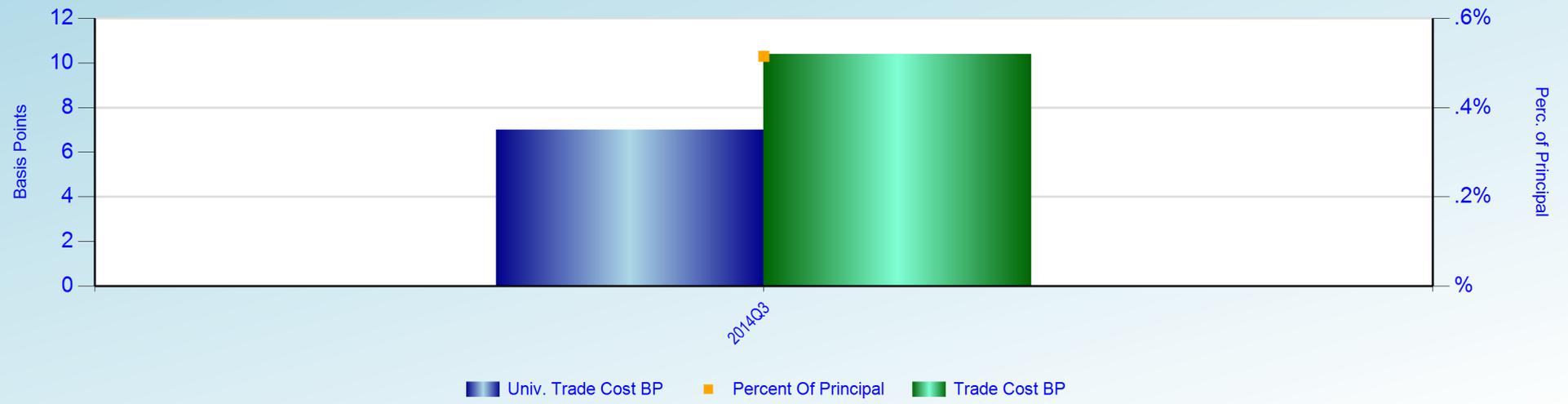


MUNICIPALS





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	23	34	21	+5.05	+2.22	+3.83	3.66	1.61

RATING BY EACH BOND TYPE

CORPORATES - RATING DETAILS

Rating	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost		Univ. Trade Cost BP	Cost Diff. from Universe	
				(Thous. \$)	BP		(Thous. \$)	BP
BBB+	7	14	7	3.27	4.84	+3.83	5.85	8.67
A-	5	8	8	+1.31	+2.39	+3.83	0.79	1.44
BB+	5	9	5	+4.67	+9.10	+3.82	+2.71	+5.27
BBB	3	5	5	1.37	4.02	+3.83	2.69	7.85
BB-	1	8	6	+1.38	+10.18	+4.22	+0.81	+5.96
BB- *+	1	3	1	+2.32	+17.88	+3.83	+1.82	+14.05
B-	<1	1	1	+0.04	+0.70	+3.83	0.18	3.13
BB	<1	2	2	1.06	26.54	+3.83	1.22	30.37
BBB-	<1	1	1	+0.00	+0.00	+3.83	0.12	3.83
A	<1	1	1	+0.27	+20.20	+3.83	+0.22	+16.37



RATING BY EACH BOND TYPE

MORTGAGES - 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
NR	7	7	3	0.83	1.16	+3.83	3.60	4.99
AA+	<1	1	1	+0.19	+18.32	+3.83	+0.15	+14.49



COUNTRIES BY EACH BOND TYPE

CORPORATES								
Country	Principal (Mil. \$)	No. of Trades	No. of Issues	Trade Cost (Thous. \$)	Trade Cost BP	Univ. Trade Cost BP	Cost Diff. from Universe (Thous. \$) BP	
UNITED STATES	24	49	35	1.98	0.84	+3.83	11.05	4.67
FRANCE	1	2	1	+6.21	+56.52	+3.79	+5.79	+52.73
ISRAEL	<1	1	1	+0.06	+5.54	+9.00	0.04	3.46



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	23	34	21	+5.05	+2.22	+3.83	3.66	1.61



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	7	8	4	0.64	0.88	+3.83	3.45	4.71

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
07/01/2021-09/30/2021	54,920	94	62	+8.68	+1.58	+3.84	12.40	2.26
04/01/2021-06/30/2021	59,342	157	66	+0.43	+0.07	+5.92	34.70	5.85
01/01/2021-03/31/2021	58,367	140	85	+6.08	+1.04	+11.71	62.28	10.67
Year-Ending 2021	172,629	391		+15.20	+0.88	+7.22	109.39	6.34
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

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
10/01/2016-12/31/2016	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
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

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
10/01/2011-12/31/2011	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	31	23	MARKETAXESS-TRADES	73.65 %
	16	9	BVAL	22.44 %
	3	3	ISSUE PRICE	2.90 %
	2	2	BLOOMBERGTERMINAL	1.01 %
GOVERNMENTS	21	11	TULLET PREBON	93.64 %
	9	7	BVAL	5.04 %
	4	3	MARKETAXESS-EMQUOTES	1.32 %
MORTGAGES	8	4	BLOOMBERGTERMINAL	100.00 %

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