

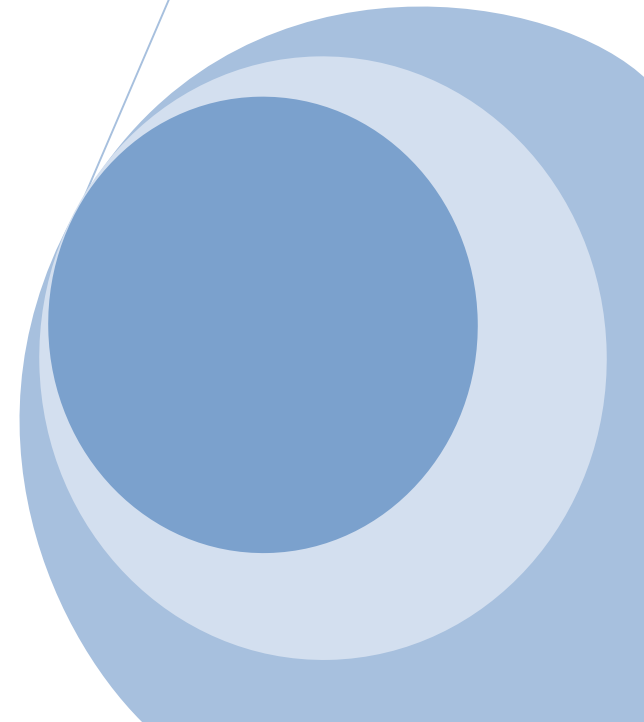
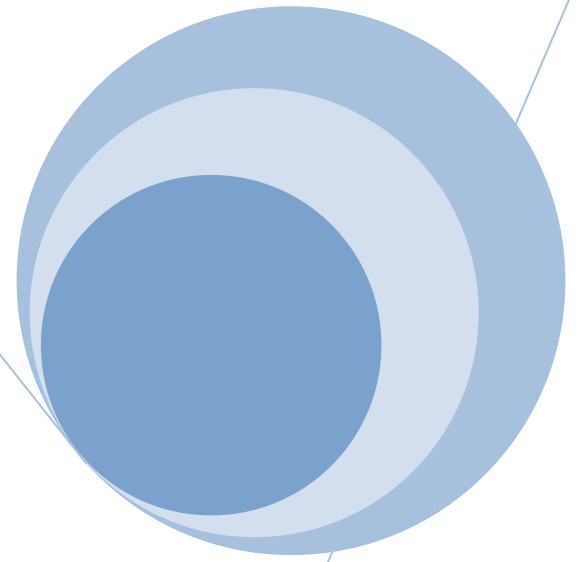
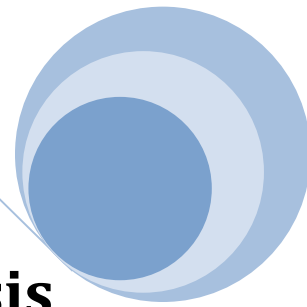


FX Transaction Cost Analysis

Santa Barbara County Employees' Retirement System

Reporting Period Jul 2023 – Jun 2024

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Summary

- Transaction volume for FY23/24 was \$309mln across 3,980 transactions initiated on behalf of eight separately managed accounts.
- BNY Mellon completed 1083 transactions for \$66.2mln in FX volume.
 - Nuveen remains the most active investment manager, initiating 2,288 transactions for a total volume of \$19mln.
 - Artisan trading volume increased again, rising to \$151.7mln, remaining the largest investment manager by volume.
- Average rate analysis was completed for 3,015 transactions; the remaining 965 transactions were analyzed at the timestamp/benchmark level.
 - The spread from session average was flat, 0.00%, an excellent outcome.
 - Execution performance was good by each of the three separately managed accounts analyzed at the session average benchmark.
 - There was no significant underperformance from any of the fx counterparties when analyzing performance against the session average.
- Overall FX execution performance for BNY Mellon dropped from -0.09% to -0.10%.
 - BNY Mellon completed 1083 transactions with an average size of \$61,148.
 - 967 of the custodian's transactions were completed using the defined spread program. The transactions were consistent with agreed markup with BNY Mellon, at -0.10%.
 - The remaining 116 transactions were completed with BNY Mellon as a bank negotiated counterparty were completed with a spread of -0.01%, a good result.
 - BNY Mellon continues to underperform the pricing performance from 'Other FX counterparties', which came in flat , 0.00%, an improvement from FY22/23.
- The combined overall performance for the year remains at -0.03% for FY23/24.

	2011 (Pre TCA)	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	2024
% Spread (0.00% is the benchmark)	-0.19%	-0.02%	-0.04%	-0.03%	-0.03%	-0.02%	-0.05%	-0.05%	-0.03%	-0.04%	-0.03%	-0.03%	-0.03%	-0.03%
Estimated cost per \$1mln transacted	\$(1900)	\$(200)	\$(400)	\$(300)	\$(300)	\$(200)	\$(500)	\$(500)	\$(300)	\$(400)	\$(300)	\$(300)	\$(300)	\$(300)

- Overall, the quality of fx execution and transaction cost study indicate no major issues. The investment managers are efficient in use of counterparties and where relevant utilize the effective BNY Mellon execution services.

Overview of FX Transactions

No. Transactions Analyzed	3980
Day Average	3015
Time Stamp	965
Total Volume Transacted	\$309,386,141
Average Trade Size	\$77,735
Spot vs Forward	3916/64
FX Counterparties	22
FX Pairs	17
Investment Managers	8

Table 1. Data Summary

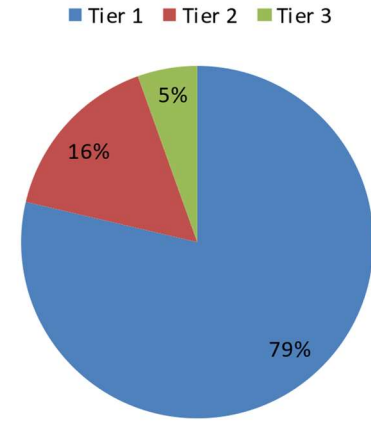


Figure 1. Transactions by currency tier

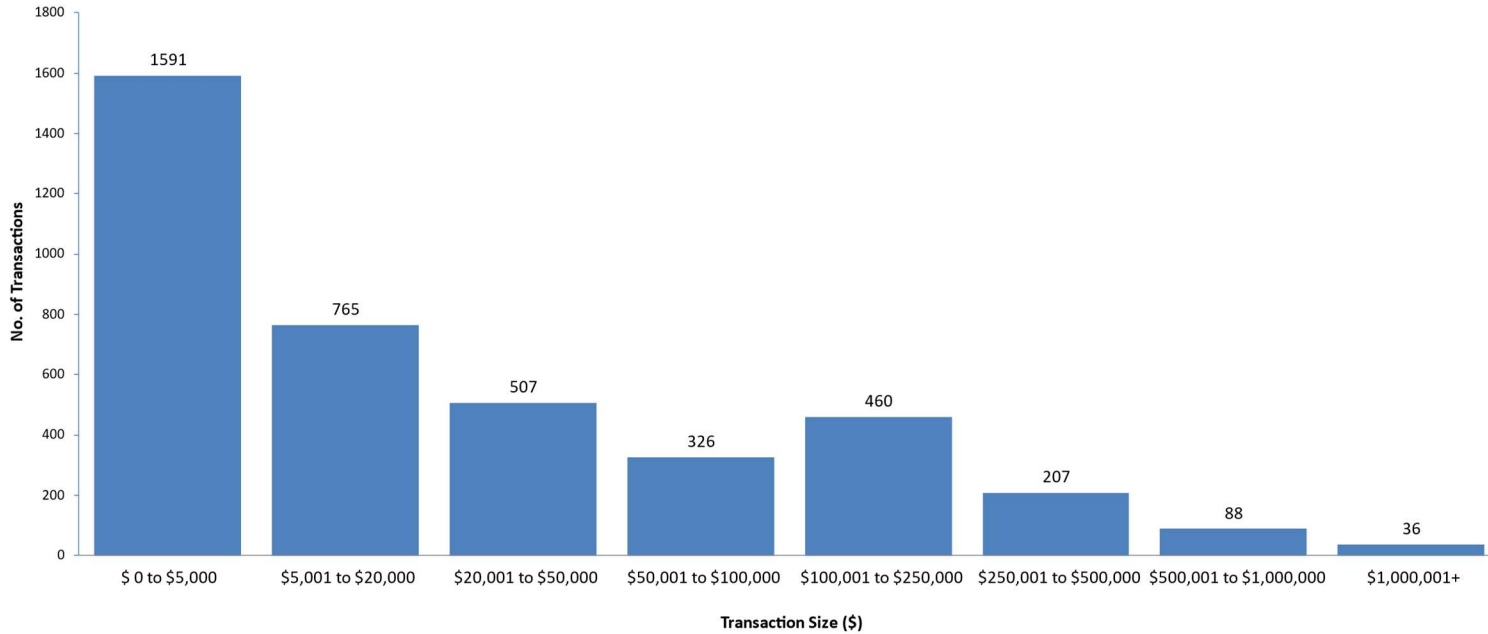
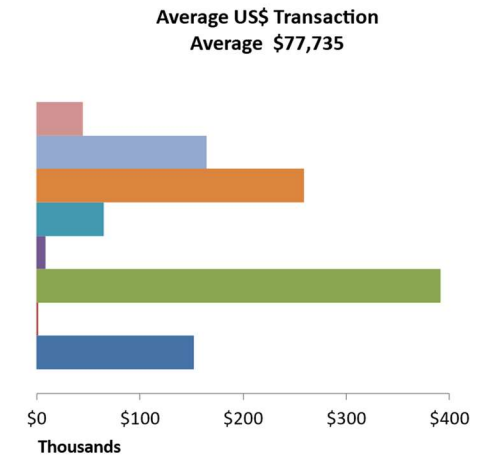
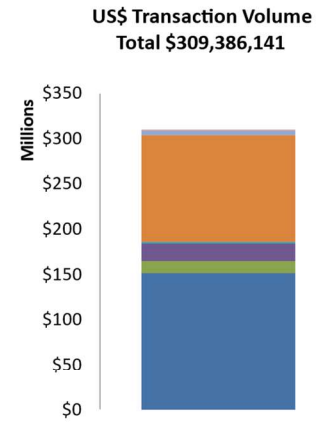
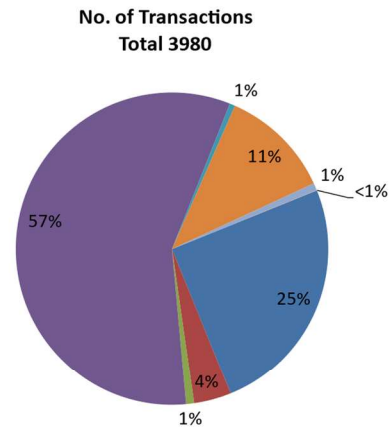


Figure 2. Transaction size distribution (\$)

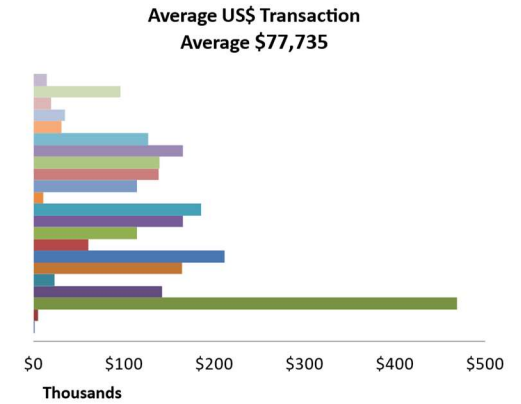
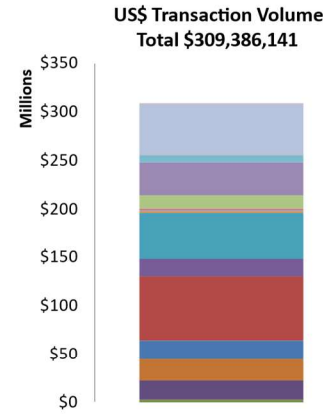
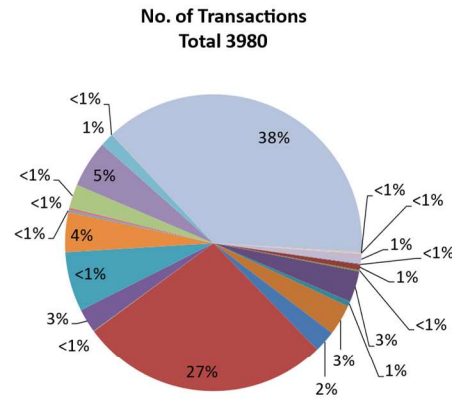
Investment Manager Breakdown



Investment Manager	No. of Transactions	US\$ Transaction Volume (Millions)	Average US\$ Transaction (Thousands)
ARTISAN INTL GROWTH	994	\$151,662,476	\$152,578
FIRST EAGLE	154	\$260,684	\$1,693
HAMILTON LANE PRIVATE EQUITY	33	\$12,927,789	\$391,751
NUVEEN	2288	\$19,554,375	\$8,546
ORG REAL ESTATE	22	\$1,434,863	\$65,221
PANAGORA	458	\$118,557,999	\$258,860
PRIV INFRASTRUCTURE	30	\$4,943,573	\$164,786
PRIV NATL RESOURCES	1	\$44,382	\$44,382

Table 2. Investment manager data summary

FX Counterparties Breakdown



ANZ BANKING GROUP (NEW ZEALAND) WEL	3	\$2,261	\$754
BANCO NACIONAL DE MEXICO S A	24	\$135,135	\$5,631
BANK OF AMERICA N A	6	\$2,817,097	\$469,516
BANK OF MONTREAL THE	134	\$19,048,549	\$142,153
BANK OF TOKYO MITSUBISHI UFJ LTD TH	22	\$519,316	\$23,605
BARCLAYS BANK PLC WHOLESALE	133	\$21,947,932	\$165,022
BNP PARIBAS SA FORMERLY BANQUE NATI	95	\$20,154,674	\$212,154
BNY MELLON BANK	1083	\$66,223,554	\$61,148
CITIBANK DUBLIN	2	\$229,462	\$114,731
CITIBANK NA	104	\$17,258,777	\$165,950
CREDIT SUISSE, ZURICH	257	\$47,633,121	\$185,343
DEUTSCHE BANK AG	173	\$1,957,649	\$11,316
FX CONNECT BROKER (FXC)	8	\$917,569	\$114,696
GOLDMAN SACHS BANK USA	11	\$1,530,751	\$139,159
HSBC BANK USA N A	102	\$14,247,505	\$139,681
JPMORGAN CHASE BK NA	203	\$33,597,356	\$165,504
MORGAN STANLEY CAPITAL SRVCS INC NY	59	\$7,490,391	\$126,956
NORTHERN TRUST COMPANY CHICAGO	1	\$30,647	\$30,647
STATE STREET BANK AND TRUST CO	1509	\$52,608,272	\$34,863
TORONTO DOMINION SECURITIES TORONTO	5	\$96,951	\$19,390
UBS AG	3	\$290,050	\$96,683
UNITED OVERSEAS BANK LIMITED	43	\$649,121	\$15,096

Table 3. FX counterparty data summary

Average Rate Analysis

- Average rate analysis has been completed for 3015 transactions; the remaining 965 transactions were eligible for timestamp analysis.

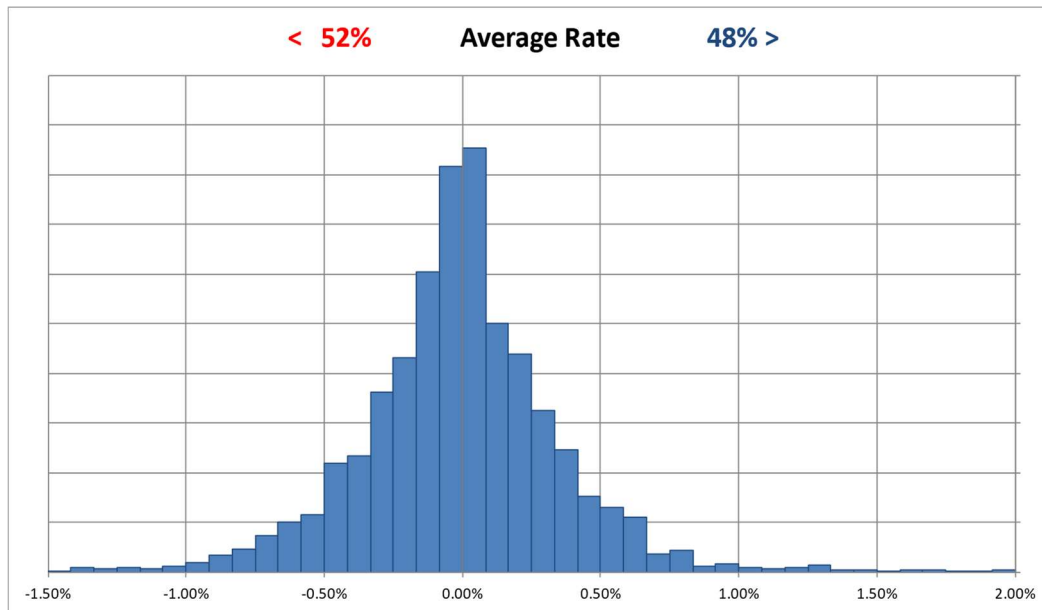


Figure 3. Average rate performance for all transactions

	% Spread from Avg
Tier 1	0.00%
Tier 2	0.00%
Tier 3	-0.04%
Total	0.00%

Table 4. Average rate performance by currency tier

\$ Transaction	% Spread from Avg
0-5,000	0.01%
5,001-20,000	0.01%
20,001-50,000	-0.03%
50,001-100,000	-0.01%
100,001-250,000	-0.02%
250,001-500,000	-0.01%
500,001-1,000,000	0.02%
1,000,001+	-0.02%
Total	0.00%

Table 5. Average rate performance by transaction size

	% Spread from Avg	Average US\$ Transaction	Worse than Avg	No. of Transactions
ARTISAN INTL GROWTH	0.00%	\$151,589	52%	962
NUVEEN	0.00%	\$11,450	51%	1595
PANAGORA	-0.01%	\$258,860	52%	458
Grand Total	0.00%	\$93,748	52%	3015

Table 6. Average rate performance by investment manager

	% Spread from Avg	Average US\$ Transaction	Worse than Avg	No. of Transactions
ANZ BANKING GROUP (NEW ZEALAND) WEL	0.09%	\$754	33%	3
BANCO NACIONAL DE MEXICO S A	0.15%	\$5,631	46%	24
BANK OF AMERICA N A	0.04%	\$469,516	50%	6
BANK OF MONTREAL THE	-0.03%	\$142,153	56%	134
BANK OF TOKYO MITSUBISHI UFJ LTD TH	0.01%	\$23,605	41%	22
BARCLAYS BANK PLC WHOLESALE	-0.02%	\$165,022	56%	133
BNP PARIBAS SA FORMERLY BANQUE NATI	-0.01%	\$212,154	56%	95
BNY MELLON BANK	-0.01%	\$334,635	51%	118
CITIBANK DUBLIN	0.05%	\$114,731	50%	2
CITIBANK NA	0.02%	\$165,950	58%	104
CREDIT SUISSE, ZURICH	-0.01%	\$185,343	49%	257
DEUTSCHE BANK AG	0.00%	\$11,316	47%	173
FX CONNECT BROKER (FXC)	0.01%	\$114,696	50%	8
GOLDMAN SACHS BANK USA	0.01%	\$139,159	64%	11
HSBC BANK USA N A	0.00%	\$139,681	50%	102
JPMORGAN CHASE BK NA	0.01%	\$165,504	51%	203
MORGAN STANLEY CAPITAL SRVCS INC NY	0.03%	\$126,956	53%	59
NORTHERN TRUST COMPANY CHICAGO	0.07%	\$30,647	0%	1
STATE STREET BANK AND TRUST CO	-0.01%	\$34,863	52%	1509
TORONTO DOMINION SECURITIES TORONTO	0.09%	\$19,390	20%	5
UBS AG	0.00%	\$96,683	33%	3
UNITED OVERSEAS BANK LIMITED	0.07%	\$15,096	44%	43
Grand Total	0.00%	\$93,748	52%	3015

Table 7. Average rate performance by FX counterparty

BNY Mellon Focus

The adoption of BNY Defined Spread program allows a timestamp analysis of those transactions, where each transaction is compared to the time-stamped reference rate with the agreed markup of 10 to 15bps.

BNY Mellon completed 1083 transactions. 967 transactions were identified as being completed within the defined spread program. The remaining 116 transactions have been analyzed against the session average.

	% Spread from Benchmark	Average US\$ Transaction	No. of Transactions
BNY Defined Spread (timestamp)	-0.10%	\$27,651	967
BNY Bank Negotiated	-0.01%	\$340,380	116
Grand Total	-0.10%	\$61,148	1083

Table 8. BNY transaction breakdown

	BNY		All Other FX Counterparties		All
	% Spread from Benchmark	No. of Transactions	% Spread from Avg	No. of Transactions	% Spread
\$0-5,000	-0.10%	824	0.01%	767	-0.05%
\$5,001-20,000	-0.10%	66	0.01%	699	0.00%
\$20,001 -50,000	-0.06%	34	-0.03%	473	-0.03%
\$50,001-100,000	-0.05%	43	-0.01%	283	-0.01%
\$100,001-250,000	-0.07%	48	-0.02%	412	-0.03%
\$250,001-500,000	-0.10%	31	0.00%	176	-0.02%
\$500,001-1,000,000	0.01%	21	0.01%	67	0.01%
\$1,000,001+	0.01%	16	-0.06%	20	-0.03%
	-0.10%	1083	0.00%	2897	-0.03%

Table 9. Comparison of BNY vs. All Other across transaction size

	% Spread from Benchmark	Average Transaction size	No. of Transactions
Tier 1	-0.10%	\$58,524	866
Tier 2	-0.09%	\$42,894	158
Tier 3	-0.10%	\$148,549	59
	-0.10%	\$61,148	1083

Table 10. BNY performance by Tier Group

	SBCERS (BNY)	Peer Group	Performance
	% Spread	% Spread	SBCERS/Peer
Grand Total	-0.10%	-0.11%	BETTER

Table 11. SBCERS (BNY) total performance vs. Peer Group

	ARTISAN INT GROWTH	FIRST EAGLE	HAMILTON LANE PRIVATE EQUITY	NUVEEN	ORG REAL ESTATE	PANAGORA	PRIV INFRASTRUCTURE	PRIV NATL RESOURCES	Grand Total
BNY Defined Spread	32 -0.15%	154 -0.13%	33 -0.10%	695 -0.10%	22 -0.11%		30 -0.11%	1 -0.10%	967 -0.10%
BNY Bank Negotiated	3 0.16%					113 -0.02%			116 -0.01%
Grand Total	35 -0.13%	154 -0.13%	33 -0.10%	695 -0.10%	22 -0.11%	113 -0.02%	30 -0.11%	1 -0.10%	1083 -0.10%

Table 12. Breakdown of BNY transactions by execution method - count and average spread

Summary Results & Benchmark

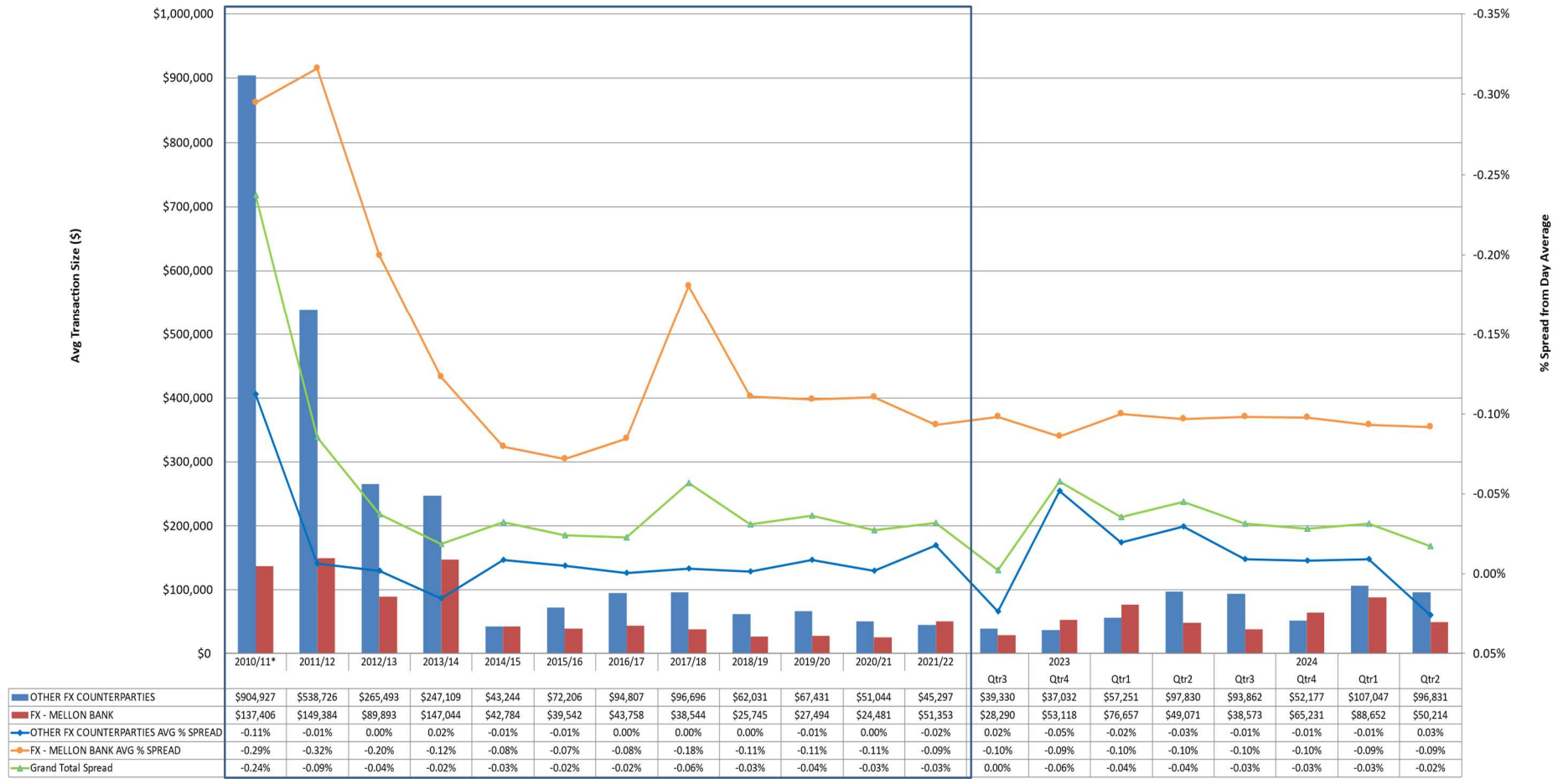


Figure 4. Average % spread performance compared to avg. transaction size for BNY vs. all other FX counterparties, by fiscal year

	2013/14	2014/15	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023 Q3	2023 Q4	2024 Q1	2024 Q2	Running Total Average % Spread
ARTISAN INTERNATIONAL	-0.02%	-0.03%	-0.02%	-0.03%	-0.03%	0.00%	-0.01%	-0.02%	-0.02%	-0.01%	-0.01%	-0.01%	-0.01%	-0.01%	-0.02%
FIRST EAGLE	-0.05%	-0.04%	-0.04%	-0.01%	-0.02%	-0.04%	-0.04%	-0.04%	-0.02%	-0.07%	-0.13%	-0.14%	-0.10%	-0.13%	-0.04%
HL PRIVATE EQUITY	-0.09%	-0.10%	-0.09%	-0.10%	-0.10%	-0.09%	-0.10%	-0.09%	-0.09%	-0.11%	-0.10%	-0.10%	-0.11%	-0.11%	-0.13%
HARRISON STREET REIT	-0.18%														-0.18%
LORD ABBETT	-0.07%	-0.10%													-0.11%
NEW STAR (clsd)	-0.25%														-0.37%
NUVEEN					-0.10%	-0.04%	-0.05%	-0.03%	-0.04%	-0.04%	-0.05%	-0.02%	-0.04%	0.00%	-0.04%
ORG REAL ESTATE	-0.10%	-0.10%	-0.10%	-0.20%	-0.09%	-0.10%	-0.10%	-0.10%	-0.09%	-0.11%	-0.10%	-0.10%	-0.11%	-0.11%	-0.11%
PANAGORA	0.01%	-0.02%	-0.01%	-0.03%	0.02%	-0.02%	-0.02%	0.00%	-0.02%	-0.01%	0.00%	-0.03%	-0.02%	0.00%	-0.01%
PRIV INFRASTRUCTURE					-0.20%	-0.28%	-0.19%	-0.10%	-0.07%	-0.10%	-0.11%	-0.10%	-0.11%	-0.10%	-0.12%
PRIV NATL RESOURCES								-0.10%				-0.10%			-0.10%
REAMS															0.19%
TRANS RECORDKEEPING	-0.07%	-0.10%		-0.09%											-0.21%
TRANS RECORDKPING II	-0.06%														-0.04%
UNALLOCATED CASH					-0.07%		-0.10%								-0.09%
Grand Total	-0.02%	-0.03%	-0.02%	-0.02%	-0.06%	-0.03%	-0.04%	-0.03%	-0.03%	-0.04%	-0.03%	-0.03%	-0.03%	-0.02%	-0.04%

Table 13. Annual and quarterly performance by Investment Manager +/-0.05% highlighted by fiscal year