

Virtu Americas LLC - Not-Held NMS Stocks Order Handling Report

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For STERN BROTHERS

Reporting Period 2022-07-01 to 2022-09-30

July 2022 - Directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)

July 2022 - Non-directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)
7,600,947	0	0

Order Routing Venues

Venue	Total Shares Routed	Total Shares Routed Marked IOC	Total Shares Routed that were further Routable	Average Order Size Routed	Total Shares Executed	Fill Rate	Average Fill Size	Average Net Execution Fee or (Rebate)	Total Shares Executed at Midpoint	Percentage of Shares Executed at Midpoint	Total Shares Executed that were Priced at the Near Side	Percentage of Total Shares Executed that were Priced at the Near Side	Total Shares Executed that were Priced at the Far Side	Percentage of Total Shares Executed that were Priced at the Far Side	Total Number of Shares that Provided Liquidity	Percentage of Executed Shares that Provided Liquidity	Average Duration of Orders that Provided Liquidity (in msec)	Average Net Execution Rebate (or Fee Paid) for Shares that Provided Liquidity	Total Number of Shares that Removed Liquidity	Percentage of Executed Shares that Removed Liquidity	Average Net Execution Fee (or rebate received) for Shares that Removed Liquidity
AQUA SECURITIES L.P. (EV/SRV) (AQUA)	3,960,000	0	0	12,000	0																
BATS Y Exchange (EV/SRV) (BATY)	415,866	410,866	0	147.1051	8,187	1.97	52.1465	12.4952	1,075	13.13	500	6.11	6,612	80.76	208	2.54	4,260,214	-5.4471	7,979	97.46	12.9629
BIDS TRADING L.P. (EV/SRV) (BIDS)	3,354,000	0	0	5,498.3607	8,800	0.26	400	-3.0775	8,400	95.45	100	1.14	300	3.41	7,900	89.77	1,708,337	-3.0510	900	10.23	-3.3100
BNPP Cortex ATS (EV/SRV) (BNPC)	744,576	413,872	0	195.4268	19,503	2.62	100.0154	-10.4859	7,875	40.38	4,668	23.93	6,960	35.69	15,103	77.44	2,512,992	-10.3745	4,400	22.56	-10.8684
Bank Of America - Merrill Lynch Instinct X Ats (EV/SRV) (BAML)	4,081,284	429,580	0	609.6929	29,914	0.73	117.7717	-10.5606	9,678	32.35	15,935	53.27	4,301	14.38	24,778	82.83	2,800,746	-10.4982	5,136	17.17	-10.8618
Barclays Ats (EV/SRV) (BARX)	563,608	428,394	0	185.6416	9,494	1.68	101	-10.9014	3,455	36.39	500	5.27	5,539	58.34	4,114	43.33	2,524,460	-10.3763	5,380	56.67	-11.3030
CBOE BZX Exchange (EV/SRV) (BATS)	1,496,671	547,719	0	147.1074	95,159	6.36	74.8694	8.3153	12,692	13.34	53,737	56.47	28,730	30.19	54,775	57.56	3,514,305	37.6367	40,384	42.44	-31.4548
CBOE EDGA US Equities Exchange (EV/SRV) (EDGA)	442,274	431,428	0	154.1024	12,163	2.75	62.6959	17.7722	899	7.39	573	4.71	10,691	87.90	377	3.10	4,000,409	-10.6578	11,786	96.90	18.6816
CGXS (EV/SRV) (CGXS)	63,100	0	0	584.2593	0																
CODA MARKETS INC (EV/SRV) (CODA)	3,844,800	53,800	0	5,807.855	400	0.01	50	-10.6200	400	100.00	0	0.00	0	0.00	400	100.00	5,509,391	-10.6200	0	0.00	
Cboe EDGX Exchange, Inc. (EV/SRV) (EDGX)	500,126	488,423	0	190.815	55,608	11.12	79.44	-29.3017	6,894	12.40	908	1.63	47,806	85.97	121	0.22	6,472,126	23.7190	55,487	99.78	-29.4174
Clea Americas - Liquidity Hub (EV/SRV) (BLKX)	4,374,917	53,017	0	9,020.4474	500	0.01	125	-10.2480	500	100.00	0	0.00	0	0.00	0	0.00			500	100.00	-10.2480
Credit Suisse Crossfinder (EV/SRV) (GROS)	1,823,893	879,259	0	158.7927	10,049	0.55	78.5078	-10.4568	4,795	47.72	3,138	31.23	2,116	21.06	7,733	76.95	5,004,446	-10.4249	2,316	23.05	-10.5630
EBX LLC (EV/SRV) (EBXL)	5,026,312	421,466	0	714.9804	34,587	0.69	78.7859	-5.0270	12,443	35.98	14,147	40.90	7,997	23.12	26,374	76.25	4,631,611	-4.4262	8,213	23.75	-6.9563
Fidelity Crossstream ATS (EV/SRV) (XSTM)	199,869	0	0	228.945	4,269	2.14	185.6087	-15.1670	3,868	90.61	100	2.34	301	7.05	3,269	76.58	3,606,504	-15.1517	1,000	23.42	-15.2170
Goldman Sachs & Co. LLC SIGMA X2 (EV/SRV) (SGMT)	3,977,208	450,062	0	813.335	64,022	1.61	76.765	-10.5527	38,282	59.80	9,314	14.55	16,426	25.66	40,288	62.93	3,274,979	-10.5333	23,734	37.07	-10.5856
Intelligentcross (EV/SRV) (INCR)	924,102	258,360	0	164.6947	37,007	4.00	80.2755	-3.0166	13,549	36.61	12,267	33.15	11,191	30.24	24,579	66.42	2,679,408	-2.4218	12,428	33.58	-4.1929
Interactive Brokers Llc - Ats (EV/SRV) (IBTS)	105,235	0	0	381.2862	1,250	1.19	50	-10.6200	965	77.20	283	22.64	2	0.16	1,250	100.00	7,388,339	-10.6200	0	0.00	
Investors Exchange (IEX) (EV/SRV) (IEXG)	2,794,780	510,161	0	220.8788	150,160	5.37	86.7475	-6.7181	70,814	47.16	56,155	37.40	23,191	15.44	109,151	72.69	3,838,572	-6.3093	41,009	27.31	-7.8062

Venue	Total Shares Routed	Total Shares Routed Marked IOC	Total Shares Routed that were further Routable	Average Order Size Routed	Total Shares Executed	Fill Rate	Average Fill Size	Average Net Execution Fee or (Rebate)	Total Shares Executed at Midpoint	Percentage of Shares Executed at Midpoint	Total Shares Executed that were Priced at the Near Side	Percentage of Total Shares Executed that were Priced at the Near Side	Total Shares Executed that were Priced at the Far Side	Percentage of Total Shares Executed that were Priced at the Far Side	Total Number of Shares that Provided Liquidity	Percentage of Executed Shares that Provided Liquidity	Average Duration of Orders that Provided Liquidity (in msec)	Average Net Execution Rebate (or Fee Paid) for Shares that Provided Liquidity	Total Number of Shares that Removed Liquidity	Percentage of Executed Shares that Removed Liquidity	Average Net Execution Fee (or rebate received) for Shares that Removed Liquidity
J.P. Morgan Securities LLC (EV/SRV) (JPMX)	4,779,813	428,418	0	714.3645	17,060	0.36	90.2646	-10.5890	8,763	51.37	4,825	28.28	3,472	20.35	11,069	64.88	4,036,528	-10.3809	5,991	35.12	-10.9735
MIAX Pearl Equities (EV/SRV) (EPRL)	46,461	46,461	0	761.6557	2,740	5.90	46.4407	-27.5398	28	1.02	85	3.10	2,627	95.88	0	0.00			2,740	100.00	-27.5398
MORGAN STANLEY & CO. LLC (EV/SRV) (MSPL)	152,000	0	0	459.2145	6,400	4.21	112.2807	-10.2761	3,500	54.69	1,100	17.19	1,800	28.12	5,500	85.94	4,098,559	-10.2705	900	14.06	-10.3100
Marketaxess Corporation (EV/SRV) (LIJH)	3,076,700	0	0	19,596.8153	0																
Members Exchange (MEMX) (EV/SRV) (MEMX)	1,843,524	550,478	0	139.0919	55,607	3.02	75.2463	17.5603	3,067	5.52	39,483	71.00	13,057	23.48	36,384	65.43	2,736,910	33.5885	19,223	34.57	-12.7768
NASDAQ OMX PSX (EV/SRV) (XPSX)	592,910	592,910	0	239.5596	2,660	0.45	16.9427	-34.9222	932	35.04	145	5.45	1,583	59.51	0	0.00			2,660	100.00	-34.9222
NYSE Arca, Inc. (EV/SRV) (ARCX)	2,126,125	683,639	0	201.09	101,468	4.77	93.6052	13.4559	11,636	11.47	65,110	64.17	24,722	24.36	65,911	64.96	5,283,964	32.4171	35,557	35.04	-21.6920
NYSE CHICAGO, INC. (EV/SRV) (XCHI)	3,715	3,715	0	928.75	415	11.17	83	-12.3566	0	0.00	0	0.00	415	100.00	0	0.00			415	100.00	-12.3566
NYSE MKT LLC (EV/SRV) (XASE)	2,440	2,440	0	221.8182	1,181	48.40	78.7333	-28.6266	100	8.47	0	0.00	1,081	91.53	0	0.00			1,181	100.00	-28.6266
NYSE NATIONAL, INC (EV/SRV) (XCIS)	420,826	413,170	0	146.7827	4,580	1.09	88.0769	14.0260	59	1.29	1,206	26.33	3,315	72.38	1,106	24.15	4,894,705	-22.4765	3,474	75.85	25.6471
Nasdaq OMX BX (EV/SRV) (XBOS)	424,400	400,600	0	151.6256	4,731	1.11	35.306	8.4557	802	16.95	148	3.13	3,781	79.92	138	2.92	3,978,969	-20.8986	4,593	97.08	9.3377
Nasdaq Stock Exchange (INET) (EV/SRV) (XNAS)	6,241,037	1,578,183	0	735.1045	952,120	15.26	222.354	0.1802	62,128	6.53	279,699	29.38	140,361	14.74	813,305	85.42	7,588,718	5.4096	138,815	14.58	-30.4584
New York Stock Exchange (EV/SRV) (XNYS)	3,108,412	601,896	0	233.3993	1,137,612	36.60	525.2133	-6.9580	5,899	0.52	121,762	10.70	15,452	1.36	1,106,592	97.27	1,921,507	-6.9928	31,020	2.73	-5.7143
ONEC (EV/SRV) (ONEC)	142,850	56,750	0	399.0223	600	0.42	100	-2.4717	100	16.67	100	16.67	400	66.67	600	100.00	4,833,630	-2.4717	0	0.00	
Pure Stream ATS (EV/SRV) (STRM)	4,290,800	0	0	10,119.8113	4,560	0.11	4,560	-11.4469	4,560	100.00	0	0.00	0	0.00	4,560	100.00	8,512,412	-11.4469	0	0.00	
UBS Securities, LLC ATS (EV/SRV) (UBSA)	5,310,437	472,993	0	744.593	88,309	1.66	89.2912	-10.5392	33,907	38.40	21,516	24.36	32,886	37.24	58,307	66.03	2,427,526	-10.3878	30,002	33.97	-10.8333
Virtu Americas LLC (EV/SRV) (KCGM)	7,712,676	2,315,094	0	760.0193	16,472	0.21	122.0148	-3.5763	8,669	52.63	3,538	21.48	4,265	25.89	6,468	39.27	7,346,842	-3.8939	10,004	60.73	-3.3710
Virtu Americas, LLC (EV/SRV) (NITE)	722,720	428,190	0	219.8054	31,039	4.29	68.9756	-1.1188	14,277	46.00	5,976	19.25	10,786	34.75	22,244	71.66	2,909,515	-0.7560	8,795	28.34	-2.0363
Virtu POSIT ATS (EV/SRV) (ITGI)	4,024,005	434,694	0	787.4765	55,564	1.38	941.7627	-10.0953	36,411	65.53	13,000	23.40	6,153	11.07	34,964	62.93	2,740,893	-10.1479	20,600	37.07	-10.0600

August 2022 - Directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)

August 2022 - Non-directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)
9,469,690	0	0

Order Routing Venues

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AQUA SECURITIES L.P. (EV/SRV) (AQUA)	744,800	0	0	8,866.6667	0																
BATS Y Exchange (EV/SRV) (BATY)	535,768	535,768	0	117.3129	39,999	7.47	78.7382	11.7037	8,574	21.44	1,227	3.07	30,198	75.50	0	0.00			39,999	100.00	11.7037
BIDS TRADING L.P. (EV/SRV) (BIDS)	1,471,900	0	0	6,570.9821	4,900	0.33	2,450	-9.1500	1,500	30.61	0	0.00	3,400	69.39	3,400	69.39	8,410,777	-11.8541	1,500	30.61	-3.0207

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BNPP Cortex ATS (EV/SRV) (BNPC)	589,234	439,114	0	118.2251	8,742	1.48	86.5545	-10.8283	1,464	16.75	581	6.65	6,697	76.61	745	8.52	1,450,116	-11.2040	7,997	91.48	-10.7933
Bank Of America - Merrill Lynch Instinct X Ats (EV/SRV) (BAML)	1,599,040	425,119	0	190.2939	18,885	1.18	107.9143	-10.4699	2,151	11.39	6,003	31.79	10,731	56.82	11,933	63.19	1,662,448	-10.3630	6,952	36.81	-10.6535
Barclays Ats (EV/SRV) (BARX)	517,225	416,325	0	123.5902	1,326	0.26	82.875	-10.8891	426	32.13	100	7.54	800	60.33	600	45.25	3,858,101	-10.7333	726	54.75	-11.0179
CBOE BZX Exchange (EV/SRV) (BATS)	3,000,501	590,734	0	111.763	90,587	3.02	68.4709	20.8660	3,567	3.94	68,161	75.24	18,859	20.82	67,718	74.75	959,789	38.5247	22,869	25.25	-31.4237
CBOE EDGA US Equities Exchange (EV/SRV) (EDGA)	524,810	524,810	0	120.2314	23,598	4.50	65.1878	16.8395	4,275	18.12	1,255	5.32	18,068	76.57	0	0.00			23,598	100.00	16.8395
CGXS (EV/SRV) (CGXS)	13,700	0	0	415.1515	0																
CODA MARKETS INC (EV/SRV) (CODA)	1,069,800	5,800	0	7,808.7591	0																
Choe EDGX Exchange, Inc. (EV/SRV) (EDGX)	554,755	554,755	0	150.1367	32,665	5.89	77.0401	-28.9793	7,275	22.27	762	2.33	24,628	75.40	0	0.00			32,665	100.00	-28.9793
Cisa Americas - Liquidity Hub (EV/SRV) (BLKX)	851,200	6,000	0	3,700.8696	0																
Credit Suisse Crossfinder (EV/SRV) (CROS)	3,108,540	866,611	0	114.6175	6,294	0.20	106.678	-10.3244	550	8.74	4,944	78.55	800	12.71	5,069	80.54	526,303	-10.3356	1,225	19.46	-10.2784
EBX LLC (EV/SRV) (EBXL)	2,464,638	437,338	0	197.7405	8,466	0.34	90.0638	-6.5138	1,605	18.96	2,046	24.17	4,815	56.87	2,422	28.61	2,072,820	-5.0764	6,044	71.39	-7.0898
Fidelity Crossstream ATS (EV/SRV) (XSTM)	174,200	0	0	132.7744	0																
Goldman Sachs & Co. LLC SIGMA X2 (EV/SRV) (SGMT)	3,061,533	470,643	0	207.8434	38,674	1.26	77.348	-10.7144	6,192	16.01	10,877	28.12	21,605	55.86	12,961	33.51	1,141,563	-10.5176	25,713	66.49	-10.8136
Intelligentcross (EV/SRV) (INCR)	3,190,560	457,098	0	126.5794	40,990	1.28	94.0138	-3.0333	5,049	12.32	7,803	19.04	28,138	68.65	12,060	29.42	1,743,214	-2.3599	28,930	70.58	-3.3141
Interactive Brokers Llc -Ats (EV/SRV) (IATS)	15,400	0	0	427.7778	12	0.08	12	-12.5833	12	100.00	0	0.00	0	0.00	12	100.00	1,274,176	-12.5833	0	0.00	
Investors Exchange (IEGX) (EV/SRV) (IEGX)	4,686,638	621,916	0	109.2635	87,172	1.86	65.1997	-6.1741	15,699	18.01	31,855	36.54	39,618	45.45	32,343	37.10	3,069,564	-1.4774	54,829	62.90	-8.9446
J.P. Morgan Securities LLC (EV/SRV) (JPMX)	4,426,399	403,479	0	139.806	17,552	0.40	77.3216	-10.6000	6,173	35.17	6,821	38.86	4,558	25.97	5,630	32.08	2,844,869	-10.4046	11,922	67.92	-10.6923
MIAX Pearl Equities (EV/SRV) (EPRL)	74,787	74,787	0	1,495.74	3,119	4.17	53.7759	-27.8564	67	2.15	4	0.13	3,048	97.72	0	0.00			3,119	100.00	-27.8564
MORGAN STANLEY & CO. LLC (EV/SRV) (MSPL)	17,800	0	0	494.4444	300	1.69	100	-12.2100	0	0.00	200	66.67	100	33.33	300	100.00	2,978,260	-12.2100	0	0.00	
Marketaxess Corporation (EV/SRV) (LIJH)	713,000	0	0	15,844.4444	0																
Members Exchange (MEMX) (EV/SRV) (MEMX)	2,049,139	604,918	0	114.5026	39,370	1.92	81.8503	6.0297	3,469	8.81	22,211	56.42	13,690	34.77	21,610	54.89	938,308	33.5539	17,760	45.11	-27.4610
NASDAQ OMX PSX (EV/SRV) (XPSX)	462,827	462,827	0	132.01	2,898	0.63	41.4	-32.4600	4	0.14	89	3.07	2,805	96.79	0	0.00			2,898	100.00	-32.4600
NYSE Arca, Inc. (EV/SRV) (ARCC)	3,508,565	703,073	0	115.8325	94,955	2.71	73.9525	21.2015	2,566	2.70	73,363	77.26	12,429	13.09	77,807	81.94	1,133,356	29.9481	17,148	18.06	-18.4855
NYSE CHICAGO, INC. (EV/SRV) (XCHI)	318	318	0	159	300	94.34	150	-11.8300	0	0.00	0	0.00	300	100.00	0	0.00			300	100.00	-11.8300
NYSE MKT LLC (EV/SRV) (XASE)	5,233	2,212	0	747.5714	3,733	71.34	933.25	-9.4551	0	0.00	0	0.00	712	19.07	3,021	80.93	1,680,467	-5.0894	712	19.07	-27.9789
NYSE NATIONAL, INC (EV/SRV) (XCIS)	544,280	541,804	0	119.2289	20,697	3.80	85.1728	10.0152	848	4.10	834	4.03	19,015	91.87	100	0.48		-0.3100	20,597	99.52	10.0653
Nasdaq OMX BX (EV/SRV) (XBOS)	491,071	491,071	0	117.0052	11,090	2.26	59.3048	6.3987	2,080	18.76	117	1.06	8,893	80.19	0	0.00			11,090	100.00	6.3987
Nasdaq Stock Exchange (INET) (EV/SRV) (XNAS)	5,957,544	850,839	0	273.6836	2,227,032	37.38	691.1955	-9.8899	16,182	0.73	113,660	5.10	71,589	3.21	2,155,915	96.81	5,774,727	-9.2816	71,117	3.19	-28.3295
New York Stock Exchange (EV/SRV) (XNYS)	5,929,348	829,539	0	290.8397	2,777,533	46.84	637.4875	-8.6097	4,547	0.16	161,045	5.80	17,780	0.64	2,755,033	99.19	7,389,905	-8.5795	22,500	0.81	-12.2995
ONEC (EV/SRV) (ONEC)	21,600	5,800	0	514.2857	100	0.46	100	-13.1600	0	0.00	0	0.00	100	100.00	100	100.00	9,040,742	-13.1600	0	0.00	

Venue	Total Shares Routed	Total Shares Routed Marked IDC	Total Shares Routed that were further Routable	Average Order Size Routed	Total Shares Executed	Fill Rate	Average Fill Size	Average Net Execution Fee or (Rebate)	Total Shares Executed at Midpoint	Percentage of Shares Executed at Midpoint	Total Shares Executed that were Priced at the Near Side	Percentage of Total Shares Executed that were Priced at the Near Side	Total Shares Executed that were Priced at the Far Side	Percentage of Total Shares Executed that were Priced at the Far Side	Total Number of Shares that Provided Liquidity	Percentage of Executed Shares that Provided Liquidity	Average Duration of Orders that Provided Liquidity (in msec)	Average Net Execution Rebate (or Fee Paid) for Shares that Provided Liquidity	Total Number of Shares that Removed Liquidity	Percentage of Executed Shares that Removed Liquidity	Average Net Execution Fee (or rebate received) for Shares that Removed Liquidity
Pure Stream ATS (EV/SRV) (STRM)	1,339,900	0	0	7,242.7027	0																
UBS Securities, LLC ATS (EV/SRV) (UBSA)	4,354,258	524,881	0	143.8331	72,657	1.67	68.4153	-10.6946	7,580	10.43	20,330	27.98	44,747	61.59	24,181	33.28	2,344,145	-10.4838	48,476	66.72	-10.7998
Virtu Americas LLC (EV/SRV) (KCGM)	15,858,659	1,656,930	0	323.5207	23,472	0.15	105.7297	-2.3311	3,420	14.57	9,284	39.55	10,768	45.88	10,737	45.74	4,736,786	-2.9528	12,735	54.26	-1.8069
Virtu Americas, LLC (EV/SRV) (NITE)	471,774	444,324	0	121.1541	6,692	1.42	91.6712	-2.8758	458	6.84	292	4.36	5,942	88.79	567	8.47	5,343,893	-8.4780	6,125	91.53	-2.3572
Virtu POSIT ATS (EV/SRV) (ITGI)	3,398,838	469,238	0	243.9416	5,414	0.16	120.3111	-10.8726	2,857	52.77	307	5.67	2,250	41.56	5,414	100.00	3,856,371	-10.8726	0	0.00	

September 2022 - Directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)

September 2022 - Non-directed Orders

Summary

Total Shares Sent to Broker/Dealer	Total Number of Shares Executed as Principal	Total Orders Exposed (Actionable IOI)
16,316,732	0	0

Order Routing Venues

Venue	Total Shares Routed	Total Shares Routed Marked IDC	Total Shares Routed that were further Routable	Average Order Size Routed	Total Shares Executed	Fill Rate	Average Fill Size	Average Net Execution Fee or (Rebate)	Total Shares Executed at Midpoint	Percentage of Shares Executed at Midpoint	Total Shares Executed that were Priced at the Near Side	Percentage of Total Shares Executed that were Priced at the Near Side	Total Shares Executed that were Priced at the Far Side	Percentage of Total Shares Executed that were Priced at the Far Side	Total Number of Shares that Provided Liquidity	Percentage of Executed Shares that Provided Liquidity	Average Duration of Orders that Provided Liquidity (in msec)	Average Net Execution Rebate (or Fee Paid) for Shares that Provided Liquidity	Total Number of Shares that Removed Liquidity	Percentage of Executed Shares that Removed Liquidity	Average Net Execution Fee (or rebate received) for Shares that Removed Liquidity
AQUA SECURITIES L.P. (EV/SRV) (AQUA)	3,923,900	0	0	11,179.2023	0																
BATS Y Exchange (EV/SRV) (BATY)	119,809	119,809	0	184.3215	6,829	5.70	82.2771	13.2049	75	1.10	0	0.00	6,754	98.90	0	0.00			6,829	100.00	13.2049
BIDS TRADING L.P. (EV/SRV) (BIDS)	3,373,600	0	0	3,627.5269	8,800	0.26	676.9231	-3.0458	1,000	11.36	7,300	82.95	500	5.68	8,700	98.86	1,229,182	-3.0428	100	1.14	-3.3100
BNPP Cortax ATS (EV/SRV) (BNPC)	460,220	169,520	0	299.0383	24,810	5.39	93.2707	-10.5507	9,419	37.96	3,101	12.50	12,290	49.54	22,210	89.52	2,668,641	-10.3484	2,600	10.48	-12.2792
Bank Of America - Merrill Lynch Instinct X Ats (EV/SRV) (BAML)	3,719,569	166,543	0	2,349.6961	18,234	0.49	119.9605	-10.8632	4,530	24.84	2,804	15.38	10,900	59.78	12,934	70.93	2,601,427	-10.3380	5,300	29.07	-12.1449
Barclays Ats (EV/SRV) (BARX)	293,846	162,991	0	257.5337	2,802	0.95	84.9091	-11.0350	439	15.67	100	3.57	2,263	80.76	2,102	75.02	3,470,793	-10.3982	700	24.98	-12.9471
CBOE BZX Exchange (EV/SRV) (BATS)	487,016	278,748	0	183.2265	39,683	8.15	75.443	-14.2434	1,832	4.62	9,914	24.98	27,813	70.09	10,558	26.61	538,573	37.1512	29,125	73.39	-32.8742
CBOE EDGA US Equities Exchange (EV/SRV) (EDGA)	122,964	122,964	0	194.2559	3,235	2.63	46.8841	17.6393	125	3.86	0	0.00	3,110	96.14	0	0.00			3,235	100.00	17.6393
CGXS (EV/SRV) (CGXS)	78,100	0	0	214.5604	0																
CODA MARKETS INC (EV/SRV) (CODA)	4,452,500	72,300	0	4,925.3319	0																
Choe EDGX Exchange, Inc. (EV/SRV) (EDGX)	322,029	322,029	0	499.2698	35,399	10.99	90.7667	-30.4407	1,017	2.87	261	0.74	34,121	96.39	0	0.00			35,399	100.00	-30.4407
Cisa Americas - Liquidity Hub (EV/SRV) (BLXX)	4,861,732	74,732	0	8,666.1889	0																
Credit Suisse Crossfinder (EV/SRV) (CROS)	1,082,999	420,385	0	261.847	14,716	1.36	114.0775	-10.3112	8,416	57.19	826	5.61	5,474	37.20	12,685	86.20	996,872	-10.2688	2,031	13.80	-10.5761
EBX LLC (EV/SRV) (EBXL)	4,983,193	176,973	0	2,659.1211	21,230	0.43	138.7582	-5.4135	10,302	48.53	4,408	20.76	6,520	30.71	14,510	68.35	1,992,088	-4.2756	6,720	31.65	-7.8705
Fidelity Crossstream ATS (EV/SRV) (XSTM)	114,802	0	0	218.6705	2,201	1.92	122.2778	-15.2535	2,101	95.46	0	0.00	100	4.54	1,000	45.43	1,422,712	-15.2170	1,201	54.57	-15.2839
Goldman Sachs & Co. LLC SIGMA X2 (EV/SRV) (SGMT)	6,269,832	174,959	0	2,423.5918	42,376	0.68	53.5051	-10.8655	20,318	47.95	5,039	11.89	17,019	40.16	34,871	82.29	3,391,657	-10.6374	7,505	17.71	-11.9255

Venue	Total Shares Routed	Total Shares Routed Marked IDC	Total Shares Routed that were further Routable	Average Order Size Routed	Total Shares Executed	Fill Rate	Average Fill Size	Average Net Execution Fee or (Rebate)	Total Shares Executed at Midpoint	Percentage of Shares Executed at Midpoint	Total Shares Executed that were Priced at the Near Side	Percentage of Total Shares Executed that were Priced at the Near Side	Total Shares Executed that were Priced at the Far Side	Percentage of Total Shares Executed that were Priced at the Far Side	Total Number of Shares that Provided Liquidity	Percentage of Executed Shares that Provided Liquidity	Average Duration of Orders that Provided Liquidity (in msec)	Average Net Execution Rebate (or Fee Paid) for Shares that Provided Liquidity	Total Number of Shares that Removed Liquidity	Percentage of Executed Shares that Removed Liquidity	Average Net Execution Fee (or rebate received) for Shares that Removed Liquidity
Intelligentcross (EV/ SRV) (INCR)	469,989	65,403	0	161.3419	22,732	4.84	94.7167	-5.1698	8,749	38.49	703	3.09	13,280	58.42	13,340	58.68	2,732,001	-2.6037	9,392	41.32	-8.8145
Interactive Brokers Llc - Ats (EV/SRV) (IATS)	82,641	0	0	214.0959	249	0.30	49.8	-10.6225	249	100.00	0	0.00	0	0.00	249	100.00	5,531,648	-10.6225	0	0.00	
Investors Exchange (EXG) (EV/SRV) (EXG)	1,175,628	196,681	0	372.2698	62,437	5.31	66.7775	-9.2770	38,377	61.47	10,708	17.15	13,352	21.38	44,095	70.62	2,961,613	-8.8835	18,342	29.38	-10.2228
J.P Morgan Securities LLC (EV/SRV) (JPMX)	5,186,238	188,623	0	1,376.0249	29,191	0.56	119.6352	-10.4176	10,691	36.62	8,197	28.08	10,303	35.30	15,286	52.37	3,422,019	-10.3569	13,905	47.63	-10.4843
MIAX Pearl Equities (EV/SRV) (EPRL)	40,909	40,909	0	1,048.9487	1,942	4.75	55.4857	-28.4629	26	1.34	14	0.72	1,902	97.94	0	0.00			1,942	100.00	-28.4629
MORGAN STANLEY & CO. LLC (EV/SRV) (MSPL)	141,100	0	0	257.4818	6,100	4.32	103.8898	-10.2998	2,800	45.90	400	6.56	2,900	47.54	4,200	68.85	1,897,062	-10.2952	1,900	31.15	-10.3100
Marketkess Corporation (EV/SRV) (LIJH)	3,528,800	0	0	19,389.011	9,800	0.28	9,800	-11.8035	9,800	100.00	0	0.00	0	0.00	9,800	100.00	8,163,856	-11.8035	0	0.00	
Members Exchange (MEMX) (EV/SRV) (MEMX)	384,642	299,444	0	266.742	24,476	6.36	83.8219	-20.0162	143	0.58	4,092	16.72	20,241	82.70	4,074	16.64	546,695	33.4750	20,402	83.36	-30.6976
NASDAQ OMX PSX (EV/SRV) (XPSX)	115,088	115,088	0	209.6321	3,970	3.45	74.9057	-33.0504	85	2.14	10	0.25	3,875	97.61	0	0.00			3,970	100.00	-33.0504
NYSE Arca, Inc. (EV/ SRV) (ARCX)	469,927	303,944	0	214.0897	42,440	9.03	88.2328	-15.1401	2,126	5.01	9,666	22.78	30,648	72.21	9,918	23.37	731,208	31.1560	32,522	76.63	-29.2587
NYSE CHICAGO, INC. (EV/SRV) (XCH)	400	400	0	100	400	100.00	100	-13.0675	0	0.00	0	0.00	400	100.00	0	0.00			400	100.00	-13.0675
NYSE MKT LLC (EV/ SRV) (XASE)	4,390	4,178	0	175.6	2,679	61.03	95.6786	-27.0276	0	0.00	1	0.04	2,466	92.05	212	7.91	4,713,528	-6.2736	2,467	92.09	-28.8111
NYSE NATIONAL, INC (EV/SRV) (XCIS)	115,777	115,777	0	188.5619	1,110	0.96	138.75	24.7685	0	0.00	0	0.00	1,110	100.00	0	0.00			1,110	100.00	24.7685
Nasdaq OMX BX (EV/ SRV) (XBOS)	116,368	116,368	0	191.0805	2,696	2.32	67.4	8.4896	0	0.00	0	0.00	2,696	100.00	0	0.00			2,696	100.00	8.4896
Nasdaq Stock Exchange (INET) (EV/ SRV) (XNAS)	7,836,370	565,697	0	3,430.9851	5,649,897	72.10	1,940.2119	-11.3135	20,305	0.36	86,367	1.53	86,752	1.54	5,588,365	98.91	4,951,939	-11.0816	61,532	1.09	-32.3761
New York Stock Exchange (EV/SRV) (XNYS)	12,686,420	302,429	0	5,859.7783	8,459,683	66.68	1,768.3284	-9.9767	2,575	0.03	71,039	0.84	44,081	0.52	8,096,573	95.71	5,352,004	-9.9064	55,071	0.65	-20.1251
ONEC (EV/SRV) (ONEC)	158,115	74,715	0	300.5989	100	0.06	100	-10.3100	0	0.00	100	100.00	0	0.00	0	0.00			100	100.00	-10.3100
Pure Stream ATS (EV/ SRV) (STRM)	5,135,700	0	0	8,778.9744	0																
Schonfeld Securities, LLC (EV/SRV) (STRD)	1,000	0	0	1,000	0																
UBS Securities, LLC ATS (EV/SRV) (UBSA)	5,529,951	200,935	0	1,699.4318	70,978	1.28	95.5289	-10.6787	30,772	43.35	5,417	7.63	34,789	49.01	49,451	69.67	2,567,096	-10.3308	21,527	30.33	-11.4781
Virtu Americas LLC (EV/SRV) (KCGM)	5,308,992	1,334,657	0	1,137.3162	17,078	0.32	310.5091	-4.1412	9,534	55.83	5,494	32.17	2,050	12.00	13,152	77.01	4,904,067	-2.3496	3,926	22.99	-10.1431
Virtu Americas, LLC (EV/SRV) (NITE)	459,159	170,676	0	299.9079	40,957	8.92	100.6314	-0.9922	7,466	18.23	22,287	54.42	11,204	27.36	18,384	44.89	3,231,910	-0.6557	22,573	55.11	-1.2662
Virtu POSIT ATS (EV/ SRV) (ITGI)	3,589,492	184,821	0	1,930.8725	13,454	0.37	138.701	-10.6994	5,215	38.76	236	1.75	8,003	59.48	13,454	100.00	2,995,183	-10.6994	0	0.00	