

4th Quarter, 2022

October 2022

S&P 500 Stocks  
Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed Orders		Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Non-Marketable Limit Orders as % of Non-Directed Orders		Other Orders as % of Non-Directed Orders	
787	100.00	681	86.53	29	3.68			59	7.50
								18	2.29

Venues

Venue - Non- directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)		298	35.69	243	35.68	21	72.41	21	19.63	13	72.22	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)		182	21.80	161	23.64	6	20.69	10	9.35	5	27.78	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)		163	19.52	159	23.35	1	3.45	3	2.80	0	0.00	0	0	0	0	0	0	0
Jane Street Capital, LLC(INST)		111	13.29	106	15.57	1	3.45	4	3.74	0	0.00	0	0	0	0	0	0	0
New York Stock Exchange(NYSE)		37	4.43	0	0.00	0	0.00	37	34.58	0	0.00	0	0	0	0	0	0	0
Choe EDGX US Equities Exchange(EDGX)		16	1.92	0	0.00	0	0.00	16	14.95	0	0.00	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)		11	1.32	0	0.00	0	0.00	11	10.28	0	0.00	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)		10	1.20	10	1.47	0	0.00	0	0.00	0	0.00	0	0	0	0	0	0	0
Members Exchange(MEMX)		5	0.60	0	0.00	0	0.00	5	4.67	0	0.00	0	0	0	0	0	0	0
UBS Securities, LLC(UBSS)		2	0.24	2	0.29	0	0.00	0	0.00	0	0.00	0	0	0	0	0	0	0

October 2022

Non-S&P 500 Stocks  
Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Other Orders as % of Non-Directed Orders	
1,297	100.00	1,089	83.96	69	5.32	127	9.79	
							12	0.93

Venues

Venue - Non- directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)		401	29.59	376	34.53	12	17.91	7	4.22	6	18.18	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)		355	26.20	286	26.26	43	64.18	21	12.65	5	15.15	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)		271	20.00	259	23.78	7	10.45	5	3.01	0	0.00	0	0	0	0	0	0	0
Jane Street Capital, LLC(INST)		159	11.73	150	13.77	5	7.46	4	2.41	0	0.00	0	0	0	0	0	0	0
Choe EDGX US Equities Exchange(EDGX)		51	3.76	0	0.00	0	0.00	51	30.72	0	0.00	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)		46	3.39	0	0.00	0	0.00	46	27.71	0	0.00	0	0	0	0	0	0	0
Instinet		21	1.55	0	0.00	0	0.00	0	0.00	21	63.64	0	0	0	0	0	0	0
BlockCross(BLKK)		12	0.89	0	0.00	0	0.00	12	7.23	0	0.00	0	0	0	0	0	0	0
New York Stock Exchange(NYSE)		11	0.81	0	0.00	0	0.00	11	6.63	0	0.00	0	0	0	0	0	0	0
Members Exchange(MEMX)		11	0.81	10	0.92	0	0.00	1	0.60	0	0.00	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)		11	0.81	10	0.92	0	0.00	1	0.60	0	0.00	0	0	0	0	0	0	0

October 2022

Option Contracts  
Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
309	100.00	135	43.69	61	19.74	104	33.65	9	2.91

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)		142	45.08	67	48.91	26	41.27	44	41.51	5	55.56	0	0	0	0	0	0	0
Wolverine Execution Services LLC(WEXX)		59	18.73	15	10.95	8	12.70	36	33.96	0	0.00	0	0	0	0	0	0	0
Susquehanna Capital Group(SUSQ)		55	17.46	32	23.36	18	28.57	1	0.94	4	44.44	0	0	0	0	0	0	0
Dash Financial Technologies LLC(DASH)		39	12.38	16	11.68	6	9.52	17	16.04	0	0.00	0	0	0	0	0	0	0
Morgan Stanley & Company LLC(MSCO)		20	6.35	7	5.11	5	7.94	8	7.55	0	0.00	0	0	0	0	0	0	0

November 2022

S&P 500 Stocks Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
715	100.00	615	86.01	20	2.80	45	6.29	35	4.90

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)		229	31.24	199	32.36	6	30.00	8	12.70	16	45.71	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)		207	28.24	173	28.13	7	35.00	12	19.05	15	42.86	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)		160	21.83	150	24.39	3	15.00	6	9.52	1	2.86	0	0	0	0	0	0	0
Jane Street Capital, LLC(JNST)		95	12.96	88	14.31	4	20.00	3	4.76	0	0.00	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)		18	2.46	0	0.00	0	0.00	18	28.57	0	0.00	0	0	0	0	0	0	0
Cboe EDGX US Equities Exchange(EDGX)		9	1.23	0	0.00	0	0.00	9	14.29	0	0.00	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)		8	1.09	3	0.49	0	0.00	3	4.76	2	5.71	0	0	0	0	0	0	0
INTL Trading, Inc.(INTL)		2	0.27	2	0.33	0	0.00	0	0.00	0	0.00	0	0	0	0	0	0	0
New York Stock Exchange(NYSE)		2	0.27	0	0.00	0	0.00	2	3.17	0	0.00	0	0	0	0	0	0	0
UBS Securities, LLC(UBSS)		2	0.27	0	0.00	0	0.00	1	1.59	1	2.86	0	0	0	0	0	0	0

November 2022

Non-S&P 500 Stocks Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
1,825	100.00	1,461	80.05	115	6.30	210	11.51	39	2.14

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)		568	29.01	513	35.14	22	19.30	17	5.67	16	19.05	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)		511	26.10	381	26.10	60	52.63	51	17.00	19	22.62	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)		362	18.49	338	23.15	16	14.04	7	2.33	1	1.19	0	0	0	0	0	0	0
Jane Street Capital, LLC(JNST)		216	11.03	195	13.36	15	13.16	6	2.00	0	0.00	0	0	0	0	0	0	0

Cboe EDGX US Equities Exchange(EDGX)	77	3.93	0	0.00	0	0.00	77	25.67	0	0.00	0	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)	58	2.96	0	0.00	0	0.00	58	19.33	0	0.00	0	0	0	0	0	0	0	0
Instinet	45	2.30	0	0.00	0	0.00	0	0.00	45	53.57	0	0	0	0	0	0	0	0
BlockCross(BLCK)	35	1.79	0	0.00	0	0.00	35	11.67	0	0.00	0	0	0	0	0	0	0	0
New York Stock Exchange(NYSE)	32	1.63	0	0.00	0	0.00	32	10.67	0	0.00	0	0	0	0	0	0	0	0
Members Exchange(MEMX)	29	1.48	26	1.78	1	0.88	2	0.67	0	0.00	0	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)																		

November 2022

#### Option Contracts Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
233	100.00	109	46.78	30	12.88	84	36.05	10	4.29

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)	91	37.30	45	41.28	6		28.57	39	37.50	1	10.00	0	0	0	0	0	0	0
Susquehanna Capital Group(SUSQ)	56	22.95	38	34.86	7		33.33	6	5.77	5	50.00	0	0	0	0	0	0	0
Wolverine Execution Services LLC(WEXX)	49	20.08	4	3.67	2		9.52	43	41.35	0	0.00	0	0	0	0	0	0	0
Dash Financial Technologies LLC(DASH)	40	16.39	18	16.51	5		23.81	13	12.50	4	40.00	0	0	0	0	0	0	0
Morgan Stanley & Company LLC(MSCO)	8	3.28	4	3.67	1		4.76	3	2.88	0	0.00	0	0	0	0	0	0	0

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#### S&P 500 Stocks Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
926	100.00	832	89.85	11	1.19	73	7.88	10	1.08

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)	305	31.31	277	33.29	7		63.64	12	10.00	9	81.82	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)	246	25.26	226	27.16	2		18.18	17	14.17	1	9.09	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)	219	22.48	208	25.00	2		18.18	9	7.50	0	0.00	0	0	0	0	0	0	0
Jane Street Capital, LLC(INST)	102	10.47	97	11.66	0		0.00	5	4.17	0	0.00	0	0	0	0	0	0	0
New York Stock Exchange(NYSE)	28	2.87	0	0.00	0		0.00	28	23.33	0	0.00	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)	26	2.67	0	0.00	0		0.00	26	21.67	0	0.00	0	0	0	0	0	0	0
Cboe EDGX US Equities Exchange(EDGX)	16	1.64	0	0.00	0		0.00	16	13.33	0	0.00	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)	16	1.64	16	1.92	0		0.00	0	0.00	0	0.00	0	0	0	0	0	0	0
Members Exchange(MEMX)	6	0.62	0	0.00	0		0.00	6	5.00	0	0.00	0	0	0	0	0	0	0
INTL Trading, Inc.(INTL)	5	0.51	4	0.48	0		0.00	1	0.83	0	0.00	0	0	0	0	0	0	0

December 2022

#### Non-S&P 500 Stocks Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
1,650	100.00	1,361	82.48	84	5.09	186	11.27	19	1.15

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)	557	31.99	509	37.43	17	20.24	20	8.33	11	19.30	0	0	0	0	0	0	0	0
VIRTU Americas, LLC(NITE)	420	24.12	348	25.59	44	52.38	21	8.75	7	12.28	0	0	0	0	0	0	0	0
G1 Execution Services, LLC(ETMM)	373	21.42	350	25.74	16	19.05	7	2.92	0	0.00	0	0	0	0	0	0	0	0
Jane Street Capital, LLC(INST)	142	8.16	128	9.41	6	7.14	8	3.33	0	0.00	0	0	0	0	0	0	0	0
Choe EDGX US Equities Exchange(EDGX)	83	4.77	0	0.00	0	0.00	83	34.58	0	0.00	0	0	0	0	0	0	0	0
NASDAQ Execution Services, LLC(NSDQ)	42	2.41	0	0.00	0	0.00	42	17.50	0	0.00	0	0	0	0	0	0	0	0
Instinet	38	2.18	0	0.00	0	0.00	0	0.00	38	66.67	0	0	0	0	0	0	0	0
BlockCross(BLIX)	29	1.67	0	0.00	0	0.00	29	12.08	0	0.00	0	0	0	0	0	0	0	0
New York Stock Exchange(NYSE) Members	24	1.38	0	0.00	0	0.00	24	10.00	0	0.00	0	0	0	0	0	0	0	0
Exchange(MEMX)	15	0.86	13	0.96	0	0.00	2	0.83	0	0.00	0	0	0	0	0	0	0	0
Two Sigma Securities, LLC(SOHO)																		

December 2022

Option Contracts Summary

Total Non-Directed Orders	Non-Directed Orders as % of All Orders	Total Market Orders	Market Orders as % of Non-Directed Orders	Total Marketable Limit Orders	Marketable Limit Orders as % of Non-Directed Orders	Total Non-Marketable Limit Orders	Non-Marketable Limit Orders as % of Non-Directed Orders	Total Other Orders	Other Orders as % of Non-Directed Orders
309	100.00	105	33.98	50	16.18	134	43.37	20	6.47

Venues

Venue - Non-directed Order Flow	Non-Directed Orders	Non-Directed Orders(%)	Market Orders	Market Orders(%)	Marketable Limit Orders	Marketable Limit Orders(%)	Non-Marketable Limit Orders	Non-Marketable Limit Orders(%)	Other Orders	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received for Market Orders(cents per hundred shares)	Net Payment Paid/Received for Marketable Limit Orders(USD)	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Non-Marketable Limit Orders(USD)	Net Payment Paid/Received for Non-Marketable Limit Orders(cents per hundred shares)	Net Payment Paid/Received for Other Orders(USD)	Net Payment Paid/Received for Other Orders(cents per hundred shares)
Citadel Securities LLC(CDRG)	138	43.95	49	46.67	19	55.88	70	45.16	0	0.00	0	0	0	0	0	0	0	0
Susquehanna Capital Group(SUSQ)	73	23.25	38	36.19	8	23.53	7	4.52	20	100.00	0	0	0	0	0	0	0	0
Wolverine Execution Services LLC(WEXX)	62	19.75	2	1.90	2	5.88	58	37.42	0	0.00	0	0	0	0	0	0	0	0
Dash Financial Technologies LLC(DASH)	31	9.87	13	12.38	4	11.76	14	9.03	0	0.00	0	0	0	0	0	0	0	0
Morgan Stanley & Company LLC(MSCO)	10	3.18	3	2.86	1	2.94	6	3.87	0	0.00	0	0	0	0	0	0	0	0