

Ally Invest Securities LLC - Held NMS Stocks and Options Order Routing Public Report

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3rd Quarter, 2023

July 2023

S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	22.22	4.25	64.79	8.74

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	37.31	25.05	33.01	41.20	41.70	3,048.42	22.0000	864.55	22.0000	3,053.99	29.8283	879.74	15.0799
Virtu Americas, LLC	26.09	19.79	17.77	28.16	30.81	2,442.06	22.6429	537.05	22.9560	1,840.56	30.0000	292.91	26.0897
Two Sigma Securities, LLC	22.17	45.07	39.06	14.75	10.74	5,569.05	22.4134	1,952.66	24.1607	4,065.28	29.6791	897.91	26.8868
G1 Execution Services, LLC	14.43	10.09	10.16	15.88	16.75	1,218.78	22.1747	383.32	22.6523	1,119.62	30.0001	284.57	27.1591

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed orders routed to Citadel Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Extended hours order: up to \$0.001 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

We do not receive payment for any extended hours orders, regardless of size or marketability. These payment arrangements are conditioned upon regular attestations to Virtu that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Two Sigma Securities, LLC:

We receive payment for executed orders routed to Two Sigma Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Two Sigma that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
- (ii) Marketable order, listed equity priced under \$1.00 per share: up to \$0.001 per share
- (iii) Non-marketable order, listed equity priced at \$1.00 per share or more: up to \$0.003 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

These payment arrangements are conditioned upon regular attestations to G1X that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

July 2023

Non-S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	24.12	5.70	62.28	7.90

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	36.52	25.12	31.74	41.00	39.46	18,590.06	20.0681	6,624.49	15.7060	15,335.03	25.7470	4,687.23	11.4455
Virtu Americas, LLC	25.59	19.80	17.19	28.08	29.72	16,921.46	23.3082	6,495.40	23.9781	10,792.96	29.0804	1,022.65	20.8280
Two Sigma Securities, LLC	23.76	45.11	41.57	15.08	14.11	34,607.14	20.8732	11,832.56	16.8540	25,290.94	26.1188	4,762.21	24.4574
G1 Execution Services, LLC	14.13	9.97	9.50	15.84	16.71	8,110.72	23.2594	3,702.23	24.4372	6,133.38	25.9443	1,151.79	27.0302

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed orders routed to Citadel Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Extended hours order: up to \$0.001 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

We do not receive payment for any extended hours orders, regardless of size or marketability. These payment arrangements are conditioned upon regular attestations to Virtu that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Two Sigma Securities, LLC:

We receive payment for executed orders routed to Two Sigma Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Two Sigma that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
- (ii) Marketable order, listed equity priced under \$1.00 per share: up to \$0.001 per share
- (iii) Non-marketable order, listed equity priced at \$1.00 per share or more: up to \$0.003 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

These payment arrangements are conditioned upon regular attestations to G1X that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

July 2023

Options

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	7.75	11.81	50.93	29.51

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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)
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Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	34.65	25.30	26.75	34.87	39.89	17,716.00	49.0898	52,468.00	49.9210	36,906.00	49.2336	26,471.50	45.1170
Wolverine Execution Services, LLC	31.40	29.07	25.47	30.86	35.32	22,485.50	49.3081	43,122.00	49.8595	37,170.50	49.3246	26,510.50	45.8421
Global Execution Brokers LP	25.66	35.57	37.17	26.63	16.80	24,959.00	49.7379	66,339.00	49.8951	57,785.50	49.5226	16,471.50	45.1286
Dash/IMC Financial Markets	8.28	10.05	10.61	7.63	8.00	7,921.50	49.7894	17,521.00	49.9302	17,768.50	49.4490	7,483.00	46.4696

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed multi-listed, non-index option orders routed to Citadel Securities at a rate of up to \$0.50 per contract. Citadel waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Wolverine Execution Services, LLC:

We receive payment for executed multi-listed, non-index option orders routed to Wolverine at a rate of up to \$0.50 per contract. Wolverine waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Wolverine that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Global Execution Brokers LP:

We receive payment for executed multi-listed, non-index option orders routed to Global Execution Brokers at a rate of up to \$0.50 per contract. Global Execution Brokers waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Global Execution Brokers that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Dash/IMC Financial Markets:

We receive payment for executed multi-listed, non-index option orders routed to Dash/IMC Financial Markets at a rate of up to \$0.50 per contract. Dash/IMC Financial Markets waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Dash/IMC Financial Markets that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement. We route to Dash Financial Technologies, who has a relationship with IMC whereby Dash routes to an exchange and preferences IMC.

APEX CLEARING CORPORATION:

We route orders of multi-listed options to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex forwards such payment to us. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

August 2023

S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	21.51	3.90	66.52	8.07

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	37.11	24.99	32.61	40.94	40.03	3,039.15	22.0000	880.20	21.9999	2,665.60	29.8804	932.93	16.3401
Virtu Americas, LLC	27.48	20.01	17.98	29.95	31.63	2,813.99	23.2766	742.97	24.0746	1,900.51	30.0000	393.90	23.6825
Two Sigma Securities, LLC	21.18	44.82	39.51	13.52	12.45	5,754.45	23.0663	1,977.77	24.4779	4,390.79	29.7303	1,197.15	26.0300
G1 Execution Services, LLC	14.22	10.18	9.90	15.58	15.89	1,322.06	23.0622	395.61	25.3296	1,013.12	30.0001	335.16	27.5711

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed orders routed to Citadel Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Extended hours order: up to \$0.001 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
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We do not receive payment for any extended hours orders, regardless of size or marketability. These payment arrangements are conditioned upon regular attestations to Virtu that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Two Sigma Securities, LLC:

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G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
- (ii) Marketable order, listed equity priced under \$1.00 per share: up to \$0.001 per share
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APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

August 2023

Non-S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	23.50	5.91	63.60	7.00

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	36.47	25.03	32.07	40.86	38.73	19,911.24	19.6187	6,917.46	14.1332	15,787.21	23.9019	6,414.34	12.2053
Virtu Americas, LLC	26.50	19.84	17.42	29.37	30.49	22,090.21	23.5946	8,634.01	24.1147	11,821.39	28.5669	1,410.47	23.8657
Two Sigma Securities, LLC	23.35	45.21	40.91	14.55	15.12	42,341.84	20.5654	13,744.57	15.9814	25,234.83	23.1622	6,938.95	24.4942
G1 Execution Services, LLC	13.67	9.93	9.60	15.22	15.66	10,397.94	23.4278	4,470.68	24.5011	6,404.14	23.2648	1,797.24	27.6324

Material Aspects:

CITADEL SECURITIES LLC:

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Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

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G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
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APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

August 2023

Options

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	7.96	12.59	50.21	29.25

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	34.86	25.46	26.52	35.48	39.96	19,348.00	49.3005	50,649.50	49.8372	36,093.50	49.1717	29,654.00	44.5509
Wolverine Execution Services, LLC	31.53	29.11	25.79	31.26	35.12	22,073.00	48.7833	47,444.00	49.7729	38,682.50	49.2019	25,165.50	43.8370
Global Execution Brokers LP	25.50	35.37	37.25	25.90	17.05	32,161.00	49.7017	71,260.00	49.8573	51,217.00	49.5458	13,801.50	42.6591
Dash/IMC Financial Markets	8.11	10.06	10.44	7.36	7.86	8,745.00	49.5776	22,082.00	49.8150	14,397.50	49.1617	7,653.00	43.4830

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed multi-listed, non-index option orders routed to Citadel Securities at a rate of up to \$0.50 per contract. Citadel waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Wolverine Execution Services, LLC:

We receive payment for executed multi-listed, non-index option orders routed to Wolverine at a rate of up to \$0.50 per contract. Wolverine waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Wolverine that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Global Execution Brokers LP:

We receive payment for executed multi-listed, non-index option orders routed to Global Execution Brokers at a rate of up to \$0.50 per contract. Global Execution Brokers waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Global Execution Brokers that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Dash/IMC Financial Markets:

We receive payment for executed multi-listed, non-index option orders routed to Dash/IMC Financial Markets at a rate of up to \$0.50 per contract. Dash/IMC Financial Markets waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Dash/IMC Financial Markets that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement. We route to Dash Financial Technologies, who has a relationship with IMC whereby Dash routes to an exchange and preferences IMC.

APEX CLEARING CORPORATION:

We route orders of multi-listed options to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex forwards such payment to us. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

September 2023

S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	20.51	3.78	68.45	7.26

Venues

Venue - Non-Directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	37.00	24.93	30.69	40.56	40.87	2,445.02	22.0000	1,023.78	21.9999	2,779.88	29.9248	675.70	16.0369
Virtu Americas, LLC	27.60	19.74	18.82	30.07	31.02	1,906.21	22.8489	886.96	24.7904	1,524.29	30.0000	263.32	23.3902
Two Sigma Securities, LLC	21.13	45.23	40.00	13.77	12.70	4,914.75	24.0831	2,122.81	25.3163	4,742.31	29.7824	991.27	27.0558
G1 Execution Services, LLC	14.26	10.10	10.49	15.60	15.41	1,046.86	23.7222	453.21	25.0916	1,206.26	30.0000	275.05	27.3567

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed orders routed to Citadel Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Extended hours order: up to \$0.001 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

We do not receive payment for any extended hours orders, regardless of size or marketability. These payment arrangements are conditioned upon regular attestations to Virtu that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Two Sigma Securities, LLC:

We receive payment for executed orders routed to Two Sigma Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Two Sigma that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
- (ii) Marketable order, listed equity priced under \$1.00 per share: up to \$0.001 per share
- (iii) Non-marketable order, listed equity priced at \$1.00 per share or more: up to \$0.003 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

These payment arrangements are conditioned upon regular attestations to G1X that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

September 2023

Non-S&P 500 Stocks

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	25.36	6.40	61.82	6.43

Venues

Venue - Non-Directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	36.30	25.08	31.00	41.02	40.50	12,722.21	17.8102	5,549.07	13.6567	11,163.90	23.7388	4,307.10	11.4040
Virtu Americas, LLC	26.49	19.94	17.55	29.72	30.08	14,873.68	23.5393	5,926.18	23.7911	8,537.90	28.6516	606.37	23.6749
Two Sigma Securities, LLC	23.57	44.99	41.95	13.89	13.78	26,407.69	20.1610	11,661.14	16.1521	17,670.50	25.6744	3,806.56	23.9094
G1 Execution Services, LLC	13.65	9.99	9.49	15.37	15.64	7,030.45	23.6949	3,632.86	24.7547	4,824.45	23.4626	1,146.78	27.6647

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed orders routed to Citadel Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Extended hours order: up to \$0.001 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Virtu Americas, LLC:

We receive payment for executed orders routed to Virtu Americas with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

We do not receive payment for any extended hours orders, regardless of size or marketability. These payment arrangements are conditioned upon regular attestations to Virtu that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Two Sigma Securities, LLC:

We receive payment for executed orders routed to Two Sigma Securities with respect to listed equities priced at \$1.00 per share or more, at the following rates:

- (i) Marketable order: up to \$0.0022 per share
- (ii) Non-marketable order: up to \$0.003 per share
- (iii) Order greater than 10,000 shares or \$250,000 principal value: up to \$0.003 per share

These payment arrangements are conditioned upon regular attestations to Two Sigma that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

G1 Execution Services, LLC:

We receive payment for executed orders routed to G1X Execution Services at the following rates:

- (i) Marketable order, listed equity priced at \$1.00 per share or more: up to \$0.0022 per share
- (ii) Marketable order, listed equity priced under \$1.00 per share: up to \$0.001 per share
- (iii) Non-marketable order, listed equity priced at \$1.00 per share or more: up to \$0.003 per share
- (iv) Order greater than 10,000 shares or \$250,000 principal value: \$0.003 per share

These payment arrangements are conditioned upon regular attestations to G1X that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

APEX CLEARING CORPORATION:

We route orders of listed equities to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex retains 10% of such payment and pays us the remaining 90%. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.

September 2023

Options

Summary

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed 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
100.00	8.10	11.32	51.26	29.33

Venues

Venue - Non-directed Order Flow	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	Non-Marketable Limit 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	35.23	25.37	26.51	36.10	39.80	18,132.00	49.2959	36,958.00	49.7831	27,962.50	48.4888	22,686.00	43.8199
Wolverine Execution Services, LLC	31.67	29.14	26.02	31.50	34.85	17,733.00	49.0947	31,672.00	49.6839	31,778.00	49.0651	21,904.00	43.3708
Global Execution Brokers LP	25.09	35.52	36.92	25.19	17.48	27,661.50	49.6750	45,537.00	49.8397	36,783.50	49.2278	12,986.00	42.3011
Dash/IMC Financial Markets	8.01	9.97	10.54	7.22	7.88	6,245.00	49.5163	11,870.50	49.7506	11,907.50	49.2575	5,541.50	41.5872

Material Aspects:

CITADEL SECURITIES LLC:

We receive payment for executed multi-listed, non-index option orders routed to Citadel Securities at a rate of up to \$0.50 per contract. Citadel waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Citadel that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Wolverine Execution Services, LLC:

We receive payment for executed multi-listed, non-index option orders routed to Wolverine at a rate of up to \$0.50 per contract. Wolverine waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Wolverine that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Global Execution Brokers LP:

We receive payment for executed multi-listed, non-index option orders routed to Global Execution Brokers at a rate of up to \$0.50 per contract. Global Execution Brokers waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Global Execution Brokers that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement.

Dash/IMC Financial Markets:

We receive payment for executed multi-listed, non-index option orders routed to Dash/IMC Financial Markets at a rate of up to \$0.50 per contract. Dash/IMC Financial Markets waives fees associated with index options so long as they do not exceed 5% of the total monthly volume. These payment arrangements are conditioned upon regular attestations to Dash/IMC Financial Markets that substantially all of the orders we route to them qualify as "retail" orders (i.e., originating from natural persons and not generated by trading algorithms or other computerized methods). Although we do not negotiate for higher payment rates in exchange for lower execution quality, in general there is an inverse (though not necessarily proportional) relationship between payment for order flow rates and price improvement. We route to Dash Financial Technologies, who has a relationship with IMC whereby Dash routes to an exchange and preferences IMC.

APEX CLEARING CORPORATION:

We route orders of multi-listed options to our clearing firm, Apex Clearing Corporation, which further routes them to execution venues with which it has relationships. The execution venues may pay Apex for such order flow, in which case Apex forwards such payment to us. We do not determine or influence where Apex routes our orders. Further, we do not participate in any discussions concerning the payment-for-order-flow arrangements between Apex and the execution venues, nor do we influence those arrangements in any manner. See <https://www.apexclearing.com/sec-rule-606-and-607/> for reports concerning Apex's order routing practices, which we are adopting by reference.