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

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4th Quarter, 2022

October 2022

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	49.12	24.78	18.61	7.50

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)
Virtu Americas, LLC (NITE)	23.05	20.47	21.88	26.48	35.30	2,849.34	35.1856	1,317.28	30.1604	774.37	19.5196	540.00	25.3256
Citadel Securities LLC (CDRG)	36.12	39.21	35.56	41.07	5.51	4,041.37	26.0583	1,889.45	26.6234	1,566.42	25.4567	46.38	13.9300
Jane Street Capital, LLC (JNST)	40.82	40.32	42.55	32.46	59.18	5,296.55	33.2107	1,499.48	17.6562	972.68	20.0000	1,158.25	32.4045

Material Aspects:

Virtu Americas, LLC (NITE):

Alpaca Securities receives revenue from third-party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as the price of execution, marketability, and other characteristics). Extended hours orders routed to Virtu and filled outside the core session will not receive payment however, extended hours orders routed and filled in the core session will. Alpaca Securities LLC. Orders on marketable securities executed greater than \$1 and filled during the core session Alpaca Securities LLC will neceive a rate of 1.3 mills per share. For non-marketable orders, if the execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. There is a potential conflict of interest to a market maker such as Virtu both paying for order flow and providing price improvement, as the potential source of funds for each is the same, namely the anticipated profit the market maker seeks to earn from executing or facilitating the execution of Alpaca Securities LLC customer orders. Accordingly, from such anticipated profit to positive provide price improvement; (ii) forgo a portion of such

Citadel Securities LLC (CDRG):

Alpaca Securities receives revenue from third party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as price of execution, marketability and other characteristics). Extended hours orders routed to Citadel and filled outside the core session will. Orders filled on the opening market will incur a charge against Alpaca at 12 mils per share. For some some securities executed greater than \$1 and filled during the core session will receive a rate of 1.3 mils per share. For non-marketable securities execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. There is a potential conflict inherent to a market maker such as Citadel both paying for order flow and providing price improvement, as the potential source of funds for each is the same, namely the anticipated profit the market maker seeks to earn from executing or facilitating the execution of Alpaca Securities LLC customer orders. Accordingly, from such anticipated profit to provide (or provide less) price improvement or not provide (or provide (or provide less) payment for order flow. A market maker's (such as Citadel's) anticipated profit must be allocated among these three sub-categories, such that an increased allocation to any one subcategory will result in a decreased allocation to one or more of the other categories.

Jane Street Capital, LLC (JNST):

Alpaca Securities receives revenue from third party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as price of execution, marketability and other characteristics). Extended hours orders are not sent to Jane Street. Alpaca Securities LLC will not receive a rebate on any shares filled on an exchange opening or closing auction from Jane Street. Orders on marketable sorders are not sent to Jane Street share. For marketable orders in securities executed less than \$1 and filled during the core session will receive a rate of 1.3 mills per share. For marketable orders, if the execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. There is a potential conflict inherent to a market maker such as Jane Street both paying for order flow and providing price improvement, as the potential source of funds for each is the same, namely the anticipated profit the market maker such as Jane Street such as Jane Street or order flow. A market maker such as Jane Street or order flow. A market maker such as Jane Street's) anticipated profit or provide (or provide less) price improvement; (ii) forgo a portion of such anticipated profit and not provide (or provide less) price improvement for order flow. A market maker's (such as Jane Street's) anticipated profit must be allocated among these three sub-categories, such that an increased allocation to any one subcategory will result in a decreased allocation to one or more of the other categories.

October 2022

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
I	100.00	58.04	11.43	20.98	9.55

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)
Virtu Americas, LLC (NITE)	25.45	23.95	27.75	25.54	31.63	20,264.33	13.7432	4,991.29	14.8423	5,386.68	9.4740	2,609.17	8.1417
Citadel Securities LLC (CDRG)	31.91	31.43	35.76	36.45	20.31	37,403.02	19.3315	6,370.34	14.6976	9,308.78	11.4728	4,520.67	21.9701
Jane Street Capital, LLC (JNST)	42.64	44.62	36.49	38.01	48.07	40,915.90	14.8923	11,229.23	25.3911	7,473.29	8.8335	7,650.40	15.7085

Material Aspects:

Virtu Americas, LLC (NITE):

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Jane Street Capital, LLC (JNST):

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October 2022

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
I	0.00	0.00	0.00	0.00	0.00

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)
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Material Aspects:

November 2022

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	50.43	22.59	18.26	8.71

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)
Virtu Americas, LLC (NITE)	25.70	21.06	29.48	32.01	29.54	3,277.39	37.3925	1,471.45	26.7644	951.80	19.7273	666.12	31.3590
Citadel Securities LLC (CDRG)	24.88	30.61	19.29	26.42	3.04	5,476.31	42.9845	1,156.80	32.1625	750.94	18.8622	-17.10	-7.8214
Jane Street Capital, LLC (JNST)	49.41	48.33	51.23	41.57	67.41	7,486.33	37.2143	1,755.19	18.3754	1,253.15	20.0000	1,696.37	34.9986

Material Aspects:

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November 2022

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	62.62	11.94	19.44	6.00

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)
Virtu Americas, LLC (NITE)	26.67	25.87	25.64	27.86	33.20	26,660.62	13.1245	7,829.64	20.3897	5,327.42	7.8450	2,460.11	9.8505
Citadel Securities LLC (CDRG)	22.21	20.97	28.34	26.04	10.49	26,101.53	15.8494	9,270.67	21.8411	5,825.93	9.1804	-126.03	-1.5968
Jane Street Capital, LLC (JNST)	51.12	53.15	46.02	46.10	56.30	58,240.99	13.9554	18,970.49	27.5289	8,554.64	7.6145	6,059.16	14.3083

Material Aspects:

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November 2022

OptionsSummary

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
0.00	0.00	0.00	0.00	0.00

Venues

Venue - Non- directed Order Flow	Directed Ord	arket Marketable rders 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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Material Aspects:

December 2022

S&P 500 Stocks

Summary

Non-Directed Orders as % of Non-Directed Orders of Non-Directed Orders Orders as % of Non-Directed Orders Orders Orders Orders Orders Orders	n- Orders as % of Non- Non-Directed Orders

Non-Directed Orders as % of All Orders	Market Orders as % of Non-Directed Orders			Other Orders as % of Non-Directed Orders	
100.00	39.26	43.94	11.13	5.66	

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)
Virtu Americas, LLC (NITE)	15.88	13.32	15.53	21.58	25.11	1,736.85	36.1339	1,442.96	22.9918	439.08	19.8816	324.43	24.8090
Citadel Securities LLC (CDRG)	32.35	37.60	29.68	39.05	3.61	4,708.95	34.7046	2,625.71	21.9022	764.63	19.1334	-12.12	-6.4507
Jane Street Capital, LLC (JNST)	51.77	49.08	54.79	39.37	71.28	5,850.20	33.0242	4,086.36	18.4615	805.93	20.0000	1,370.58	36.9228

Material Aspects:

Virtu Americas, LLC (NITE):

Alpaca Securities receives revenue from third-party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as the price of execution, marketability, and other characteristics). Extended hours orders routed to Virtu and filled outside the core session will not receive a payment however, extended hours orders routed and filled in the core session will. Alpaca Securities LLC. Orders on marketable securities executed greater than \$1 and filled during the core session Alpaca Securities LLC will neceive a rate of 1.3 mils per share. For non-marketable orders, if the execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. If the execution price is under \$1 the rebate

Citadel Securities LLC (CDRG):

Alpaca Securities receives revenue from third party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as price of execution, marketability and other characteristics). Extended hours orders routed to Citadel and filled outside the core session will. Orders filled on the opening market will incur a charge against Alpaca at 12 mils per share. For dors on marketable securities executed greater than \$1 and filled during the core session will receive a rate of 1.3 mils per share. For non-marketable orders, if the execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. There is a potential conflict inherent to a market maker such as Citadel both paying for order flow and providing price improvement, as the potential source of funds for each is the same, namely the anticipated profit the market maker seeks to earn from executing or facilitating the execution of Alpaca Securities LLC customer orders. Accordingly, from such anticipated profit, a market maker such as Citadel can (i) forgo a portion of such anticipated profit to provide less) price improvement or not provide (or provide (or provide less) payment for order flow. A market maker's (such as Citadel's) anticipated profit must be allocated among these three sub-categories, such that an increased allocation to any one subcategory will result in a decreased allocation to one or more of the other categories.

Jane Street Capital, LLC (JNST)

Alpaca Securities receives revenue from third party liquidity providers based on the order flow execution received at each destination. While rebate rates are substantially similar amongst the liquidity providers they may vary based on order characteristics (such as price of execution, marketability and other characteristics). Extended hours orders are not sent to Jane Street. Alpaca Securities LLC will not receive a rebate on any shares filled on an exchange opening or closing auction from Jane Street. Orders on marketable research as 1 and filled during the core session will receive 12% of the spread per share, capped at 5 cents per share. For marketable orders, if the execution price is over \$1 then the rebate will be 20 cents per 100 shares. If the execution price is under \$1 the rebate will be 1.3 cents per 100 shares. There is a potential conflict inherent to a market maker such as Jane Street both paying for order flow and providing price improvement, as the potential source of funds for each is the same, namely the anticipated profit the market maker seeks to earn from execution of Alpaca Securities LLC customer orders. Accordingly, from such anticipated profit to provide price improvement; (ii) forgo a portion of such anticipated profit to provide price improvement, forgo a portion of such anticipated profit may be allocated among these three sub-categories, such that an increased allocation to any one subcategory will result in a decreased allocation to one or more of the other categories.

December 2022

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
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Non-Directed Orders as % of All Orders			Non-Marketable Limit Orders as % of Non- Directed Orders	Other Orders as % of Non-Directed Orders
100.00	65.08	11.82	19.11	3.99

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)
Virtu Americas, LLC (NITE)	15.86	15.47	13.33	16.06	28.83	15,194.90	10.0005	5,733.07	24.1142	2,324.64	5.0202	1,150.24	6.6240
Citadel Securities LLC (CDRG)	32.87	31.11	42.06	37.31	13.11	36,451.95	11.9298	23,036.90	30.7149	5,526.43	5.1360	-196.48	-2.4881
Jane Street Capital, LLC (JNST)	51.26	53.41	44.60	46.63	58.06	60,184.11	11.4736	27,322.83	34.3553	7,472.18	5.5565	3,935.84	11.2562

Material Aspects:

Virtu Americas, LLC (NITE):

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December 2022

Options

Summary

	n-Directed Orders Or	Marketable Limit ders as % of Non- Directed Orders	Non-Marketable Limit Orders as % of Non- Directed Orders	Other Orders as % of Non-Directed Orders
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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
0.00	0.00	0.00	0.00	0.00

Venues

Venue - Non- directed Order Flow	Non- Directed Order Orders (%) (%)	rs 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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Material Aspects: