William Blair Sell Side - Held NMS Stocks and Options Order Routing Public Report Generation Date: 2020-05-27 15:05:41.300 GMT -0400 Year: 2020 Quarter: 1

			S&P 500 Stocks
	Marketable Limit Orders as	Non-Marketable Limit Orders	
farket Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of
Directed Orders	Orders	Orders	Non-Directed Orders
97.39%	1.38%	1.20%	0.04%
	Directed Orders	larket Orders as Percent of Non- Directed Orders Orders	Directed Orders Orders Orders

Venues - Non Directed Orders

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			Non-N	larketable Limit Orders		Net Payment Paid/Received	for Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Ion-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) Marketa	ble Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	35.20%	34.80%	0.07%	0.33%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Vandham Securities Corp.	34.80%	34.03%	0.51%	0.25%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	30.01%	28.56%	0.80%	0.62%	0.04%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
January 2020			No	n-S&P 500 Stocks									

January 2020 Summary

		Marketable Limit Orders as	Non-Marketable Limit Orders	
Non-Directed Orders as	Market Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of
Percent of All Orders	Directed Orders	Orders	Orders	Non-Directed Orders
100.00%	73.52%	18.30%	7.74%	0.44%

Venues - Non Directed Orders

						1	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
				Non-Marketable Limit Orders		Net Payment Paid/Received for	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Ion-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	47.93%	34.25%	10.22%	3.41%	0.05%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	32.08%	24.34%	5.51%	2.06%	0.16%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Vandham Securities Corp.	20.00%	14.93%	2.57%	2.27%	0.23%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

January 2020

Summary				
		Marketable Limit Orders as	Non-Marketable Limit Orders	
Non-Directed Orders a:	Market Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of
Percent of All Order	Directed Orders	Orders	Orders	Non-Directed Orders
100.00%	41.21%	7.27%	50.87%	0.66%

Venues - Non Directed Orders

						,	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			Nor	n-Marketable Limit Orders		Net Payment Paid/Received for	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Non-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	35.26%	29.19%	29.01%	44.13%	14.29%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Morgan Stanley & Co. LLC	21.24%	28.39%	22.90%	12.70%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Susquehanna Capital Group	18.91%	27.94%	35.88%	5.33%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Wolverine Execution Services,													
LLC	9.20%	2.49%	2.29%	18.72%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Citigroup Global Markets, Inc.	7.95%	8.71%	4.58%	7.79%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Dash Financial Technologies													
LLC	4.88%	2.71%	3.82%	7.79%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Interactive Brokers LLC	1.76%	0.23%	0.76%	2.19%	85.71%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
CBOE Options Exchange	0.68%	0.11%	0.76%	1.37%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
National Financial Services	0.11%	0.23%	0.00%	0.00%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

February 2020 Summary

S&P 500 Stocks

Option Contracts

Option Contracts

Marketable Limit Orders as Non-Marketable Limit Orders Percent of Non-Directed as Percent of Non-Directed Other Orders as Percent of Orders Orders Orders Non-Directed Orders 1.22% 1.73% 0.00% Non-Directed Orders as Market Orders as Percent of Non-Percent of All Orders Directed Orders 100.00% 97.06%

Venues - Non Directed Orders

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			1	Ion-Marketable Limit Orders		Net Payment Paid/Received f	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Non-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) N	Marketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Vandham Securities Corp.	36.24%	35.54%	0.49%	0.22%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Citadel Securities LLC	34.89%	33.76%	0.22%	0.92%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	28.87%	27.76%	0.51%	0.59%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

February 2020 Summary

Non-S&P 500 Stocks Marketable Limit Orders as Non-Marketable Limit Orders Percent of Non-Directed as Percent of Non-Directed Other Orders as Percent of Orders Orders Anno-Directed Orders 7.42% 10.90% 0.77% Non-Directed Orders as Market Orders as Percent of Non-Percent of All Orders Directed Orders 100.00% 80.90%

Venues - Non Directed Orders

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received Net P	ayment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			Nor	n-Marketable Limit Orders		Net Payment Paid/Received f	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders Non-M	arketable Limit Orders	Ion-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) Ma	arketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	42.92%	33.71%	4.10%	4.82%	0.29%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	31.52%	25.27%	2.57%	3.34%	0.34%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Vandham Securities Corp.	25.56%	21.92%	0.75%	2.75%	0.14%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

February 2020

Su	mmary				
			Marketable Limit Orders as	Non-Marketable Limit Orders	
	Non-Directed Orders as	Market Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of
	Percent of All Orders	Directed Orders	Orders	Orders	Non-Directed Orders
	100.00%	36.08%	9.87%	53.04%	1.01%

Venues - Non Directed Orders

William Blair Sell Side - Held NMS Stocks and Options Order Routing Public Report

Generation Date: 2020-05-27 15:05:41.300 GMT -0400 Year: 2020 Quarter: 1

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			Non-N	arketable Limit Orders		Net Payment Paid/Received f	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Non-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) N	Aarketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	36.53%	28.85%	26.58%	43.66%	68.75%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Morgan Stanley & Co. LLC	18.53%	25.70%	25.95%	12.03%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Susquehanna Capital Group	17.14%	30.07%	28.48%	5.49%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Wolverine Execution Services,													
LLC	11.85%	3.15%	3.16%	20.39%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Citigroup Global Markets, Inc.	7.28%	6.47%	8.23%	7.84%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Dash Financial Technologies													
LLC	7.02%	5.24%	6.33%	8.63%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Interactive Brokers LLC	1.46%	0.35%	1.27%	1.70%	31.25%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Other	0.13%	0.00%	0.00%	0.26%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
NASDAQ PHLX Options	0.07%	0.17%	0.00%	0.00%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

 March 2020
 S&P 500 Stocks

 Summary
 Marketable Limit Orders as Non-Marketable Limit Orders

 Non-Directed Orders as Market Orders as Percent of Non-Directed
 Percent of All Orders

 Percent of All Orders
 Directed Orders

 100.00%
 \$5.83%
 1.65%
 1.88%
 0.94%

Venues - Non Directed Orders

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			N	on-Marketable Limit Orders		Net Payment Paid/Received for	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders N	on-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) Ma	arketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	49.61%	47.60%	0.62%	0.80%	0.59%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	35.60%	33.81%	0.95%	0.54%	0.30%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Vandham Securities Corp.	14.79%	14.42%	0.08%	0.24%	0.05%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

Summary					
		Marketable Limit Orders as	Non-Marketable Limit Orders		
Non-Directed Orders as	Market Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of	
Percent of All Orders	ercent of All Orders Directed Orders		Orders	Non-Directed Orders	
100.00%	84.91%	8.51%	6.44%	0.14%	

Venues - Non Directed Orders

March 2020

						1	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			No	n-Marketable Limit Orders		Net Payment Paid/Received f	or Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Non-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%)	Marketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	50.30%	43.029	6 4.07%	3.17%	0.04%	0	0.0000	C	0.0000	0	0.0000	0	0.0000
Virtu Americas LLC	31.58%	26.689	6 2.53%	2.28%	0.10%	0	0.0000	C	0.0000	C	0.0000	0	0.0000
Vandham Securities Corp.	18.05%	15.149	6 1.91%	0.99%	0.00%	0	0.0000	C	0.0000	0	0.0000	0	0.0000
Clearpool Execution Services,													
LLC	0.07%	0.079	6 0.00%	0.00%	0.00%	0	0.0000	C	0.0000	C	0.0000	0	0.0000

March	2020
Summar	y

umr	nary				
			Marketable Limit Orders as	Non-Marketable Limit Orders	
	Non-Directed Orders as	Market Orders as Percent of Non-	Percent of Non-Directed	as Percent of Non-Directed	Other Orders as Percent of
	Percent of All Orders	Directed Orders	Orders	Orders	Non-Directed Orders
	100.00%	28.16%	7.53%	63.46%	0.85%

Venues - Non Directed Orders

							Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received	Net Payment Paid/Received		Net Payment Paid/Received
			Nor	n-Marketable Limit Orders		Net Payment Paid/Received	for Market Orders (cents per	Marketable Limit Orders	Marketable Limit Orders	Non-Marketable Limit Orders	Ion-Marketable Limit Orders	Net Payment Paid/Received	Other Orders (cents per
Venue	Non-Directed Orders (%)	Market Orders (%) N	Aarketable Limit Orders (%)	(%)	Other Orders (%)	for Market Orders (USD)	hundred shares)	(USD)	(cents per hundred shares)	(USD)	(cents per hundred shares)	Other Orders (USD)	hundred shares)
Citadel Securities LLC	37.54%	28.13%	31.96%	42.89%	18.18%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Morgan Stanley & Co. LLC	18.88%	28.65%	24.74%	13.85%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Wolverine Execution Services,													
LLC	14.14%	3.65%	1.03%	20.83%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Susquehanna Capital Group	13.07%	27.34%	25.77%	5.02%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Citigroup Global Markets, Inc.	8.10%	8.07%	6.19%	8.46%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Dash Financial Technologies													
LLC	6.50%	3.91%	5.15%	7.97%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Interactive Brokers LLC	1.38%	0.00%	3.09%	0.74%	81.82%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
Other	0.31%	0.00%	2.06%	0.25%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000
NASDAQ PHLX Options	0.08%	0.26%	0.00%	0.00%	0.00%	0	0.0000	0	0.0000	0	0.0000	0	0.0000

This report is for informational purposes only, and while based on information believed to be reliable, we do not guarantee its complete accuracy. Information and estimates contained in this report are subject to change without notice. This report does not endorse or recommend any particular security or market participant. William Blair routes all option order activity to National Financial Services for execution. Order routing methodology and handling decisions are made by National Financial. William Blair reviews these transactions for best execution given the market volatility and order along with the size of the order.

Non-S&P 500 Stocks

Option Contracts