#### SIGNATURE SECURITIES - Held NMS Stocks and Options Order Routing Public Report Generated on Thu Apr 30 2020 01:17:43 GMT-4 EDT

## 1st Quarter, 2020

January 2020

S&P 500 Stocks

Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	58.10	3.81	10.79	27.30

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 fo Market Orders(cents per hundred shares)	Paid/Received fo Marketable Limit	Net Payment Paid/Received fo r Marketable Limit Orders(cents per hundred shares)	Paid/Received for Non-Marketable	per hundred	Net Payment	Net Payment Paid/Received f or Other Orders(cents pe hundred shares	r
<b>Citadel Securities</b>														
LLC(CDRG)	37.77	34.88	19.35	2.08	74.42		0	0	0	) (	0	D	0	0
National Financia	I													
Services LLC(XSTM)	29.61	41.86	38.71	0.00	0.00		0	0	0	) (	0	D	0	0
VIRTU Americas LLC(NITE) NASDAQ Execution	16.31	18.27	6.45	6.25	18.60		0	0	0	0 (	0	D	0	0
Services, LLC(NSDQ) G1 Execution	8.15	0.00	0.00	79.17	0.00		0	0	0	) (	0	D	0	0
Services, LLC(ETMM) State Street	3.00	2.99	6.45	2.08	2.33		0	0	0	) (	0	D	0	0
Global Markets, LLC(SSBS) UBS Securities,	2.15	0.66	25.81	0.00	0.00		0	0	0	) (	D	D	0	0
LLC(UBSS)	1.29	1.00	0.00	0.00	3.49		0	0	0	) (	0	D	0	0
New York Stock Exchange(NYSE) Two Sigma	0.86	0.00	0.00	8.33	0.00		0	0	0	0 (	0	D	0	0
Securities, LLC(SOHO)	0.43	0.00	3.23	0.00	1.16		0	0	0		)	D	0	0
Cboe EDGX U.S. Equities Exchange(EDGX)	0.21	0.00	0.00	2.08	0.00		0	0	0	) (	)	D	0	0

Material Aspects:

## January 2020

Non-S&P 500 Stocks Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	91.70	2.12	3.64	2.54

Venues

Venue - Non- directed Order Flow	Non-Directed Orders(%)	Market Orders(%)	Marketable Limit Orders(%)			Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received fo Market Orders(cents per hundred shares)	Paid/Received fo Marketable Limit	Net Payment Paid/Received for r Marketable Limit Orders(cents per hundred shares)	•	per hundred	Net Payment	Net Payment Paid/Received for Other Orders(cents pe hundred shares)	er
Citadel Securities LLC(CDRG)	35.01	35.83	24.07	4.41	66.67		0	0	0 (	) (	D	D	0	0
National Financia Services	I													
LLC(XSTM) VIRTU Americas	32.38	33.49	46.30	1.47	0.00		0	0	0 (	) (	0	0	0	0
LLC(NITE) G1 Execution	19.08	19.66	12.96	1.47	30.00		0	0	0 0	) (	D	D	0	0
Services, LLC(ETMM) State Street	5.96	6.30	1.85	1.47	0.00		0	0	0 0	) (	0	D	0	0
Global Markets, LLC(SSBS) NASDAQ	3.25	3.15	12.96	0.00	0.00		0	0	0 (	) (	0	)	0	0
Execution Services,														
LLC(NSDQ) UBS Securities,	1.11	0.00	0.00	36.76	0.00		0	0	0 (	) (	0	0	0	0
LLC(UBSS)	1.07	1.05	1.85	0.00	3.33		0	0	0 (	) (	0	0	0	0
Cboe EDGX U.S. Equities Exchange(EDGX) Two Sigma	1.02	0.00	0.00	33.82	0.00		0	0	0 (	) (	0	D	0	0
Securities, LLC(SOHO)	0.49	0.48	0.00	1.47	0.00		0	0	0 (	) (	0	0	0	0
New York Stock Exchange(NYSE)	0.31	0.00	0.00	10.29	0.00		0	0	0 (	) (	0	D	0	0

Material Aspects:

January 2020

## Option Contracts

Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	25.76	6.06	56.06	12.12

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 fo Market Orders(cents per hundred shares)	Paid/Received for Marketable Limit	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)		per hundred	Net Payment	Net Payment Paid/Received f r Other Orders(cents pe hundred shares	er
Citadel Securities LLC(CDRG) MORGAN	35.82	17.65	0.00	35.14	100.00		0	0 0	) (	) (	) (	) (	0	0
STANLEY & CO. LLC(MSCO) Susquehanna	25.37	47.06	20.00	21.62	0.00		0	0 0	) (	) (	) (	) (	0	0
Capital Group(SUSQ) Wolverine Execution	11.94	29.41	40.00	2.70	0.00		0	0 0	) (	) (	) (	) (	0	0
Services LLC(WEXX)	11.94	0.00	0.00	21.62	0.00		0	0 (	) (	) (	) (	) (	0	0
DASH FINANCIAL TECHNOLOGIES LLC(DASH)	8.96	0.00	0.00	16.22	0.00		0	0 0	) (	) (	) (	) (	0	0
Citigroup Global Markets, Inc.(CIT	<b>1)</b> 4.48	5.88	20.00	2.70	0.00		0	0 (	) (	) (	) (	) (	0	0
Interactive Brokers LLC(IBKR	) 1.49	0.00	20.00	0.00	0.00		0	0 0	) (	) (	) (	) (	0	0

Material Aspects:

February 2020

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		Other Orders as % of Non-Directed Orders
100.00	70.80	0.71	4.96	23.54

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 fo Market Orders(cents per hundred shares)	Paid/Received fo Marketable Limit	Net Payment Paid/Received for r Marketable Limit Orders(cents per hundred shares)	Paid/Received fo Non-Marketable	per hundred	Net Payment	Net Payment Paid/Received for Other Orders(cents per hundred shares)	r
Citadel Securities LLC(CDRG)	36.30	31.98	28.57	9.30	65.41		0	0	0 (	0	0	0	0	0
National Financia Services	ıl													
LLC(XSTM) VIRTU Americas	31.16	39.94	42.86	0.00	0.00		0	0	0 (	0	0	0	0	0
LLC(NITE) G1 Execution	19.15	17.53	28.57	6.98	30.08		0	0	0 0	D	0	0	0	0
Services, LLC(ETMM) NASDAQ Execution	4.76	6.17	0.00	0.00	0.00		0	0	0 (	0	0	0	0	0
Services, LLC(NSDQ) UBS Securities,	2.38	0.00	0.00	44.19	0.00		0	0	0 0	D	0	0	0	0
LLC(UBSS) Two Sigma	1.88	2.11	0.00	0.00	1.50		0	0	0 (	0	0	0	0	0
Securities, LLC(SOHO) New York Stock	1.25	0.97	0.00	0.00	3.01		0	0	0 0	D	0	0	0	0
Exchange(NYSE)	1.13	0.00	0.00	20.93	0.00		0	0	0 (	D	0	0	0	0
Cboe EDGX U.S. Equities Exchange(EDGX) JANE STREET CAPITAL,	0.75	0.00	0.00	13.95	0.00		0	0	0 0	D	0	0	0	0
LLC(JNST)	0.50	0.65	0.00	0.00	0.00		0	0	0 (	D	0	0	0	0

February 2020

Non-S&P 500 Stocks Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	87.47	1.51	4.64	6.37

Venue - Non- directed Order Flow	Non-Directed Orders(%)	Market Orders(%)	Marketable Limit Orders(%)	Non-Marketable Limit Orders(%)		Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received fo Market Orders(cents per hundred shares)	Paid/Received for Marketable Limit	Net Payment Paid/Received for or Marketable Limit Orders(cents per hundred shares)		per hundred	Net Payment	Net Payment Paid/Received for Other Orders(cents pe hundred shares)	r
Citadel Securities LLC(CDRG)	35.05	35.82	26.47	1.59	59.32		0	0	0 (	)	0	0	0	0
National Financia Services														
LLC(XSTM) VIRTU Americas	33.78	36.70	47.06	0.00	0.00		0	0	0 0	)	0	0	0	0
LLC(NITE) G1 Execution Services,	18.59	18.67	8.82	6.35	35.59		0	0	0 0	)	0	0	0	0
LLC(ETMM) NASDAQ Execution	5.02	5.48	2.94	0.00	1.69		0	0	0 0	)	D	0	0	0
Services, LLC(NSDQ) UBS Securities,	1.98	0.00	0.00	44.44	0.00		0	0	0 0	)	D	0	0	0
LLC(UBSS)	1.41	1.43	0.00	0.00	3.39		0	0	0 0	)	D	0	0	0
Cboe EDGX U.S. Equities Exchange(EDGX)	1 34	0.00	0.00	30.16	0.00		0	0	0 0	)	n	0	0	0
State Street Global Markets,	1.54	0.00					0	0	0	, ,		0	0	0
LLC(SSBS) JANE STREET CAPITAL,	1.27	1.03	14.71	0.00	0.00		0	0	0 0	)	D	0	0	0
LLC(JNST)	0.57	0.64	0.00	0.00	0.00		0	0	0 0	)	D	0	0	0
New York Stock Exchange(NYSE)	0.49	0.00	0.00	11.11	0.00		0	0	0 0	)	D	0	0	0

February 2020

Option Contracts Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	41.18	3.92	43.14	11.76

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 fo Market Orders(cents per hundred shares)	Paid/Received for Marketable Limit	• •	Paid/Received for	per hundred	Net Payment	Net Payment Paid/Received for Other Orders(cents per hundred shares)	r
Citadel Securities LLC(CDRG) Susquehanna	33.33	14.29	0.00	36.36	100.00		0	0 0	) (	C	)	D	0	0
Capital Group(SUSQ) MORGAN STANLEY & CO.	23.53	47.62	50.00	4.55	0.00		0	0 0	) (	C	)	D	0	0
LLC(MSCO) Wolverine Execution	15.69	19.05	0.00	18.18	0.00		0	0 0	) (	C	)	D	0	0
Services LLC(WEXX)	13.73	0.00	0.00	31.82	0.00		0	0 (	) (	C	)	0	0	0
Citigroup Global Markets, Inc.(CIT	<b>I)</b> 9.80	14.29	50.00	4.55	0.00		0	0 0	) (	C	)	D	0	0
DASH FINANCIAL TECHNOLOGIES LLC(DASH)	3.92	4.76	0.00	4.55	0.00		0	0 0	) (	C	)	D	0	0

-

## March 2020

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		Other Orders as % of Non-Directed Orders
100.00	70.47	0.50	7.40	21.63

Venue - Non- directed Order Flow	Non-Directed Orders(%)	Market Orders(%)	Marketable Limit Orders(%)	Non-Marketable Limit Orders(%)		Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received fo Market Orders(cents per hundred shares)	Paid/Received fo Marketable Limit	Orders(cents per	Paid/Received for Non-Marketable	per hundred		Net Payment Paid/Received f Other Orders(cents pe hundred shares	er
Citadel Securities LLC(CDRG)	39.03	37.46	28.57	15.76	61.54		0	0	D (	) (	)	0 0	0	0
National Financia Services LLC(XSTM)	al 29.44	39.40	57.14	0.00	0.00		0	0	D (	) (	)	0 0	0	0

VIRTU Americas LLC(NITE) NASDAQ Execution	14.09	10.68	14.29	11.52	31.92	0	0	0	0	0	0	0	0
Services, LLC(NSDQ) G1 Execution	3.90	0.00	0.00	39.39	0.00	0	0	0	0	0	0	0	0
Services, LLC(ETMM)	3.78	4.94	0.00	0.61	0.38	0	0	0	0	0	0	0	0
UBS Securities, LLC(UBSS) New York Stock	3.48	3.88	0.00	1.21	3.08	0	0	0	0	0	0	0	0
Exchange(NYSE) Two Sigma		0.00	0.00	23.64	0.00	0	0	0	0	0	0	0	0
Securities, LLC(SOHO) JANE STREET	1.86	1.78	0.00	0.61	3.08	0	0	0	0	0	0	0	0
CAPITAL, LLC(JNST)	0.96	1.21	0.00	0.61	0.00	0	0	0	0	0	0	0	0
Cboe EDGX U.S. Equities Exchange(EDGX)	0.66	0.00	0.00	6.67	0.00	0	0	0	0	0	0	0	0

March 2020

Non-S&P 500 Stocks Summary

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	90.70	1.16	3.04	5.11

	n-Directed ders(%)	Market Orders(%)	Marketable Limit Orders(%)			Net Payment Paid/Received for Market Orders(USD)		Paid/Received fo Marketable Limit		Paid/Received for	per hundred	Net Payment	Net Payment Paid/Received f Other Orders(cents pe hundred shares	er
Citadel Securities LLC(CDRG) 38.63	63	39.33	15.56	14.47	54.76		0 0	)	) 0		)	)	)	0
National Financial Services LLC(XSTM) 31.33 VIRTU Americas LLC(NITE) 13.83				0.00	0.00		0 (		) O				)	0

G1 Execution Services,													
LLC(ETMM) UBS Securities,	5.34	5.71	2.22	2.63	0.00	0	0	0	0	0	0	0	0
LLC(UBSS)	3.30	3.53	0.00	1.32	1.19	0	0	0	0	0	0	0	0
Two Sigma Securities,													
LLC(SOHO) JANE STREET	2.03	1.99	2.22	1.32	3.57	0	0	0	0	0	0	0	0
CAPITAL, LLC(JNST) NASDAQ	1.86	1.95	4.44	0.00	0.00	0	0	0	0	0	0	0	0
Execution Services, LLC(NSDQ)	1.36	0.00	0.00	42.11	0.00	0	0	0	0	0	0	0	0
State Street Global Markets, LLC(SSBS)	1.14	0.88	17.78	0.00	0.00	0	0	0	0	0	0	0	0
Cboe EDGX U.S.													
Equities Exchange(EDGX)	0.76	0.00	0.00	23.68	0.00	0	0	0	0	0	0	0	0

March 2020

# Option Contracts

Summary
---------

		Marketable Limit	Non-Marketable	
Non-Directed	Market Orders as	Orders as % of	Limit Orders as %	Other Orders as %
Orders as % of All	% of Non-	Non-Directed	of Non-Directed	of Non-Directed
Orders	Directed Orders	Orders	Orders	Orders
100.00	40.00	10.71	49.29	0.00

Venue - Non directed Ord Flow		Market Orders(%		Non-Marketable Limit Orders(%)	Other Orders(%)	Net Payment Paid/Received for Market Orders(USD)	Net Payment Paid/Received fo Market Orders(cents per hundred shares)	Paid/Received for Marketable Limit	Net Payment Paid/Received for Marketable Limit Orders(cents per hundred shares)	Paid/Received for	per hundred	Net Payment	Net Payment Paid/Received fo Other Orders(cents per hundred shares)	r
Citadel Secur LLC(CDRG) Susquehann Capital	35.81	19.30	26.67	50.00	0.00		0	0 (	D C	C	) (	) (	I	0
Group(SUSQ Wolverine Execution Services LLC(WEXX)	) 20.27 16.22	33.33 3.51	46.67 0.00	5.26 28.95	0.00		0	0 0		C		) (		0

#### MORGAN STANLEY & CO. LLC(MSCO) 14.86 13.33 6.58 0.00 0 0 0 0 0 0 0 26.32 Citigroup Global Markets, Inc.(CITI) 7.43 0 0 0 0 0 0 0 0 10.53 13.33 3.95 0.00 DASH FINANCIAL TECHNOLOGIES LLC(DASH) 5.41 7.02 0.00 0.00 0 0 0 0 0 0 0 0 5.26

Material Aspects: