

UBS ATS Monthly Volume Summary

November 2018

UBS ATS facilitates interaction among equity orders received from a broad range of clients and market participants, including institutional clients using UBS algorithms, broker-dealers, UBS trading desks, market makers, retail brokers, and active traders (sometimes referred to as High Frequency Traders or "HFT").

Key Performance Metrics¹

Average daily matched shares:	190,081,137
Average daily matched notional:	\$8,811,841,266
Total Symbols Active:	8,757
Total Symbols Traded:	7,899
Peak daily matched shares:	256,702,633
Average Price Improvement Per Share ² :	\$0.0148
Percentage of shares that received price improvement ² :	82.35%
Average Trade Size:	151
Average Total executed shares per order:	183
Executed share percentage at midpoint ³ :	64.50%
Percentage of volume executed versus UBS Principal orders ⁴ :	2.86%

Executed Block Metrics⁵

Average daily volume block % \geq 10k shares:	3.06%
Average daily value block % \geq 200k notional:	3.90%
Average daily volume demi-block % \geq 2k-9,999 shares:	8.38%
Average daily value demi-block % \geq \$100k-200k:	2.98%
Peak executed shares in a single print:	514,890
Peak executed notional in a single print:	\$20,399,234

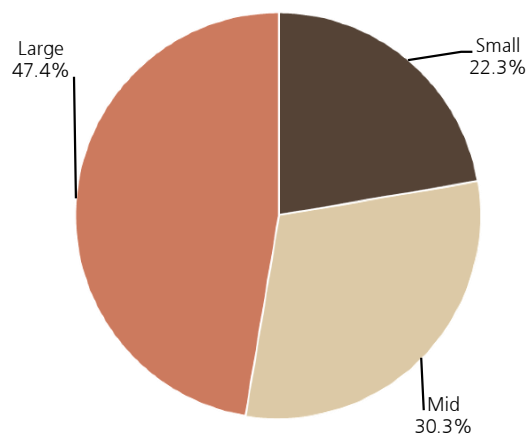
Order Block Metrics⁶

Average daily Order block % \geq 10k shares:	24.28%
Average daily Order block % \geq 200k notional:	28.37%
Average daily Order demi-block % \geq 2k-9,999 shares:	20.48%
Average daily Order demi-block % \geq \$100k -200k:	9.95%

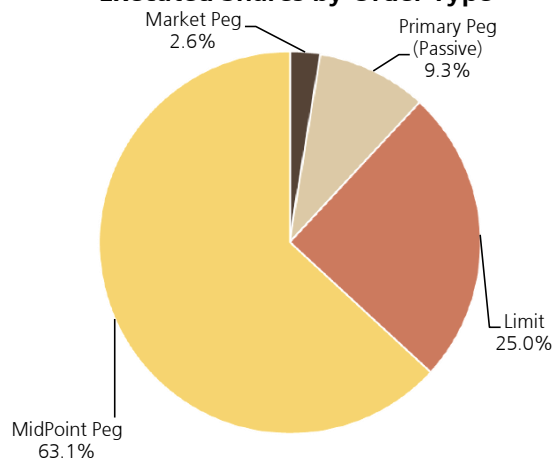
Conditional Indication Metrics

Average Conditional Indication Quantity:	30,994
Average Conditional Indication Minimum Quantity:	2,644
Average Conditional Indication Notional Value:	\$1,259,963
Average Firm Up Quantity:	30,325
Average Firm Up Minimum Quantity:	2,192
Average Executed Quantity:	6,753
Average Executed Notional:	\$313,555

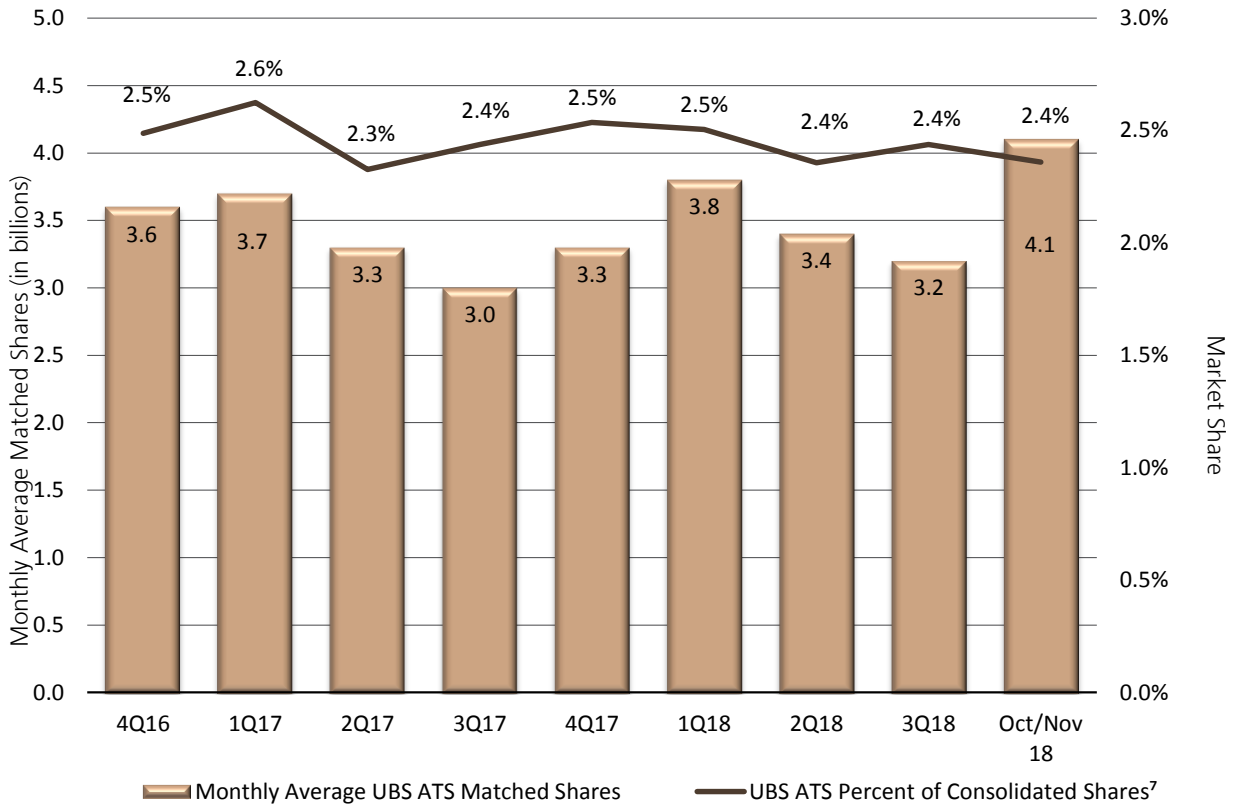
Executed Shares by Market Cap



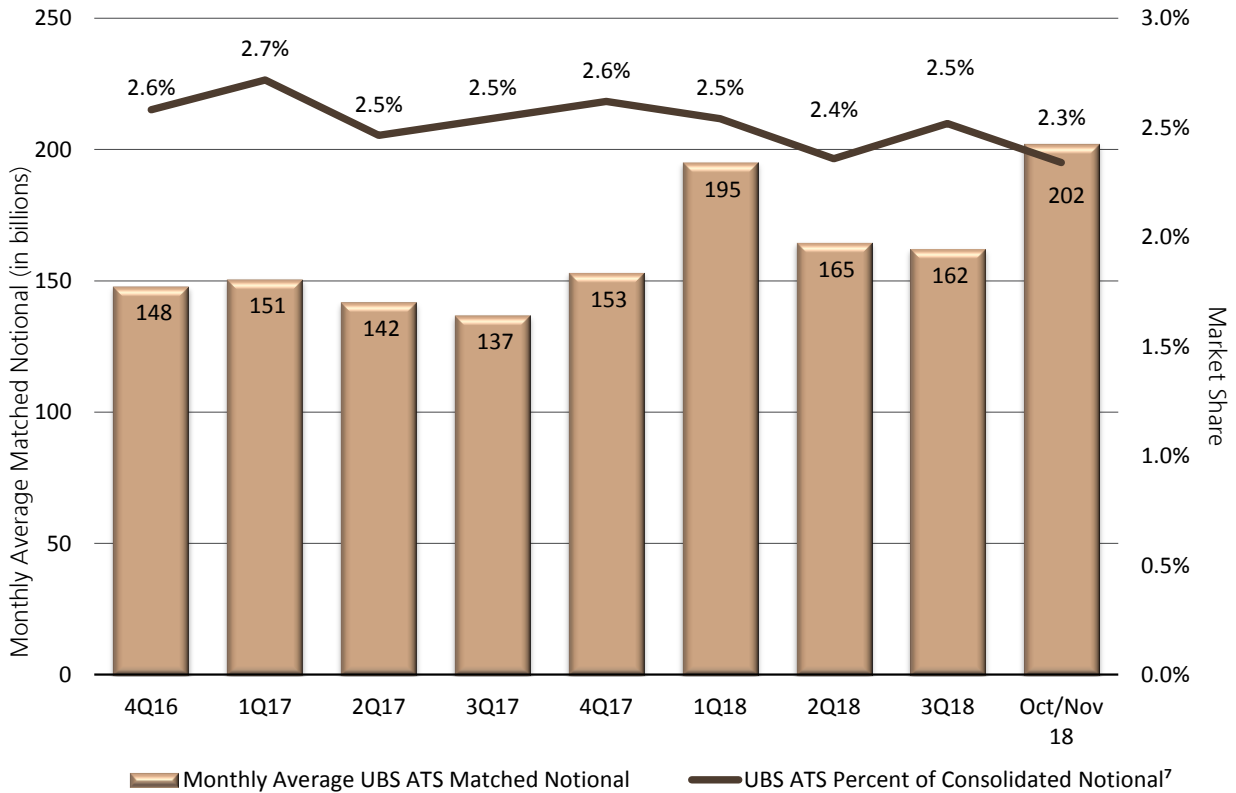
Executed Shares by Order Type



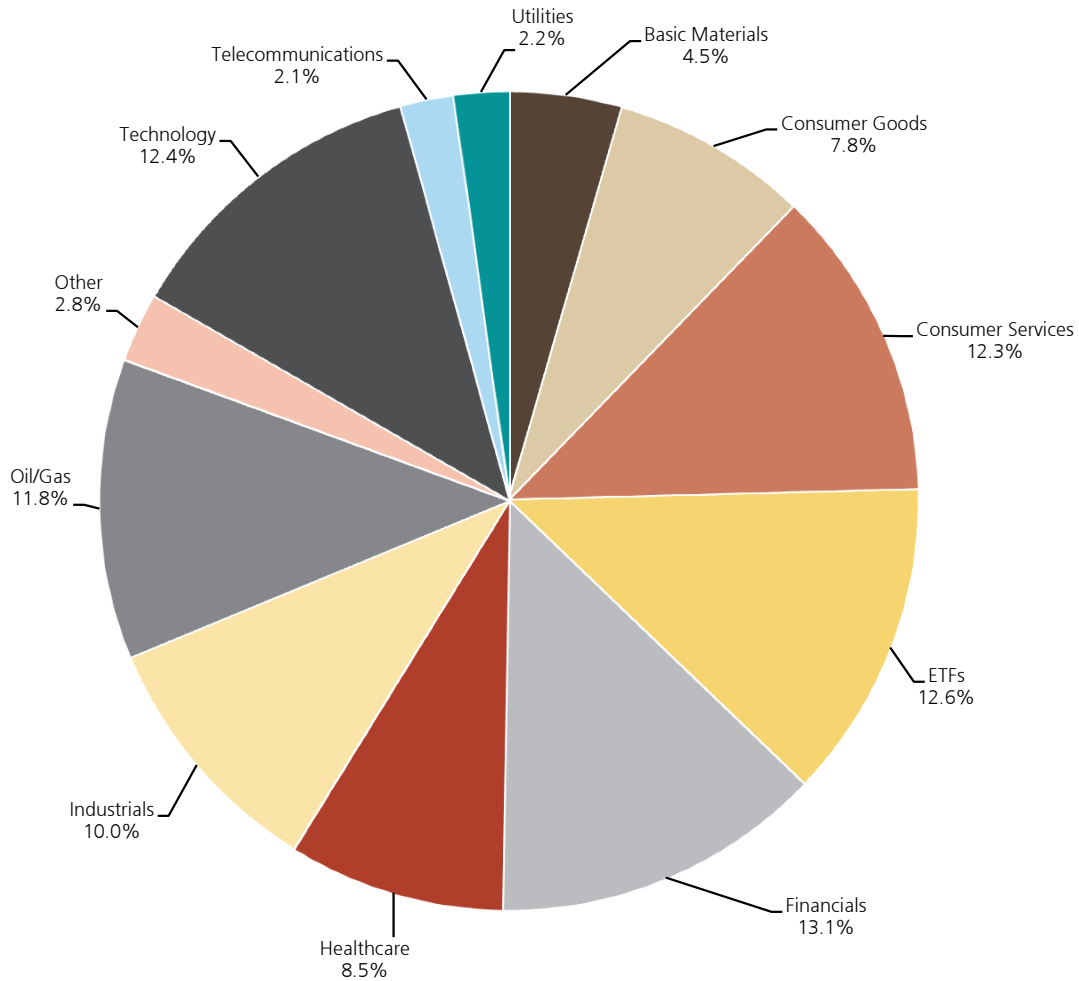
UBS ATS Monthly Average Matched Shares, Q4 2016 - Nov 2018



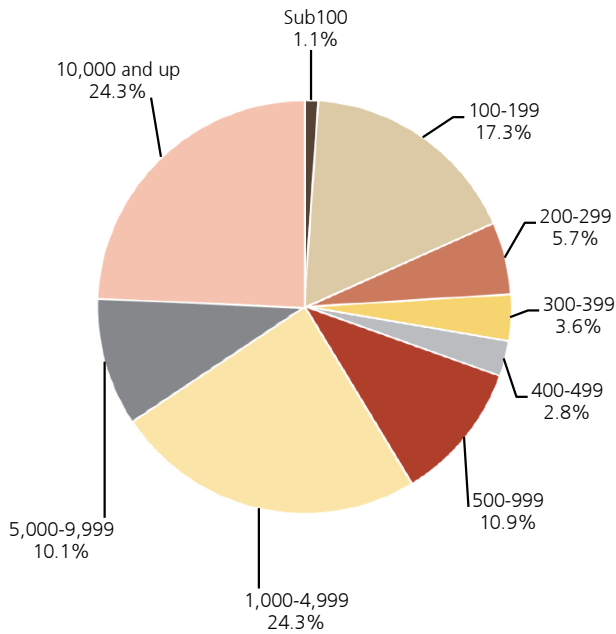
UBS ATS Monthly Average Matched Notional, Q4 2016 - Nov 2018



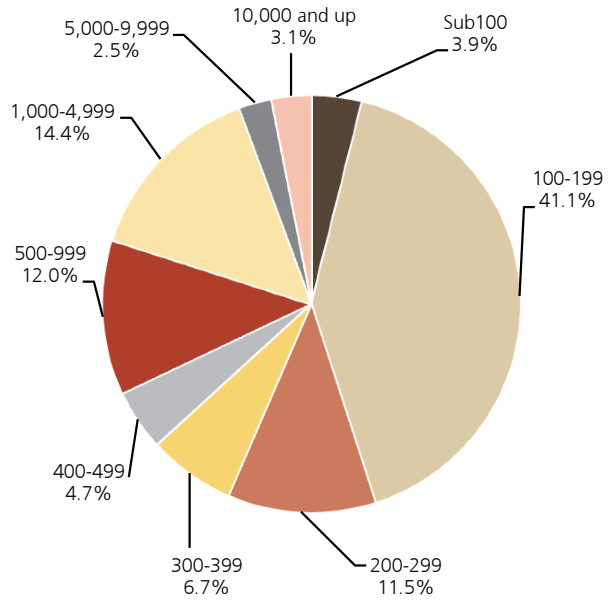
Executed Shares by Sector



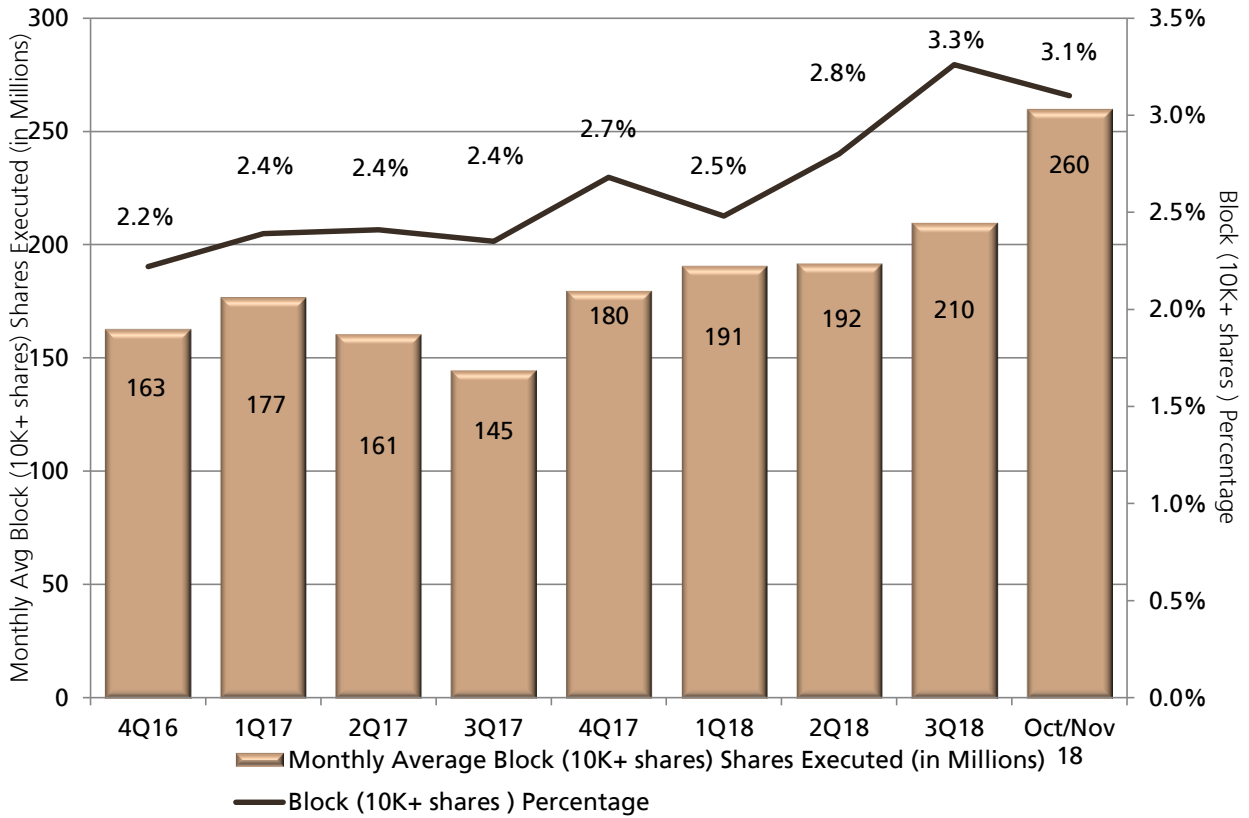
Ordered Shares by Size Bucket



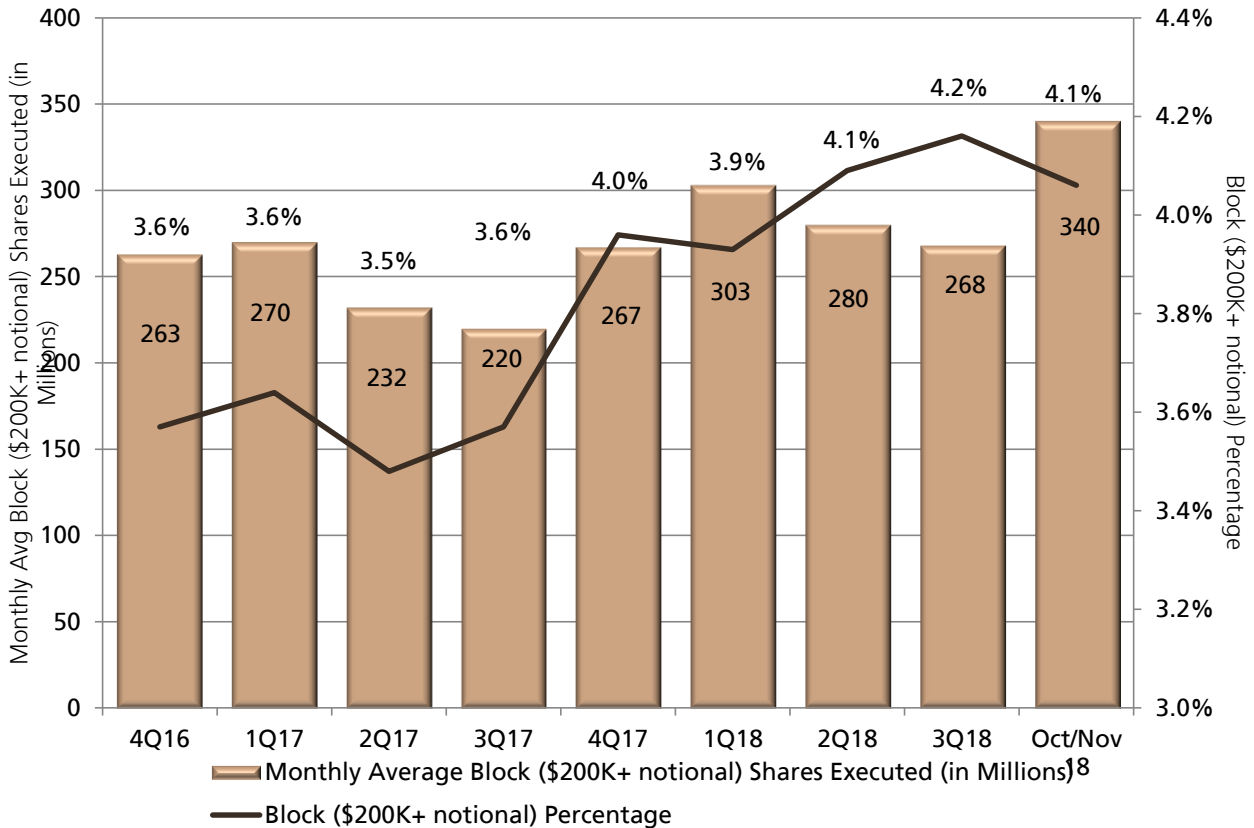
Executed Shares by Size Bucket



Monthly Average Block (10K+ shares) Shares Executed, Q4 2016 - Nov 2018



Monthly Average Block (\$200K+ notional) Shares Executed, Q4 2016 - Nov 2018



Endnotes:

1. All share and notional numbers disclosed reflect a single count methodology
2. Price Improvement is an execution at any price less than the NBO for buy orders and greater than the NBB for sell orders
3. Includes executed shares in locked markets
4. For purposes of these statistics, the term "UBS Principal orders" means any order for an account that is owned by an entity within the UBS Investment Bank Division
5. **ADV Block Execution Calculations**
 - ADV Block % ($\geq 10,000$ shares) = total shares executed where the share quantity of the execution is $\geq 10,000$ shares, divided by the total shares executed in UBS ATS
 - ADV Block % ($\geq \$200k$ notional) = total shares executed where the notional of the execution is $\geq \$200k$ notional, divided by the total shares executed in UBS ATS
 - ADV Demi-Block % ($\geq 2,000$ – $9,999$ shares) = total shares executed where the share quantity of the execution is $\geq 2,000$ shares, and $< 10,000$ shares, divided by the total shares executed in UBS ATS
 - ADV Demi-Block % ($\geq \$100k$ – $\$200k$ notional) = total shares executed where the notional of the execution is $\geq \$100k$ notional, and $< \$200k$ notional, divided by the total shares executed in UBS ATS
6. **ADV Block Order Calculations**
 - ADV Block % ($\geq 10,000$ shares) = total shares ordered where the share quantity of the order is $\geq 10,000$ shares, divided by the total shares ordered in UBS ATS
 - ADV Block % ($\geq \$200k$ notional) = total shares ordered where the notional of the order is $\geq \$200k$ notional, divided by the total shares ordered in UBS ATS
 - ADV Demi-Block % ($\geq 2,000$ – $9,999$ shares) = total shares ordered where the share quantity of the order is $\geq 2,000$ shares, and $< 10,000$ shares, divided by the total shares ordered in UBS ATS
 - ADV Demi-Block % ($\geq \$100k$ – $\$200k$ notional) = total shares ordered where the notional of the order is $\geq \$100k$ notional, and $< \$200k$ notional, divided by the total shares ordered in UBS ATS
7. Consolidated Shares and Consolidated Notional information sourced from Bloomberg using MVOL and MVAL functions

Stated percentages may not sum to 100% due to rounding practices. Average daily statistics are rounded down to the nearest whole number.

Issued in the US by UBS Securities LLC, member NYSE, FINRA, SIPC.

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