



April 23, 2018

Dear Customers and Members of the Trading Community,

Over the past 25 years, the Cboe Volatility Index (VIX) has become the leading, global indicator of market volatility for the marketplace. It could only achieve this status through the support of our Trading Permit Holders and their customers, other market participants, our clients and investors.

In light of recent media coverage, we would like to take this opportunity to provide our valued customers with facts regarding the April 18<sup>th</sup> VIX settlement and our strong views on claims of potential manipulation made in an academic paper. We would also like to discuss certain volume and liquidity trends that have been observed in the VIX settlement process, and the steps Cboe is taking to enhance liquidity.

During the opening auction on April 18<sup>th</sup>, a single market participant submitted orders to buy approximately 212,000 SPX options across a wide range of strike prices. Five additional market participants submitted buy orders totaling 20,000 options. The size and structure of these buy orders appeared consistent with the weights prescribed by the VIX Index formula. Offsetting this buy interest were sell orders submitted by nine participants for a total of 118,000 contracts. This left a buy order imbalance of 114,000 SPX options. This buy order imbalance contributed to the opening prices of the option series that were used to calculate the final VIX settlement value. Based on the orders that were submitted, we believe the auction process functioned as intended, notwithstanding that the final settlement value was higher than what market participants may have otherwise expected.

The April settlement mirrors a larger liquidity trend we recently have observed on VIX monthly settlement mornings. We are assessing steps that Cboe can take to enhance the VIX settlement process and attract more liquidity to our settlement auction. We believe that our planned technology initiatives for Cboe Options Exchange will provide our market-makers with the capability to respond more efficiently to auctions at settlement. We are targeting Monday, April 30<sup>th</sup>, for the migration of SPX options to our Hybrid market model. Once migrated, all SPX market-makers will be able to stream their own electronically accessible quotes. This migration should increase the number of participants who can quote during the opening auction which can lead to increased liquidity.

The migration of SPX to the Hybrid market model will also bring other enhancements to market-makers. Electronic allocation on simple and complex order trades will be pro-rata with no



customer priority or market-maker participation entitlements. We expect these enhancements will provide more transparency, with more visible quotes, leading to more interaction and ultimately, improved liquidity, including possibly during the SPX opening used for VIX settlement.

These initiatives to enhance market-maker liquidity are by no means our last. As we prepare for the migration of Cboe Options Exchange to Bats technology in October 2019, we plan to incorporate further enhancements to the “new” Cboe Options marketplace.

Finally, we would like to again address the claims of possible manipulation of the settlement process. We reiterate that we believe these claims are without merit, and that the academic paper’s analysis and conclusions are based upon a fundamental misunderstanding about how VIX derivatives are traded and settled. The trading behavior the author considered suspicious is consistent with normal and legitimate trading behavior.

As we have noted in the past, we take seriously any potential market abuse. We have and will continue to be highly focused on our auction and settlement process. Cboe surveils for bad actors constantly and vigilantly. Our regulatory department and FINRA, our regulatory services provider, have dedicated surveillance programs that carefully review every settlement. You have our word that if our regulatory efforts were to uncover any manipulation, it would be rooted out, swiftly and decisively. Working with our regulatory staff to preserve the integrity of our marketplace is our highest priority.

Over the years, we’ve worked to enhance VIX futures and options trading, educate investors and seek to provide deep, liquid markets in which our products trade. This mission will not change.

Rest assured, the integrity of our VIX products and markets is paramount.

Sincerely,

A handwritten signature in black ink that reads 'Ed Tilly'.

Ed Tilly  
Chairman and Chief Executive Officer

A handwritten signature in black ink that reads 'Chris Concannon'.

Chris Concannon  
President and Chief Operating Officer