SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-99222; File No. SR-CBOE-2023-018)

December 21, 2023

Self-Regulatory Organizations; Cboe Exchange, Inc.; Notice of Filing of Amendment No. 3 and Order Granting Accelerated Approval of a Proposed Rule Change, as Modified by Amendment No. 3, to Make Permanent the Operation of its Flexible Exchange Options Pilot Program Regarding Permissible Exercise Settlement Values for FLEX Index Options

I. Introduction

On April 10, 2023, Cboe Exchange, Inc. ("Exchange") filed with the Securities and Exchange Commission ("Commission"), pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act")[1] and Rule 19b-4 thereunder,[2] a proposed rule change to make permanent the operation of its Flexible Exchange Options ("FLEX Options") pilot program that permits PM-settled Flexible Exchange Index Options ("FLEX PM Third Friday Options") to expire on or within two business days of the third-Friday-of-the-month expirations for non-FLEX Options ("Pilot Program").[3] The proposed rule change was published for comment in the Federal Register on April 28, 2023.[4]

On June 8, 2023, pursuant to Section 19(b)(2) of the Act,[5] the Commission designated a longer period within which to approve the proposed rule change, disapprove the proposed rule change, or institute proceedings to determine whether to disapprove the proposed rule change.[6]

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1 15 U.S.C. 78s(b)(1).

2 17 CFR 240.19b-4.

3 A third-Friday-of-the month expiration is referred to as "Expiration Friday". Prior to the Pilot Program, Exchange rules prohibited PM-settled FLEX Index Options to expire on any business day that falls on or within two business days of an Expiration Friday. During the Pilot Program, PM-settled FLEX Index Options are permitted on or within two business days of an Expiration Friday.

4 See Securities Exchange Act Release No. 97368 (April 24, 2023), 88 FR 26353 ("Notice").

5 15 U.S.C. 78s(b)(2).

6 See Securities Exchange Act Release No. 97672, 88 FR 38930 (June 14, 2023).

On July 19, 2023, the Commission instituted proceedings under Section 19(b)(2)(B) of the Act[7] to determine whether to approve or disapprove the proposed rule change.[8] On September 26, 2023, CBOE filed Amendment No. 1 to the proposed rule change.[9] On September 27, 2023, the Commission designated a longer period for Commission action on the proposed rule change.[10] On November 20, 2023, CBOE filed Amendment No. 2 to the proposed rule change.[11] On December 7, 2023, CBOE filed Amendment No. 3 to the proposed rule change.[12] The Commission is publishing this notice to solicit comments on Amendment No. 3 from interested persons, and is approving the proposed rule change, as modified by Amendment No. 3, on an accelerated basis.

II. Self-Regulatory Organization's Description of the Proposal, as Modified by Amendment No. 3[13]

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received on the proposed rule change. The text of these statements may be examined at the places specified in

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7 15 U.S.C. 78s(b)(2)(B).

8 See Securities Exchange Act Release No. 97950, 88 FR 47930 (July 25, 2023).

9 Amendment No. 1 superseded and replaced the original proposal in its entirety. Amendment No. 1 was subsequently superseded and replaced in its entirety by Amendment No. 2.

10 See Securities Exchange Act Release No. 98557, 88 FR 68236 (October 3, 2023). The Commission designated December 24, 2023, as the date by which the Commission shall approve or disapprove the proposed rule change.

11 Amendment No. 2 superseded and replaced Amendment No. 1 in its entirety. Amendment No. 2 was subsequently superseded and replaced in its entirety by Amendment No. 3.

12 Amendment No. 3, which supersedes and replaces Amendment No. 2 in its entirety, provides additional support and data for the Exchange's assertion that listing and trading of FLEX PM Third Friday Index Options under the Pilot Program has had no negative impact on the market and price volatility of underlying indexes and their underlying component stocks or related products or negatively impacts options market quality. Amendment No. 3 is available at https://www.sec.gov/comments/sr-cboe-2023-018/srcboe2023018-308519-794402.pdf.

13 This Section II reproduces Amendment No. 3, as filed by the Exchange.

Item IV below. The Exchange has prepared summaries, set forth in sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and the Statutory Basis for, the Proposed Rule Change

1. Purpose

The Exchange proposes to make permanent its Pilot Program that permits the Exchange to list FLEX Options overlying indexes ("FLEX Index Options") whose exercise settlement value is derived from closing prices on the last trading day prior to expiration that expire on or within two business days of a third Friday-of-the-month expiration day for a non-FLEX Option (other than QIX options) ("FLEX PM Third Friday Options"). The Securities and Exchange Commission (the "Commission") approved a Cboe Options rule change that, among other things, established a pilot program regarding permissible exercise settlement values for FLEX Index Options on January 28, 2010.[14] The Exchange has extended the pilot period nearly 20 times since the Commission initially approved the Pilot Program in 2010, with the pilot period currently set to expire on the earlier of May 6, 2024 or the date on which the pilot program is approved on a permanent basis.[15] The Exchange hereby requests that the Commission approve the Pilot Program on a permanent basis.

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14 Securities Exchange Act Release No. 61439 (January 28, 2010), 75 FR 5831 (February 4, 2010) (SR-CBOE-2009-087) ("Approval Order"). The initial pilot period was set to expire on March 28, 2011, which date was added to the rules in 2010. See Securities Exchange Act Release No. 61676 (March 9, 2010), 75 FR 13191 (March 18, 2010) (SR-CBOE-2010-026).

15 See Securities Exchange Act Release Nos. 64110 (March 23, 2011), 76 FR 17463 (March 29, 2011) (SR-CBOE-2011-024); 66701 (March 30, 2012), 77 FR 20673 (April 5, 2012) (SR-CBOE-2012-027); 68145 (November 2, 2012), 77 FR 67044 (November 8, 2012) (SR-CBOE-2012-102); 70752 (October 24, 2013), 78 FR 65023 (October 30, 2013) (SR-CBOE-2013-099); 73460 (October 29, 2014), 79 FR 65464 (November 4, 2014) (SR-CBOE-2014-080); 77742 (April 29, 2016), 81 FR 26857 (May 4, 2016) (SR-CBOE-2016-032); 80443 (April 12, 2017), 82 FR 18331 (April 18, 2017) (SR-CBOE-2017-032); 83175 (May 4, 2018), 83 FR 21808 (May 10, 2018) (SR-CBOE-2018-037); 84537 (November 5, 2018), 83 FR 56113 (November 9, 2018) (SR-CBOE-2018-071); 85707 (April 23, 2019), 84 FR 18100 (April 29, 2019) (SR-CBOE-2019-021); 87515 (November 13, 2020), 84 FR 63945 (November 19, 2019) (SR-CBOE-2019-

By way of background, when cash-settled[16] index options were first introduced in the 1980s, settlement was based on the closing value of the underlying index on the option's expiration date. The Commission later became concerned about the impact of P.M.-settled, cash-settled index options on the markets for the underlying stocks at the close on expiration Fridays. Specifically, certain episodes of price reversals around the close on quarterly expiration dates attracted the attention of regulators to the possibility that the simultaneous expiration of index futures, futures options, and options might be inducing abnormal volatility in the index value around the close.[17] Academic research at the time provided at least some evidence suggesting that futures and options expirations contributed to excess volatility and reversals around the close on those days.[18] In light of the concerns with P.M.-settlement and to help ameliorate the price effects associated with expirations of P.M.-settled, cash-settled index

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108); 88782 (April 30, 2020), 85 FR 27004 (May 6, 2020) (SR-CBOE-2020-039); 90279 (October 28, 2020), 85 FR 69667 (November 3, 2020) (SR-CBOE-2020-103); 91782 (May 5, 2021), 86 FR 25915 (May 11, 2021) (SR-CBOE-2021-031); 93500 (November 1, 2021), 86 FR 61340 (November 5, 2021) (SR-CBOE-2021-064); 94812 (April 28, 2022), 87 FR 26381 (May 4, 2022) (SR-CBOE-2022-020); 96239 (November 4, 2022), 87 FR 67985 (November 10, 2022) (SR-CBOE-2022-053); 97452 (May 8, 2023), 88 FR 30821 (May 12, 2023) (SR-CBOE-2023-025); and 98637 (September 28, 2023), 88 FR 68819 (October 4, 2023) (SR-CBOE-2023-057). At the same time the permissible exercise settlement values pilot was established for FLEX Index Options, the Exchange also established a pilot program eliminating the minimum value size requirements for all FLEX Options. See Approval Order, supra note 3. The pilot program eliminating the minimum value size requirements was extended twice pursuant to the same rule filings that extended the permissible exercise settlement values (for the same extended periods) and was approved on a permanent basis in a separate rule change filing. See id.; and Securities Exchange Act Release No. 67624 (August 8, 2012), 77 FR 48580 (August 14, 2012) (SR-CBOE-2012-040) (Order Granting Approval of Proposed Rule Change Related to Permanent Approval of Its Pilot on FLEX Minimum Value Sizes).

16 The seller of a "cash-settled" index option pays out the cash value of the applicable index on expiration or exercise. A "physically settled" option, like equity and ETF options, involves the transfer of the underlying asset rather than cash. See Characteristics and Risks of Standardized Options, available at: https://www.theocc.com/Company-Information/Documents-and-Archives/Options-Disclosure-Document.

17 The close of trading on the quarterly expiration Friday (i.e., the third Friday of March, June, September and December), when options, index futures, and options on index futures all expire simultaneously, became known as the "triple witching hour."

18 See Securities and Exchange Commission, Division of Economic Risk and Analysis, Memorandum, Cornerstone Analysis of PM Cash-Settled Index Option Pilots (February 2, 2021) ("DERA Staff PM Pilot Memo" or "Pilot Memo") at 5, available at: https://www.sec.gov/files/Analysis_of_PM_Cash_Settled_Index_Option_Pilots.pdf.

products, in 1987, the Commodity Futures Trading Commission ("CFTC") approved a rule change by the Chicago Mercantile Exchange ("CME") to provide for A.M. settlement[19] for index futures, including futures on the S&P 500 Index.[20] The Commission subsequently approved a rule change by Cboe Options to list and trade A.M.-settled SPX options.[21] In 1992, the Commission approved Cboe Options' proposal to transition all of its European-style cash-settled options on the S&P 500 Index to A.M.-settlement[22]; however, in 1993, the Commission approved a rule allowing Cboe Options to list P.M.-settled options on certain broad-based indices, including the S&P 500 Index, expiring at the end of each calendar quarter ("Quarterly Index Expirations").[23] Starting in 2006, the Commission noticed or approved numerous rule changes, on a pilot basis, permitting the Cboe Options to introduce other index options with P.M.-settlement.[24] These include the Pilot Program,[25] P.M.-settled index options expiring weekly (other than the third Friday of the month) and at the end of each month ("EOM"),[26] P.M.-

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19 The exercise settlement value for an A.M.-settled index option is determined by reference to the reported level of the index as derived from the opening prices of the component securities on the business day before expiration.

20 See Securities Exchange Act Release No. 24367 (April 17, 1987), 52 FR 13890 (April 27, 1987) (SR-CBOE-87-11) (noting that CME moved S&P 500 futures contract's settlement value to opening prices on the delivery date).

21 See id.

22 See Securities Exchange Act Release No. 30944 (July 21, 1992), 57 FR 33376 (July 28, 1992) (SR-CBOE-92-09). Thereafter, the Commission approved proposals by the options markets to transfer most of their cash-settled index products to A.M. settlement.

23 See Securities Exchange Act Release No. 31800 (February 1, 1993), 58 FR 7274 (February 5, 1993) (SR-CBOE-92-13).

24 Securities Exchange Act Release Nos. 54123 (July 11, 2006), 71 FR 40558 (July 17, 2006) (SR-CBOE-2006-65) (notice of filing of proposed rule change to list quarterly option series on up to five indexes or exchange-traded funds with p.m.-settlement); see also Securities Exchange Act Release No. 60164 (June 23, 2009), 74 FR 31333 (June 30, 2009) (SR-CBOE-2009-029) (order permanently approving the program to list quarterly option series on up to five indexes or exchange-traded funds with p.m.-settlement).

25 See Approval Order, supra note 14.

26 See Securities Exchange Act Release Nos. 62911 (September 14, 2010), 75 FR 57539 (September 21, 2010) (SR-CBOE-2009-075); 76529 (November 30, 2015), 80 FR 75695 (December 3, 2015) (SR-CBOE-2015-106); 78132 (June 22, 2016), 81 FR 42018 (June 28, 2016) (SR-CBOE-2016-046); and 78531 (August 10, 2016), 81 FR 54643 (August 16, 2016) (SR-CBOE-2016-046).

settled options on the S&P 500 Index that expire on the third Friday-of-the-month ("SPXPM"),[27] as well as P.M.-settled Mini-SPX Index ("XSP") options and Mini-Russell 2000 Index ("MRUT") options expiring on the third Friday of the month.[28] The Commission recently approved proposed rule changes to make these other pilot programs to list P.M.-settled index options permanent.[29]

FLEX Index Options have traded on the Exchange since February 1993.[30] The Exchange began offering FLEX Index options in response to the development of an over-the-counter ("OTC") market in customized index options, in which participants could designate basic option features, including size, expiration date, exercise style, and certain exercise prices.[31] FLEX Index Options provide investors with the ability to customize these basic options terms in order to meet their individual investment needs. The Exchange understands that participants in the FLEX market are typically sophisticated portfolio managers, insurance companies, and other institutional investors who buy and sell options in larger-sized transactions. The Exchange

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27 See Securities Exchange Act Release No. 68888 (February 8, 2013), 78 FR 10668 (February 14, 2013) (SR-CBOE-2012-120) (the "SPXPM Approval Order"). Pursuant to Securities Exchange Act Release No. 80060 (February 17, 2017), 82 FR 11673 (February 24, 2017) (SR-CBOE-2016-091), the Exchange moved third-Friday P.M.-settled options into the S&P 500 Index options class, and as a result, the trading symbol for P.M.-settled S&P 500 Index options that have standard third Friday-of-the-month expirations changed from "SPXPM" to "SPXW." This change went into effect on May 1, 2017, pursuant to Cboe Options Regulatory Circular RG17-054.

28 See Securities Exchange Act Release Nos. 70087 (July 31, 2013), 78 FR 47809 (August 6, 2013) (SR-CBOE-2013-055); and 91067 (February 5, 2021) 86 FR 9108 (February 11, 2021) (SR-CBOE-2020-116).

29 See Securities Exchange Act Release Nos. 98454 (September 20, 2023) (SR-CBOE-2023-005) (order approving proposed rule change to make permanent the operation of a program that allows the Exchange to list p.m.-settled third Friday-of-the-month SPX options series) ("SPXPM Approval"); 98455 (September 20, 2023) (SR-CBOE-2023-019) (order approving proposed rule change to make permanent the operation of a program that allows the Exchange to list p.m.-settled third Friday-of-the-month XSP and MRUT options series) ("XSP and MRUT Approval"); and 98456 (September 20, 2023) (SR-CBOE-2023-020) (order approving proposed rule change to make the nonstandard expirations pilot program permanent) ("Nonstandard Approval").

30 See Securities Exchange Act Release No. 31920 (February 24, 1993), 58 FR 12280 (March 3, 1993) (SR-CBOE-92-17).

31 See id. at 12281.

continues to believe that market participants benefit from the trading of FLEX Index Options in several ways, including, but not limited to the following: (1) enhanced efficiency in initiating and closing out positions; (2) increased market transparency; and (3) heightened contra-party creditworthiness due to the role of the Options Clearing Corporation ("OCC") as issuer and guarantor of FLEX Index Options. Further, the Exchange believes providing investors — institutional investors in particular — that require increased flexibility with respect to the terms of index options with the ability to customize basic options terms, including whether an option is A.M.-settled or P.M.-settled, is essential to meeting the needs of these investors so they can satisfy particular investment objectives that cannot otherwise be met by standard listed options.

In recent years, the Exchange has heard from numerous institutional investors — insurance companies, in particular — who use index options to hedge their portfolio risk need those options to provide them with a level of precision not available in standard options. They have expressed their preference to transact on the Exchange to eliminate the counterparty risk they must incur by trading in the OTC market. The Exchange understands that it is a critical and regular part of an insurance company's business to hedge their risk, which many do with index options. When insurance companies issue policies to their customers, those companies accumulate liabilities for the payouts they may need to make to their customers pursuant to those policies. Insurance companies regularly hedge the notional amount of these liabilities to protect against downturns in the market. Because they are looking to protect against broad market downturns, broad-based index options are a tool insurance companies often use for this protection. Given the size of insurance companies' portfolios, which can be in the tens of billions of dollars, these portfolios translate to index options with an aggregate notional value of billions of dollars being transacted annually. The Exchange understands these companies often have to trade in the nontransparent, unregulated, and riskier OTC market (where there is counterparty risk and no price protection exists for these customers) because standard listed options do not often provide them with the precision they need to execute their hedges. Whether an insurance company is able to precisely hedge the notional value of its portfolio ultimately impacts its customers. If an insurance company, for example, "underhedges" the notional value of its portfolio (which, again, is generally at least tens of billions of dollars), even 1% of such "slippage" would leave hundreds of millions of dollars of that portfolio unhedged,[32] which creates significant risk for that company.[33] Alternatively, if an insurance company "overhedges" the notional value of its portfolio, that would unnecessarily tie up some of its financial resources, as the difference in value of the options and the value of the portfolio is serving no purpose. Either case will likely result in higher premiums or reduced benefits for customers. Therefore, the Exchange believes providing insurance companies with the continued ability to hedge with p.m.-settled index options on all days, including the third Friday-of-the-month, is critical so that insurance companies, in addition to other institutional investors, can choose FLEX Index Options terms that provide them with the precision they need to implement their hedging strategies on the Exchange as opposed to the unregulated, riskier OTC market.

The benefits of the Exchange's FLEX market are demonstrated by the continued increase volume of FLEX Options executed on the Exchange. In 2012, just under 9 million FLEX Options contracts (nearly 1.7 million of which were FLEX Index Options contracts) executed on the Exchange, compared to approximately 38.9 million FLEX Options contracts (over 2.8

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[32] For example, if an insurance company has a $40,000,000,000 portfolio, 1% of that portfolio equates to $400,000,000.

[33] The Exchange notes the total unhedged risk across the insurance industry would be multiplied if each insurance company were unable to hedge the full notional value of its portfolio.

million of which were FLEX Index Options contracts) that executed on the Exchange in 2023 (through August). The Exchange has attributed much of the growth in the FLEX Options markets in recent years to the entrance into the FLEX market of new institutional investors. Institutional investors often use FLEX Options to execute their volatility strategies using exercise values and expiration dates not available in the standard market. Additionally, issuers of exchange-traded funds ("ETFs") have recently increased their usage of FLEX Options. FLEX Options are particularly useful in ETFs as opposed to standardized options contracts because they enable the issuers to have more granular control over the options exposure within a portfolio. In particular, ETFs that are designed to provide a "defined outcome" (i.e., a defined upside and downside risk to a particular index or underlying ETF) use FLEX Options because they can be used to tailor the options exposure in the portfolio by strike and date in such a way that is not possible with standardized options contracts.

As stated above, since its inception in 2010, the Exchange has continuously extended the Pilot Program period and, during the course of the Pilot Program and in support of the extensions of the Pilot Program, the Exchange has submitted reports to the Commission regarding the Pilot Program that detail the Exchange's experience with the Pilot Program, pursuant to the Pilot Program requirements.[34] Specifically, the Exchange provided the Commission with annual reports analyzing volume and open interest for each broad-based FLEX Index Options class overlying a third Friday-of-the-month expiration day, P.M.-settled FLEX Index Options series. The annual reports also contained certain pilot period and pre-pilot period analyses of volume and open interest for third Friday-of-the-month expiration days, A.M.-settled FLEX Index series and third Friday-of-the-month expiration day Non-FLEX Index series overlying the same index

34 See Approval Order, supra note 14.

as a third Friday-of-the-month expiration day, P.M.-settled FLEX Index option. The annual reports also contained information and analysis of FLEX Index Options trading patterns, and index price volatility and underlying share trading activity for each broad-based index class overlying an Expiration Friday, P.M.-settled FLEX Index Option that exceeds certain minimum open interest parameters. The Exchange also provided the Commission, on a periodic basis, interim reports of volume and open interest.

Also, during the course of the Pilot Program, the Exchange provided the Commission with any additional data or analyses the Commission requested if it deemed such data or analyses necessary to determine whether the Pilot Program was consistent with the Exchange Act. The Exchange has made public on its website all data and analyses previously submitted to the Commission under the Pilot Program,[35] and will continue to make public any data and analyses it submits to the Commission while the Pilot Program is still in effect.

The Exchange has concluded that FLEX PM Third Friday Options have not resulted in increased market and price volatility in the underlying component stocks, negatively impacted market quality, or raised any unique or prohibitive regulatory concerns. The Exchange has identified no evidence from the pilot data indicating that the trading of FLEX PM Third Friday Options had any adverse impact on fair and orderly markets on Expiration Fridays for broad-based indexes or the underlying securities comprising those indexes and has observed no abnormal market movements attributable to FLEX PM Third Friday Options from any market participants that have come to the attention of the Exchange.[36]

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35 Available at https://www.cboe.com/aboutcboe/legal-regulatory/national-market-system-plans/pm-settlement-spxpm-data.

36 The Exchange also notes it is unaware of any concerns raised to it by market participants or of any public comments expressing concerns about the Pilot Program, including with respect to the current rule filing (which was noticed for public comment on April 28, 2023 and for which no public comments were submitted).

Based on a study conducted by the Commission's Division of Economic and Risk Analysis ("DERA") staff on the pilot data from 2006 through 2018,[37] and the Exchange's review of the pilot data from 2019 through 2021, the size of the market for P.M.-settled SPX options (including quarterly, weekly, EOM and third Friday expirations) since 2007 has grown from a trivial portion of the overall market to a substantial share (from around 0.1% of open interest in 2007 to 30% in 2021).[38] Notional value of open interest in P.M.-settled SPX options increased from approximately a median of $1.5 billion in 2007 to $1.9 trillion in 2021, approximately 1260 times its value in 2007. Notional open interest in A.M.-settled SPX options was already hovering around a median of $1.4 trillion in 2007, and it has since increased to approximately $4.4 trillion in 2021. It is also important to note that open interest on expiring P.M.-settled SPX options, as compared to A.M.-settled options, is spread out across a greater number of expiration dates, which results in a smaller percentage of open interest expiring on any one date, thus mitigating concerns that SPXPM option expiration may have a disruptive effect on the market.[39] Daily trading volume in P.M.-settled SPX options has increased from a median of about 700 contracts in 2007 to nearly 1.9 million contracts in 2021,[40] and now exceeds trading volume in A.M.-settled SPX options.

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37 See DERA Staff PM Pilot Memo, at 13 ("Option settlement quantity data for A.M.- and P.M.-settled options were obtained from the Cboe, including the number of contracts that settled in-the-money for each exchange-traded option series on the S&P 500 index…on expiration days from January 20, 2006 through December 31, 2018. Daily open interest and volume data for [SPX] option series were also obtained from Cboe, including open interest data from January 3, 2006 through December 31, 2018 and trading volume data from January 3, 2006 through December 31, 2018.")

38 The DERA staff study reviewed and provided statistics for market share, median notional value of open interest and median volume in 2007 and in 2018. The Exchange provides updated statistics for market share, median notional value of open interest and median volume in 2021, replacing the 2018 statistics provided in the Commission staff study.

39 See DERA Staff PM Pilot Memo, at 2.

40 The Exchange notes that the DERA staff study used two-sided volume data for the median volume in 2007 and in 2018; therefore, the Exchange provides two-sided volume data for the median volume in 2021.

Moreover, the DERA staff study of the P.M.-settled SPX options pilot data (2006 through 2018) did not identify any significant economic impact on S&P 500 futures,[41] the S&P 500 Index, or the underlying component securities of the S&P 500 Index surrounding the close. For purposes of the study, volatility was by and large measured by using the standard deviation[42] of one-minute returns of S&P 500 futures values and the index value during regular hours on each day reviewed (excluding the first and last 15 minutes of trading) and then compared with the standard deviation of one-minute returns (for S&P 500 futures, the S&P 500 Index, and the underlying component securities of the S&P 500 Index) over the last 15 minutes of a trading day.[43] Using this as a general measure,[44] the DERA staff study then reviewed whether, and to what extent, the settlement quantity of SPXPM options and the levels of open interest in SPXPM options on expiration days (as compared to non-expiration days) may be associated with general price volatility and price reversals for S&P 500 futures, the S&P 500 Index, and the underlying component securities of the S&P 500 Index near the close. From its review of the study, the Exchange agrees that, although volatility before the market close is generally higher than during the rest of the trading day, there is no evidence of any significant adverse economic impact to the

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[41] Futures on the S&P 500 experience high volume and liquidity both before and after the close of the underlying market. Therefore, futures are a useful measure of abnormal volatility surrounding the close and the open. See DERA Staff PM Pilot Memo, at 14. The Exchange agrees with this approach.

[42] Standard deviation applied to a rate of return (in this case, one-minute) of an instrument can indicate that instrument's historical volatility. The greater the standard deviation, the greater the variance between price and the mean, which indicates a larger price range, i.e., higher volatility.

[43] For example, if on a particular day the standard deviation of one-minute returns between 3:45 p.m. ET and 4:00 p.m. ET is 0.004 and the standard deviation of returns from 9:45 a.m. ET to 3:45 p.m. ET is 0.002, this metric would take on a value of 2 for that day, indicating that volatility during the last 15 minutes of the trading day was twice as high as it was during the rest of the trading day. See DERA Staff PM Pilot Memo, at 15; see also DERA Staff PM Pilot Memo, at Section V, which discusses in detail the metrics used to measure, for the purposes of the study, the extent to which the market may experience abnormal volatility surrounding SPXPM option settlement.

[44] See DERA Staff PM Pilot Memo, at Section V, which discusses in detail the metrics used to measure, for the purposes of the study, the extent to which the market may experience abnormal volatility surrounding SPXPM option settlement.

futures, index, or underlying index component securities markets as a result of the quantity of P.M.-settled SPX options that settle at the close or the amount of expiring open interest in P.M.-settled SPX options. For example, the largest settlement event that occurred during the time period of the study (a settlement of $100.4 billion of notional on December 29, 2017) had an estimated impact on the futures price of only approximately 0.02% (a predicted impact of $0.54 relative to a closing futures price of $2,677).

In particular, the DERA staff study found that an additional P.M.-settled SPX options settlement quantity equal to $10 billion in notional value is associated with a marginal impact on futures prices during the last 15 minutes of the trading day of only about $0.06 (where the hypothetical index level is 2,500), additional expiring open interest in P.M.-settled SPX options equal to $10 billion in notional value is associated with a marginal impact on futures prices during the last 15 minutes of the trading day of only about $0.05 (assumed index level is 2,500). Also, an additional increase in settlement quantity or in expiring open interest, each equal to $20 million in notional value, did not result in any meaningful futures price reversals near the close (neither was found to cause a price reversal of over one standard deviation[45]).

Likewise, the study identified that an additional total P.M.-settled SPX options settlement quantity equal to $10 billion in notional value corresponds to price movement in the S&P 500 of only about $0.08 (assuming an index level of 2,500) during the last 15 minutes of the trading day, and that additional expiring open interest equal to $10 billion in notional value corresponds to a price movement in the S&P 500 of only about $0.06 (assuming an index level of 2,500) during the last 15 minutes of the trading day. The study also identified that it would take an increase of $34 billion in notional value of total settlement quantity and of expiring open interest

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45 See supra note 42.

for one additional S&P 500 price reversal of greater than two standard deviations to occur in the last 15 minutes before the market close. Also, regarding potential impact to S&P 500 component securities, it would take an increase in total P.M.-settled SPX options settlement quantity equal to $20 billion to effect a price movement of only approximately $0.03 for a $200 stock, an increase in expiring open interest in P.M.-settled SPX options equal to $10 billion to effect a price movement less than half a standard deviation, and an increase in total P.M.-settled SPX settlement quantity equal to $7 billion to achieve a price reversal greater two standard deviations.

The study employed the same metrics to determine whether there is greater price volatility for S&P 500 futures, the S&P 500, and the component securities of the S&P 500 related to SPXPM option settlements during an environment of high market volatility (i.e., on days in which the VIX Index was in the top 10% of closing index values) and did not identify indicators of any significant economic impact on these markets near the close as a result of the P.M.-settled SPX options settlement.[46] In addition to this, the DERA staff study, applying the same metrics and analysis as for P.M.-settled SPX options to A.M.-settled SPX options, did not identify any evidence of a statistically significant relationship between settlement quantity or expiring open interest of A.M.-settled options and volatility near the open.

Upon review of the results of the DERA staff study, the Exchange agrees that each of the above-described marginal price movements in S&P 500 futures, the S&P 500, and the S&P 500 component securities affected by increases in P.M.-settled SPX options settlement quantity and expiring open interest appear to be de minimis pricing changes from those that occur over regular trading hours (outside of the last 15 minutes of the trading day). Further, the Exchange

46 The Exchange also notes that the study did not identify any evidence that less liquid S&P 500 constituent securities experienced any greater impact from the settlement of P.M.-settled SPX options.

has not observed any significant economic impact or other adverse effects on the market from similar reviews of its pilot reports and data submitted after 2018.[47] In its review of a sample of the pilot data from 2019 through 2021, the Exchange similarly measured volatility over the final fifteen minutes of each trading day by taking the standard deviation of rolling one-minute returns of the S&P 500 level (excluding the first and last fifteen minutes of trading) and comparing such with the standard deviation of one-minute returns[48] of the S&P 500 level, over the last 15 minutes of a trading day. The Exchange identified an average standard deviation ratio of 1.42 for the S&P 500 on non-expiration days and an average standard deviation ratio of 1.54 for the S&P 500 on expiration days (a ratio between expiration days and non-expiration days of 1.09). The Exchange also notes that, using the same methodology, it observed that, from 2015 through 2019,[49] the average standard deviation ratio for the S&P 500 on non-expiration days was 1.11 and the average standard deviation ratio for the S&P 500 on expiration days was 1.22 (a ratio between expiration days and non-expiration days of 1.10). While the average standard deviation ratio on both expiration and non-expiration days was higher in 2019 through 2021 due to overall market volatility, the ratios between the standard deviation ratios on expiration days and non-expirations days remained nearly identical between the 2015 through 2019 timeframe and the 2019 through 2021. The Exchange believes this shows that, in cases where overall market volatility may increase, the normalized impact on expiration days to non-expiration days generally remains consistent.

47 Total SPX open interest volumes were examined for expiration dates over a roughly two-year period between October 2019 and November 2021.

48 Calculated at every tick for the prior minute.

49 November 2015 through November 2021.

In addition to this, the Exchange notes that the S&P 500 Index is rebalanced quarterly. The changes resulting from each rebalancing coincide with the third Friday of the quarterly rebalancing month (i.e., March, June, September, October and December)[50] and generally drive an increase in trading activity from investors that seek to track the S&P 500. As such, the Exchange measured volatility on quarterly rebalancing dates and found that the average standard deviation ratio was 1.62, which suggests more closing volatility on quarterly rebalance dates compared to non-quarterly expiration dates (for which the average standard deviation ratio was 1.22), thus indicating that the impact rebalancing may have on the S&P 500 Index is greater than any impact that P.M.-settled SPX options may have on the S&P 500 Index.

The Exchange additionally focused its study of the post-2018 sample pilot data on reviewing for potential correlation between excess market volatility and price reversals and the hedging activity of liquidity providers. As explained in the DERA staff study, potential impact of P.M.-settled SPX options on the correlated equity markets is thought to stem from the hedging activity of liquidity providers in such options.[51] To determine any such potential correlation, the Exchange studied the expected action of liquidity providers that are the primary source of the hedging on settlement days. These liquidity providers generally delta-hedge their S&P 500 Index exposure via S&P 500 futures and on settlement day unwind their futures positions that correspond with the delta of their in-the-money (ITM) expiring P.M.-settled SPX options. Assuming such behavior, the Exchange estimated the Market-On-Close ("MOC")[52] volume for

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50 See S&P Dow Jones Indices, Equity Indices Policies & Practices, Methodology (August 2021), at 15, available at https://www.spglobal.com/spdji/en/documents/methodologies/methodology-sp-equity-indices-policies-practices.pdf.

51 See DERA Staff PM Pilot Memo, at 10 – 12.

52 MOC orders allow a market participant to trade at the closing price. Market participants generally utilize MOC orders to ensure they exit positions at the end of the trading day.

the shares of the S&P 500 component securities (i.e., "MOC share volume") that could ultimately result from the unwinding of the liquidity providers' futures positions by equating the notional value of the futures positions that correspond to expiring ITM open interest to the number S&P 500 component security contracts (based on the weight of each S&P 500 component security). That is, the Exchange calculated (an estimate) of the amount of MOC volume in the S&P 500 component markets attributable hedging activity as a result of expiring ITM P.M.-settled SPX options (i.e., "hedging MOC"). The Exchange then: (1) compared the hedging MOC share volume to all MOC share volume on expiration days and non-expiration trading days; and (2) compared the notional value of the hedging futures positions (i.e., that correspond to expiring ITM P.M.-settled SPX options open interest) to the notional value of expiring ITM P.M.-settled SPX options open interest, the notional value of all expiring P.M.-settled SPX options open interest and the notional value of all P.M.-settled SPX options open interest.

The Exchange observed that, on average, there were approximately 25% more MOC shares executed on expiration days (332 expiration days) than non-expiration days (209 non-expiration days). While, at first glance, the volume of MOC shares executed on expiration days seems much greater than the volume executed on non-expiration days, the Exchange notes that much of this difference is attributable to just eight expiration days — the quarterly index rebalancing dates captured within the scope of the post-2018 sample pilot data. The average MOC share volume on the eight quarterly rebalancing dates was approximately 4.8 times the average MOC share volume on the non-quarterly rebalancing expiration dates; again, indicating that the impact rebalancing may have on the S&P 500 Index is greater than any impact that P.M.-settled SPX options may have on the S&P 500 Index. That is, the Exchange observed that the majority of closing volume on quarterly rebalance dates is driven by rebalancing of shares in in the S&P 500, and not by P.M.-settled SPX options expiration-related hedging activity. Notwithstanding the MOC share volume on quarterly rebalancing dates, the volume of MOC shares executed on expiration days (324 expiration days) was only approximately 13% more than that on non-expiration days, substantially less than the increase in volume over non-expiration days wherein the eight index rebalancing dates are included in expiration day volume. In addition to this, the Exchange observed that the hedging MOC share volume (i.e., the expected MOC share volume resulting from hedging activity in connection with expiring ITM P.M.-settled SPX options) was, on average, less than the MOC share volume on non-expiration days, and was only approximately 20% of the total MOC share volume on expiration days, indicating that other sources of MOC share volume generally exceed the volume resulting from hedging activity of expiring ITM P.M.-settled SPX options and would more likely be a source of any potential market volatility.

The Exchange also observed that, across all third-Friday expirations, the notional value of the hedging futures positions was approximately 25% of the notional value of expiring ITM P.M.-settled SPX options, approximately 3.8% of the notional value of all expiring P.M.-settled SPX options, and approximately only 0.5% of the notional value of all P.M.-settled SPX options. As such, the estimated hedging activity from liquidity providers on expiration days is a fraction of the expiring open interest in P.M.-settled SPX options, which, the Exchange notes, is only 14% of the total open interest in P.M.-settled SPX options; thus, indicating negligible capacity for hedging activity to increase volatility in the underlying markets.

At the request of the Commission in connection with proposed rule changes to make other p.m.-settled options pilot programs permanent, the Exchange recently completed an analysis intended to evaluate whether the introduction of P.M.-settled options impacted the quality of the A.M.-settled option market. Specifically, the Exchange compared values of key market quality indicators (specifically, the bid-ask spread[53] and effective spread[54]) in SPXW options both before and after the introduction of Tuesday expirations and Thursday expirations for SPXW options on April 18 and May 11, 2022, respectively.[55] Options on the Standard & Poor's Depositary Receipts S&P 500 ETF ("SPY") were used as a control group to account for any market factors that might influence key market quality indicators. The Exchange used data from January 3, 2022 through March 4, 2022 (the two-month period prior to the introduction of SPXW options with Tuesday expirations) and data from May 11, 2022 to July 10, 2022 (the two-month period following the introduction of SPXW options with Thursday expirations).[56]

As a result of this analysis, the Exchange believes the introduction of SPX options with Tuesday and Thursday options had no significant impact on the market quality of SPXW options with Monday, Wednesday, and Friday expirations. With respect to the majority of series analyzed, the Exchange observed no statistically significant difference in the bid-ask spread or the effective spread of the series in the period prior to introduction of the Tuesday and Thursday expirations and the period following the introduction of the Tuesday and Thursday expirations.

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53 The Exchange calculated for each of SPXW options (with Monday, Wednesday, and Friday expirations) and SPY Weekly options (with Monday, Wednesday, and Friday expirations) the daily time-weighted bid-ask spread on the Exchange during its regular trading hours session, adjusted for the difference in size between SPXW options and SPY options (SPXW options are approximately ten times the value of SPY options).

54 The Exchange calculated the volume-weighted average daily effective spread for simple trades for each of SPXW options (with Monday, Wednesday, and Friday expirations) and SPY Weekly options (with Monday, Wednesday, and Friday expirations) as twice the amount of the absolute value of the difference between an order execution price and the midpoint of the national best bid and offer at the time of execution, adjusted for the difference in size between SPXW options and SPY options.

55 For purposes of comparison, the Exchange paired SPXW options and SPY options with the same moneyness and same days to expiration.

56 The Exchange observed comparable market volatility levels during the pre-intervention and post-intervention time ranges.

While statistically insignificant, the Exchange notes that in many series, particularly as they were closer to expiration, the Exchange observed that the values of these spreads decreased during the period following the introduction of the Tuesday and Thursday expirations.[57] The full analysis is included in Exhibit 3 of this Amendment No. 3.[58]

Given the time that as passed since the introduction of FLEX PM Third Friday Options, the Exchange is unable to analyze whether the introduction of those options significantly impacted the market quality of non-FLEX A.M.-settled options at the time the FLEX PM Third Friday Options began trading. Additionally, the Exchange is unable to analyze whether the introduction of the FLEX P.M.-settled options significantly impacted the market quality of A.M.-settled FLEX options, as there is no book for FLEX options (and thus no quoted spreads), as FLEX options are listed only if and when market participants create them for trading. The Exchange acknowledges the above analysis, due to the type of study performed, may not be used as a direct substitute to demonstrate that the introduction of FLEX PM Third Friday Options did not significantly impact the market quality of non-FLEX A.M.-settled options. However, the Exchange believes the analysis is relevant. Since 2013, approximately 400,000 contracts in FLEX PM Third Friday Options have executed on the Exchange, compared to 156 million total FLEX Options contracts; 14.2 billion total options contracts; 5.6 billion index option contracts; 3.8 billion total SPX options contracts; and 2.3 billion A.M.-settled SPX options contracts in the same time period. This equates to an ADV of under 150 contracts for FLEX PM Third Friday Options compared to an ADV of over 800,000 contracts for SPX options over that time. As

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57 In any series in which the Exchange observed an increase in the market quality indicators, the Exchange notes any such increase was also statistically insignificant.

58 Exhibit 3 begins at page 72 of 85 of Amendment No. 3 and is available at https://www.sec.gov/comments/sr-cboe-2023-018/srcboe2023018-308519-794402.pdf.

noted above, the Exchange's analysis demonstrated the introduction of SPXW options with Tuesday and Thursday expirations did not significantly impact the market quality of non-FLEX SPX P.M.-options. Given that the Exchange determined, based on its above analysis, that the introduction of SPXW options with Tuesday and Thursday expirations had no significant impact on the market quality of non-FLEX SPX A.M.-settled options, the Exchange believes it is logical and reasonable to conclude that it is unlikely that the introduction of FLEX PM Third Friday Options (which has an ADV of approximately 0.04% the size of the ADV of SPXW Tuesday and Thursday expirations)[59] would have any impact on the market quality of non-FLEX SPX A.M.-settled options.

The Exchange believes it is fair to assume FLEX PM Third Friday Options likely had no measurable impact on that market of non-FLEX SPX options with A.M.-settlement for several reasons: (1) as noted above, the volume in the FLEX PM Third Friday Options is a minute fraction (0.02%) of SPX options with A.M.-settlement; (2) FLEX Options are not quoted on a continuous basis, so Market-Makers do not need to estimate the risk associated with the potential trade as they do with options they are continuously quoting in the non-FLEX Options market; and (3) the FLEX market requires either verbal responses on the trading floor or auction responses electronically to represented orders, which provides Market-Makers with time to decide whether to trade, something which does not occur for the thousands of series they continuously quote in the non-FLEX Options market.

To further support the Exchange's view that FLEX PM Third Friday Options did not materially impact the market quality of corresponding non-FLEX options, the Exchange

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59 The Exchange acknowledges that, while FLEX PM Third Friday Options has historically represented a very small percentage of overall volume, it is possible trading in these options may grow in the future.

evaluated each FLEX PM Third Friday Options trade for more than 500 contracts[60] that occurred on the Exchange during the last two years[61] and analyzed the market quality (specifically, the average time-weighted quote spread and size 30 minutes prior to the trade and the average time-weighted quote spread and size 30 minutes after the trade) of series of non-FLEX a.m.-settled options overlying the same index with similar terms as the FLEX PM Third Friday Option that traded (time to expiration, type (call or put), and strike price) as set forth in the table below[62]:

Date	Time	Number of Contracts	Average Time-Weighted Quote Price Spread Prior to Trade ($)	Average Time-Weighted Quote Price Spread After Trade ($)	Average Time-Weighted Quote Size Prior to Trade (contracts)	Average Time-Weighted Quote Contract Size After to Trade (contracts)
10/25/22	11:57	660	9.89	9.08	16.4	16.7
3/21/23	13:07	660	9.40	9.76	13.8	13.9
12/20/22	12:23	655	10.29	10.28	27.2	27.5
11/22/22	12:49	635	9.85	9.78	25.6	25.8
9/20/22	12:50	615	10.16	10.23	15.4	15.0
4/25/23	13:05	610	11.66	11.54	20.1	19.9
5/23/23	12:24	610	9.65	9.77	18.6	18.7
5/24/22	11:44	590	8.99	8.87	15.1	15.6
3/22/22	12:36	575	10.44	10.39	19.2	19.1
6/27/23	11:58	560	9.57	9.61	13.9	14.3
7/25/23	14:12	550	10.87	10.85	22.1	22.8
8/23/23	13:48	535	11.41	11.44	15.6	15.2
1/24/23	12:16	535	9.54	9.43	21.6	22.0
2/21/23	13:01	515	10.20	10.22	18.61	18.65

60 The Exchange believes it is reasonable to consider only these large trades, because if large trades had no significant impact on market quality, then the Exchange believe it is unlikely that smaller trades would have had a significant impact on market quality. As noted below, the vast majority of FLEX PM Third Friday Options executed as parts of trades smaller than 500 contracts (which would have a notional value of 225,000). See Amendment No. 3, at 29-30.

61 The Exchange believes it is reasonable to use data from this time period as representative of the entire pilot period given that volume in FLEX PM Third Friday Options remained consistently low throughout the entire pilot period. The Exchange notes this sampling of data points may not cover different market conditions, such as volatility levels (e.g., high volatility days), which may impact quote spreads and sizes of index options.

62 All of these trades were SPX options. During the time period reviewed, there were no trades of more than 500 contracts for FLEX PM Third Friday Options in any other index class. The Exchange believes it is reasonable to limit this analysis to SPX options trades given that the vast majority of FLEX PM Third Friday Options trade were in SPX options, and the limited number of trades in options FLEX PM Third Friday Options (particularly given the smaller size of such trades) would have created sampling difficulties for designing a meaningful analysis of the impact of such trades on market quality of the corresponding non-FLEX a.m.-settled options.

6/21/22	12:47	510	11.12	11.08	14.2	14.8
7/26/22	12:23	510	10.66	10.67	16.8	16.8

As this table demonstrates, the average time-weighted quote spread and size did not materially change after the FLEX PM Third Friday Options trade. Specifically, the average time-weighted quoted spread was never more than 0.36 wider in the time period after the trade compared to before the trade, and the average time-weighted size was never more than 0.7 contracts different in the time period after the trade compared to before the trade. Further, given that the spreads were relatively stable before and after large trades, the Exchange believes this demonstrates that large FLEX PM Third Friday Options trades had no material negative impact (and the Exchange believes likely no impact) on quote quality of non-FLEX a.m.-settled options overlying the same index with similar terms as the FLEX PM Third Friday Option. The Exchange believes this evaluation effectively demonstrates it is likely that FLEX PM Third Friday Options have had no significant negative impact on the market quality of non-FLEX Options with A.M.-settlement.[63]

To further note, given the significant changes in the closing procedures of the primary markets in recent decades, including considerable advances in trading systems and technology, the Exchange believes that the risks of any potential impact of FLEX PM Third Friday Options on the underlying cash markets are also de minimis.

The Exchange proposes to make the Pilot Program permanent as P.M.-settled index products have become an integral part of the Exchange's product offerings, providing investors with greater trading opportunities and flexibility. As indicated by the significant growth in the size of the market for P.M.-settled options, as well as the significant growth in FLEX Options,

63 The Exchange acknowledges that, while FLEX PM Third Friday Options has historically represented a very small percentage of overall volume, it is possible trading in these options may grow in the future.

such options have been, and continue to be, well-received and widely used by market participants. Therefore, the Exchange wishes to be able to continue to provide investors with the ability to trade FLEX PM Third Friday Options on a permanent basis. The Exchange believes that the permanent continuation of the Pilot Program will serve to maintain the status quo by continuing to offer a product to which investors have become accustomed and have incorporated into their business models and day-to-day trading methodologies for nearly 14 years. As such, the Exchange also believes that ceasing to offer FLEX PM Third Friday Options may result in market disruption and investor confusion. The Exchange has not identified any significant impact on market quality nor any unique or prohibitive regulatory concerns as a result of the Pilot Program, and, as such, the Exchange believes that the continuation of the Pilot Program as a pilot, including the use of time and resources to compile and analyze quarterly and annual pilot reports and pilot data, is no longer necessary and that making the Pilot Program permanent will allow the Exchange to otherwise allocate time and resources to other industry initiatives.

2. Statutory Basis

The Exchange believes the proposed rule change is consistent with the Securities Exchange Act of 1934 (the "Act") and the rules and regulations thereunder applicable to the Exchange and, in particular, the requirements of Section 6(b) of the Act.[64] Specifically, the Exchange believes the proposed rule change is consistent with the Section 6(b)(5)[65] requirements that the rules of an exchange be designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to foster cooperation and coordination with persons engaged in regulating, clearing, settling, processing information with

64 15 U.S.C. 78f(b).

65 15 U.S.C. 78f(b)(5).

respect to, and facilitating transactions in securities, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest.

In particular, the Exchange believes that the making the Pilot Program permanent will allow the Exchange to be able to continue to offer FLEX PM Third Friday Options on a continuous and permanent basis. These products have been, and continue to be, well-received and widely used by market participants, providing investors with greater trading opportunities and flexibility. The Exchange believes that the permanent continuation of the Pilot Program will remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, protect investors and the public interest by continuing to offer a product to which investors have become accustomed and have incorporated into their business models and day-to-day trading strategies for nearly 14 years. The Exchange notes the Commission recently approved proposals to make other pilots permitting P.M.-settlement of index options permanent after finding those pilots were consistent with the Act and the options subject to those pilots had no significant impact on the market.[66] The Exchange believes ceasing to offer the Pilot Program may result in market disruption and investor confusion, as P.M.-settled index products, particularly SPX options, have become an integral part of the Exchange's product offerings, providing investors with greater trading opportunities and flexibility.

The Exchange further believes that making the Pilot Program permanent will remove impediments to and perfect the mechanism of a free and open market and a national market system and protect investors, while maintaining a fair and orderly market, as the Exchange believes that previous concerns (arising in the 1980s) regarding options expirations potentially

66 See supra note 29.

contributing to excess volatility and reversals around the close have been adequately diminished. As described in detail above, the Exchange has observed no significant adverse market impact or identified any meaningful regulatory concerns during the nearly 14-year operation of the FLEX PM Third Friday Program as a pilot nor during the 15 years since P.M.-settled index options (SPX) were reintroduced to the marketplace.[67] Notably, the Exchange did not identify any significant economic impact (including on pricing or volatility or in connection with reversals) on related futures, the underlying indexes, or the underlying component securities of the underlying indexes surrounding the close as a result of the quantity of FLEX PM Third Friday Options or the amount of expiring open interest in FLEX PM Third Friday Options, nor any demonstrated capacity for options hedging activity to impact volatility in the underlying markets. While the DERA staff study and corresponding Exchange study described above specifically evaluated SPX options, FLEX PM Third Friday Options overlay broad-based indexes (including the S&P 500 Index), the Exchange believes it is appropriate to extrapolate the data to apply to FLEX PM Third Friday Options. This is particularly true given that the data and reports submitted by the Exchange during the pilot period have similarly demonstrated no significant economic impact on the respective underlying indexes or other products. As set forth in the data and reports the Exchange provided to the Commission during the pilot period and noted above, since 2013, approximately 400,000 contracts in FLEX PM Third Friday Options executed on the Exchange (the vast majority of which were SPX options). Given that this represented approximately 0.01% of all SPX options volume executed on the exchange during that time, the Exchange believes the chance that such a small number of contracts[68] could have measurably

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[67] See supra notes 37-51.

[68] The Exchange acknowledges that, while FLEX PM Third Friday Options has historically represented a very small percentage of overall volume, it is possible trading in these options may grow in the future.

impacted the underlying index or other products is near zero. This is consistent with the findings in the DERA staff study set forth above regarding the impact of certain notional amounts of SPX options on the underlying index and related futures. For example, if you assume an index value for the S&P 500 Index of 4500, the notional value of one SPX option contract is 450,000. If 400,000 FLEX PM Third Friday Option contracts executed since 2013, that results in an average annual volume of approximately 36,300 FLEX PM Third Friday Options, with the notional value of this total annual volume (the vast majority of which executed as parts of trades smaller than 500 contracts (which would have a notional value of 225,000), as demonstrated by the table above) of just over $16 billion. As discussed above, the DERA staff study demonstrated that a similar amount of notional value of P.M.-settled SPX options had only a marginal impact on the underlying index and related futures.

The DERA staff study and corresponding Exchange study concluded that a significantly larger amount of non-FLEX p.m.-settled index options had no significant adverse market impact and caused no meaningful regulatory concerns. Therefore, the Exchange believes it is reasonable to conclude that the relatively small amount of FLEX Index Option volume subject to the current Pilot Program would similarly have no significant adverse market impact or cause no meaningful regulatory concerns. Additionally, these studies measured any impact on related futures, the underlying indexes, or the underlying component securities of the underlying indexes surrounding the close. Despite FLEX SPX options (which represent approximately half of the year-to-date 2023 volume of FLEX Index Options but only approximately 0.3% of total SPX volume) not being included in the DERA staff study and corresponding Exchange study, those studies concluded that during the time periods covered (which included the period of time in which the Pilot Program has been operating), there was no significant economic impact on the underlying index or related products. Therefore, the Exchange believes it is reasonable to conclude that any FLEX SPX Options that executed during the timeframes covered by the studies had no significant impact on the underlying index or related products, as neither DERA staff nor the Exchange observed any significant economic impact on the underlying index or related product.

The Exchange also believes the introduction of FLEX PM options had no significant impact on the market quality of corresponding A.M.-settled options or other options. As discussed above, the Exchange's analysis conducted after the introduction of SPXW options with Tuesday and Thursday expirations demonstrated no statistically significant impact on the bid-ask or effective spreads of SPXW options with Monday, Wednesday, and Friday expirations after trading in the SPXW options with Tuesday and Thursday expirations began. As noted above, the Exchange acknowledges the above analysis, due to the type of study performed, may not be used as a direct substitute to demonstrate that the introduction of FLEX PM Third Friday Options did not significantly impact the market quality of non-FLEX A.M.-settled options. However, the Exchange believes the analysis is relevant. Since 2013, approximately 400,000 contracts in FLEX PM Third Friday Options have executed on the Exchange, compared to 156 million total FLEX Options contracts; 14.2 billion total options contracts; 5.6 billion index option contracts; 3.8 billion total SPX options contracts; and 2.3 billion A.M.-settled SPX options contracts in the same time period. This equates to an ADV of under 150 contracts for FLEX PM Third Friday Options compared to an ADV of over 800,000 contracts for SPX options over that time. As noted above, the Exchange's analysis demonstrated the introduction of SPXW options with Tuesday and Thursday expirations did not significantly impact the market quality of non-FLEX SPX P.M.-options. Given that the Exchange determined that the introduction of SPXW options with Tuesday and Thursday expirations had no significant impact on the market quality of non-FLEX SPX A.M.-settled options, the Exchange believes it is logical and reasonable to conclude that it is unlikely that the introduction of FLEX PM Third Friday Options (which has an ADV of approximately 0.04% the size of the ADV of SPXW Tuesday and Thursday expirations)[69] would have any impact on the market quality of non-FLEX SPX A.M.-settled options.

The Exchange believes it is fair to assume there is likely no measurable impact on that market for several reasons: (1) as noted above, the volume in the FLEX PM Third Friday Options is a minute fraction (0.02%) of SPX options with A.M.-settlement; (2) FLEX Options are not quoted on a continuous basis, so Market-Makers do not need to estimate the risk associated with the potential trade as they do with options they are continuously quoting in the non-FLEX Options market; and (3) the FLEX market requires either verbal responses on the trading floor or auction responses electronically to represented orders, which provides Market-Makers with time to decide whether to trade, something which does not occur for the thousands of series they continuously quote in the non-FLEX Options market.

The Exchange evaluated each FLEX PM Third Friday Options trade for more than 500 contracts[70] that occurred on the Exchange during the last two years[71] and analyzed the market quality (specifically, the average time-weighted quote spread and size 30 minutes prior to the trade and the average time-weighted quote spread and size 30 minutes after the trade) of series non-FLEX a.m.-settled options overlying the same index with similar terms as the FLEX PM

69 The Exchange acknowledges that, while FLEX PM Third Friday Options has historically represented a very small percentage of overall volume, it is possible trading in these options may grow in the future.

70 The Exchange believes it is reasonable to consider only these large trades, because if large trades had no significant impact on market quality, then it is unlikely that smaller trades would have had a significant impact on market quality.

71 The Exchange believes it is reasonable to use data from this time period as representative of the entire pilot period given that volume in FLEX PM Third Friday Options remained consistently low throughout the entire pilot period.

Third Friday Option that traded (time to expiration, type (call or put), and strike price) as set forth in the table above. Given that the above-table shows that the spreads were relatively stable before and after large trades, the Exchange believes this demonstrates that large FLEX PM Third Friday Options trades had no material negative impact (and the Exchange believes likely no impact) on quote quality of non-FLEX a.m.-settled options overlying the same index with similar terms as the FLEX PM Third Friday Option. Therefore, the Exchange believes this evaluation effectively demonstrates it is likely that FLEX PM Third Friday Options have had no significant negative impact on the market quality of non-FLEX Options with A.M.-settlement.[72]

As discussed above, the Exchange believes that evaluation effectively demonstrates that FLEX PM Third Friday Options have had no significant negative impact on the market quality of non-FLEX Options with A.M.-settlement.

Additionally, the significant changes in the closing procedures of the primary markets in recent decades, including considerable advances in trading systems and technology, has significantly minimized risks of any potential impact of FLEX PM Third Friday Options on the underlying cash markets. As such, the Exchange believes that a permanent Pilot Program does not raise any unique or prohibitive regulatory concerns and that such trading has not, and will not, adversely impact fair and orderly markets on Expiration Fridays for the underlying indexes or their component securities. Further, as the Exchange has not identified any significant impact on market quality or any unique or prohibitive regulatory concerns as a result of offering FLEX PM Third Friday Options, the Exchange believes that the continuation of the Pilot Program as a pilot, including the gathering, submission and review of the pilot reports and data, is no longer

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72 The Exchange acknowledges that, while FLEX PM Third Friday Options has historically represented a very small percentage of overall volume, it is possible trading in these options may grow in the future.

necessary and that making the Pilot Program permanent will allow the Exchange to otherwise allocate time and resources to other industry initiatives.

B. Self-Regulatory Organization's Statement on Burden on Competition

Cboe Options does not believe that the proposed rule change will impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act. The Exchange does not believe that making the Pilot Program permanent will impose any unnecessary or inappropriate burden on intramarket competition because FLEX PM options will continue to be available to all market participants who wish to participate in the FLEX PM options market. The Exchange believes that the growth that the P.M.-settled options market, including FLEX PM options, has experienced since their reintroduction through pilot programs indicates strong, continued investor interest and demand, warranting a permanent Pilot Program. The Exchange believes that, for the period that P.M.-settled FLEX options have been in operation as pilot programs, they have provided investors with a desirable product with which to trade and wishes to permanently offer this product to investors. Furthermore, during the pilot period, the Exchange has not observed any significant adverse market effects nor identified any regulatory concerns as a result of the Pilot Program, and, as such, the continuation of the Pilot Program as a pilot, including the gathering, submission and review of the pilot reports and data, is no longer necessary — a permanent Pilot Program will allow the Exchange to otherwise allocate time and resources to other industry initiatives.

The Exchange further does not believe that making the Pilot Program permanent will impose any burden on intermarket competition that is not necessary or appropriate in furtherance of the purposes of the Act because it applies to a class of options listed only for trading on Cboe Options. The Exchange notes that other exchanges are free to and do offer competing products.

To the extent that the permanent offering and continued trading of FLEX PM Third Friday Options may make Cboe Options a more attractive marketplace to market participants at other exchanges, such market participants may elect to become Cboe Options market participants.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Exchange neither solicited nor received comments on the proposed rule change.

III. Discussion and Commission Findings

After careful review, the Commission finds that the proposed rule change, as modified by Amendment No. 3, is consistent with the Act and the rules and regulations thereunder applicable to a national securities exchange.[73] In particular, the Commission finds that the proposed rule change, as modified by Amendment No. 3, is consistent with Section 6(b)(5) of the Act,[74] which requires, among other things, that the Exchange's rules be designed to prevent fraudulent and manipulative acts and practices, to promote just and equitable principles of trade, to remove impediments to and perfect the mechanism of a free and open market and a national market system, and, in general, to protect investors and the public interest. In its proposal to make the Pilot Program permanent, the Exchange addressed whether the Pilot Program negatively impacts markets or impacted options market quality.[75] Each of these elements is discussed in greater detail below. As stated above, no comments were received on the proposed rule change.

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73 In approving this proposed rule change, the Commission has considered the proposed rule's impact on efficiency, competition, and capital formation. See 15 U.S.C. 78c(f).

74 15 U.S.C. 78f(b)(5).

75 Certain studies cited by the Exchange do not include, as part of their analysis, FLEX Options. See Amendment No. 3. However, the Commission acknowledges that the market for FLEX Options is small and the products included as part of those studies, while much larger than the FLEX market, did not have a disruptive impact on the underlying indexes or the underlying components. As a result, the Commission recognizes that it is not unreasonable for the Exchange to infer that since the FLEX PM Third Friday Options market is significantly smaller than the SPX PM market, FLEX PM Third Friday Options are unlikely to adversely impact the market.

Market Impact Considerations

The Exchange states it has not identified any evidence from the pilot data indicating that the trading of PM-settled FLEX options has any adverse impact on fair and orderly markets on Expiration Fridays for broad-based indexes or the underlying securities comprising those indexes and has observed no abnormal market movements attributable to FLEX PM Third Friday Options from any market participants that have come to the attention of the Exchange.[76] In order to support its overall assessment of the Program, the Exchange included a review and analysis of pilot data.[77] Among other things, the Exchange's analysis includes end of day volatility as well as a comparison of the impact of quarterly index rebalancing versus PM-settled expirations.[78]

In addition to reviewing the data and analysis provided by the Exchange, the Commission reviewed the analysis in the Pilot Memo, which evaluates whether higher levels of expiring open interest in PM-settled index options results in increased volatility and price reversals around the close. The Pilot Memo shows that the market share for PM-settled options on the S&P 500 has grown substantially since 2007.[79] The Exchange's review of pilot data also showed this trend continuing from 2019 through 2021.[80]

The Pilot Memo examines whether and to what extent expiring open interest in PM-settled index options is empirically related with the tendency of the corresponding index futures,

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76 See Amendment No. 3, at 12-13.

77 Id. at 17.

78 Id. at 13. The Exchange states that although its analysis specifically evaluated SPX options, the Exchange believes it is appropriate to extrapolate the data to apply to FLEX PM Third Friday Options. See Amendment No. 3, at 29. The Commission agrees it is appropriate to extrapolate the data to FLEX PM Third Friday Options, as the Exchange's analysis examines liquidity and volatility dynamics around the market close, which may be associated with typical hedging activities tied to expiring p.m.-settled index option.

79 See Pilot Memo at 2.

80 See Amendment No. 3, at 13. Specifically, since 2007, PM-settled SPX options grew from 0.1% of open interest to 30% of open interest in 2021. Id.

the underlying index, or index components to experience increased transitory volatility and price reversals around the time of market close on expiration dates. The Pilot Memo concludes that, although expiring PM-settled index option open interest may have a statistically significant relationship with volatility and price reversals of the underlying index, index futures, and index component securities around the market close, the magnitude of the effect is economically very small.[81] For example, the largest settlement event that occurred during the time period studied in the Pilot Memo (a settlement of $100.4 billion of notional on December 29, 2017) had an estimated impact on the futures price of only approximately 0.02% (a predicted impact of $0.54 relative to a closing futures price of $2,677).[82]

The Exchange further reviewed a sample of pilot data from 2019 through 2021, and measured the volatility of the S&P 500 over the final fifteen minutes of each trading day and compared expiration days to non-expiration days.[83] Generally volatility was slightly higher on expiration days, but in cases where overall market volatility increased, the normalized impact on expiration days versus non-expiration days remained consistent.[84] The Exchange further analyzed volatility on days when the S&P 500 was rebalanced, and states its results suggest more closing volatility on rebalance dates compared to non-rebalance expiration dates, indicating that rebalancing of the S&P 500 may have a greater impact on S&P 500 volatility than p.m.-settled option expirations.[85]

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81 See Pilot Memo at 3.

82 See id.

83 See Amendment No. 3, at 17-19.

84 See id.

85 See id.

The Exchange also reviewed a sample of post-2018 pilot data for potential correlation between excess market volatility and price reversals and the hedging activity of liquidity providers.[86] To determine whether there is a correlation, the Exchange calculated an estimate of the amount of MOC volume in the S&P 500 component markets attributable to expected hedging activity as a result of expiring in-the-money options.[87] The Exchange states its results indicate that other sources of MOC share volume generally exceed the volume resulting from hedging activity for PM-settled SPX options.[88] Further, the Exchange also compared hedging futures positions that would correspond to expiring in-the-money PM-settled SPX options and concludes the data indicate negligible capacity for hedging activity to increase volatility in the underlying markets.[89]

The Exchange acknowledged in its proposal that the Commission's Pilot Memo and corresponding Exchange studies discussed above specifically evaluated SPX options rather than FLEX PM Third Friday Options.[90] To support its reliance on these studies, the Exchange states that there have been approximately 400,000 contracts in FLEX PM Third Friday Options executed on the Exchange since 2013, that vast majority of which were on SPX, representing approximately 0.01% of all SPX options volume during that time.[91] The Exchange further states that given that the Pilot Memo and other Exchange studies concluded that PM settlements of a significantly larger amount of non-FLEX PM-settled index options had no significant adverse market impact on the underlying index or related products, it is reasonable to conclude that the

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86 See id.

87 See id.

88 See Amendment No. 3, at 20.

89 See id.

90 See Amendment No. 3, at 29.

91 See id.

small amount of expiring PM settled FLEX index options under the Pilot Program, "…would similarly have no significant adverse market impact."[92]

Finally, the Exchange states that the significant changes in the closing procedures of the primary markets in recent decades, including considerable advances in trading systems and technology, have significantly minimized risks of any potential impact of PM-, cash-settled SPX options on the underlying cash markets.[93]

Market Quality Considerations

The Exchange also completed an analysis intended to evaluate whether the Pilot Program impacted the quality of the SPX options market. Specifically, the Exchange compared values of key market quality indicators (specifically, the bid-ask spread[94] and effective spread[95]) in PM-settled SPX weekly ("SPXW") options both before and after the introduction of Tuesday expirations and Thursday expirations for SPXW options on April 18 and May 11, 2022, respectively.[96] The Exchange concludes from this analysis that the introduction of SPX options with Tuesday and Thursday options had no significant impact on the market quality of SPXW options with Monday, Wednesday, and Friday expirations. For a majority of the series analyzed, the Exchange observed no statistically significant difference in bid-ask spread or effective

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92 See Amendment No. 3, at 30.

93 See Amendment No. 3, at 26.

94 The Exchange calculated for each of SPXW options (with Monday, Wednesday, and Friday expirations) and SPY Weekly options (with Monday, Wednesday, and Friday expirations) the daily time-weighted bid-ask spread on the Exchange during its regular trading hours session, adjusted for the difference in size between SPXW options and SPY options (SPXW options are approximately ten times the value of SPY options).

95 The Exchange calculated the volume-weighted average daily effective spread for simple trades for each of SPXW options (with Monday, Wednesday, and Friday expirations) and SPY Weekly options (with Monday, Wednesday, and Friday expirations) as twice the amount of the absolute value of the difference between an order execution price and the midpoint of the national best bid and offer at the time of execution, adjusted for the difference in size between SPXW options and SPY options.

96 For purposes of comparison, the Exchange paired SPXW options and SPY options with the same moneyness and same days to expiration.

spread.[97] While the Exchange acknowledges that this analysis may not be a direct substitute to demonstrate that the introduction of FLEX PM Third Friday Options did not significantly impact the market quality of non-FLEX AM-settled options the Exchange believes the analysis is still relevant.[98]

Specifically, the Exchange states the data shows that 400,000 FLEX PM Third Friday Options have executed on the Exchange since 2013; compared to 156 million total FLEX Options contracts; 14.2 billion total options contracts; 5.6 billion index option contracts; 3.8 billion total SPX options contracts; and 2.3 billion AM-settled SPX options contracts in the same time period.[99] The Exchange states that since FLEX PM Third Friday Options have an average-daily-volume of approximately 0.04% of the average-daily-volume of SPXW Tuesday and Thursday expirations, it is reasonable to conclude that it is unlikely that FLEX PM Third Friday Options would have any impact on the market quality of non-FLEX SPX AM-settled options.[100]

As part of its filing, to further analyze the impact FLEX PM Third Friday Options had on market quality, the Exchange provided additional data and evaluated each FLEX PM Third Friday Options trade for more than 500 contracts that occurred on the Exchange during the last two years and analyzed the market quality (specifically, the average time-weighted quote spread and size 30 minutes prior to the trade and the average time-weighted quote spread and size 30 minutes after the trade) of non-FLEX AM-settled SPX option series with similar terms as the FLEX PM Third Friday Option that traded (time to expiration, type (call or put), and strike price) as set forth in the table above.

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97 See Amendment No. 3, at 56.

98 Id. at 23

99 Id.

100 Id.

The Exchange's analysis shows that the average time-weighted quote spread and size of non-FLEX AM-settled SPX option did not materially change after the FLEX PM Third Friday Options trade.[101] Specifically, the average time-weighted quoted spread was never more than $0.36 wider in the time period after the trade compared to before the trade, and the average time-weighted size was never more than 0.7 contracts different in the time period after the trade compared to before the trade.[102] The Exchange also stated that the observed spreads were relatively stable before and after large trades. The Exchange states that this demonstrates that large FLEX PM Third Friday Options trades had no material negative impact on quote quality of non-FLEX AM-settled SPX options with similar terms as the FLEX PM Third Friday Options.[103] Therefore, the Exchange concludes that this evaluation effectively shows that it is likely FLEX PM Third Friday Options have had no significant negative impact on the market quality of non-FLEX Options with AM-settlement.[104]

Conclusion

The Commission believes that the evidence contained in the Exchange's filing, and the Exchange's pilot data and reports, demonstrate that the Pilot Program has benefitted investors and other market participants by providing more flexible trading and hedging opportunities using FLEX options under the Pilot Program, while also having observed no evidence of an adverse impact on the market. The market for FLEX PM Third Friday Options has grown in size over the course of the Pilot Program, but remains relatively small compared to non-FLEX PM- settled

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[101] The Exchange acknowledged certain limitations related to its analysis. See Amendment No. 3, at notes 47-49.

[102] See Amendment No. 3, at 25.

[103] Id.

[104] Id.

index options, and analysis of the pilot data did not identify any significant economic impact, nor did it indicate a deterioration in market quality (as measured by average time weighted quote spreads and average time weighted quote size) for series of non-FLEX AM-settled SPX option series with similar terms as the FLEX PM Third Friday Options. Additionally, the Pilot Memo and Exchange studies analyzing the non-Flex options market did not identify any adverse market impact on the underlying indexes, components of those indexes or related products or any significant impact on market quality of AM-settled index options.[105] Further, significant changes in closing procedures in the decades since index options moved to AM settlement may also serve to mitigate the potential impact of PM-settled index options on the underlying cash markets.

Accordingly, the Commission finds that the proposed rule change, as modified by Amendment No. 3, is consistent with Section 6(b)(5) of the Act[106] and the rules and regulations thereunder applicable to a national securities exchange.

IV. <u>Solicitation of Comments on Amendment No. 3 to the Proposed Rule Change</u>

Interested persons are invited to submit written data, views, and arguments concerning the foregoing, including whether Amendment No. 3 is consistent with the Act. Comments may be submitted by any of the following methods:

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105 While the Exchange recognized certain limitations as to its analysis, given the totality and scope of the studies described above and the current size of the FLEX PM Third Friday Options market it is not unreasonable for the Exchange to infer from those studies that it is unlikely FLEX PM Third Friday Options adversely impacted the options or other markets.

106 15 U.S.C. 78f(b)(5).

Electronic Comments:

- Use the Commission's internet comment form (https://www.sec.gov/rules/sro.shtml); or
- Send an email to rule-comments@sec.gov. Please include file number SR-CBOE-2023-018 on the subject line.

Paper Comments:

- Send paper comments in triplicate to Secretary, Securities and Exchange Commission, 100 F Street NE, Washington, DC 20549-1090.

All submissions should refer to file number SR-CBOE-2023-018. This file number should be included on the subject line if email is used. To help the Commission process and review your comments more efficiently, please use only one method. The Commission will post all comments on the Commission's internet website (https://www.sec.gov/rules/sro.shtml). Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for website viewing and printing in the Commission's Public Reference Room, 100 F Street NE, Washington, DC 20549, on official business days between the hours of 10 a.m. and 3 p.m. Copies of the filing also will be available for inspection and copying at the principal office of the Exchange. Do not include personal identifiable information in submissions; you should submit only information that you wish to make available publicly. We may redact in part or withhold entirely from publication submitted material that is obscene or subject to copyright protection. All submissions should refer to file number SR-CBOE-2023-018 and should be submitted on or before [INSERT DATE 21 DAYS AFTER DATE OF PUBLICATION IN THE *FEDERAL REGISTER*].

V. Accelerated Approval of Amendment No. 3

The Commission finds good cause to approve the proposed rule change, as modified by Amendment No. 3, prior to the thirtieth day after the date of publication of notice of the filing of Amendment No. 3 in the Federal Register. As noted above, Amendment No. 3 makes no substantive changes to the proposal. Amendment No. 3 provides additional analysis and data to support certain assertions made by the Exchange and provides greater clarity to, and justification for, the proposal.[107] The additional analysis and information in Amendment No. 3 assist the Commission in evaluating the Exchange's proposal and in determining that it is consistent with the Act. Amendment No. 3 also raises no new novel issues. Accordingly, the Commission finds good cause, pursuant to Section 19(b)(2) of the Act,[108] to approve the proposed rule change, as modified by Amendment No. 3, on an accelerated basis.

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[107] See supra note 12.

[108] 15 U.S.C. 78s(b)(2).

VI. Conclusion

IT IS THEREFORE ORDERED, pursuant to Section 19(b)(2) of the Act, that proposed rule change SR-CBOE-2023-018, as modified by Amendment No. 3, be, and hereby is, approved on an accelerated basis.

For the Commission, by the Division of Trading and Markets, pursuant to delegated authority.[109]

Christina Z. Milnor,

Assistant Secretary.

[109] 17 CFR 200.30-3(a)(12).