



Annual Report for 2025

of the Operating Committee of the Plan to Address Extraordinary Market Volatility



Submitted May 5, 2026

1. **Executive Summary**

The LULD Plan¹ was enacted to minimize excess volatility in individual stocks by preventing trades in NMS stocks from occurring far away from current prices. Price limiting bands are created around the current security Reference Price. If the National Best Bid (“NBB”) equals the upper Price Band, or the National Best Offer (“NBO”) equals the lower Price Band, then a limit state is declared for 15 seconds. If the quote triggering the limit state is not executed or canceled within the 15 seconds, the security enters a five-minute trading pause. Separately, a straddle state occurs when a security’s NBB is below the lower band and the NBO is within the bands, or when a security’s NBO is above the upper band and the NBB is within the bands.

To evaluate the efficacy of the Plan for the calendar year 2025, the Operating Committee has examined the occurrence of limit states, trading pauses, and straddle states during the year. We compare the occurrences of those events to those for the previous calendar year to detect any changes in occurrence. We also partition our samples by security variables that may impact the number of observed events such as: time of day; LULD pricing tier; whether the security is an exchange-traded product (ETP) or not; and quote volatility.

We examine the distribution of LULD event states partitioned by daily quote volatility, LULD tier, and whether or not the security is an ETP. We examine the distribution of quote volatility within each partition. The evidence suggests that the overall distribution of limit states, trading pauses, and straddle states is related to LULD Tier and whether a security is an ETP.

We also detail straddle state frequency and show that some securities can remain in a straddle state for a significant portion of the day. Finally, we study in detail the early part of the day, when spreads tend to be wider.

Overall, our evaluation of the efficacy of the Plan for calendar year 2025 does not suggest the need for any additional calibration of the LULD Price Bands. However, as discussed in the emerging issues section, the Operating Committee has been actively discussing and working towards the introduction of price bands for overnight trading hours.

¹ The “LULD Plan,” also known as the “Limit Up/Limit Down Plan,” is officially named the Plan to Address Extraordinary Market Volatility Submitted to the Securities and Exchange Commission Pursuant to Rule 608 of Regulation NMS Under the Securities Exchange Act of 1934, and is available at <https://www.luldplan.com/plans>.

II. Background

On May 31, 2012, the Securities and Exchange Commission (“SEC” or “Commission”) approved, on a pilot basis, a National Market System Plan, known as the Limit Up/Limit Down (“LULD”) Plan, to address extraordinary market volatility. The Plan was approved by the Commission on a permanent basis on April 11, 2019, as part of the eighteenth amendment (“Amendment 18”) to the Plan.²

The LULD Plan is administered by the LULD Operating Committee, comprising a representative from each of the Participants. The current Participants are 24X Exchange LLC, Cboe BYX Exchange, Inc., Cboe BZX Exchange, Inc., Cboe EDGA Exchange, Inc., Cboe EDGX Exchange, Inc., the Financial Industry Regulatory Authority, Inc., Investors Exchange LLC, Long-Term Stock Exchange, MEMX LLC, MIAX Pearl, LLC, NASDAQ BX, Inc., NASDAQ PHLX LLC, The NASDAQ Stock Market LLC, New York Stock Exchange LLC, NYSE Arca, Inc., NYSE American LLC, NYSE Texas, Inc., and NYSE National, Inc.

The Plan and any amendments to it are filed with and approved by the Commission in accordance with Section 11A of the Securities Exchange Act of 1934.

Pursuant to Appendix B.II.A of the Plan, the Operating Committee is submitting this Annual Report for the year 2025.

A. OVERVIEW OF THE PLAN

The Plan is designed to prevent trades in NMS Stocks from occurring outside specified Price Bands, which are set at a percentage level above and below the Reference Price of a security over the preceding five-minute period. The percentage level is determined by a security’s designation as a Tier 1 or Tier 2 security. **Tier 1** comprises all securities in the S&P 500, the Russell 1000, and select ETPs. **Tier 2** comprises all other NMS Stocks, except for rights and warrants, which are specifically excluded from coverage. The Plan does not apply to options. The Plan applies during regular trading hours of 9:30 am ET - 4:00 pm ET when LULD Price Bands are in effect.³

To determine which ETPs are eligible to be included as Tier 1 securities, the Plan requires that, on January 1 and July 1 of each year, the Participants identify all ETPs across multiple

² See Securities Exchange Act Release No. 85623 (April 11, 2019), 84 FR 16086 (April 17, 2019) (File No. 4-631).

³ As discussed in the emerging issues section, the Operating Committee intends to separately file to introduce Price Bands during overnight trading hours.

asset classes and issuers, including domestic equity, international equity, fixed income, currency, digital assets, and commodities and futures. All leveraged ETPs are classified as Tier 2 securities, and the remaining ETPs are then sorted by notional consolidated average daily volume (“CADV”). The period used to measure CADV is from the first day of the previous fiscal half year up until one week before the beginning of the next fiscal half year. Daily volumes are multiplied by closing prices and then averaged over the period. Non-leveraged ETPs (including inverse ETPs) that trade over \$2,000,000 CADV are classified as Tier 1 securities for the six-month period. The remaining ETPs are classified as Tier 2 securities.

B. CALCULATION OF PRICE BANDS

The two securities information processors (SIPs) – the Securities Industry Automation Corporation (SIAC) and Nasdaq, calculate the Plan’s Price Bands, consisting of a lower and upper Price Band for each NMS Stock. The SIPs calculate the lower and upper Price Bands by applying a formula to a Reference Price, which is the arithmetic mean price of Eligible Reported Transactions over the prior five-minute period. (The first Reference Price of the day is either the primary market’s opening price or the primary market’s previous day’s official closing price when opening on a quote.) If the primary listing exchange does not open a security in the first five minutes and no eligible trades have occurred during that period from which to calculate a Reference Price, the first eligible trade after 9:35 a.m. becomes the Reference Price. The Reference Price is updated after 30 seconds only if a new Reference Price would be at least 1% away from the current Reference Price.

The Price Bands are calculated by multiplying the current Reference Price by the applicable Percentage Parameter, and then adding or subtracting that value from the Reference Price and rounding to the nearest penny:

$$Price\ Band = (Reference\ Price) \pm ((Reference\ Price) \times (Percentage\ Parameter))$$

Table A below shows the Percentage Parameters in effect for Tier 1 securities prior to the last 25 minutes of the trading day. The Percentage Parameters are doubled for all Tier 1 securities for the last 25 minutes of the trading day. **Table B** shows the Percentage Parameters that apply to Tier 2 securities except Tier 2 securities below \$3.00 for the last 25 minutes of the trading day, which are doubled.

Table A: Pricing Parameters for Tier 1 Securities	
Previous Closing Price	Percentage Parameter
Greater than \$3.00	5%
\$0.75 up to and including \$3.00	20%
Less than \$0.75	Lesser of \$0.15 or 75%

Table B: Pricing Parameters for Tier 2 Securities	
Previous Closing Price	Percentage Parameter
Greater than \$3.00	10%
\$0.75 up to and including \$3.00	20%
Less than \$0.75	Lesser of \$0.15 or 75%

To illustrate, assume a Tier 1 stock with a current Reference Price of \$25.00. Price bands will be established at $\$25.00 \pm 5\%$, resulting in a lower band of \$23.75 and an upper band of \$26.25.

In **Table C** below, we illustrate four possibilities that can trigger an LULD state:

1. If the NBB is equal to the upper band, then a limit state is declared.
2. If the NBO is equal to the lower band, then a limit state is declared.
3. If the NBB is below the lower band and the NBO is within the bands, then a straddle state occurs.
4. If the NBO is above the upper band and the NBB is within the bands, then a straddle state occurs.

Table C: Conditions That Lead To Limit and Straddle States							
Example	Ref Price	Lower Price Band	NBB	NBO	Upper Price Band	State	Condition
1	\$25.00	\$23.75	\$26.25	\$26.75	\$26.25	Limit	NBB resting on upper band
2	\$25.00	\$23.75	\$23.50	\$23.75	\$26.25	Limit	NBO resting on lower band
3	\$25.00	\$23.75	\$23.50	\$26.00	\$26.25	Straddle	NBB crosses the lower band, NBO within bands
4	\$25.00	\$23.75	\$26.00	\$26.75	\$26.25	Straddle	NBO crosses the upper band, NBB within bands

C. ANNUAL REPORTING OBLIGATION

As required, the Annual Report comprises information concerning the Plan's performance during the preceding calendar year, including:

- (1) an update on the Plan's operations;
- (2) an analysis of any amendment to the Plan implemented during the period covered by the report; and
- (3) an analysis of potential material emerging issues that may directly impact the operation of the Plan.

III. Update on the Plan’s Operations in 2025

To provide insight to the current operation of the Plan, we compare measures of LULD events for 2025 to the same measures for 2024. Data for each year includes all trading days during that calendar year. In addition to summary tables that provide information on each respective calendar year, this year’s annual report contains additional comparison tables that show the change in each reported metric relative to the prior year. The Operating Committee is providing these comparison tables to help facilitate review of the data provided herein by the Commission and interested market participants.

A. TYPE AND NUMBER OF LULD EVENTS

We first examine the number of event types that occur during 2024 and 2025. **Table 1, Panel A** contains the results for 2024, while **Panel B** reports results for 2025.

We also partition our data into time-of-day partitions: (1) the first 15 minutes of trading (9:30-9:45 a.m.); (2) 9:45 - 25 minutes before the close; and (3) the last 25 minutes to trading. We then calculate the median, mean, and 90th percentile for each LULD event type for each time partition. The measures are contained in columns three through five of each panel. We also report the number of events for each event type, contained in the last column of each panel. Finally, to further examine the change in the relationship between limit states and LULD trading pauses, we calculate the number of LULD trading pauses during each trading year and divide by the number of limit states over the same period.

Based on the data reviewed the Operating Committee finds the following:

- The year-over- year increase in Limit States for 2025 was 29.2%, compared to the 2023 to 2024 increase of 16.7%.
- 2025 had a 22.5% increase in Trading Pauses from 2024, compared to an increase of 12.8% from 2023 to 2024.
- The conversion rate of Limit States that turn into Trading Pauses remained relatively flat at 11.1% in 2025 compared to 11.7% in 2024.
- While Straddle States increased 17.7% from 2024, Straddle States in 2025 showed a significant decrease of 61.3% from 2023.
- In 2025, 59% of the Straddle States occurred during the 9:45 a.m. - 3:25 p.m. time period, which was higher than the 47% for that same time period in 2024.
- Overall, the distribution of LULD events that occurred during the different time segments of the trading day did not reflect a notable shift from 2024 to 2025.

Table 1: Overall Occurrence of LULD Events (Pause, Limit and Straddle)

Panel A: All Trading Days 2024

		Median	Mean	90 %-ile	# Events
9:30 - 9:45	LULD Pauses	6.0	6.8	12.0	1,719.0
	Limit States	38.0	55.6	115.0	13,952.0
	Straddle States	1,348.0	1,443.0	1,771.0	362,197.0
9:45 - 25 min before close	LULD Pauses	23.0	27.1	51.0	6,800.0
	Limit States	174.0	236.1	494.0	59,266.0
	Straddle States	1,443.0	1,665.9	2,730.0	418,142.0
Last 25 minutes	LULD Pauses	1.0	1.1	3.0	268.0
	Limit States	3.0	8.0	20.0	1,999.0
	Straddle States	351.0	406.7	819.0	102,087.0
Total	LULD Pauses	31.0	35.0	63.0	8,787.0
	Limit States	222.0	299.7	593.0	75,217.0
	Straddle States	3,199.0	3,515.6	5,028.0	882,426.0

Panel B: All Trading Days 2025

		Median	Mean	90 %-ile	# Events
9:30 - 9:45	LULD Pauses	7.0	7.3	12.0	1823.0
	Limit States	46.0	60.4	128.5	15111.0
	Straddle States	1210.5	1390.0	2071.5	347509.0
9:45 - 25 min before close	LULD Pauses	30.0	34.3	61.5	8577.0
	Limit States	244.0	317.3	621.5	79314.0
	Straddle States	1681.0	2455.4	4062.5	613856.0
Last 25 minutes	LULD Pauses	1.0	1.5	3.0	363.0
	Limit States	5.0	11.1	24.0	2770.0
	Straddle States	174.0	308.4	711.0	77094.0
Total	LULD Pauses	37.0	43.1	75.5	10763.0
	Limit States	313.0	388.8	695.5	97195.0
	Straddle States	3246.5	4153.8	6540.5	1038459.0

Panel C: Comparison

		Median	Mean	90 %-ile	# Events
9:30 - 9:45	LULD Pauses	17%	7%	0%	6%
	Limit States	21%	9%	12%	8%
	Straddle States	-10%	-4%	17%	-4%
9:45 - 25 min before close	LULD Pauses	30%	27%	21%	26%
	Limit States	40%	34%	26%	34%
	Straddle States	16%	47%	49%	47%
Last 25 minutes	LULD Pauses	0%	36%	0%	35%
	Limit States	67%	39%	20%	39%
	Straddle States	-50%	-24%	-13%	-24%
Total	LULD Pauses	19%	23%	20%	22%
	Limit States	41%	30%	17%	29%
	Straddle States	1%	18%	30%	18%

B. IMPACT OF SECURITY CHARACTERISTICS ON LULD EVENTS

Thus far, we have treated all securities equally, regardless of their descriptors. We now examine whether security characteristics have an impact on LULD events. We partition securities according to the following descriptors:

- LULD Price Tier (Tier 1 or Tier 2)
- Exchange Traded Product (Yes or No)
- Leveraged ETP (Yes or No)
- Previous Day’s Closing Price

We placed securities into portfolios based on intersections of the above four values. We then calculated the same statistical measures already employed: mean; median; and 90% percentile. The results are found in **Table 2**, with results from 202A in **Panel A** and 2025 results in **Panel B**.⁴

⁴ In this table and the tables below, partitions are not reported if there were only *de minimis* numbers of symbols meeting the requirements.

Based on the data reviewed the Operating Committee finds the following:

- The number of Tier 1 non-ETP symbols was virtually unchanged year-over-year.
- Tier 2 non-ETPS, the largest category, with 4,434 symbols, declined by 1.8%.
- The number of ETP symbols priced greater than or equal to \$3 increased by the following amounts from 2024 to 2025:
 - Tier 1 ETPs rose 20%
 - Tier 2 non-leveraged ETPs rose 8.5%
 - Tier 2 leveraged ETPs rose 46.1%.
- In 2025 the number of ETP symbols increased 14% and accounted for 38% of total symbols, up from 34% in 2024.
- The category with the largest number of Trading Pauses and Limit States is Tier 2 non-ETPs priced at or more than \$3. Approximately 65% of total Trading Pauses occurred in this category, which contains 41% of the total symbol count.
- Both Tier 1 ETPs and Tier 2 non-leveraged ETPs showed a somewhat increased incidence of Limit States for 2025, but in both cases an overall low Trading Pause rate.
- For Tier 2 non-ETPS where a large percentage of Straddle States are concentrated, there was a 9% decline in the early session and a 37% decline in the late session. The midday Straddle State average increased by 20% in 2025.
- There was a noticeable increase in midday and late Straddle States for Tier 2 non-leveraged ETPs at 256% and 324% respectively.

Table 2: LULD Summary Statistics by Tier, ETP and Price Groups

Panel A: 2024

Tier	1	1	2	2	2	2	2
ETP Flag	N	Y	N	N	N	Y	Y
Leverage	N	N	N	N	N	N	Y
Close Price	≥ \$3.00	≥ \$3.00	< \$0.75	\$0.75-\$3.00	≥ \$3.00	≥ \$3.00	≥ \$3.00
Avg. # of Symbols	1,009.0	1,090	360.4	976.7	4,515.2	2,278.0	200.6
Avg. Limits Early	7.8	0.1	4.5	8.2	34.4	0.4	0.1
Avg. Limits Midday	19.9	0.4	54.7	33.4	127.0	0.5	0.0
Avg. Limits Late	0.1	0.0	0.5	0.1	7.0	0.1	0.1
Avg. Pauses Early	0.2	0.1	0.6	0.6	5.2	0.2	0.0
Avg. Pauses Midday	0.6	0.1	5.6	2.3	18.4	0.1	0.0
Avg. Pauses Late	0.0	0.0	0.1	0.0	1.0	0.0	0.0
Avg. Straddles Early	29.0	28.6	9.4	44.3	1,053.6	270.4	7.5
Avg. Straddles Midday	35.1	9.3	98.6	91.9	1,231.33	196.6	1.8
Avg. Straddles Late	0.3	0.1	1.3	1.0	389.4	13.5	0.5
Median Limits Early	0.0	0.0	0.0	1.0	24.0	0.0	0.0
Median Limits Midday	0.0	0.0	11.5	12.0	97.0	0.0	0.0
Median Limits Late	0.0	0.0	0.0	0.0	3.0	0.0	0.0
Median Pauses Early	0.0	0.0	0.0	0.0	5.0	0.0	0.0
Median Pauses Midday	0.0	0.0	2.0	1.0	16.0	0.0	0.0
Median Pauses Late	0.0	0.0	0.0	0.0	1.0	0.0	0.0
Median Straddles Early	13.0	11.0	3.0	34.0	988.0	195.0	5.0
Median Straddles Midday	0.0	2.0	27.5	52.0	1,053.0	78.0	0.0
Median Straddles Late	0.0	0.0	0.0	0.0	336.0	4.0	0.0
90th %-ile Limits Early	22.0	0.0	14.0	23.0	70.0	1.0	0.0
90th %-ile Limits Midday	27.0	0.0	154.0	84.0	252.0	1.0	0.0
90th %-ile Limits Late	0.0	0.0	0.0	0.0	17.0	0.0	0.0
90th %-ile Pauses Early	1.0	0.0	2.0	2.0	9.0	1.0	0.0
90th %-ile Pauses Midday	1.0	0.0	13.0	5.0	35.0	1.0	0.0
90th %-ile Pauses Late	0.0	0.0	0.0	0.0	3.0	0.0	0.0
90th %-ile Straddles Early	61.0	62.0	22.0	77.0	1,329.0	350.0	16.0
90th %-ile Straddles Midday	73.0	15.0	251.0	191.0	2,112.0	270.0	4.0
90th %-ile Straddles Late	0.0	0.0	3.0	2.0	804.0	16.0	1.0

Panel B: 2025

Tier	1	1	2	2	2	2	2
ETP Flag	N	Y	N	N	N	Y	Y
Leverage	N	N	N	N	N	N	Y
Close Price	≥ \$3.00	≥ \$3.00	< \$0.75	\$0.75-\$3.00	≥ \$3.00	≥ \$3.00	≥ \$3.00
Avg. # of Symbols	1,012.50	1,308	267.9	983.7	4,433.90	2,471.20	293.1
Avg. Limits Early	6.4	0.6	2.9	7.9	40.6	2.1	0.1
Avg. Limits Midday	14.2	6.4	57.3	31.3	201.7	6.1	0
Avg. Limits Late	0.2	0	1.4	0.2	8.9	0	0.1
Avg. Pauses Early	0.2	0.1	0.5	0.6	5.4	0.5	0
Avg. Pauses Midday	0.2	0.3	6.3	6	24	0.9	0
Avg. Pauses Late	0	0	0.2	0	1.2	0	0
Avg. Straddles Early	37.6	59.6	5.5	34.6	955.50	282.8	12.8
Avg. Straddles Midday	32	9.3	88.8	73.3	1,478.70	699.2	9.7
Avg. Straddles Late	0.6	0.1	2	0.6	246.5	57.3	1.1
Median Limits Early	0	0	0	7.9	29	0	0
Median Limits Midday	0	0	17	31.3	152	0	0
Median Limits Late	0	0	0	0.2	4	0	0
Median Pauses Early	0	0	0	0	5	0	0
Median Pauses Midday	0	0	2	1	30	0	0
Median Pauses Late	0	0	0	0	1	0	0
Median Straddles Early	27	14	1	34	827.5	219.5	10
Median Straddles Midday	0	8	29	46.5	1,06.0	161	0
Median Straddles Late	0	0	0	0	150.5	9	0
90th %-ile Limits Early	16	0	6	26.5	83.5	3	0
90th %-ile Limits Midday	24	0	146	67.5	420	1.5	0
90th %-ile Limits Late	0	0	3	0	18.5	0	0
90th %-ile Pauses Early	1	0	2	2	9	1.5	0
90th %-ile Pauses Midday	0	0	17.5	6	45.5	1	0
90th %-ile Pauses Late	0	0	1	0	3	0	0
90th %-ile Straddles Early	81	61.5	13	74	1,234.00	472.5	20
90th %-ile Straddles Midday	55.5	38	230.5	149	2,610.00	1459	48
90th %-ile Straddles Late	0	0	6	1	554	51	1

Panel C: Comparison

Tier	1	1	2	2	2	2	2
ETP Flag	N	Y	N	N	N	Y	Y
Leverage	N	N	N	N	N	N	Y
Close Price	≥ \$3.00	≥ \$3.00	< \$0.75	\$0.75-\$3.00	≥ \$3.00	≥ \$3.00	≥ \$3.00
Avg. # of Symbols	0%	20%	-26%	1%	-2%	8%	46%
Avg. Limits Early	-18%	500%	-36%	-4%	18%	425%	0%
Avg. Limits Midday	-29%	1500%	5%	-6%	59%	1120%	0%
Avg. Limits Late	100%	0%	180%	100%	27%	-100%	0%
Avg. Pauses Early	0%	0%	-17%	0%	4%	150%	0%
Avg. Pauses Midday	-67%	200%	13%	161%	30%	800%	0%
Avg. Pauses Late	0%	0%	100%	0%	20%	0%	0%
Avg. Straddles Early	30%	108%	-41%	-22%	-9%	5%	71%
Avg. Straddles Midday	-9%	0%	-10%	-20%	20%	256%	439%
Avg. Straddles Late	100%	0%	54%	-40%	-37%	324%	120%
Median Limits Early	0%	0%	0%	690%	21%	0%	0%
Median Limits Midday	0%	0%	48%	161%	57%	0%	0%
Median Limits Late	0%	0%	0%	#DIV/0!	33%	0%	0%
Median Pauses Early	0%	0%	0%	0%	0%	0%	0%
Median Pauses Midday	0%	0%	0%	0%	88%	0%	0%
Median Pauses Late	0%	0%	0%	0%	0%	0%	0%
Median Straddles Early	108%	27%	-67%	0%	-16%	13%	100%
Median Straddles Midday	0%	300%	5%	-11%	#VALUE!	106%	0%
Median Straddles Late	0%	0%	0%	0%	-55%	125%	0%
90th %-ile Limits Early	-27%	0%	-57%	15%	19%	200%	0%
90th %-ile Limits Midday	-11%	0%	-5%	-20%	67%	50%	0%
90th %-ile Limits Late	0%	0%	#DIV/0!	0%	9%	0%	0%
90th %-ile Pauses Early	0%	0%	0%	0%	0%	50%	0%
90th %-ile Pauses Midday	-100%	0%	35%	20%	30%	0%	0%
90th %-ile Pauses Late	0%	0%	#DIV/0!	0%	0%	0%	0%
90th %-ile Straddles Early	33%	-1%	-41%	-4%	-7%	35%	25%
90th %-ile Straddles Midday	-24%	153%	-8%	-22%	24%	440%	1100%
90th %-ile Straddles Late	0%	0%	100%	-50%	-31%	219%	0%

C. ASSOCIATION BETWEEN QUOTE VOLATILITY AND THE OCCURRENCE OF LULD EVENT

We also examine the relationship between the number of LULD events and the amount of quote volatility a security has. We measure quote volatility as the mean mid-point to mid-point price change for each second. **Table 3** below shows the distribution of daily quote volatility measures, partitioned by (i) whether the security is an ETP and, if so, whether it is leveraged, and (ii) LULD tier.

Results for 2024 are in **Panel A** and results for 2025 are in **Panel B**. We report the mean quote volatility, as well quote volatility at the 10th percentile, 25th percentile, 50th percentile (the median), 75th percentile, and 90th percentile.

Based on the data reviewed the Operating Committee finds the following:

- Average volatility increased for all categories by 17%–22%, except for the Tier 2 non-ETP category, which was down 1% from 2024 to 2025.
- Tier 1 ETPs had the lowest average volatilities for both 2024 and for 2025, at 0.108 and 0.126, respectively.
- Consistent with past patterns, Tier 2 non-ETPs had a noticeably higher volatility than Tier 1 non-ETPs, at an amount approximately triple the Tier 1 volatility for both 2024 and 2025. Tier 2 non-ETPs and Tier 2 leveraged ETPs both had similar volatilities, at 0.71 and 0.729 respectively, which are significantly higher than the other categories that ranged from 0.126 for Tier 1 ETPs to 0.329 for Tier 2 non-leveraged ETPs.

Table 3: Quote Volatility

Panel A: 2024 (basis points)

ETP Flag	LULD Tier	Leveraged	Mean	Percentile				
				10	25	50 (Median)	75	90
N	1	N/A	0.208	0.115	0.138	0.176	0.238	0.329
	2	N/A	0.715	0.099	0.205	0.418	0.818	1.498
Y	1	N/A	0.108	0.025	0.064	0.085	0.125	0.188
	2	N	0.270	0.042	0.069	0.116	0.249	0.596
		Y	0.597	0.155	0.229	0.332	0.488	0.827

Panel B: 2025 (basis points)

ETP Flag	LULD Tier	Leveraged	Mean	Percentile				
				10	25	50 (Median)	75	90
N	1	N/A	0.253	0.13	0.161	0.212	0.295	0.413
	2	N/A	0.71	0.1	0.225	0.465	0.855	1.461
Y	1	N/A	0.126	0.022	0.053	0.092	0.144	0.237
	2	N	0.329	0.041	0.073	0.13	0.303	0.7
		Y	0.729	0.18	0.278	0.438	0.717	1.231

Panel C: Comparison

ETP Flag	LULD Tier	Leveraged	Mean	Percentile				
				10	25	50 (Median)	75	90
N	1	N/A	22%	13%	17%	20%	24%	26%
	2	N/A	-1%	1%	10%	11%	5%	-2%
Y	1	N/A	17%	-12%	-17%	8%	15%	26%
	2	N	22%	-2%	6%	12%	22%	17%
		Y	22%	16%	21%	32%	47%	49%

D. IMPACT OF QUOTE VOLATILITY ON INDIVIDUAL LULD EVENTS

We next examine the impact of quote volatility on individual LULD events. We do this by comparing the number of trading pauses, limit states, and straddle states on a per-symbol per-day level at different quote volatility levels.

The results are contained in **Table 4**. **Panel A** contains the results for 2024 and **Panel B** contains the results for 2025. Note that these tables count the *number of events*, which we consider more relevant than the *time spent* in these states.

In addition, **Sub-Panels A1 and B1** delineate the number of events that occur for various levels of quote volatility. Securities are partitioned by intersections of LULD tier and whether securities are ETPs. We can examine the number of days a security had volatility at a given level for the year for each intersection.

Sub-Panels A2 and B2 show the average number of LULD events in 2024 (A2) and 2025 (B2) per-security per-day relative to the quote volatility level for intersections of LULD Tier and whether it is an ETP.

Sub-Panel B2 shows the average number of events per security per day for 2024.

Based on the data reviewed the Operating Committee finds the following:

- For 2025, the tables generally reflect a slight annual increase in volatility. Both Tier 1 non-ETPs and ETPs retained more than 99.5% of their Quote Volatility stock days in the <1.0 categories, as was the case in 2024.
- Tier 2 leveraged ETPs had only 57.6% of their stock days showing a volatility of less than 0.5 in 2025, compared to 76.2% that were in that lowest volatility category in 2024.
- The Tier 2 non-ETPs had a more modest loss from the less than 0.5 volatility category, declining from 56.8% in 2024 to 53.0% in 2025.

Table 4: Per Symbol Pauses, Limits, and Straddles by Daily Quote Volatility

Panel A: 2024

Sub-Panel B.1: Number and % of Stock-Days by Quote Volatility

LULD Tier	1		2		1		2			
ETP(Y/N)	N		N		Y		Y			
Leveraged							N		Y	
Quote Volatility	n	%	n	%	n	%	n	%	n	%
< 0.5	247,692	97.22%	837,812	56.81%	271,633	98.86%	510,343	87.62%	38,942	76.20%
0.5 - 1.0	6,488	2.55%	359,779	24.40%	2,462	0.90%	44,759	7.68%	8,142	15.93%
1.0 - 1.5	427	0.17%	130,035	8.82%	338	0.12%	12,251	2.10%	1,398	2.74%
1.5 - 2.0	111	0.04%	54,024	3.66%	106	0.04%	5,032	0.86%	567	1.11%
2.0 - 2.5	35	0.01%	27,025	1.83%	76	0.03%	3,685	0.63%	360	0.70%
>= 2.5	28	0.01%	66,105	4.48%	146	0.05%	6,412	1.10%	1,693	3.31%
Total	254,781	100.00%	1,474,780	100.00%	274,761	100.00%	582,482	100.00%	51,102	100.00%

Sub Panel B.2: Average Events Per Security Per Day 2024

LULD Tier	Quote Volatility	1	2	1	2	
ETP (Y/N)		N	N	Y	Y	
Leveraged					N	Y
Pauses	< 0.5	0.000	0.000	0.000	0.000	0.000
	0.5 - 1.0	0.003	0.000	0.001	0.00	0.000
	1.0 - 1.5	0.003	0.001	0.012	0.001	0.000
	1.5 - 2.0	0.070	0.003	0.029	0.002	0.000
	2.0 - 2.5	0.261	0.012	0.026	0.003	0.003
	>= 2.5	0.429	0.117	0.063	0.005	0.001
Limits	< 0.5	0.000	0.001	0.000	0.000	0.000
	0.5 - 1.0	0.247	0.000	0.007	0.001	0.000
	1.0 - 1.5	1.862	0.006	0.057	0.007	0.000
	1.5 - 2.0	5.649	0.032	0.448	0.005	0.000
	2.0 - 2.5	17.257	0.074	0.250	0.006	0.050
	>= 2.5	135.160	0.954	0.245	0.020	0.014
Straddles	< 0.5	0.006	0.141	0.006	0.033	0.001
	0.5 - 1.0	0.658	0.361	0.711	0.450	0.000
	1.0 - 1.5	4.608	0.658	8.262	1.041	0.099
	1.5 - 2.0	13.018	1.015	13.93	1.648	0.297
	2.0 - 2.5	33.486	1.590	9.276	1.744	0.518
	>= 2.5	233.280	4.606	8.133	8.945	1.120

Panel B: 2025

Sub-Panel B.1: Number and % of Stock-Days by Quote Volatility

LULD Tier	1		2		1		2			
ETP(Y/N)	N		N		Y		Y			
Leveraged							N		Y	
Quote Volatility	n	%	n	%	n	%	n	%	n	%
< 0.5	239,178	94.42%	753,134	52.99%	320,838	98.00%	580,773	86.27%	42,870	57.64%
0.5 - 1.0	13,023	5.14%	389,498	27.40%	5,079	1.55%	63,076	9.37%	20,806	27.97%
1.0 - 1.5	927	0.37%	144,069	10.14%	625	0.19%	12,649	1.88%	5,422	7.29%
1.5 - 2.0	152	0.06%	57,491	4.04%	253	0.08%	6,793	1.01%	1,889	2.54%
2.0 - 2.5	36	0.01%	26,932	1.89%	166	0.05%	2,997	0.45%	785	1.06%
>= 2.5	10	0.00%	50,238	3.53%	419	0.13%	6,930	1.03%	2,608	3.51%
Total	253,326	100.00%	1,421,362	100.00%	327,380	100.00%	673,218	100.00%	74,380	100.00%

Sub Panel B.2: Average Events Per Security Per Day 2025

LULD Tier	Quote Volatility	1	2	1	2	
ETP (Y/N)		N	N	Y	Y	
Leveraged					N	Y
Pauses	< 0.5	0.000	0.000	0.000	0.000	0.000
	0.5 - 1.0	0.001	0.000	0.005	0.001	0.000
	1.0 - 1.5	0.029	0.000	0.030	0.003	0.000
	1.5 - 2.0	0.158	0.003	0.063	0.005	0.001
	2.0 - 2.5	0.250	0.012	0.102	0.008	0.001
	>= 2.5	1.900	0.189	0.026	0.014	0.005
Limits	< 0.5	0.000	0.002	0.000	0.000	0.000
	0.5 - 1.0	0.073	0.000	0.084	0.004	0.000
	1.0 - 1.5	3.095	0.005	0.203	0.020	0.000
	1.5 - 2.0	4.882	0.035	0.336	0.026	0.002
	2.0 - 2.5	14.500	0.105	1.620	0.076	0.008
	>= 2.5	11.500	1.617	1.933	0.074	0.034
Straddles	< 0.5	0.100	0.106	0.019	0.029	0.000
	0.5 - 1.0	0.435	0.180	1.867	0.366	0.000
	1.0 - 1.5	6.797	0.478	7.872	1.224	0.031
	1.5 - 2.0	12.618	1.046	7.213	2.531	0.132
	2.0 - 2.5	31.389	1.567	13.669	2.983	0.358
	>= 2.5	21.000	7.964	15.029	13.380	2.149

Panel C: Comparison

Sub-Panel C.1: Number and % of Stock-Days by Quote Volatility

LULD Tier	1		2		1		2			
ETP(Y/N)	N		N		Y		Y			
Leveraged							N		Y	
Quote Volatility	n	%	n	%	n	%	n	%	n	%
< 0.5	-3%	-3%	-10%	-7%	18%	-1%	14%	-2%	10%	-24%
0.5 - 1.0	101%	102%	8%	12%	106%	72%	41%	22%	156%	76%
1.0 - 1.5	117%	115%	11%	15%	85%	59%	3%	-11%	288%	166%
1.5 - 2.0	37%	50%	6%	11%	139%	93%	35%	17%	233%	129%
2.0 - 2.5	3%	42%	0%	4%	118%	69%	-19%	-29%	118%	51%
>= 2.5	-64%	-61%	-24%	-21%	187%	156%	8%	-6%	54%	6%
Total	-1%	0%	-4%	0%	19%	0%	16%	0%	46%	0%

Sub Panel C.2: Average Events Per Security Per Day

LULD Tier	Quote Volatility	1	2	1	2	
ETP (Y/N)		N	N	Y	Y	
Leveraged					N	Y
Pauses	< 0.5	0%	0%	0%	0%	0%
	0.5 - 1.0	-67%	0%	400%	#DIV/0!	0%
	1.0 - 1.5	867%	-100%	150%	200%	0%
	1.5 - 2.0	126%	0%	117%	150%	#DIV/0!
	2.0 - 2.5	-4%	0%	292%	167%	-67%
	>= 2.5	343%	62%	-59%	180%	400%
Limits	< 0.5	0%	100%	0%	0%	0%
	0.5 - 1.0	-70%	0%	1100%	300%	0%
	1.0 - 1.5	66%	-17%	256%	186%	0%
	1.5 - 2.0	-14%	9%	-25%	420%	#DIV/0!
	2.0 - 2.5	-16%	42%	548%	1167%	-84%
	>= 2.5	-91%	69%	689%	270%	143%
Straddles	< 0.5	1567%	-25%	217%	-12%	-100%
	0.5 - 1.0	-34%	-50%	163%	-19%	0%
	1.0 - 1.5	48%	-27%	-5%	18%	-69%
	1.5 - 2.0	-3%	3%	-48%	54%	-56%
	2.0 - 2.5	-6%	-1%	47%	71%	-31%
	>= 2.5	-91%	73%	85%	50%	92%

E. STRADDLE STATES

We note that the straddle states have much less significance than either LULD limit states or trading pauses. Unlike limit states, which involve stopping an order from trading, or trading pauses, which entirely halt trading in the affected security for five minutes, a straddle state simply indicates the existence of a wide quote at a time where there is no order interaction. Additionally, straddle states tend to occur overwhelmingly at the opening of trading and are likely caused by wide quotes at the beginning of the day, which tend to subsequently tighten as trading commences. As such, the existence of straddle states is more of a comment on the availability of liquidity at the beginning of the trading day than on the proper functioning of the LULD Plan.

Below, we calculate the percentage of time that a stock not in an LULD trading pause or regulatory pause spends in a straddle state. The statistic is calculated for each date and equal weighted for each day and each symbol. For this review, we focused only on the fourth quarters of 2024 and 2025, and only the first 15 minutes of regular trading hours (9:30 a.m. - 9:45 a.m.). The percentages are shown in **Table 5** below.

Table 5: Time in Straddle State During 9:30 - 9:45 a.m. Period

Tier	ETP	Q4 2024	Q4 2025	Comparison
1	N	0.01%	0.03%	200%
2	N	2.76%	2.27%	-18%
1	Y	0.02%	0.001%	-95%
2	Y	0.50%	0.32%	-36%

IV. Analysis of Amendments Implemented

No substantive LULD Plan amendments were implemented in 2025.

V. Analysis of Emerging Issues – Introduction of Overnight Protections

The Operating Committee’s main focus in the past year has been the development of a proposal for price bands during overnight trading hours from 9:00 p.m. ET to 4:00 a.m. ET. In developing its proposal for overnight price protections, the Operating Committee formed a 24-Hour Task Force (the “Task Force”) and both the Task Force and Operating Committee have met regularly to determine how best to protect investors during the Overnight Trading Hours when national securities exchanges begin 23/5 trading. Based on those discussions and the Participants’ review of data related to trading on Alternative Trading Systems (“ATs”) that currently facilitate trading during such overnight trading hours, the Operating Committee will shortly submit a proposed Plan amendment to the Commission that outlines the Operating Committee’s proposed approach for expanding price bands.

The proposed Plan amendment discussed above will include additional data and an analysis of the proposed approach to price bands during overnight trading hours. While the Operating Committee has in the past first analyzed certain emerging issues in this annual report prior to submitting a proposal to the Commission, the Operating Committee has decided to move straight to a Plan amendment given that overnight trading on national securities exchanges is currently scheduled for December 2026. Rather than duplicate that analysis here, the Operating Committee refers readers to such Plan amendment, which will include a more fulsome review and analysis related to overnight price bands.