

## Auction Volume Report: Americas

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Tethys Auction Volume Report is an independent analysis of auctions in global equity markets. This report includes current and historical auction data. It also includes factor cross-section analysis. The report features a subset of the data and analysis that contributes to the success of our award-winning settlement price benchmark **ECLOS** algorithm.

For the purpose of this report, the phrase 'auction' refers to both auction and cross based market open and close mechanisms. The term "auction volume %" is the auction volume as a percentage of total daily volume.

Auction Volume % = Auction volume on the primary exchange / Total traded volume across all venues

This report utilizes both the straight median and the notional weighted average in measuring auction volume. The difference provides an insight into the auction participation divergence in the liquidity spectrum. To manage the noise of the data, we filter the equities by putting the minimum median auction volume of 500 shares and 1,000 shares for opening and closing auction, respectively.

This report covers major listing exchanges in the Americas. Table 1 below presents the current six-month straight median and notional weighted auction data.

	Daily Median Closing Auction Volume % (Changes)*	Daily Notional Weighted Closing Auction Volume % (Changes)	Daily Median Opening Auction Volume % (Changes)	Daily Notional Weighted Opening Auction Volume % (Changes)
BSP (BRAZIL)	8.03% -0.70%	12.86% -0.84%	0.38% +0.04%	0.62% +0.09%
TOR 1 (CANADA)	10.42% -0.45%	32.93% +0.37%	0.54% +0.01%	2.69% -0.47%
TOR 2 (CANADA)	5.13% -0.03%	20.92% -1.10%	0.66% +0.06%	1.87% -0.95%
TSX (CANADA)	0.56% +0.12%	2.45% -0.35%	1.10% +0.11%	1.62% +0.04%
SGO (CHILE)	11.21% +1.37%	15.60% -0.20%	0.11% -0.03%	0.26% -0.06%
MEX (MEXICO)	10.09% -1.23%	28.54% -0.79%	0.01% +0.01%	0.04% -0.01%
ARCA (US)	0.69% +0.01%	2.93% +0.50%	1.30% +0.05%	0.66% +0.07%
AMEX (US)	2.37% -0.18%	4.89% -1.01%	1.11% +0.18%	1.22% -0.02%
BATS (US)	0.59% -0.02%	2.06% +0.10%	1.25% +0.10%	0.93% +0.00%
NYSE (US)	12.43% +0.09%	14.03% -0.36%	0.87% +0.01%	1.25% +0.02%
NSDQ (US)	10.12% -0.21%	9.18% +0.19%	0.79% +0.01%	0.99% +0.07%

\* The term "Daily Auction Volume %" denotes the 4 auction volume % metrics presented in Table 1.

\* Change in Daily Auction Volume % = Daily Auction Volume % of the past month - Daily Auction Volume % of the 6 months before the past month.

\* TOR 1 includes Interlisted stocks with TOR (Toronto Stock Exchange) as the primary exchange and TOR 2 includes Non-Interlisted stocks with TOR as the primary exchange.

## Closing Auction Volume % Trend by Country

We use two metrics to demonstrate the evolution of auction volume over time: weekly notional weighted average closing auction volume % and weekly median closing auction volume %. The first metric measures the average auction volume % of the entire country or exchange symbol universe on weekly basis with the value being weighted by each security's daily notional traded value (definition is on page 6). The latter calculates the median auction volume % of entire country or exchange symbol universe on weekly basis

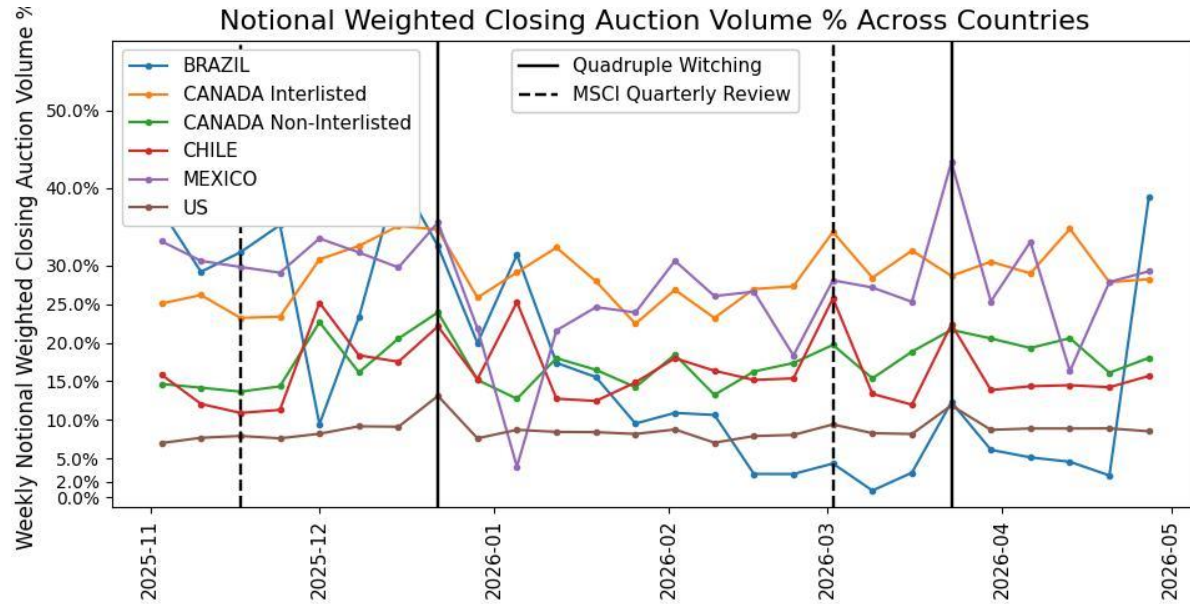


Figure 1

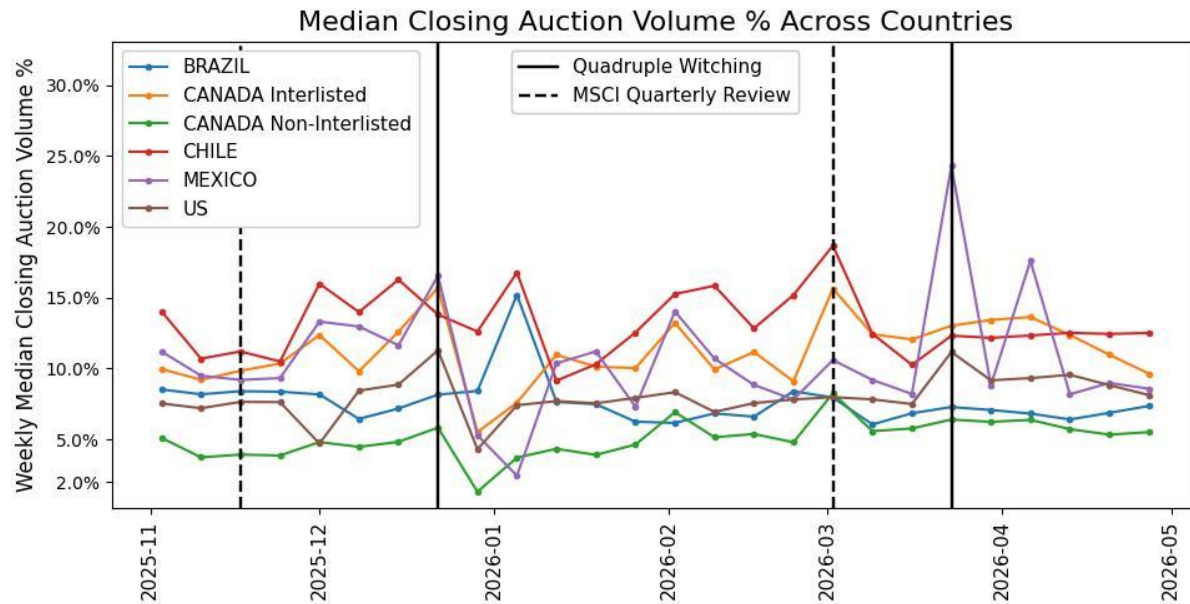


Figure 2

## Closing Auction Volume % Trend by Exchange

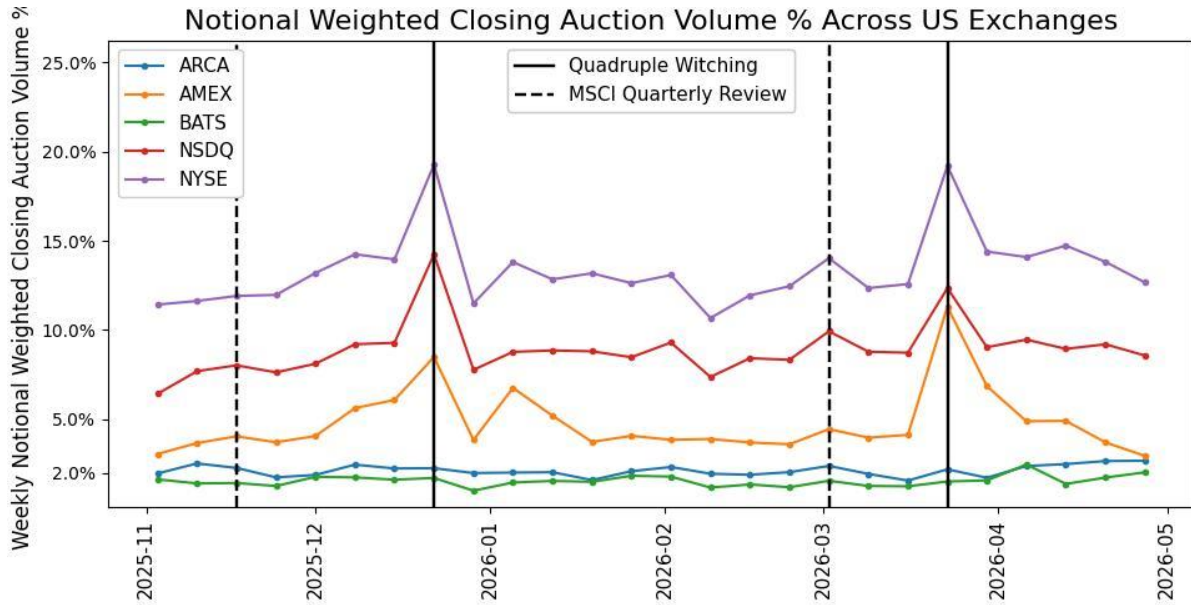


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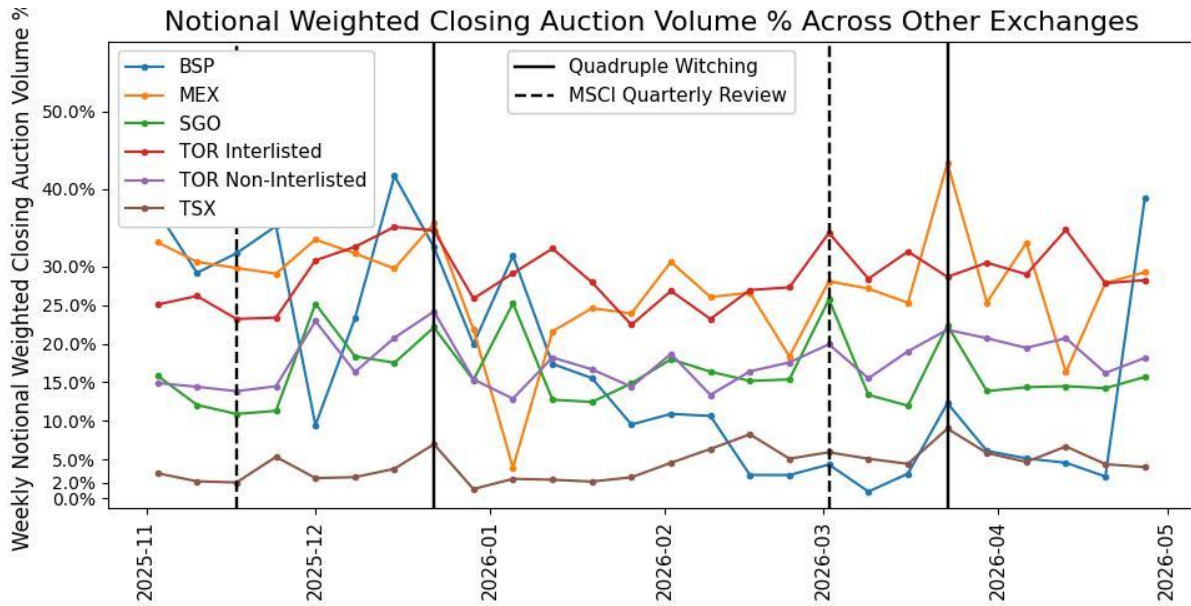


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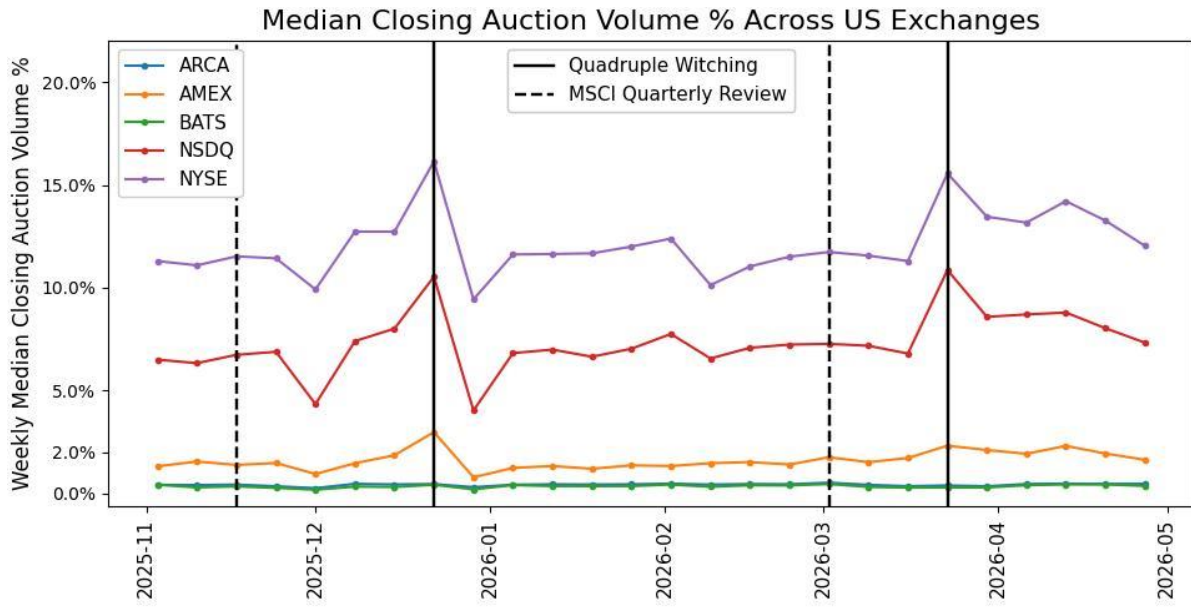


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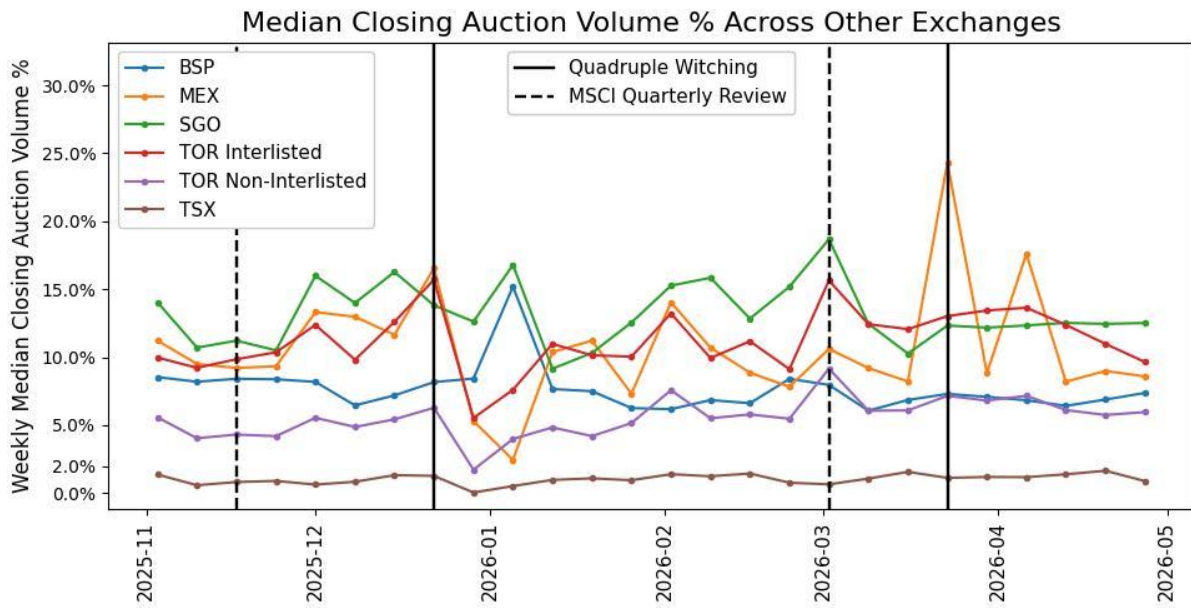


Figure 6

## Summary

- Closing Auction: Closing Auction Overview: On a notional-weighted basis, the Brazilian Bovespa, Mexican BMV, Santiago Stock Exchange, Nasdaq, New York Stock Exchange, and Toronto Stock Exchange continue to stand out for relatively high levels of closing auction participation. In contrast, BATS and ARCA maintain lower participation levels, largely reflecting their ETF-heavy listings, where auction usage is structurally lower. Consistent with prior observations, median auction volume % remains significantly more stable than notional-weighted metrics, highlighting that large-cap securities play a dominant role in driving aggregate auction participation trends. Time-series analysis further confirms that calendar-driven events such as MSCI Quarterly Reviews and derivatives expiry periods (quadruple witching) continue to exert a meaningful influence on closing auction participation across markets.
- As expected, the median Auction Volume % data is significantly more stable than the notional weighted data.

It is notable that quadruple witching, shown on our time series graphs, plays an important role across major exchanges in closing auctions. We will publish a separate report studying the influence of quadruple witching on the opening auctions.

- Price Level is the factor with highest explanatory power in the list of factors we presented in this report.
- Daily Price Range has a negative correlation with Auction Volume %. This is explicable, as spreads tend to be higher for these securities and imbalances will have proportionately higher impact.
- Daily Trading Volume also exhibits negative correlation with Auction Volume %, since it is positively correlated to Daily Price Range.
- Trade size fragmentation has an interestingly negative correlation with Auction Volume %, which we will offer reasons for in a future report. There is an intriguing angle to be explored.

It is also interesting to note that:

- United States (NYSE, Nasdaq): The Nasdaq and the NYSE continue to demonstrate broad and consistent adoption of closing auctions across the liquidity spectrum. Auction participation levels remain relatively stable over time, with limited dispersion between high- and low-liquidity securities. This reflects the deep integration of auctions into execution workflows, particularly for index tracking funds and benchmark-driven strategies, resulting in structurally high and stable closing participation rather than episodic spikes.
- Canada (Toronto Stock Exchange): A clear divergence persists between inter-listed and non-interlisted securities. Inter-listed securities exhibit higher and more stable auction participation, closely aligned with U.S. behavior, Non-interlisted securities show lower and more variable participation. This pattern continues to be driven by the dominance of U.S. price formation in cross-listed securities, where U.S. auction dynamics strongly influence closing activity in Canadian markets.
- Mexico (BMV): The Mexican market continues to display relatively high notional-weighted closing participation. Participation tends to be event-driven, with noticeable spikes during index rebalancing periods. This reflects the structure of the Mexican closing mechanism, which operates as a closing cross rather than a fully transparent auction, leading to less consistent liquidity formation at the close.

Brazil (Bovespa): The Brazilian market continues to exhibit a distinct closing auction profile, characterized by: Moderate baseline participation levels, Periodic but pronounced increases in auction volume. These increases, visible in the updated time-series charts, are primarily event-driven rather than structural shifts. Importantly, these spikes should be interpreted as a healthy and expected feature of the market microstructure, driven by: Index rebalancing and benchmark-driven flows, During MSCI reviews and similar events, large institutional investors concentrate trading activity at the official closing price, leading to higher auction participation. Notional-weighted measurement effects. The metric gives greater weight to large-cap securities.

## Exchange and Factor Description

The primary listing exchanges covered in our report are listed below. These exchanges encompass a majority of the auction volume in North America and LATAM. Tethys offers execution algorithms for all the countries below as well as Colombia, which will be included in upcoming reports.

### Brazil

- BSP: Brazilian Stock Exchange (BOVESPA)

### Canada

- TOR: Toronto Stock Exchange
- TSX: Toronto Stock Exchange Venture

### Chile

- SGO: Santiago Stock Exchange

### Mexico

- MEX: Mexican Stock Exchange (BMV)

### United States

- ARCA: NYSE ARCA
- AMEX: NYSE American
- BATS: BATS Exchange
- NYSE: New York Stock Exchange
- NSDQ: NASDAQ

For brevity we only include commonly known trading related factors to analyze closing auction volumes. Fundamental factors like market capitalization are not included in this report. Tethys maintains an extensive list of factors in context of auctions. Please note that the factors are not mutually orthogonal (i.e. not completely independent of each other). The factors presented are:

- Daily Trading Volume
- Price Level =  $0.5 * (\text{Open Price} + \text{Closing Auction Price})$
- Daily Price Range =  $\ln(\text{High/Low})$ , where  $\ln$  is the natural logarithm
- Notional Value Traded = Daily Trading Volume \* Price Level

Average Trade Size = Daily Trading Volume / Number of Trades

## Closing Auction Volume in Multi-Dimensional Factor Space

Closing Auction Volume is affected by various factors. Analyzing Closing Auction Volume % with respect to each factor conveys an understanding of the closing auction microstructure behavior for each exchange. Please note that the factors are not mutually independent.

We divided the respective security universe into 5 bins with respect to each factor.

For example, we sort the securities into 5 bins by daily trading volume, where Bin 1 contains the 20% of the securities with the lowest daily trading volume, and Bin 5 keeps the 20% with the highest daily trading volume. Straight median and notional weighted average closing auction volume % are then calculated on a weekly basis. Note that we only include securities that have median close auction volume > 1000 shares.

The chart below summarizes the overall correlation between closing auction volume % and each factor by exchange. The plus “+” indicates positive correlation and minus “-” negative correlation. A blank cell indicates that we can’t validate that there is a correlation by using the binning method.

**Table 2**

Exchanges	Factors	Daily Trading Volume	Price Level	Daily Price Range	Notional Value Traded	Average Trade Size
BSP (Brazil)					+	
TOR (Canada)			+	-	+	
MEX (Mexico)						
ARCA (US)			+			
AMEX (US)						-
BATS (US)		-				
NYSE (US)			+			-
NSDQ (US)		-	+			-

## Correlation between Closing Auction Volume % and Factors

### I. Weekly Median Closing Auction Volume % Binned by Daily Trading Volume

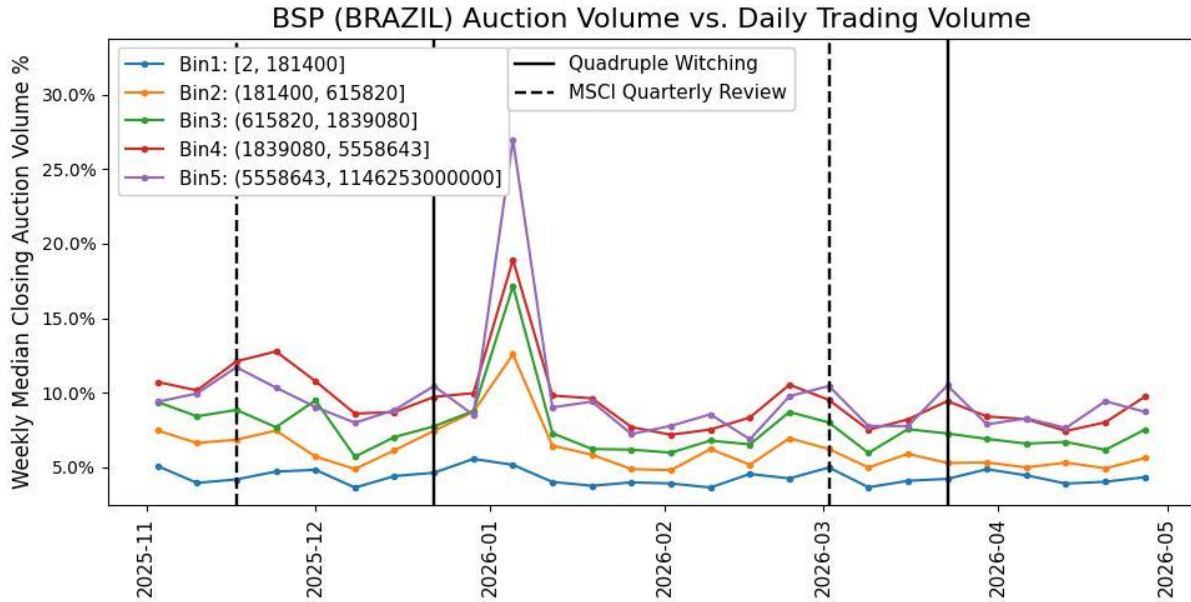


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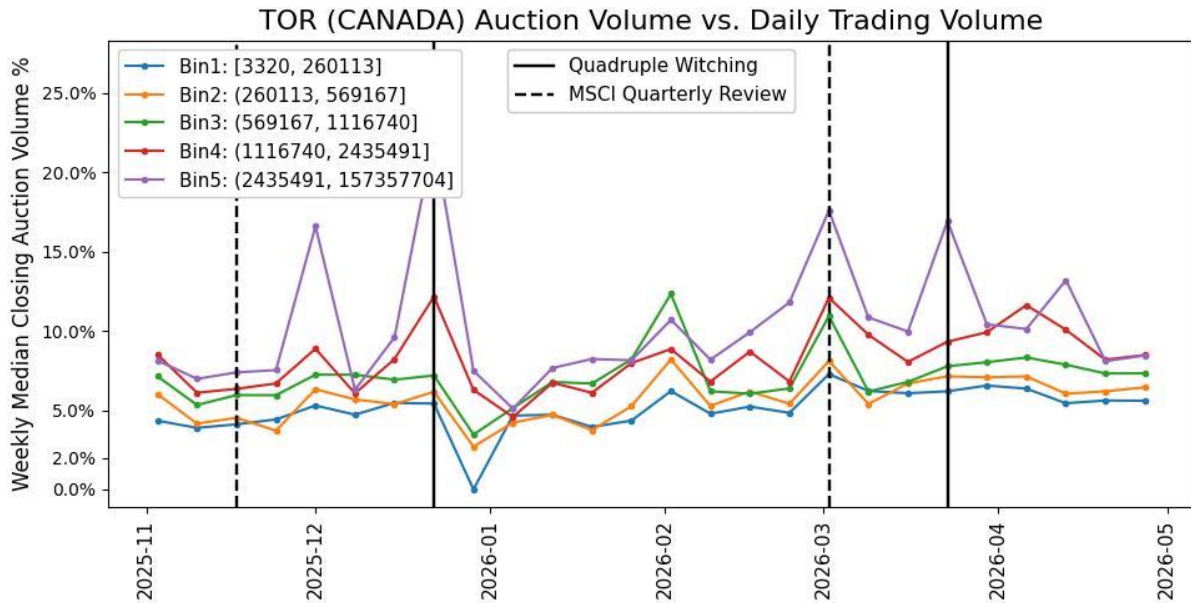


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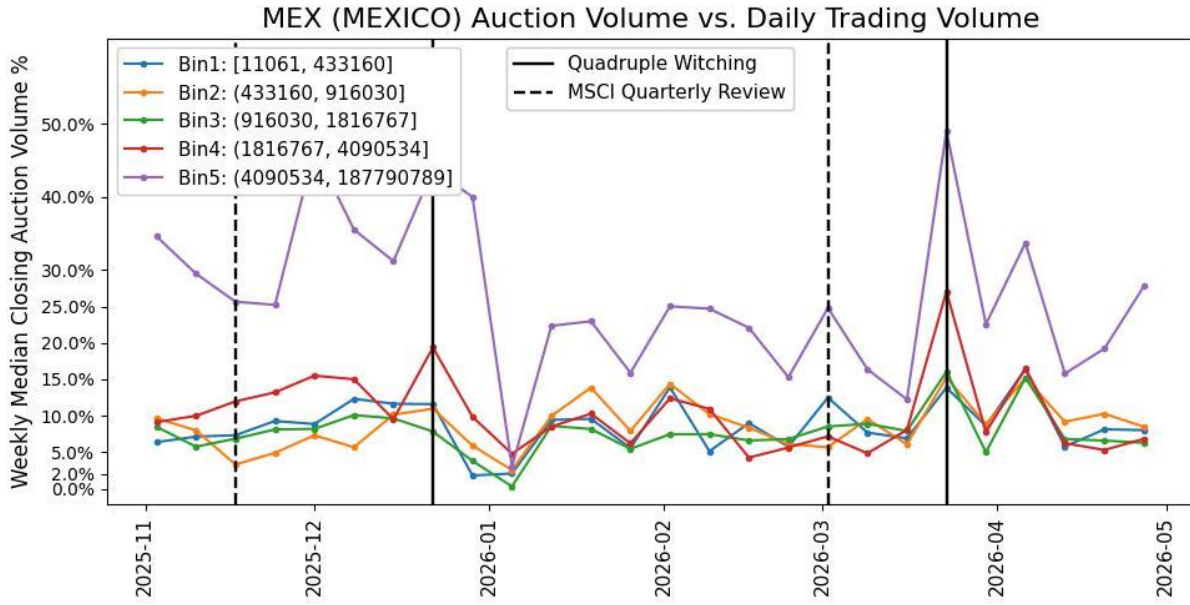


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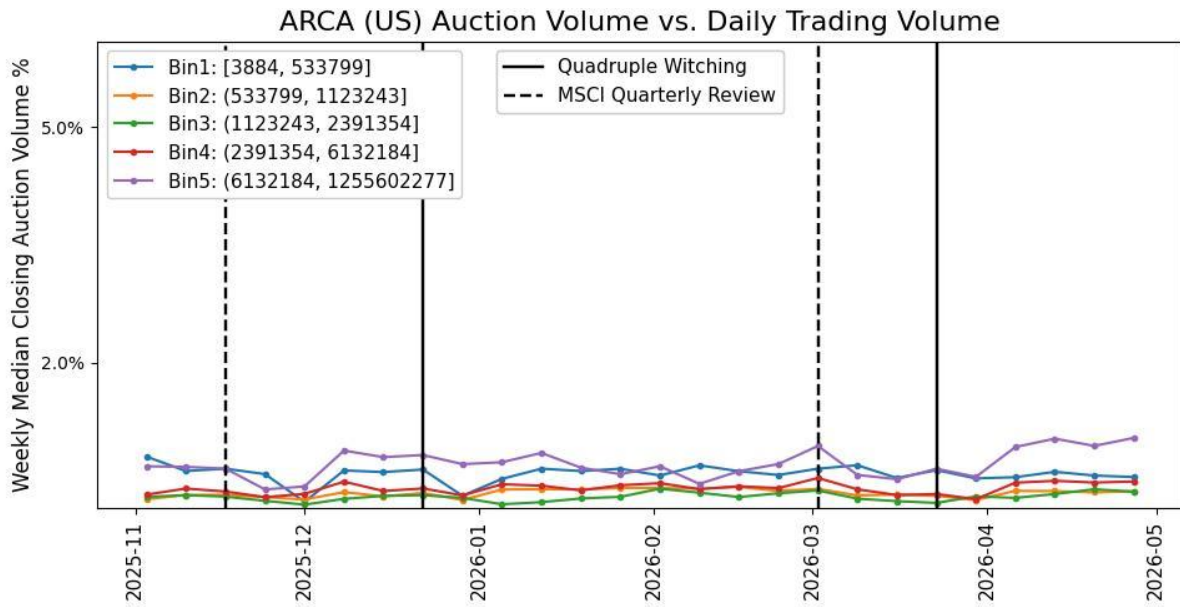


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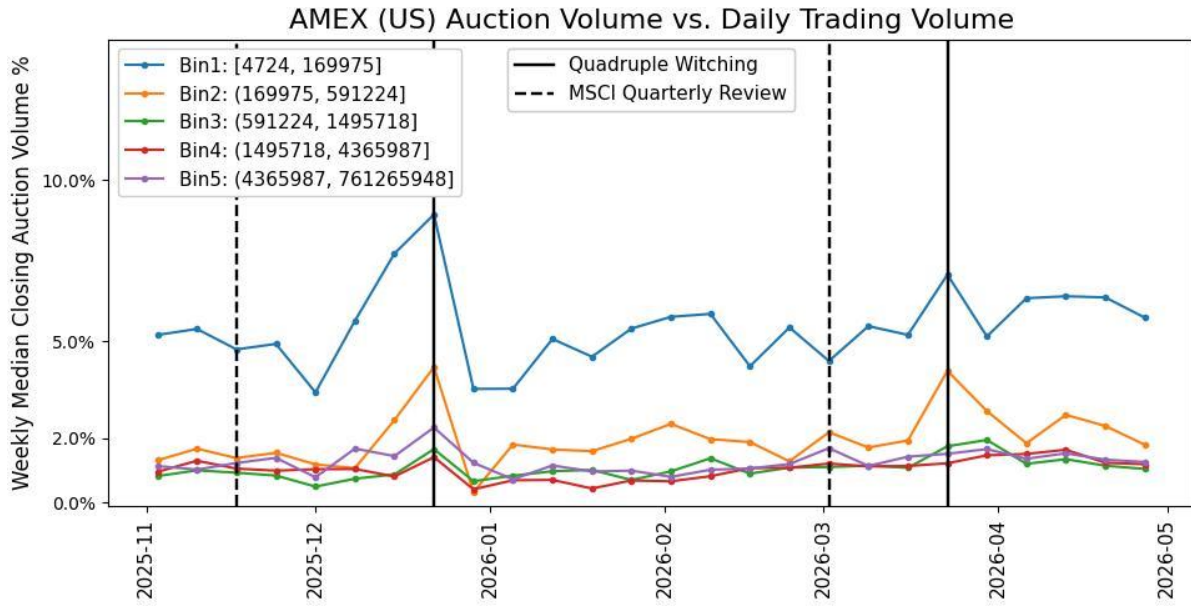


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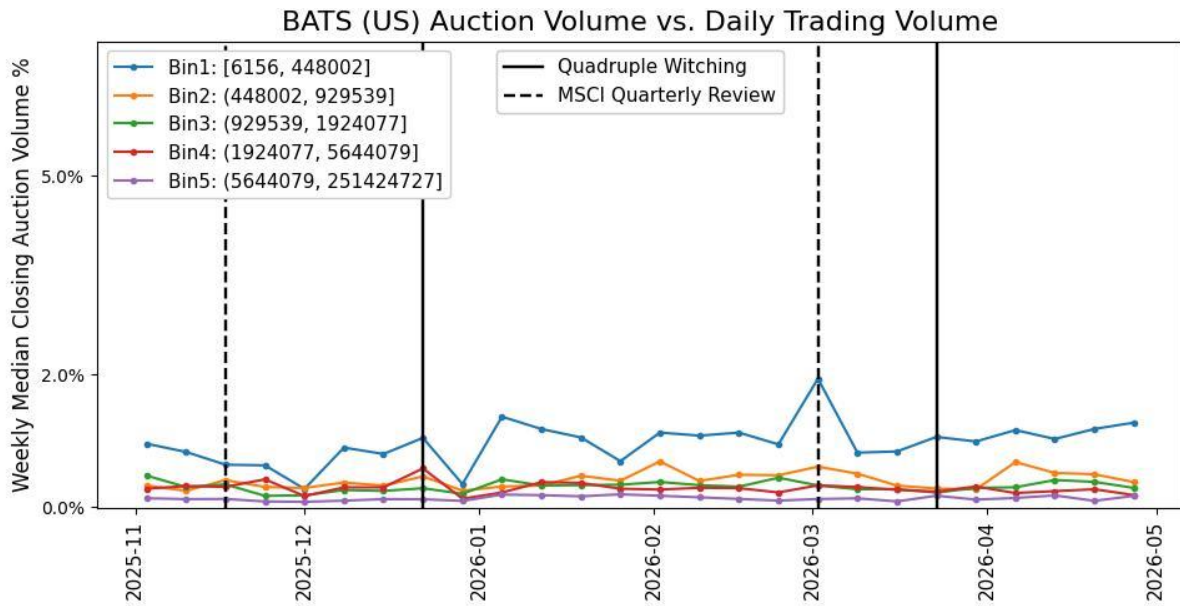


Figure 12

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May 1, 2026

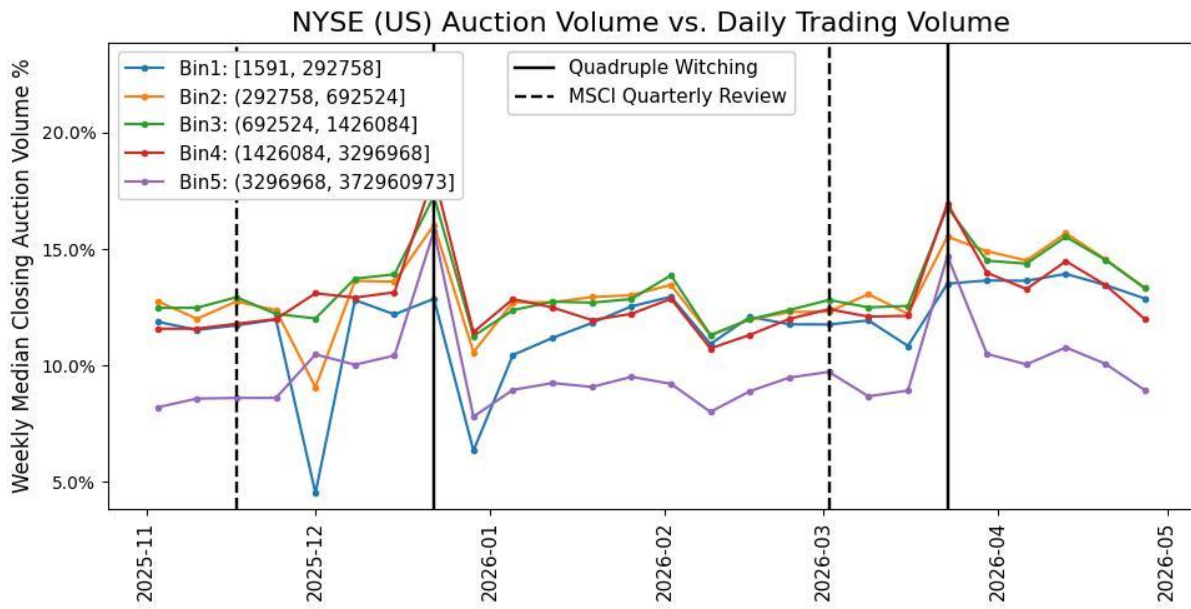


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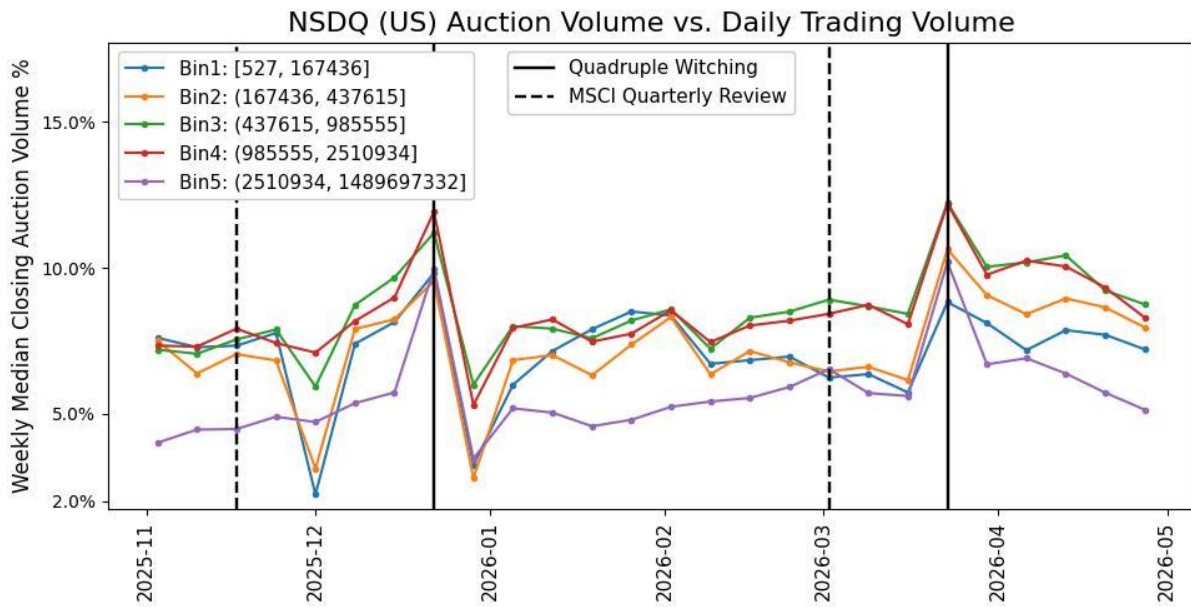


Figure 14

II. Weekly Median Closing Auction Volume % Binned by Price Level

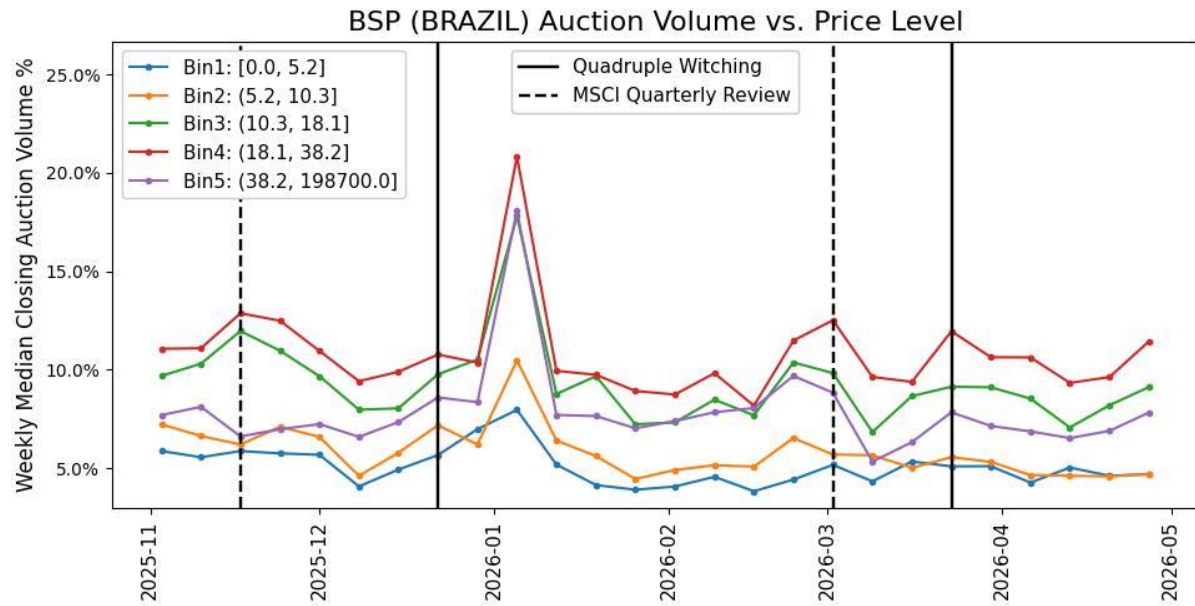


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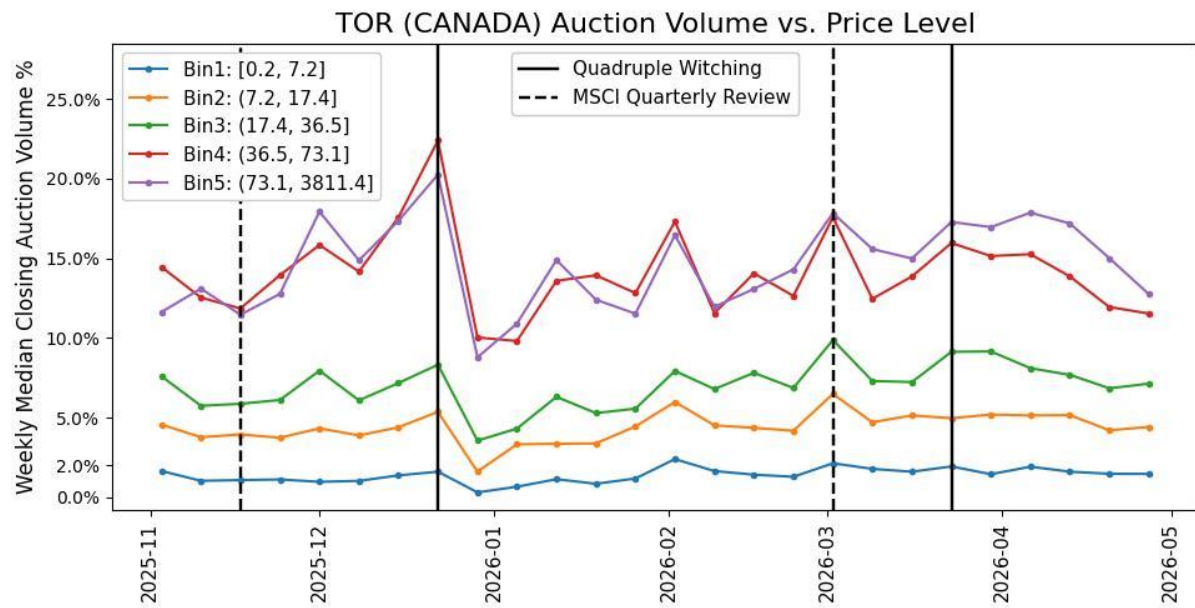


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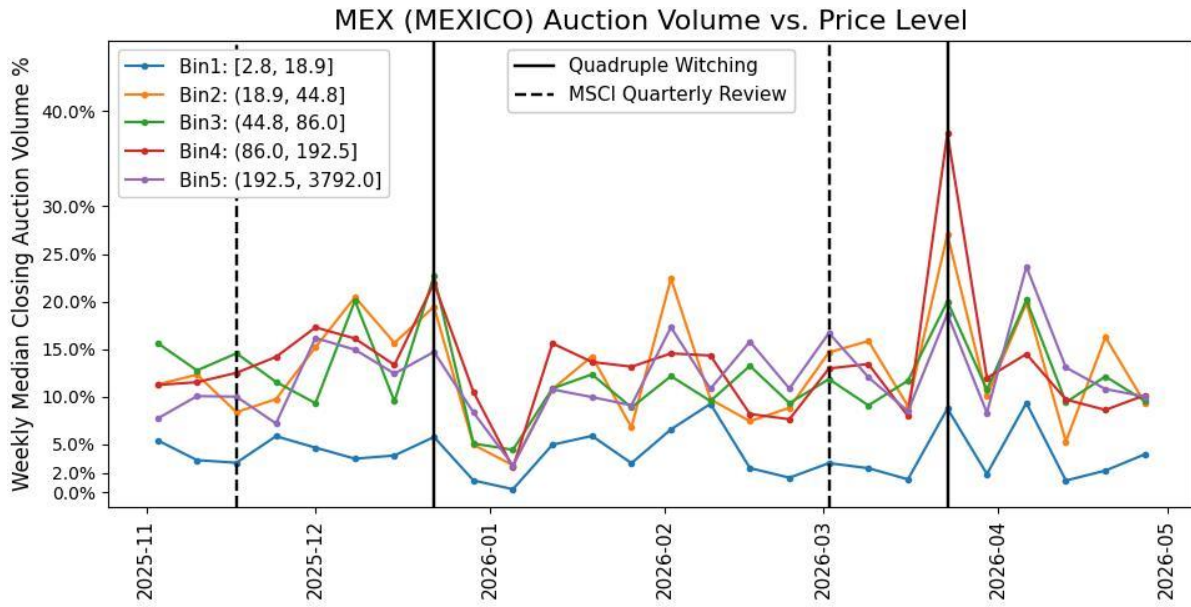


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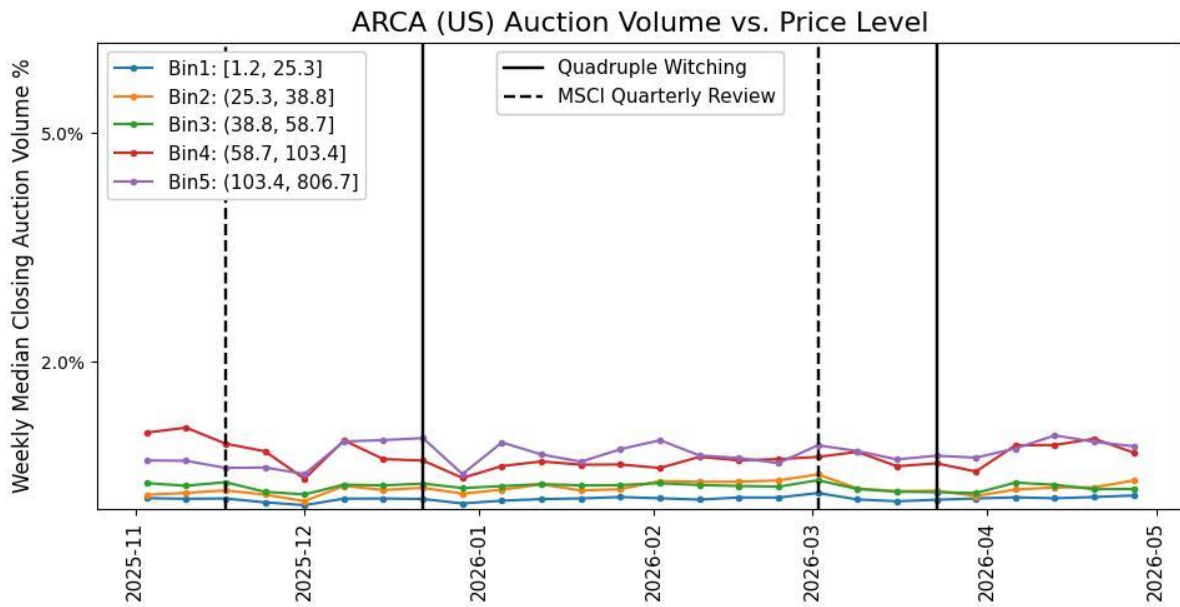


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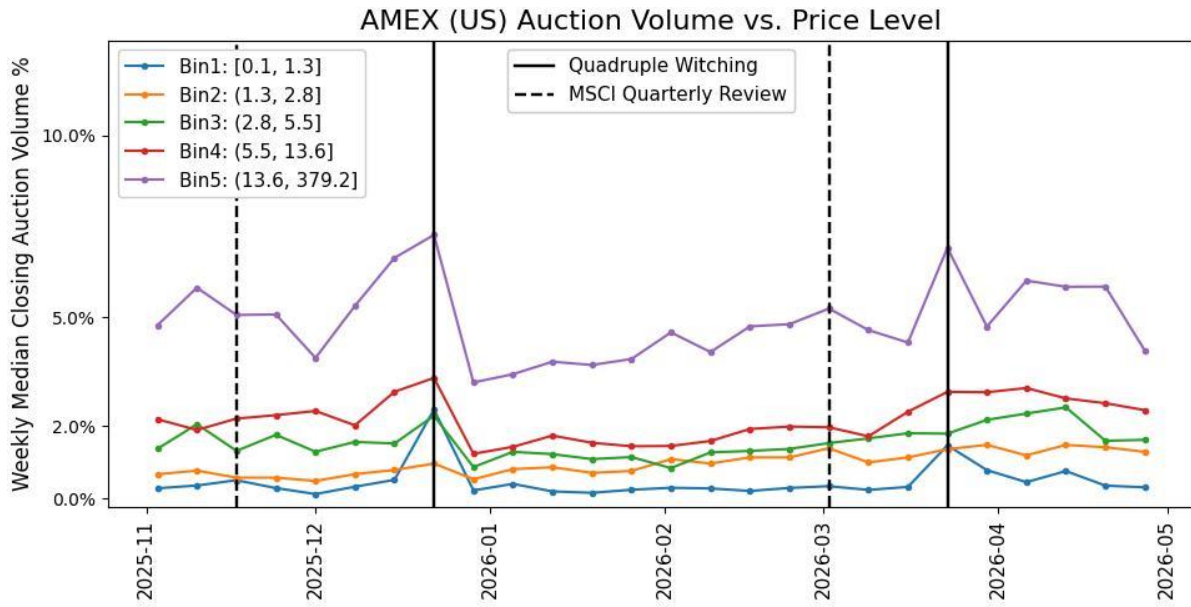


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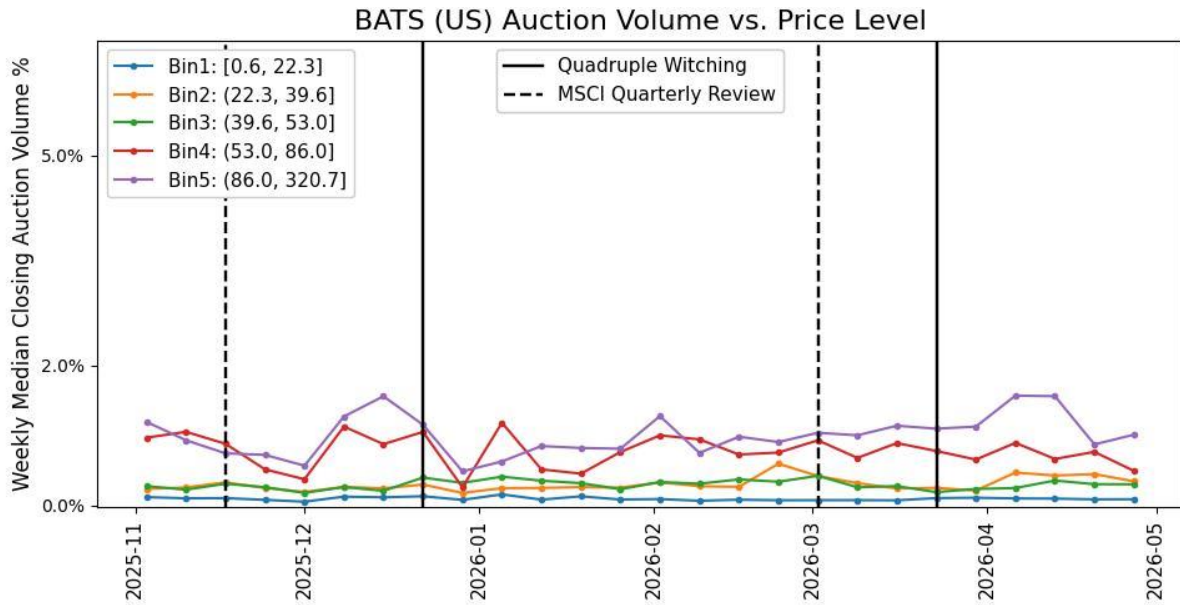


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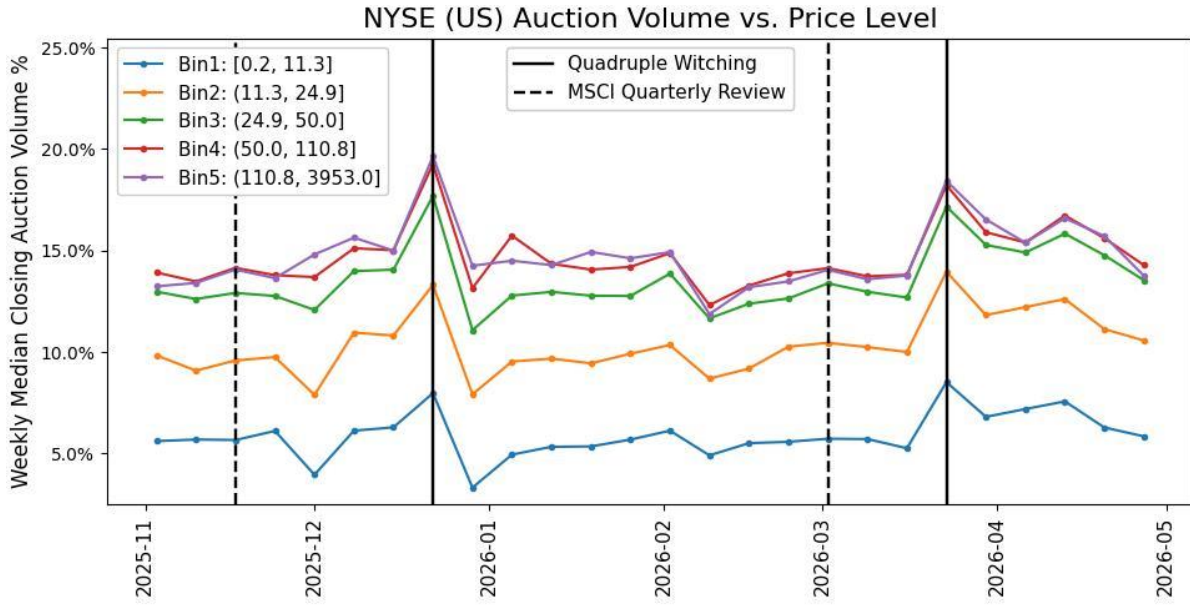


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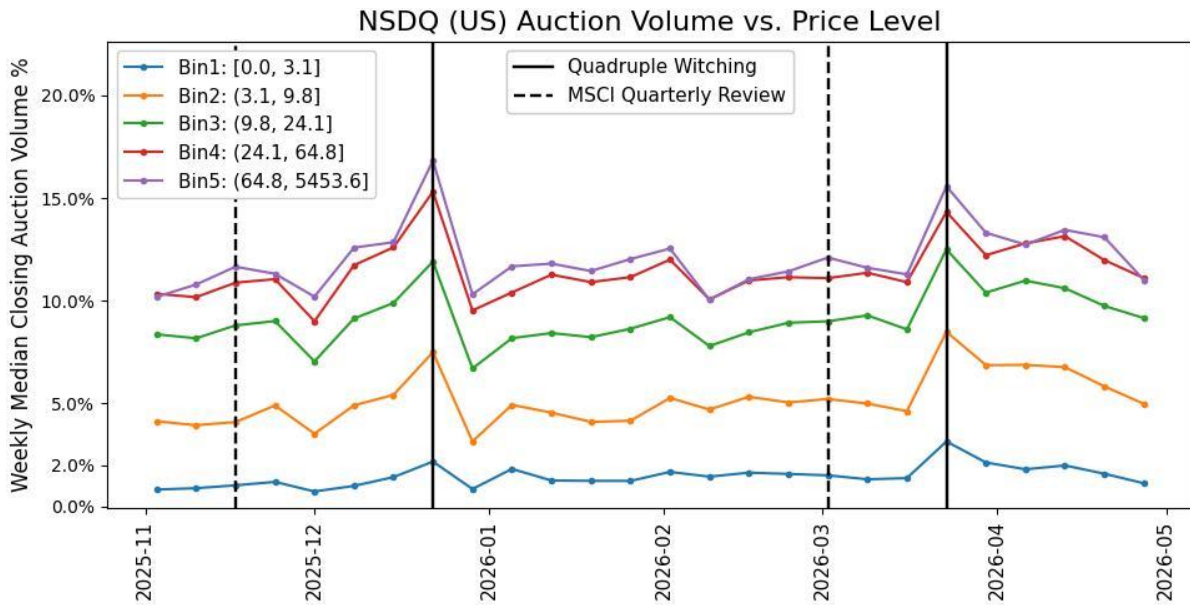


Figure 22

III. Weekly Median Closing Auction Volume % Binned by Daily Price Range

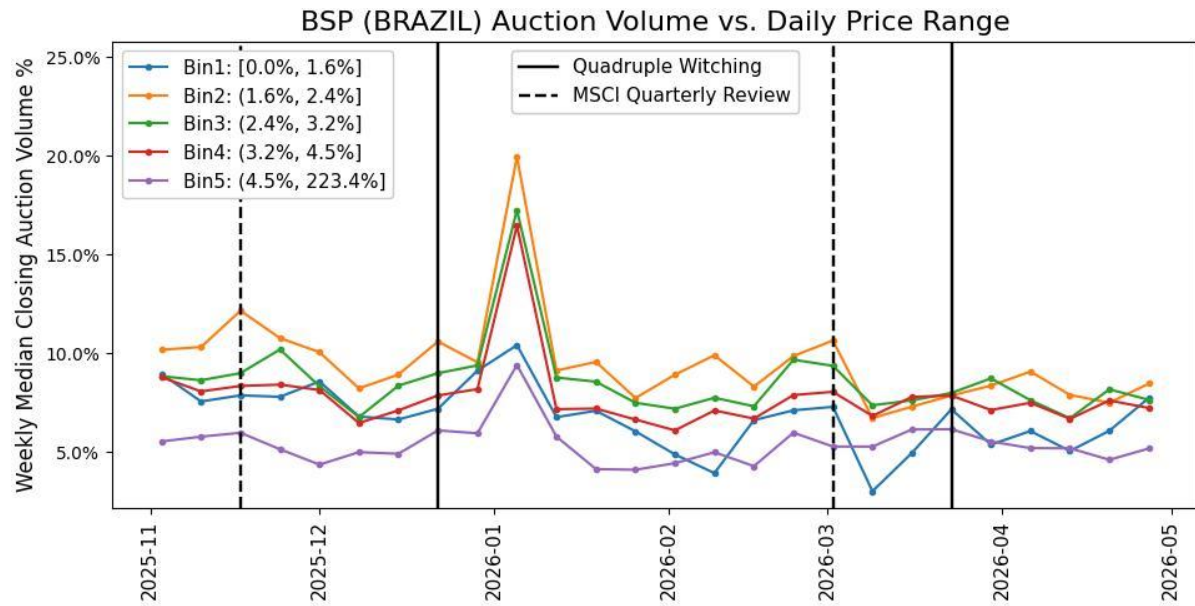


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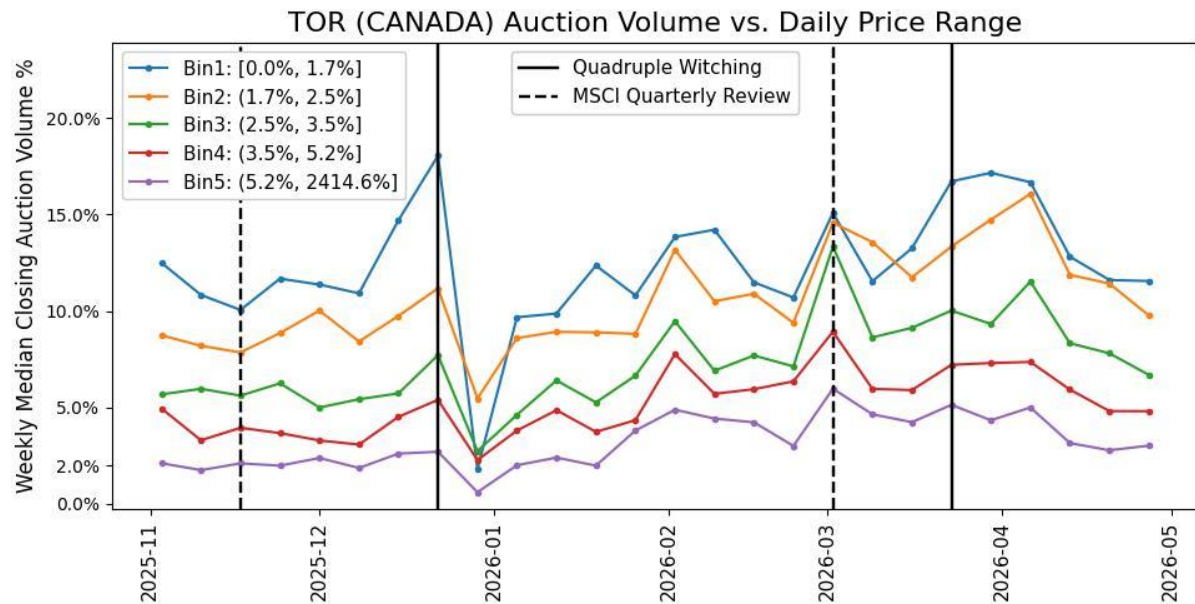


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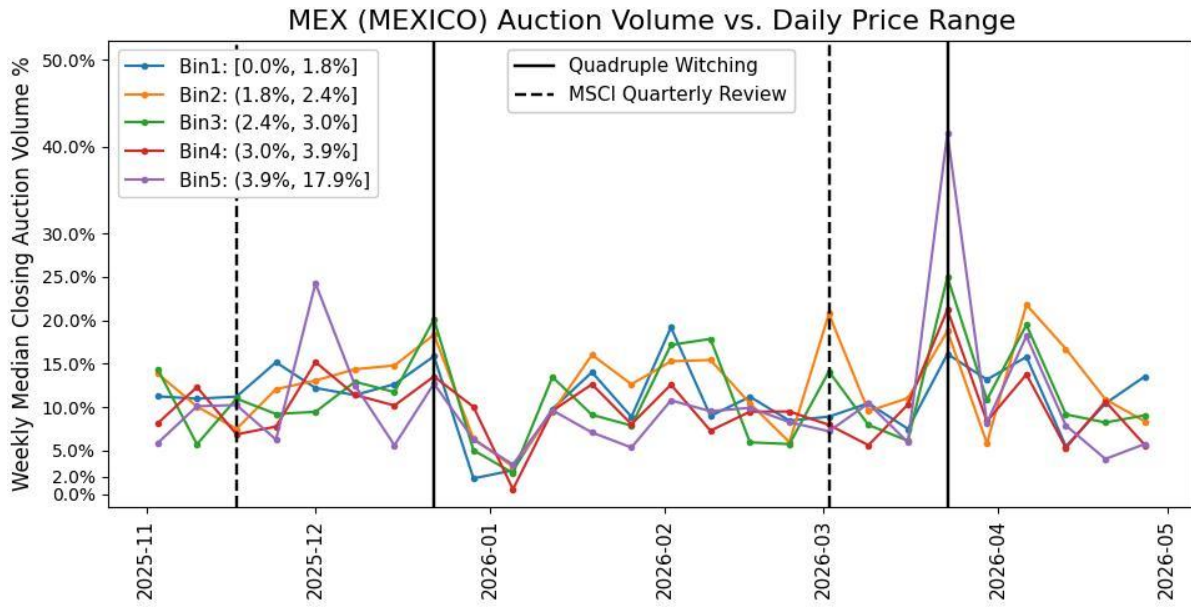


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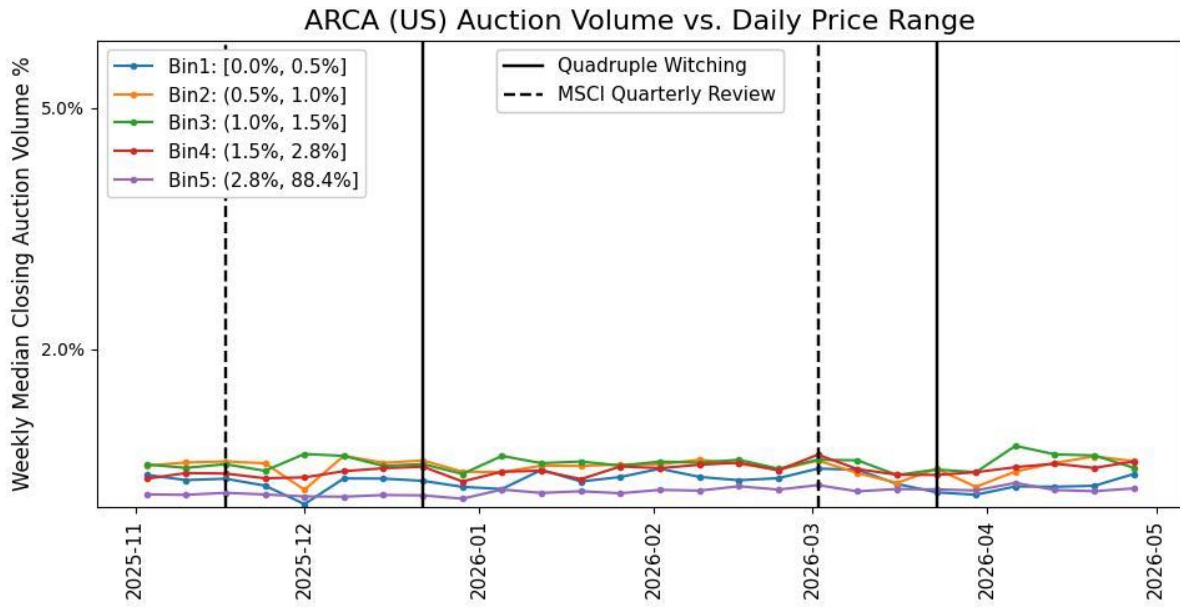


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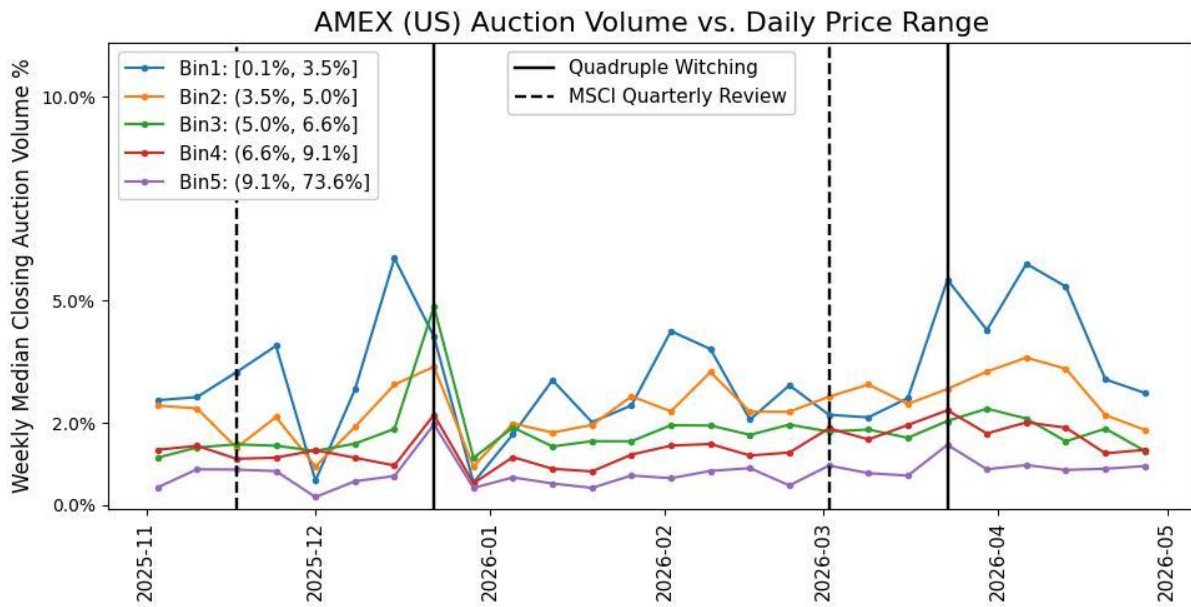


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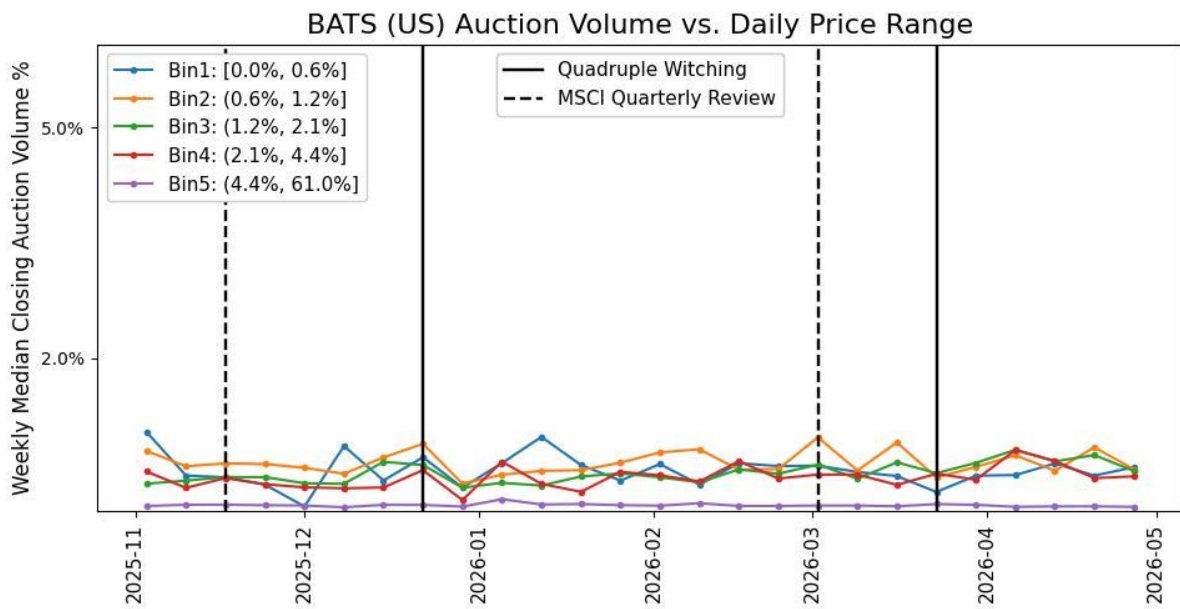


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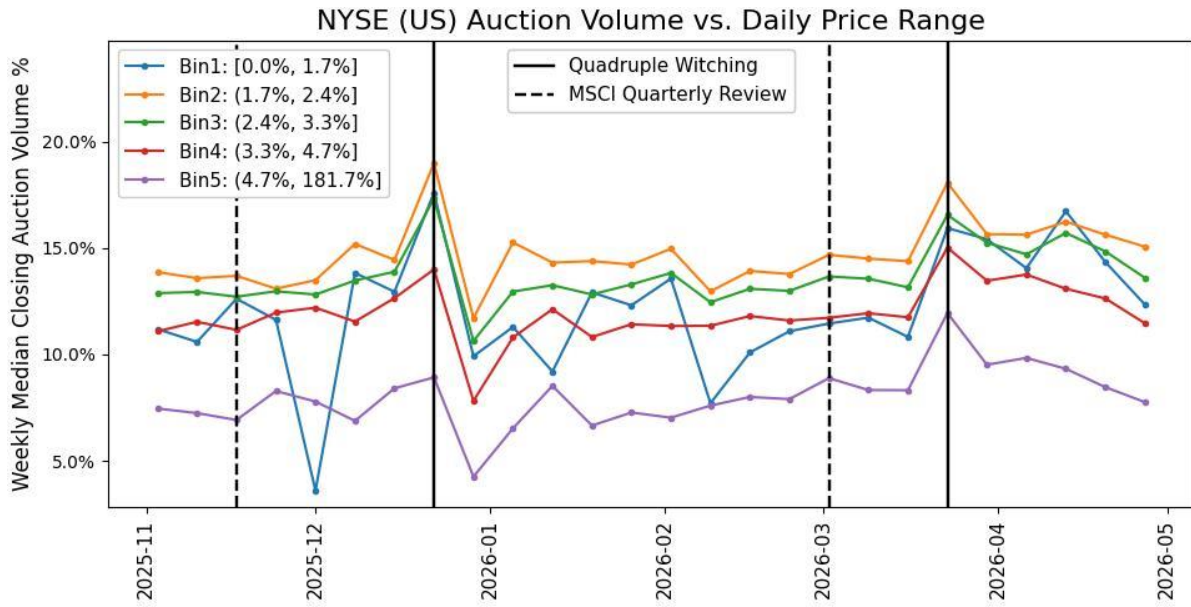


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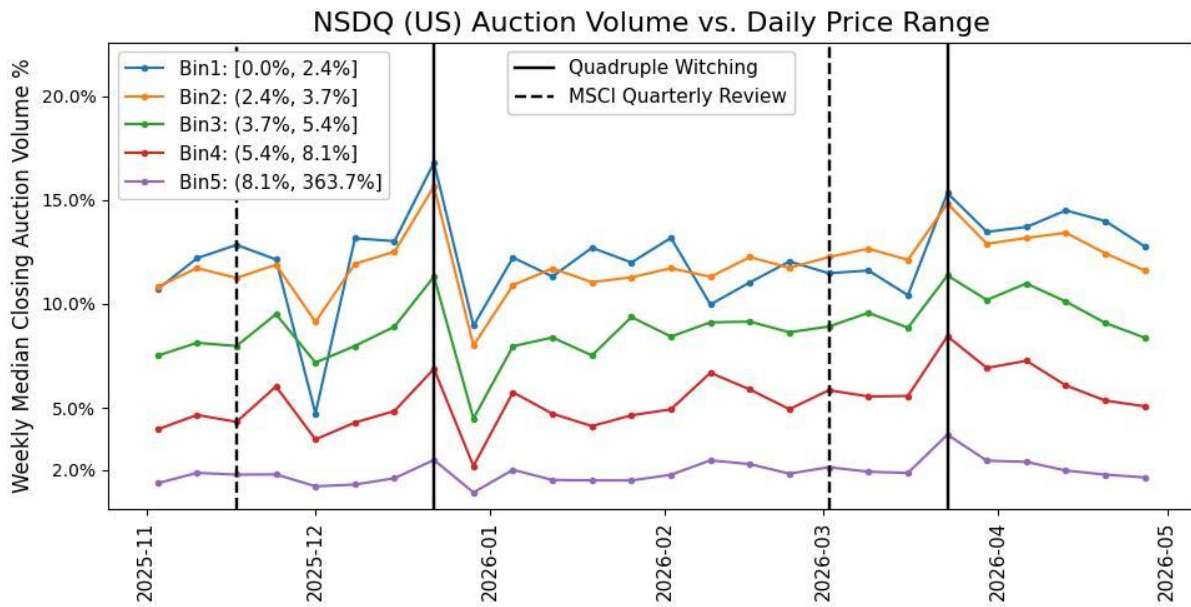


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IV. Weekly Median Closing Auction Volume % Binned by Notional Value Traded

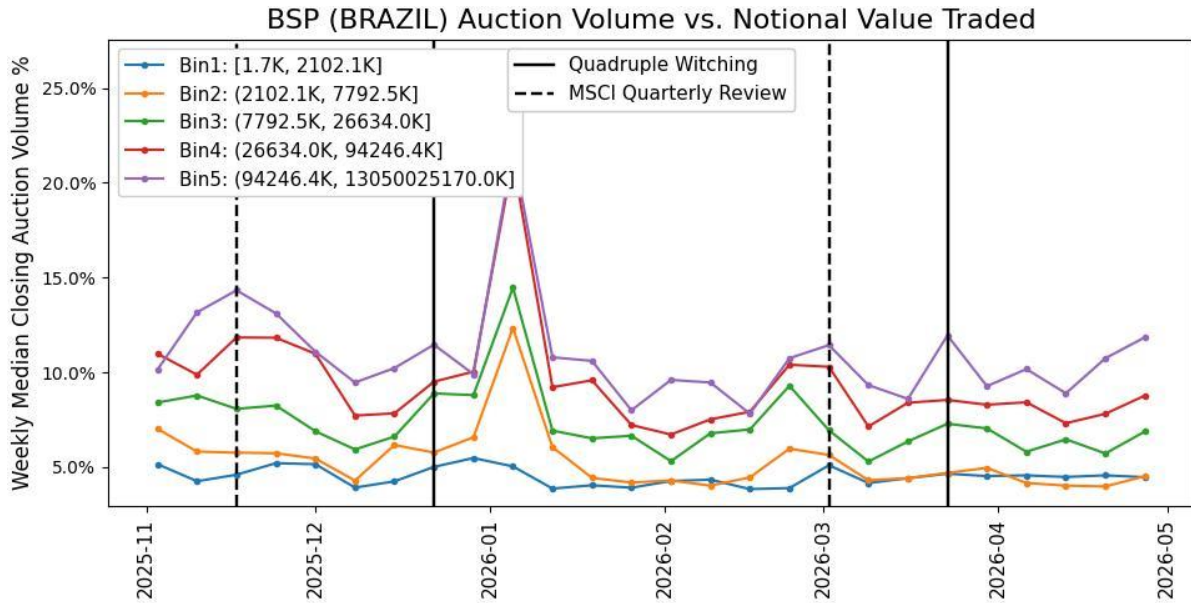


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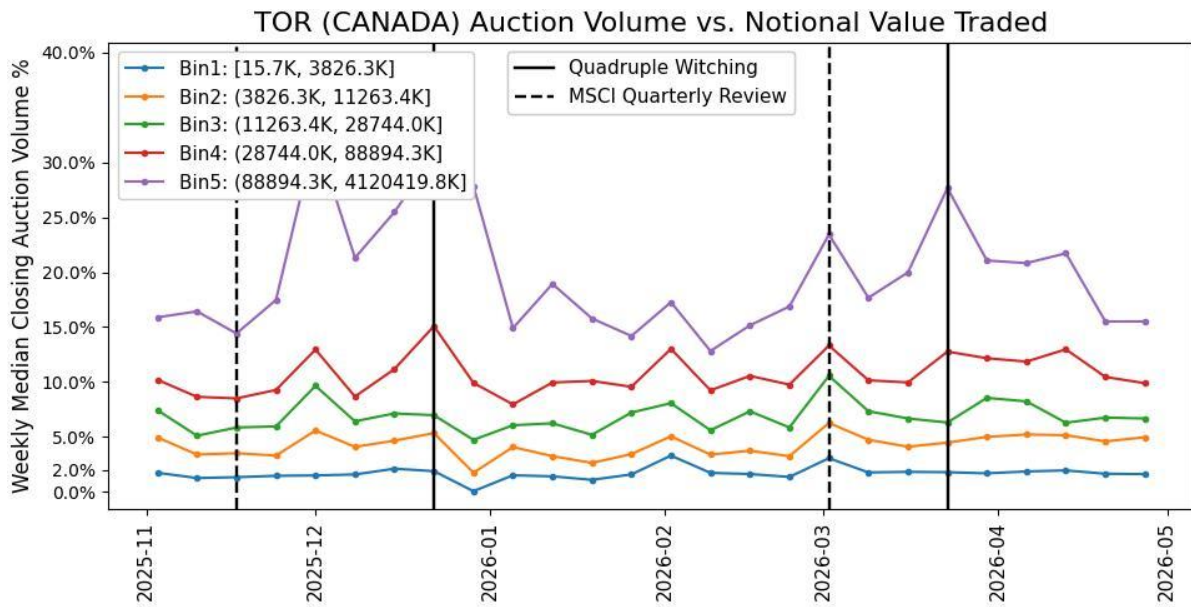


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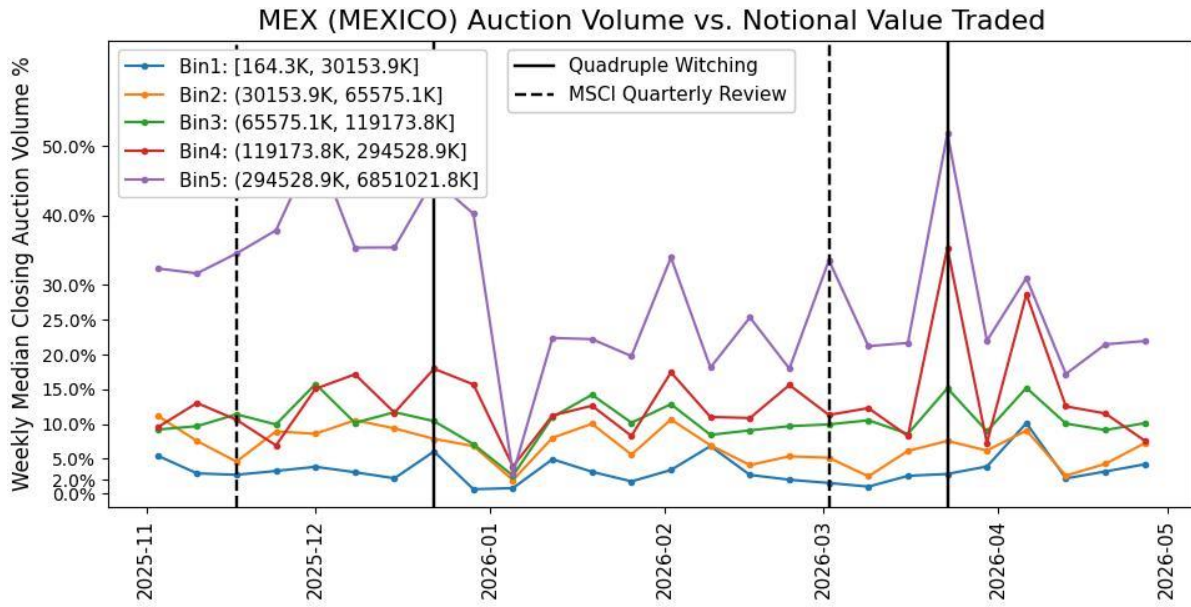


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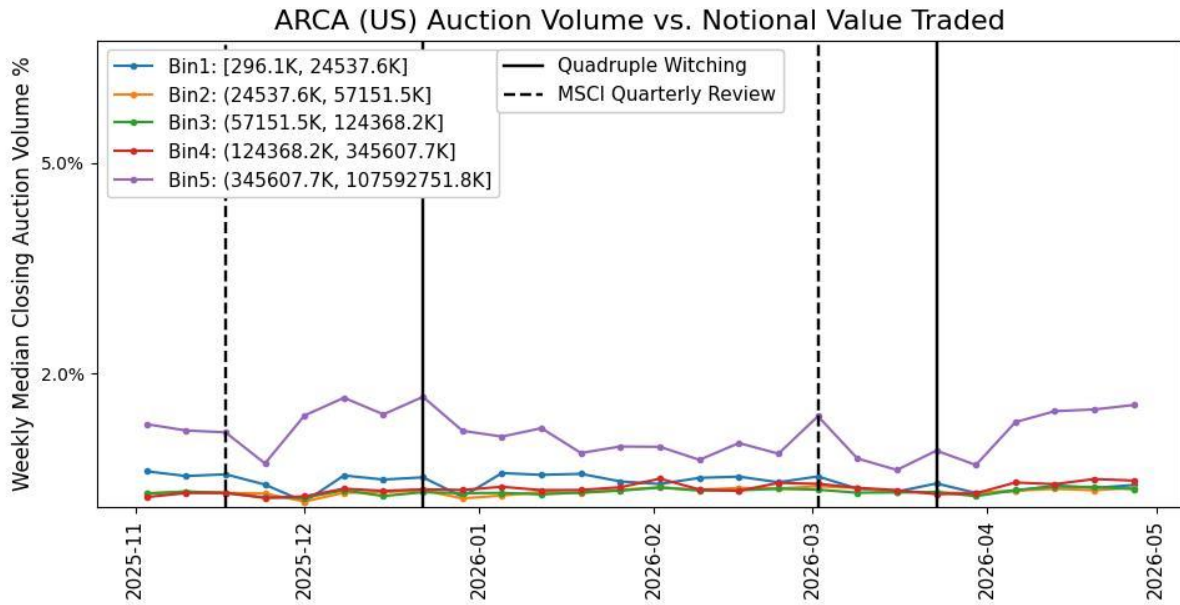


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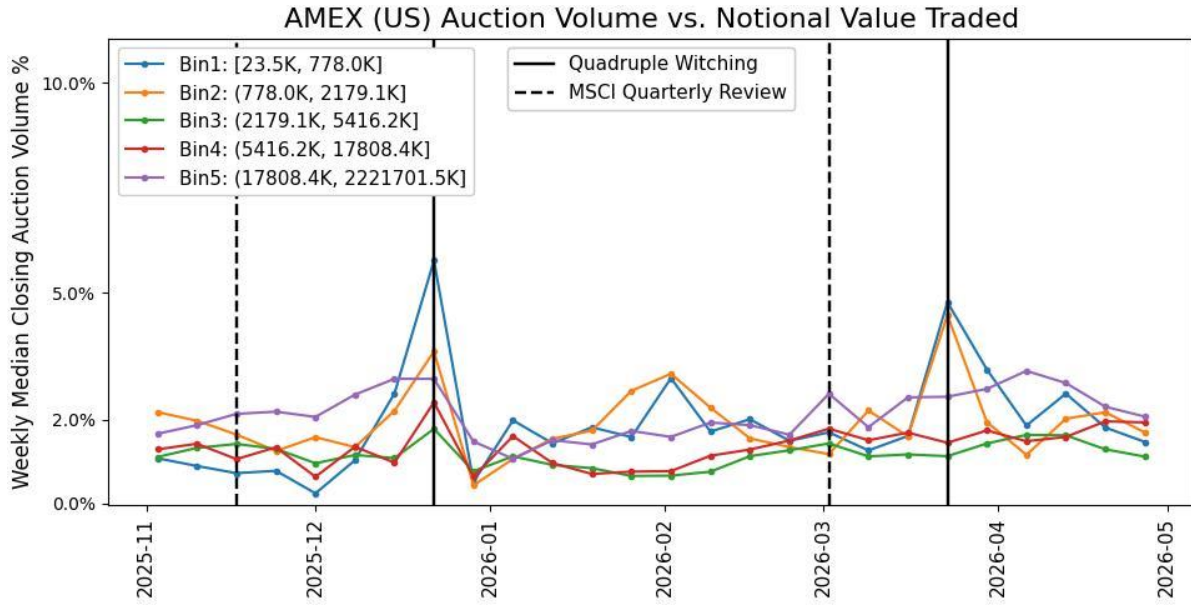


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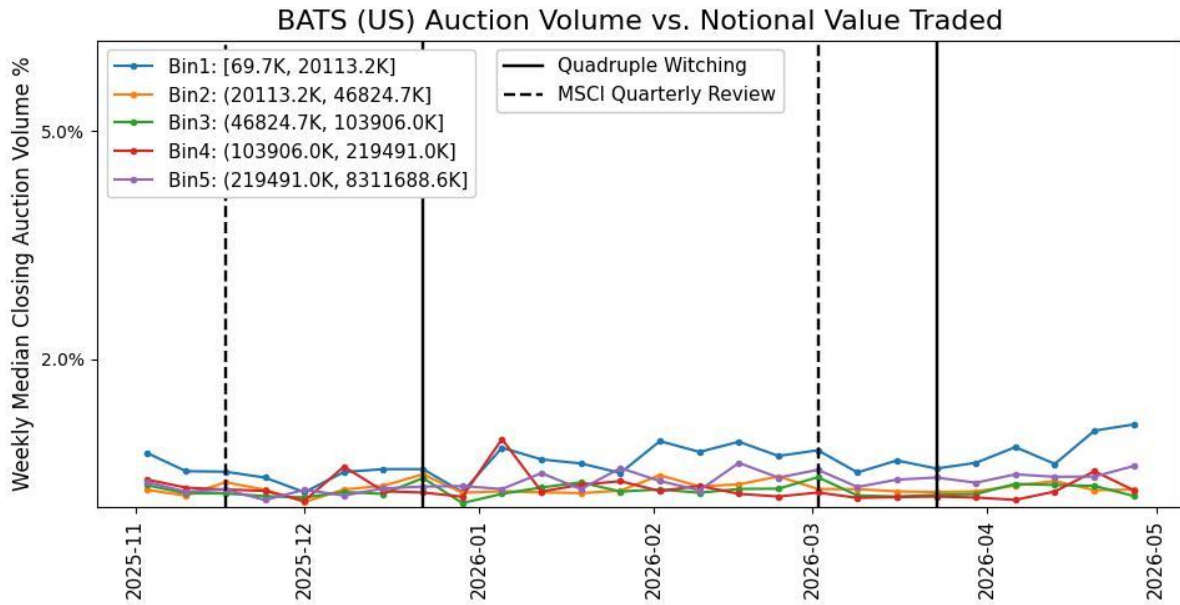


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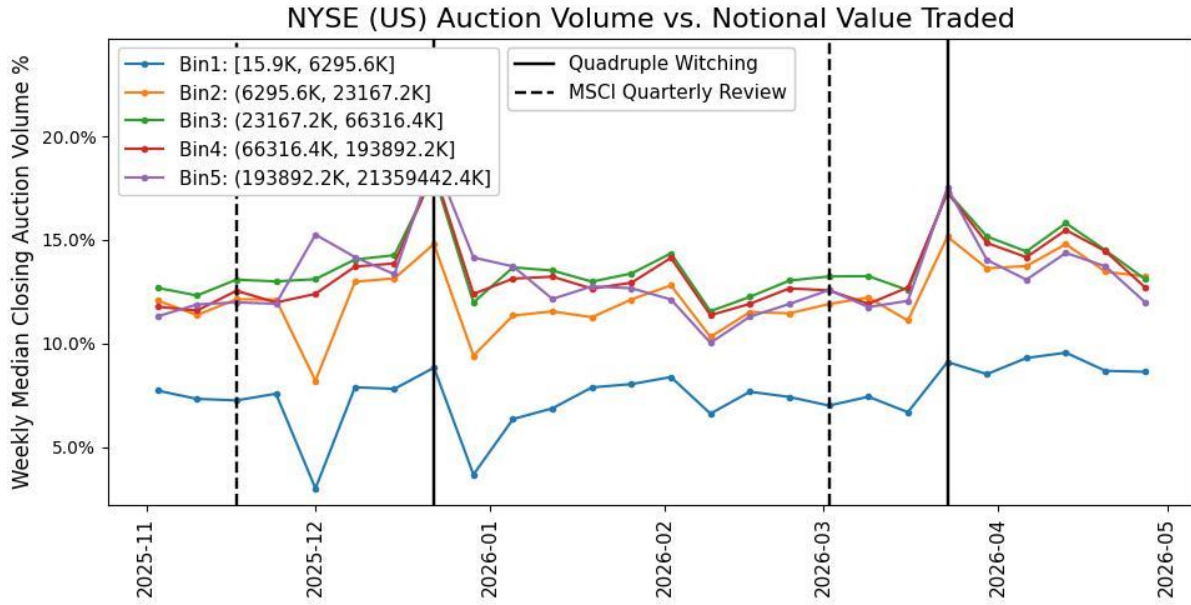


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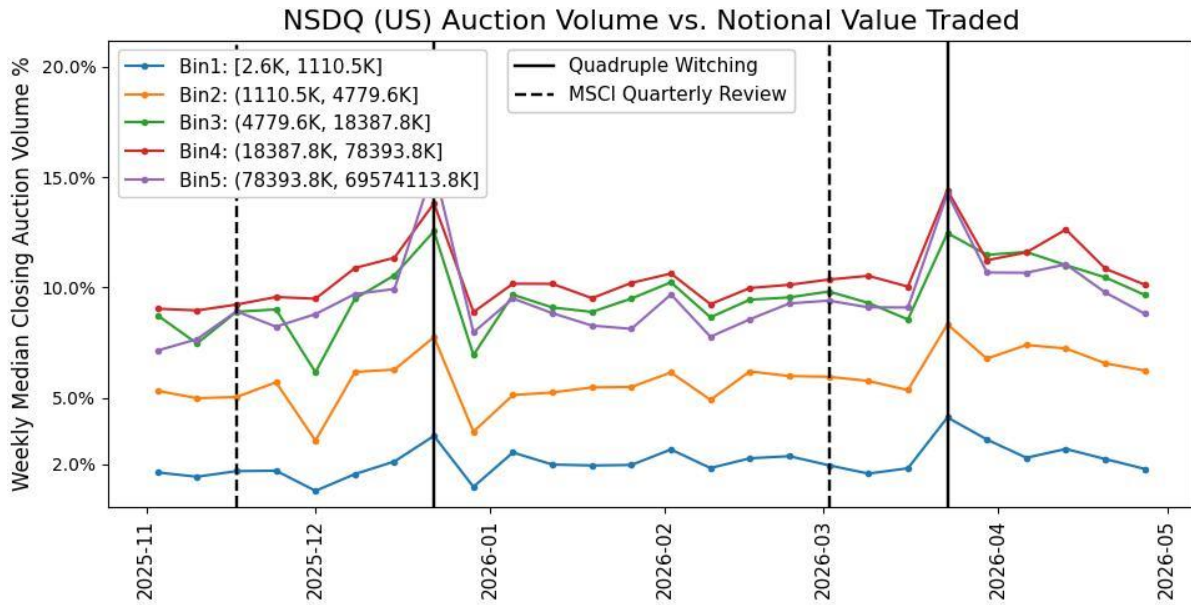


Figure 38

V. Weekly Median Closing Auction Volume % Binned by Average Trade Size

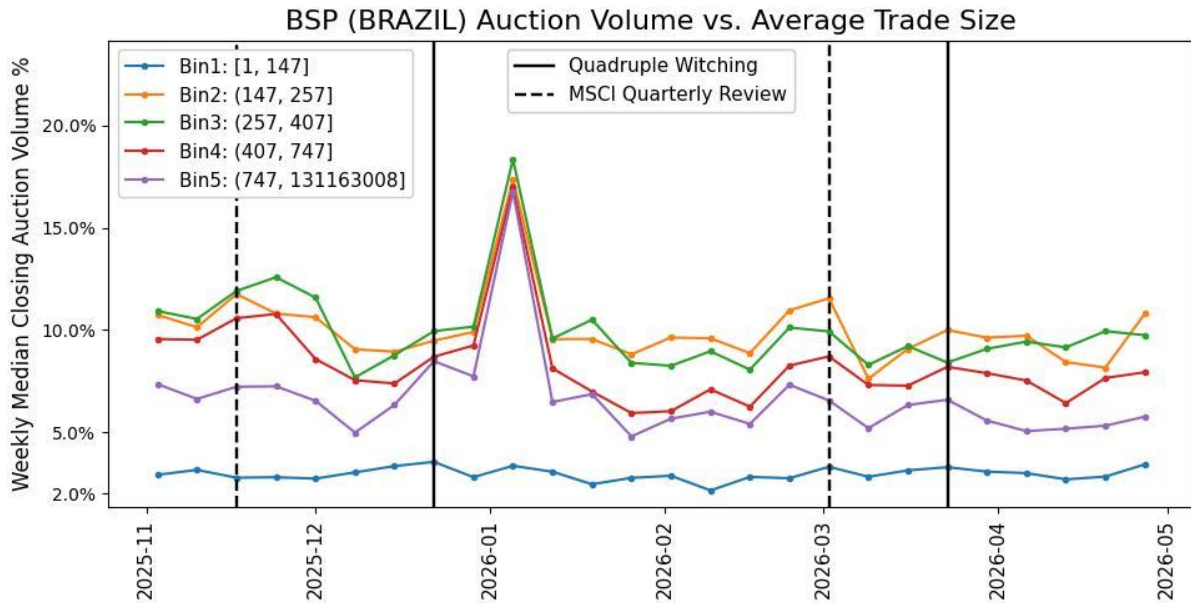


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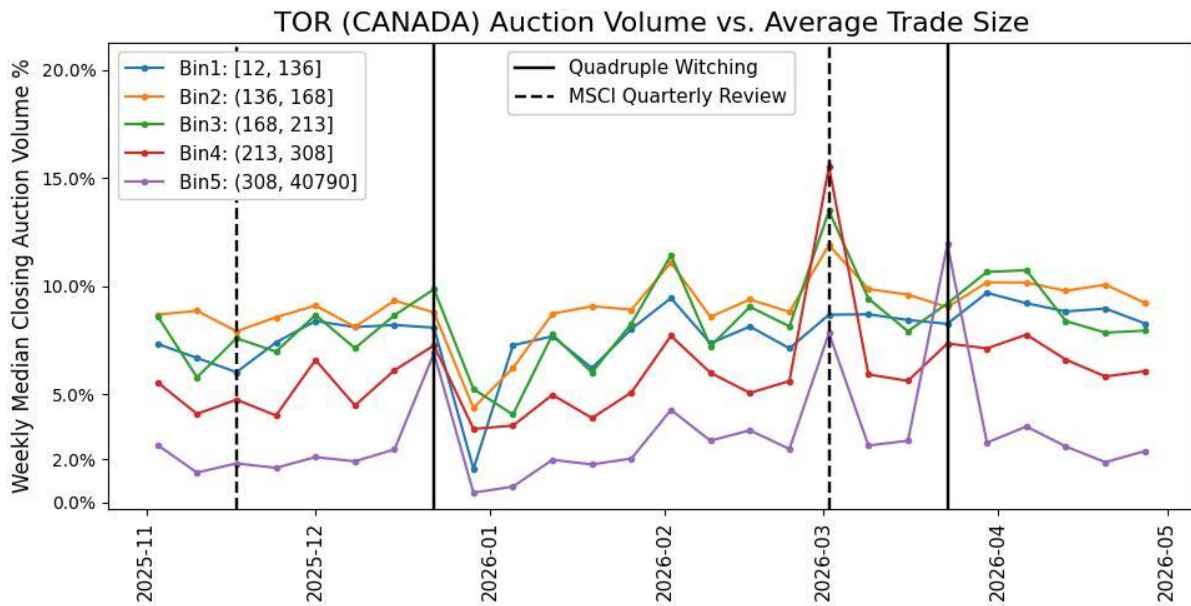


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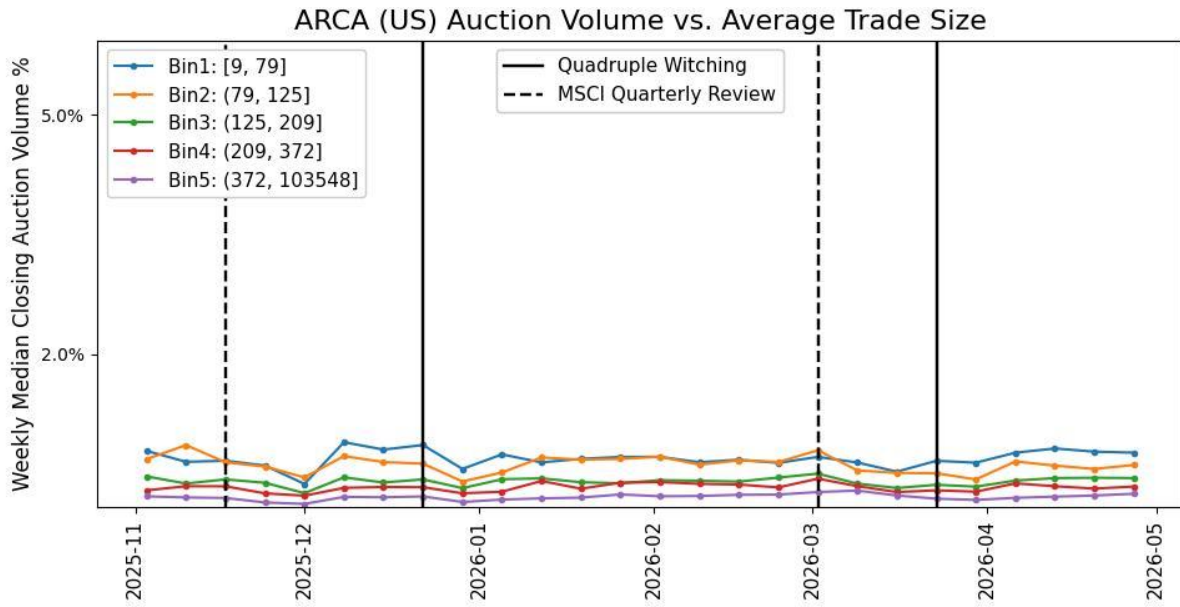


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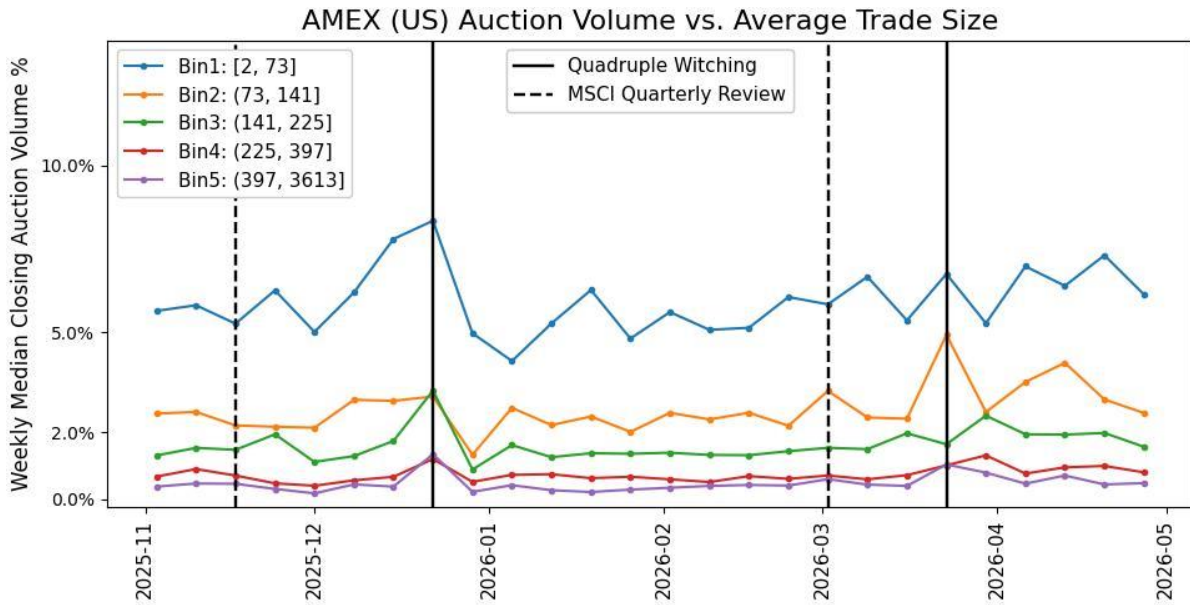


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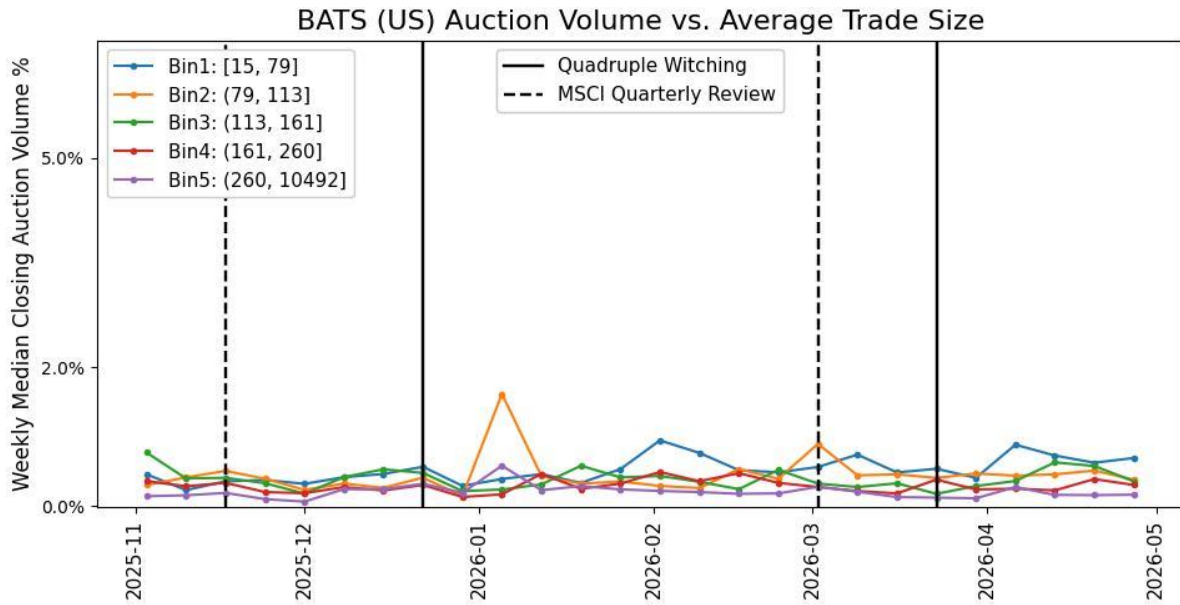


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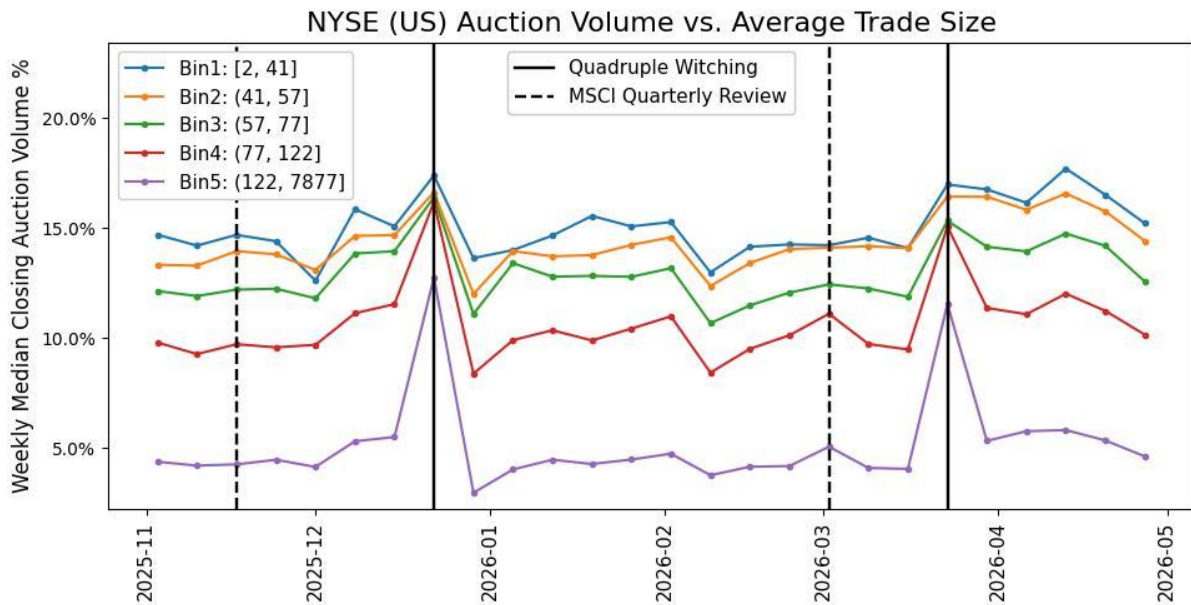


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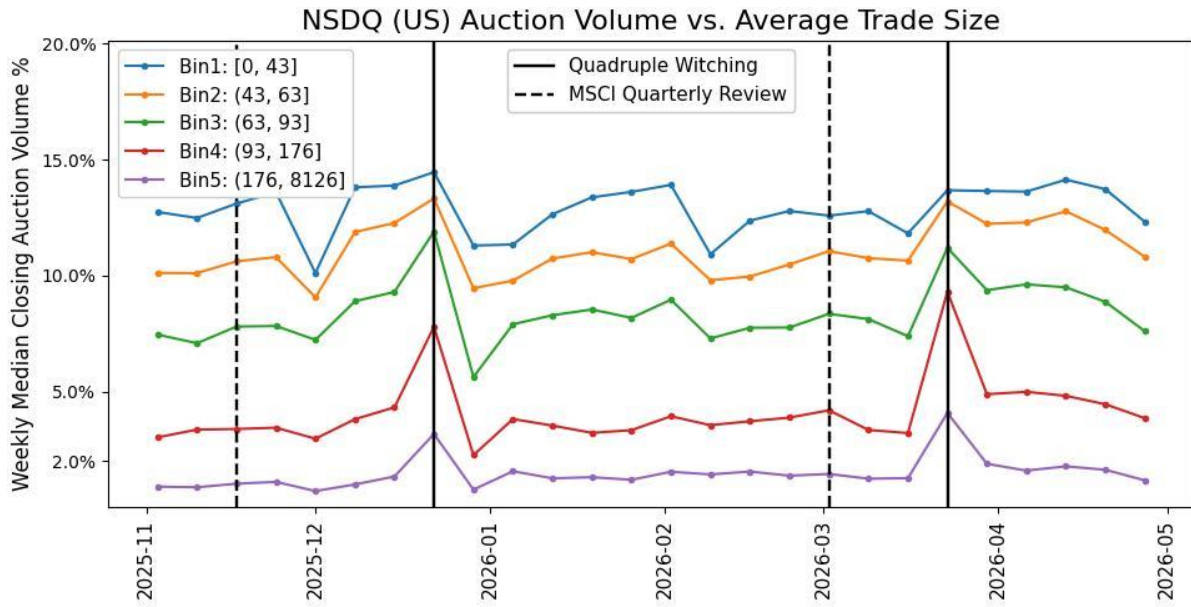


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