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To:

Ms. Vanessa A. Countryman, Secretary
Securities and Exchange Commission
100 F Street, NE
Washington, DC 20549-1090

Submission to **4-927**: Exemptive Relief for the Trading of Tokenized NMS Stocks

Dear Ms. Countryman,

We appreciate the opportunity to submit a comment on File No. 4-927, Exemptive Relief for the Trading of Tokenized NMS Stocks (Release No. 34-106402).

We are academic researchers in market microstructure and blockchain economics. Katya Malinova is Associate Professor of Finance and the Mackenzie Investments Chair at the DeGroote School of Business, McMaster University. Andreas Park is Professor of Finance at the University of Toronto. Together, we also operate APIA Scholar, a consultancy that provides expert advice and analytics on financial markets and decentralized finance. We have both served on the Ontario Securities Commission's Market Structure Advisory Committee.

We commend the Commission's efforts to modernize U.S. securities regulation and clarify the rules for trading tokenized NMS stocks on permissioned venues built on public distributed ledgers. Our expertise concerns automated market makers, which receive particular attention in the Exemption Order. We offer recommendations to improve the Order's effectiveness while preserving the stability of the underlying markets.

Our comments address Questions 3, 5 and 6, concerning effects on liquidity and prices in the underlying market, modifications to the conditions of the TSV Exemption, challenges for market participants, and the appropriateness of the volume limits.

Our comments draw on Malinova and Park (2026), Learning from DeFi: Would Automated Market Makers Improve Equity Trading?, and Park (2023), The Conceptual Flaws of Decentralized Automated Market Making published in the peer-reviewed journal Management Science. Park (2023) provides the theoretical foundation for the model in "Learning from DeFi." These papers form part of our broader research program to establish economic principles for the optimal design of AMMs. References appear below.

We are particularly concerned about the volume limits imposed by the Order. Although we appreciate the intent to prevent market disruptions, these limits may prevent AMMs from realizing their potential.

Our first concern is that the volume limits may impede the arbitrage that corrects price dislocations, undermining the Order's market-quality objective.

The Order states (p. 28): "The trading volume limitations are designed to help limit the potential impact of any price dislocations between the Tokenized NMS Stock and the NMS stock in traditional format and any adverse effects on market quality for NMS stocks." As the Order describes, AMMs derive prices from the reserves in their liquidity pools. Trades against those reserves adjust the pool's price.

Arbitrage trades therefore play a central role in aligning AMM prices with prices in conventional markets. These trades generate volume that counts toward the cap. The limit thus constrains the very mechanism that corrects price dislocations. We strongly caution against restrictions that impede this adjustment process.¹

Furthermore, AMMs provide transparent liquidity and can contribute to price discovery. Investors may access AMMs directly, without a broker-dealer. To the extent that retail orders migrate from wholesalers to AMMs, this could shift activity toward venues with publicly observable liquidity and prices. The potential benefit may be particularly relevant for stocks with high retail participation. Volume limits could therefore constrain improvements in price discovery and market quality.

Our second concern is that the volume cap limits AMMs' ability to deliver low trading costs.

AMM liquidity providers, like their counterparts in traditional markets, bear risks and require compensation, typically through fees on trades. The nature of their exposure, however, differs. In a limit order book, liquidity providers control their exposure through the size and price of individual orders, which they can revise or cancel. In an AMM, providers commit capital that the protocol continuously exposes to trades under its pricing rule. Low trading costs require substantial capital, and losses on that capital can be significant. A volume cap limits the fee income available to compensate providers for this exposure.

In "Learning from DeFi," we formally derive the link between fee revenue, liquidity supply, and trading costs. At a given fee rate and for a given risk environment, greater trading volume generates more fee revenue, which can attract additional liquidity, reduce price impact, and encourage further trading. Volume limits constrain this revenue and therefore the liquidity an AMM can sustain, resulting in higher trading costs.

Our research provides tools to quantify this effect. We derive the lowest trading cost an optimally designed AMM can achieve for given stock characteristics. This cost is proportional to the stock's volatility multiplied by the square root of the ratio of average trade size to average daily volume processed by the AMM. Holding volatility and average trade size fixed, a cap at a fraction s of market volume therefore raises the minimum attainable trading cost by a factor of $1/\sqrt{s}$ relative to the benchmark in which the AMM processes the full market volume. The 0.25% cap implies a cost multiplier of 20; for the 2.5% cap, the multiplier is approximately 6.

For illustration, we use a conservative 30% reduction in trading costs relative to prevailing bid-ask spreads, which is below the savings estimates in our research. If an AMM offers a percentage cost saving of r at the full-market-volume benchmark, its cost under a volume cap s , relative to the prevailing spread, is $(1 - r)/\sqrt{s}$. It remains cheaper when $(1 - r)/\sqrt{s} < 1$, or equivalently $s > (1 - r)^2$. With

¹ A related example is Zitzewitz (2026), "Limits to Arbitrage and Prediction Market Efficiency: the Case of PredictIt," which examines how CFTC-imposed position limits on PredictIt constrained arbitrage and impaired price formation. Available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=7505978.

$r = 30\%$, the break-even share is $(1 - 0.30)^2 = 49\%$, or roughly half of market volume. Under this illustration, the 0.25% cap raises minimum attainable costs to roughly 14 times the prevailing spread, and the 2.5% cap to roughly 4 times. The attainable improvement varies by stock, so any retained limit should be calibrated to each stock at a level that still allows an AMM to offer competitive trading costs. We therefore believe that the volume caps inadvertently undermine the purpose of the innovation exemption.

Our research in "Learning from DeFi" also shows that the largest absolute reductions in trading costs are attainable in mid-cap and small-cap stocks. Even the higher Tier 2 volume limit raises minimum attainable costs by a factor of approximately six under our model. The limits could therefore prevent substantial cost reductions in precisely the stocks where those reductions would be most valuable.

Our third concern is that the volume cap can inadvertently undermine investor protection.

We recognize concerns that AMMs could fragment liquidity and disrupt existing markets. Although our research does not examine fragmentation, AMMs offer a distinct approach to liquidity provision. In limit order books, liquidity providers actively manage quotes, often through high-frequency order submissions and cancellations. AMMs allow investors to commit assets to a pool whose rules automatically determine prices and execute trades. Providers can therefore adjust their positions less frequently while their capital supports continuous trading. This structure may attract additional liquidity from investors who seek fee income from existing holdings. Whether AMMs primarily attract new liquidity or divert it from existing venues is an empirical question. We encourage the Commission to allow sufficient scope for experimentation to assess these effects and the benefits to investors.

This potential source of liquidity also raises an investor-protection concern. Where the volume caps prevent an AMM from offering competitive trading costs while adequately compensating liquidity providers, a pool may nevertheless attract providers who underestimate the risks or overestimate prospective fee income. These may include retail investors who seek additional income from their existing holdings. The caps could therefore undermine investor protection by limiting the fee revenue available to compensate these investors for the risks they bear.

Recommendations on Questions 3, 5 and 6

We believe the volume limits are too restrictive, undermine the innovation the exemption seeks to enable, and may harm market participants. We recommend:

- Removal of the volume limits. If limits are retained, they should be calibrated to each stock, with reference to the cost relationship described above, to allow economically viable liquidity provision at competitive trading costs.
- An ongoing, evidence-based assessment of AMMs' effects on market quality, users' execution costs and quality, and liquidity providers' returns relative to the risks and costs they bear.

We would welcome the opportunity to discuss our research with Commission staff and explain how it informs these recommendations.

Respectfully submitted,

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Research references

Park, Andreas (2023). The Conceptual Flaws of Decentralized Automated Market Making. *Management Science* 69(11):6731–6751. <https://papers.ssrn.com/abstract=3805750>

Malinova, Katya, and Andreas Park (2026). Learning from DeFi: Would Automated Market Makers Improve Equity Trading? June 2026. Working paper. <https://papers.ssrn.com/abstract=4531670>