Testimony of Justin Schack, Partner and Head of Market Structure, Rosenblatt Securities

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Chair Wagner, Ranking Member Sherman and honorable members of the Subcommittee, good afternoon and thank you for inviting me to testify at today's hearing. My name is Justin Schack, and I am a Partner and Head of Market Structure at Rosenblatt Securities, a boutique institutional broker and investment bank founded in 1979. As a broker, Rosenblatt represents its clients on an agency basis. We do not own or operate exchanges or alternative trading venues or trade for our own account. The views I express today are my own, and not necessarily those of my partners or my firm.

For nearly three decades I've earned a living studying equity market structure. During that time our markets have evolved dramatically. Before this transformation, the average person could easily understand how they functioned. Trading mostly was manual and slow, with heavy human intervention. It also was concentrated. Shares of companies listed on the New York Stock Exchange were traded almost entirely by NYSE seat owners on its historic trading floor. Other companies, changing hands on the National Association of Securities Dealers' Automated Quotation system (Nasdaq), traded nearly exclusively among the NASD's "upstairs" members. These not-for-profit, Wall Street-owned-and-operated marketplaces of old had very little competition or reason to innovate. As a result, they clung to conventions that had prevailed for centuries, shunning technological advances and structural improvements that could have made markets more efficient for investors and issuers. For example, stock prices in that era were quoted in fractions of dollars rather than decimals. And the minimum quoting increment was 1/8 of a dollar, a practice that stemmed from when Spanish coins called "pieces of eight" circulated in colonial-era New York. Consequently, the "spread" between the best bid to buy a stock and the best offer to sell it — a major component of end-investor transaction costs — could be no narrower than 12.5 cents per share. Things were even worse on Nasdaq, where the Justice Department found that dealers colluded to keep these spreads artificially wide by not quoting the odd-eighth increments.[1] This meant that investors routinely paid 25 cents per share when buying and selling popular Nasdaq-traded issues like Microsoft, Intel Corp. and Cisco Systems.[2]

Reforms during the late 1990s and early 2000s — including the "limit-order-display" rule, Regulation ATS and the decimalization of stock prices — swiftly collapsed the bid-ask spreads investors paid to as little as one penny per share and began to fragment trading across a wider array of competitive market centers. This proved quite painful for many intermediaries, but opened opportunities for others, all while putting more money in end investors' pockets. Conventional dealers using shouts, paper tickets and telephones on trading floors suffered. But a new generation of trading firms wielded computers and advanced quantitative models to

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[1] JUSTICE DEPARTMENT CHARGES 24 MAJOR NASDAQ SECURITIES FIRMS WITH FIXING TRANSACTION COSTS FOR INVESTORS. Press Release, July 17, 1996

[2] To be clear, Nasdaq during this era was merely an OTC quotation screen operated by the not-for-profit, member-owned NASD. Nasdaq separated from the NASD, which no longer exists, in 2000. Today's Nasdaq Stock Market is a licensed exchange operated by Nasdaq Inc., which also runs other US and European exchanges, as well as a host of other businesses.

profitably make penny-wide markets. These firms increasingly traded on all-electronic rivals to the human-heavy NYSE and Nasdaq. Soon, even longtime market heavyweights like Goldman Sachs and Morgan Stanley were voluntarily disrupting their own stale, manual business models. These firms developed — or acquired — computerized algorithms and order routers to execute institutional customers' block orders in hundreds or thousands of smaller lots across multiple marketplaces. Some also began to take ownership stakes in the new, automated quasi-exchanges, prompting NYSE and Nasdaq to de-mutualize and become for-profit companies.[3] A few years later, the Securities and Exchange Commission adopted Regulation NMS, which it implemented in stages through 2006 and 2007 to help knit together a fragmenting market.

The reforms achieved many of their intended effects, but also had vast unintended consequences, as Wall Street responded to them in ways policymakers likely didn't anticipate. After the 1990s price-fixing scandal, for instance, regulators adopted rules requiring NASD members to publicize any customer limit orders that would narrow the spreads they quoted on the Nasdaq screen. But dealers, attempting to preserve the profits they reaped from inflated spreads, instead shipped such orders to smaller, little-known market centers. Soon these "electronic communications networks," operated by the likes of automated-brokerage pioneer Instinet and disruptive upstarts like Island and Archipelago, began to take significant market share from once-dominant Nasdaq and, later, the NYSE. And that prompted more government action. Reg ATS, adopted in 1998, created a sandbox for fast-growing ECNs to compete against established marketplaces without all the regulatory burdens licensed exchanges must bear. The ATS regime took an unexpected turn, however, after the SEC adopted Reg NMS. A centerpiece of that package — Rule 611, commonly known as the "trade-through rule" or the Order Protection Rule — bans brokers from trading at prices worse than the best bids and offers displayed on exchanges. Major brokers, however, no longer owned and controlled the exchanges, which stood to gain from this new arrangement. So they leaned on Reg ATS to create new off-exchange markets that, unlike ECNs, did not display price quotations. And they proceeded to internalize as much customer order flow as possible on these captive "dark pools," to avoid paying exchange fees while complying with Rule 611. When Reg ATS went live, the overwhelming majority of ATS volume was lit — involving displayed bids and offers. Today, nearly 100% is dark, and subject to an array of complicated, opaque segmentation schemes, "private rooms" and individually negotiated fees. Under Exchange Act language that was last updated nearly 50 years ago[4] — long before this turn of events could even be imagined by the savviest policymaker — NYSE, Nasdaq and their exchange peers cannot engage in similar activity. But they have responded to off-board competition with an array of measures that comply with the Act while exacerbating the complexity and fragmentation that first surfaced following the limit-order-display rule, grew after Reg ATS and metastasized in the aftermath of Reg NMS. These include operating multiple exchanges with fee schedules geared toward disparate groups of customers, as well as offering dozens of order types that attempt to mimic off-board segmentation.

That brings us to today's markets. As a result of the long cycle of government intervention and unintended consequences described here, the average person today cannot easily understand how

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[3] Schack, Justin, Hal Lux and Michael Carroll, "Trading Meets the Millennium." *Institutional Investor,* January 2000; Schack, Justin, "Battle of the Black Boxes." *Institutional Investor,* June 2004.)

[4] This half-century-old language desperately needs updating. The SEC over the past several years, spanning leaders from both political parties, has done well to modernize old rules to reflect vastly changed market practices and needs. But the Exchange Act is based upon a trading landscape and wider society that ceased to exist decades ago. For more on this please see my March 7 LinkedIn article, "Modernizing Equity Market Structure Policy."

our markets work. They're highly automated, lightning fast, vastly fragmented and extraordinarily complex. And make no mistake, brokers face conflicts of interest when routing orders among the 16 exchanges and dozens of off-board venues that today bring together buyers and sellers of US-listed stocks. It's fair to say that no one with a blank slate would design such a complex system to achieve such a simple task.

But the good news for end investors and issuers is that today's markets are also **far more efficient** than the simple, easy-to-understand markets of yore. Once-usurious bid-ask spreads are often as little as the one-penny-per-share minimum tick. Commission rates for institutional and retail investors have come down steadily; for nearly five years, most retail trading has been entirely commission-free.[5] All-in transaction costs for institutional investors have been far lower in today's market structure than before the transformation, even at significantly higher levels of market volatility. Moreover, investors and their advisers are privy to troves of data that can help them manage agent-principal conflicts. Amendments to Rule 606 of Reg NMS that went live in 2020, for example, require brokers to provide institutional customers with detailed routing and execution data.[6] Retail routing disclosures under Rule 606 also were improved as part of the same set of reforms.[7] And earlier this year, the SEC adopted amendments to Rule 605 of Reg NMS that will give retail investors a more-complete picture of the execution quality they receive in today's markets.

In short, intermediaries bear much of the burden of the increased market-structure complexity that has come with this transformation, while end users — investors and issuers — reap the benefits of dramatically greater efficiency.

So what does all of this mean for regulators and legislators overseeing our markets today? Considering all that I've learned over nearly three decades of analyzing and educating others about this sea change, I believe that policy makers would do well to bear in mind three principles regarding the US equity market.

Principle #1: **The interests of market end users should be paramount when making policy.** By this I mean ***asset owners*** on one hand and ***issuers*** on the other. Asset owners are the teachers, first responders and other workers who rely on defined-benefit pensions for income in their golden years. They're also the many other individuals who invest for retirement, higher education and other goals through various pooled investment vehicles like ETFs and mutual funds, often in 401(k)s, IRAs, 529s and other tax-advantaged accounts. And, increasingly, they are retail investors using smartphone apps to access markets in ways that were not possible even one decade ago.

On the other side of the market ecosystem are a different set of end users: **issuers.** These are the corporations and investment companies that list shares on America's stock exchanges, raising vital capital that helps power our economy.

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[5] Osipovich, Alexander; "Schwab Cuts Fees on Online Stock Trades to Zero, Rattling Rivals." *The Wall Street Journal,* October 1, 2019

[6] Rosenblatt has designed a web interface that our institutional clients can use to aggregate and analyze these "institutional 606" data. This lets them compare brokers against one another, as well as identify areas of concern to highlight with brokers and change suboptimal routing behavior.

[7] SEC Adopts Rules That Increase Information Brokers Must Provide to Investors on Order Handling. Press Release, Nov. 2, 2018

Between them lies an array of intermediaries, including banks, exchanges, various off-exchange venues that compete with exchanges, market makers, brokers and asset managers. These middlemen typically are the loudest voices in any debate over public policy. They hire lawyers and lobbyists to influence regulatory agencies and members of Congress. When the SEC proposes rules like the ones we're discussing today, intermediaries engage actively in the notice-and-comment process to help the agency improve policy before it's adopted and, sometimes, to try to shape regulations to benefit their own commercial interests. Occasionally they'll even sue the SEC in federal court to invalidate rules they don't like.

To some degree, this is to be expected. After all, as I mentioned earlier, intermediaries bear most of the burden of today's market-structure complexity. They need to manage connectivity, market data and routing among dozens of trading venues featuring an array of rules, order types, fee schedules and segmentation schemes. In the vast majority of cases intermediaries, not end investors, absorb the fees charged or rebates paid by exchanges and dark pools for executing trades. They also must manage often complex and wide-ranging relationships with one another. And quite often, policy change can be painful for these entities. The most-sweeping reforms may pose existential threats, forcing firms to adapt or die. But even when all their best efforts to tilt the scales in their favor fail, middlemen are remarkably skilled at adjusting to new rules of the road — often in ways policymakers fail to foresee — and preserving their respective roles and positions in our market ecosystem.

Asset owners and issuers, on the other hand, are usually among the quietest voices in any public-policy debate over market structure. They often have other priorities. Most individuals seeking to build long-term wealth in the stock market, for example, are primarily occupied with the rigors of work and family. They generally don't have the resources that intermediaries can exploit to learn about market structure and influence policy. Some public and union-affiliated pension systems do engage in these debates, but many — perhaps most — do not. And those that do often choose to spend their political capital on issues far afield from market structure, which they may judge as more vital to their interests. Issuers, though often quite sophisticated about their core businesses in various sectors of the economy, are concerned mostly with maximizing profits for shareholders by delivering better products and services or achieving greater scale. Getting into the weeds on market microstructure isn't an efficient use of their time. Most, understandably, just don't do it. To be sure, these end users of our equity markets have much at stake — often their entire nest eggs for retirement, education or other long-term goals. But they are far less able than intermediaries to make lemonade from market-structure policy lemons. Middlemen can, and do, look after themselves. Asset owners and issuers need public servants to protect their interests.

We've seen this pattern — reforms benefiting end users while forcing painful, but successful, evolution among intermediaries — several times in recent history. Following the May 1, 1975 de-regulation of NYSE member firms' commission rates, for example, discount brokers like Charles Schwab & Co. and Muriel Siebert & Co. used dramatically lower commission rates to disrupt what for centuries had been a cozy Wall Street club. "May Day," as it became known, wreaked havoc on firms that had grown accustomed to charging customers inflated rates. Some went out of business. Others merged with larger rivals, achieving the scale necessary to tolerate

shrunken profit margins.[8] But the industry emerged stronger from the tumult.[9] The reforms that followed the 1990s NASD quote-rigging scandal, as we explained earlier, rendered the business models of that era's dealers and dominant exchanges obsolete, ushering in an era of automation, fragmentation and competition that tilted the balance of power among market middlemen. And in the late 2000s and early 2010s, major banks' and brokers' unexpected response to Regulation NMS — launching captive dark pools — gave them a valuable escape valve from what otherwise could have been a far-more-costly new regime of exchange quotations that were protected against trades occurring at inferior prices.

At every step along this path, investors and issuers benefited greatly from reforms that reduced their transaction and capital costs. Middlemen shouted about the sky falling, but managed to pick up the pieces, emerging bigger and stronger than ever. **When considering any new reforms, then, policymakers should prioritize the interests of end users over those of intermediaries.**

Principle #2: **End users receive excellent outcomes in today's market structure**, **even though the unintended consequences of major regulations over the past three decades have made it an extraordinarily complex system that no one would design on a blank slate.** As mentioned earlier, transaction costs for institutional investors — considering commissions and fees but also bid-ask spreads and the price impact of buying and selling large quantities of shares — are dramatically lower today than in yesteryear's simpler but far less efficient market structure. All asset owners, regardless of how they access markets, benefit from spreads that are tiny fractions of the minimum 12.5 or even 25 cents per share they paid on pre-transformation trades. Those who buy and sell stocks directly through online brokers or apps also have seen commission rates plummet — from the hundreds of dollars per trade traditional brokers once charged to the $9.99 levied by early-generation online brokers in the late 1990s and, finally, to commission-free trading today. And the "wholesale" market makers that execute most retail orders routinely do so at better prices and in larger quantities than what's quoted on exchanges.

I often tell clients when educating them on this market-structure transformation that it's impossible to know whether today's far-better outcomes came *because of* or *in spite of* all the government reforms and private-sector adaptations of the past three decades. I believe there's a strong case to be made for corrective actions like the Limit-Order-Display Rule and the decimalization of quoted prices delivering massive savings to end users. But today's efficiencies were far from guaranteed. During the early 2000s, as various market participants grappled with the massive scope of regulatory change, many voiced concerns that outcomes had worsened. Institutional transaction costs rose for a time, while intermediaries struggled with how to adapt to the new environment. Institutional investors complained loudly about a lack of liquidity in equity markets. Some were so frustrated that they sought to bypass Wall Street brokers and exchanges entirely.[10] Eventually things got, and stayed, better. But this "growing pains" period exists as a cautionary example of how the unintended consequences of major regulatory intervention may harm asset owners and issuers.

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[8] Allan, John H. "Merrill Lynch Buys White, Weld, an Old-Line Firm, for $50 Million." *The New York Times,* April 15, 1978.

[9] According to data in the 1980 SEC Annual Report, the number of broker-dealers increased by 20% from 1975 to 1979. Industry-wide commission revenues grew by 43%, while pre-tax income rose 52% and total broker-dealer assets shot up by 175%.

[10] Schack, Justin and Richard Blake. "The Buy Side Wakes Up." *Institutional Investor,* April 2002

And that brings me to *Principle #3:* **Given the primacy of asset owners' and issuers' interests in policy debates, the excellent outcomes they receive in today's market structure and the potential for harm from unintended consequences, policymakers need to prove clear and significant harm to market end users (not intermediaries) before adopting major market-structure reforms.** This principle sums up my views on market-structure policy and really could stand on its own, but derives its full power from being considered alongside the other two I present here.

Let me be clear: such a high threshold for action doesn't mean we should never undertake *any* reforms. The recent adoption of amendments to Rule 605 of Reg NMS, for instance, does not constitute a major revamping of market practices or behavior. Certain gaps in the existing Rule 605 disclosure regime have become evident over the years. The amended rules address some of these gaps, giving retail investors — as well as academics, analysts and journalists who may comb through the data — a more-complete picture of retail execution quality. There also has been consensus among a wide range of market participants and economists for several years that the one-size-fits-all tick-size regime in US equities does not serve the entire market well. Trading and quoting data show that certain actively traded, low-priced securities clearly would trade at bid-ask spreads narrower than one cent if exchanges were allowed to accept and display sub-penny quotations. Currently, under Reg NMS, they aren't. This makes sense when considering that for a stock trading at $1 per share, a penny is 1/100 of the share price. A market maker that successfully earns the same penny-wide bid-ask spread on a $10 stock, on the other hand, reaps 10 times less on a percentage basis. On the other end of the spectrum, the one-penny tick is economically insignificant for some high-priced, actively traded issues. These stocks have what Nasdaq economist Phil Mackintosh has called a "too many ticks" problem.[11] It's too easy for traders to gain price priority in the order book by bidding up or offering down a $1,000-per-share stock by just $0.01 per share (1/100,000) of the share price. That can reduce certainty of execution and cause liquidity providers to quote wider, smaller markets than they otherwise would. In both cases, bid-ask spreads — a significant component of end-user costs — are artificially wide. Many other equity markets around the world, including Europe and Japan, employ variable tick sizes for this reason. Adopting a similar regime here would mean a greater portion of asset owners' hard-won returns stay in their portfolios rather than lining intermediaries' pockets. I was proud to serve on the diverse working group of market participants that Nasdaq convened in 2019 to formulate its Intelligent Ticks proposal[12], and believe that such a regime would deliver substantial benefits to market end users with a minimum of disruption and unintended consequences.

Maintaining a high bar for major regulatory action also doesn't mean we should never question or explore whether outcomes could be even better for asset owners or issuers. In recent years, for example, I have voiced concern about whether rising levels of off-exchange trading are damaging the price-discovery function that is our markets' very reason for existence. When discussing this, I often use the analogy of selling one's home. To get the best, most-accurate price, a seller wouldn't want to show it just to people on her own block or the immediate neighborhood. Rather, getting the listing distributed as widely as possible — to neighboring towns, counties, states, even countries — would increase the likelihood of receiving the highest possible bid. Applying that idea to the stock market, maximizing the interaction of trading

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[11] Mackintosh, Phil. "The Economics of Tick Regimes." Nasdaq.com Blog Post, March 16, 2023
[12] Intelligent Ticks proposal, Nasdaq, December 2019

interest from *all* market participants seems the best way to arrive at the most-accurate prices. And the more we segment order flow on dark, non-public markets, the less likely we are to achieve that goal. Is it possible that the tight spreads and price improvement from which asset owners benefit today could be even better if there were less off-board segmentation? In theory, it seems quite possible. But what's the point at which damage occurs? Is it 40% off-exchange? Or maybe 70% or more? Does it vary from stock to stock, depending upon liquidity and other factors? Probably. But I don't *know* the answers to these questions and haven't seen any empirical analysis — from regulators or otherwise — that makes them plain. Absent such data, which would constitute conclusive evidence of harm to the market's end users, dramatic reforms to discourage segmentation and foster more multilateral interaction of trading interest on public markets — as contemplated under the proposed Order Competition Rule and Regulation Best Execution — may deliver more harm than good.

Indeed, not every cause for worry or inquiry crosses the threshold of clear, demonstrated harm to asset owners and issuers that would justify major government intervention. For example, there has been concern for many years over the conflicts of interest brokers face when routing customer orders among dozens of exchanges and dark pools with disparate fee schedules. And I have been one of the leading voices educating institutional investors about those conflicts and how to manage them. I do not, however, believe they are causing clear, measurable harm to asset owners or issuers that would justify major government intervention and its concomitant risks. There have been multiple efforts over the past decade-plus to either ban rebates altogether or place additional restrictions on exchanges' ability to set their own fee schedules for transaction services. All have failed. In 2018, for instance, the SEC adopted a two-year pilot program that would have banned rebates for certain securities and instituted other new restrictions on exchange transaction fees, with the goal of gathering data to see whether exchange pricing was harming market quality for end users. In June 2020, a federal appeals court invalidated the pilot, arguing that the SEC exceeded its statutory authority with an "aimless" rule that imposed "significant, costly, and disparate regulatory requirements on affected parties merely to allow the Commission to collect data to determine whether there *might* be a problem worthy of regulation."[13]

Now the agency is back with a variation on this theme — barring exchanges from offering certain transaction-pricing "tiers" for agency orders that are linked to customers' trading volume. The new proposal is very similar to the Transaction Fee Pilot. It only focuses on exchanges, despite off-board venues accounting for nearly half of total stock-market volume[14] and employing the same kinds of volume discounts and tiering, in the form of negotiated fees and execution terms with each individual client. It internalizes the long-held yet unpersuasive argument that exchange transaction fees lie at the root of various harms to end users of the markets. This school of thought has puzzled me for many years. The biggest reason why? Asset owners and issuers, as a general matter, do not pay exchange transaction fees or receive exchange rebates. Their execution and capital costs are determined largely by commissions, bid-ask spreads and the price impact of large transactions. Exchange and other venue fees are a direct

[13] New York Stock Exchange LLC, et al, v. Securities and Exchange Commission. United States Court of Appeals for the District of Columbia Circuit, June 16, 2020.

[14] For many individual securities, including actively traded, widely held stocks like Tesla, NVIDIA and AMD, off-exchange market share is well above 50% and often in the 60-70% range.

cost for broker intermediaries. They aren't a major detriment to end users.[15] The Commission's proposal offers no evidence to show that exchange fee tiers are harming end users of markets. Even the theories and assertions it forwards to argue that exchanges' volume-based pricing discourage competition among brokers and exchanges and exacerbate routing conflicts of interest — all of which primarily affect intermediaries, not end users — don't stand up to scrutiny. Indeed, I believe there are plausible scenarios through which the volume-based transaction pricing proposal, if adopted, would instead make it even more difficult for smaller brokers and exchanges to compete with larger rivals.

The proposal repeatedly states, for example, that exchange fee tiers prompt smaller brokers to access exchanges not directly, but rather through larger rivals that deal in higher volumes and therefore qualify for better pricing. It also suggests, but fails to establish with evidence, a self-reinforcing cycle through which these giant brokers can better compete with smaller ones for customer order flow via lower pass-through fees or commission rates. But it fails to consider a long list of other reasons why smaller brokers, like Rosenblatt, choose to access markets through larger rivals. Directly connecting to and routing customer order flow among all meaningful US equity trading venues entails a host of costs aside from transaction fees. These include membership fees, direct market-data feeds and telecommunications connectivity at each exchange (the latter also applies to far-more-numerous off-exchange venues); plus the technology and people required to build and maintain a smart order router, as well as execution algorithms that help that router decide where and when to send client orders. If volume-based tiers were to disappear tomorrow, many small brokers would still face all these hurdles and continue to access venues through larger rivals which already have that infrastructure in place and scale it across a bigger volume base. But if exchanges could no longer offer volume discounts, larger brokers and the smaller ones they serve might wind up paying higher net transaction fees than they do today. They'd also be paying more than proprietary trading firms, which would be exempt from the ban. In other words, many small firms like Rosenblatt, who represent asset managers as agents, would receive no discernable benefit while suffering higher operating costs. The proposal also ignores myriad factors affecting competition among brokers that have nothing to do with venues and routing. These include packaging equity execution, either explicitly or implicitly, with ancillary products and services like access to new issues, investment research, financing and capital introduction — across multiple asset classes and regions globally. US equities-focused execution boutiques face so many larger obstacles to competing for order flow with multinational banks that eliminating volume-based execution-fee incentives — only for agency orders and only for the 55% or so of volume done on-exchange — will have no meaningful effect on competition between brokers, other than harming small agency brokers.

Banning fee tiers for agency orders also won't materially change broker routing behavior that is influenced by differential fees and rebates among trading venues. Attacking venue-level fees to address conflicts will only work if all are forced to charge the same fee to both parties in any transaction — an arrangement few, if any, in this room would want to see. Otherwise, certain venues will be more-attractive economically to brokers than others. If tiers were banned, an exchange currently using "maker-taker" pricing that rebates liquidity providers and charges

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[15] To be sure, brokers may factor their net venue fees into the commission rates they charge asset owners. But, as we've explained elsewhere, these rates (and overall transaction costs) have come down significantly during the transformation that produced today's complex market structure.

removers might move from a tiered system, in which the best rebates are slightly higher than the $0.003 per share Reg NMS cap on exchange access fees, to a single, lower "maker" rebate of, say, $0.0022 per share. This would still represent a significant economic inducement to add liquidity on that exchange's order book, compared to dark ATSs or inverted-fee ("taker-maker") exchanges that charge liquidity providers fees but might deliver better execution quality. For the biggest brokers with the highest market shares, which can route hundreds of millions or even billions of shares per day on behalf of customers, even seemingly minute differences between these marketplace *categories* can be material and influence venue selection. Certain types of customer orders, then, will still disproportionately wind up on certain varieties of venues with particular fee structures, regardless of whether volume-based tiers exist. A ban won't materially reduce conflicts, but will exacerbate the competitive disadvantage exchanges face against ATSs, single-dealer platforms and other off-board venues, which would continue to enjoy unlimited flexibility to offer unique fees, rebates, order types and segmentation schemes to each client sending agency orders, without regulatory approval or disclosure. Exchanges would no longer have the ability, common in so many other sectors of the economy, to offer the best rates to their biggest customers or bundle together services at a lower cost than what consumers would pay for them separately. But their off-board competitors would.

Additionally, the fee-tier ban proposal asserts that large listing exchanges use greater numbers of tiers and intraday pricing tied to closing auctions to make it more difficult for smaller ones with unique pricing models or fewer tiers to compete. Yet three new, non-listing exchanges that compete for order flow[16] have launched since 2016. In May these marketplaces — IEX, Members Exchange (MEMX) and MIAX Pearl Equities — accounted for 5.82% of consolidated equity volume and 10.94% of on-exchange trading. MEMX and MIAX, which together claim nearly 8% of on-exchange volume, launched just three years ago. And more recently, several other new entrants either have announced or begun planning to apply for exchange licenses, bringing even more competition to an already robust marketplace.[17] Just as there are many factors underlying competition between brokers, including many the proposal fails to consider, volume-based pricing tiers are far from the only thing influencing exchange competition. Innovative order types, matching protocols, technology platforms and ownership structures are among the other weapons exchanges wield against one another (and off-board rivals). MEMX and MIAX, for example, boast owners that include the world's biggest banks, retail brokers, market makers and asset managers, who can influence order-routing decisions for both agency and proprietary flow. It's quite possible that stopping these upstarts from using volume-based tiers may play right into the hands of market-leading incumbents, which are operated by big, increasingly diversified companies. US cash-equities net transaction fees are a tiny portion of the massive revenue streams generated by Nasdaq, which last year completed a $10.5 billion acquisition of fintech company Adenza, and even smaller for NYSE parent Intercontinental Exchange, which brings in about $8 billion in revenue annually. Rather than settle on rates between the current best and worst tiers as the proposal supposes, these exchanges may have an

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[16] A fourth, the Long-Term Stock Exchange, is concerned primarily with listings and currently does not compete for trading volume.

[17] Lyudvig, Anna. "24 Exchange Aims to Launch National U.S. Equities Exchange." *Traders Magazine,* March 6, 2024; Rennison, Joe. "New Stock Exchange in Texas Takes Aim at N.Y.S.E. and Nasdaq." *The New York Times,* June 5, 2024

incentive to keep non-tiered pricing aggressive for their biggest agency order-flow providers, to preserve market share and protect related listings, connectivity and data revenues. And they'd be far better equipped than smaller, less diversified, non-listing exchanges to absorb the leaner transaction-fee margins such a tactic would produce.

Moreover, differential rebates and fees among exchanges, as well as volume-based tiers, often provide incentives for market participants to display the most-aggressive bids and offers possible. That, in turn, boosts the efficiency and accuracy of price discovery and minimizes spread costs for all asset owners. Extensive competition in the brokerage industry creates intense pressure on commission rates, which tend to move steadily downward over time. As I've already pointed out, commissions in recent years have gone to zero for do-it-yourself retail customers. Institutional rates were 6 cents per share or higher in the pre-transformation era but now are just fractions of a penny. Additionally, asset managers and brokers have successfully pursued various strategies for controlling market-impact costs during the decades in which maker-taker fee schedules and volume-based incentives have existed. These include finding "natural" block counterparties off-exchange and dividing large "parent" orders into small "child" slices that are intelligently routed among dozens of exchanges and OTC venues over time. The asset managers who buy, sell and hold shares on behalf of public pensions and individual savers also meticulously scrutinize routing and execution-quality data provided by brokers, including that which the SEC mandated as part of amendments to Rule 606 that took effect just a few years ago — a measured reform that is not upending market-participant behavior or triggering unintended results. In short, the proposed fee-tier ban does not address any empirically established, material harm to asset owners or issuers, but might subject an array of market participants to unexpected, unwelcome consequences that could indirectly effect end-user outcomes.

Thank you again for inviting me to testify. I look forward to answering your questions.