NetCoalition.com

October 14, 2008

Via Electronic Mail (rule-comments@sec.gov)

U.S. Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090
Attention: Florence E. Harmon, Acting Secretary

Re: In the Matter of NetCoalition, File No. SR-NYSEArca-2006-21, Securities and Exchange Commission Release No. 34-57917

Dear Chairman Cox and Commissioners:

As Petitioner in the above-captioned matter, we appreciate the opportunity to comment further on the August 1, 2008, submission from the NASDAQ OMX Group, Inc. ("Nasdaq") regarding the Commission's proposed order (the "Proposed Order") approving the proposal by NYSE Arca, Inc. ("NYSE Arca") to establish fees for its ArcaBook depth-of-book market data product.

We respectfully disagree with the positions taken by Nasdaq in its letter and by Janusz Ordover and Gustavo Bamberger in their supporting Statement.

As an initial matter, Ordover and Bamberger appear to argue that, even if NYSE Arca's prices for depth-of-book data exceed competitive levels, the Commission should nonetheless approve those prices because other NYSE Arca services may offset those high prices. That assertion contravenes the statutory framework that governs market data fees.

Congress established a policy to promote the widespread availability of market data and therefore required the Commission to ensure that the prices of *market data* are fair, reasonable, and not unreasonably discriminatory. For example, Section 11A(c)(1) of the Securities Exchange Act of 1934 specifically provides, among other things, that an "exclusive processor" of market data such as NYSE Arca must distribute on a "fair and reasonable basis" the quotation and transaction data that it collects, processes, or distributes and do so on terms that are "not unreasonably discriminatory." By arguing that NYSE Arca may set depth-of-book data prices that exceed competitive levels if NYSE sets competitive prices for its other services, Ordover and Bamberger ignore that statutory mandate. Notably, the Proposed Order does not contain any support for Ordover and Bamberger's argument.

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In addition to not comporting with the Exchange Act, Ordover and Bamberger's analysis is flawed for economic reasons. We requested Dr. David S. Evans, Head of LECG, LLC's Global Competition Policy Practice, to respond to the arguments presented by Ordover and Bamberger. Dr. Evans concludes in his response, which we submit with this letter, that Ordover and Bamberger's arguments are analytically erroneous and unsupported by evidence. As Dr. Evans explains:

First, Ordover and Bamberger's assertion that alternative sources of depth-of-book data constrain the pricing of an exchange's depth-of-book data is not supported by any empirical evidence or analysis. Data from different trading venues are not substitutable, allowing exchanges with significant liquidity to charge prices for depth-of-book data that exceed competitive levels.

Second, Ordover and Bamberger's claim that competition for order flow constrains an exchange's pricing of its depth-of-book data incorrectly assumes a symmetrical and reciprocal relationship between the pricing of order flow and depth-of-book data. However, as Dr. Evans observes, the input and marginal demand relationships of order flow and depth-of-book data are asymmetrical and result in an incentive to charge *lower* order flow prices and *higher* depth-of-book data prices.

Third, Ordover and Bamberger's assertion that inter-platform competition for trading constrains depth-of-book data prices incorrectly assumes that the cost of depth-of-book data is a component of the marginal cost of trading. In fact, depth-of-book data prices do not affect broker-dealers' marginal incentives to place trades and are thus *not* constrained by inter-platform competition for order flow.

Even if depth-of-book data and trade execution services were "joint products" with "joint costs," the price of one would not necessarily constrain the price of the other. Rather, the individual competitive conditions separately affecting depth-of-book data and trade execution services will determine their respective prices.

Accordingly, nothing in Ordover and Bamberger's Statement alters any of the conclusions Dr. Evans previously submitted in his "Comment" on the Proposed Order:

- NYSE likely has significant market power over the pricing of its depth-of-book market data;
- the availability of the alternative sources of depth-of-book data that the Proposed Order identified do not constrain that market power; and
- competition for order flow does not constrain that market power.

NetCoalition thus reiterates that, for the reasons provided in Dr. Evans' response and in the previous submissions by NetCoalition and other commenters, the Proposed Order's determination that significant competitive forces constrain ArcaBook depth-of-book data pricing is not supported by substantial evidence and, if issued, the Proposed Order would be arbitrary and capricious and contrary to law, and thus reversible by a United States Court of Appeals.

Thank you again for the opportunity to contribute our views on this topic of great importance to investors, other market participants, and market data service providers.

Respectfully submitted,

Markham C. Erickson
Executive Director and General Counsel

Enclosure

cc: The Hon. Christopher Cox, Chairman
The Hon. Kathleen L. Casey, Commissioner
The Hon. Elisse B. Walter, Commissioner
The Hon. Luis A. Aguilar, Commissioner
The Hon. Troy A. Paredes, Commissioner
Dr. Erik R. Sirri, Director, Division of Trading and Markets
Robert L. D. Colby, Esq., Deputy Director, Division of Trading and Markets
Elizabeth K. King, Esq., Associate Director, Division of Trading and Markets
Heather A. Seidel, Esq., Assistant Director, Division of Trading and Markets
Brian G. Cartwright, Esq., General Counsel

RESPONSE TO ORDOVER AND BAMBERGER'S STATEMENT REGARDING THE SEC'S PROPOSED ORDER CONCERNING THE PRICING OF DEPTH-OF-BOOK MARKET DATA

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October 10, 2008

I. INTRODUCTION[1]

NYSE Arca, Inc. (NYSE)[2] requested the Securities and Exchange Commission (SEC) to approve a proposed rule change that would allow NYSE to establish certain fees for depth-of-book market data (also known as unconsolidated, or non-core, data).[3] The SEC has issued a Notice that presents a Proposed Order to approve that request and the basis for doing so.[4]

In my previous Report, I demonstrated that the Proposed Order's preliminary conclusion that significant competitive forces constrain NYSE's pricing of depth-of-book data is not supported by the analysis and evidence presented by the Proposed Order.[5] To the contrary, the economics and evidence show that:

- NYSE likely has significant market power over the pricing of its depth-of-book market data;
- the supposedly alternative sources of depth-of-book data that the Proposed Order identifies would not significantly constrain market power over depth-of-book data; and

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[1] This Report was prepared at the request of NetCoalition.

[2] For the purpose of analyzing competition among exchanges, all exchanges owned by the same corporate parent should be aggregated as under the control of the same economic agent, which seeks to maximize the profits of the combined operations. Indeed, NYSE Euronext itself has criticized Nasdaq for "totally ignor[ing] the NYSE Arca trading in NYSE-listed securities." Press Release, NYSE Euronext (last visited Oct. 9, 2008), http://www.nyse.com/pdfs/NYSE_Response_Letter1.pdf [hereinafter "NYSE Euronext Press Release"]. Thus, for purposes of economic analysis, the NYSE Arca and New York Stock Exchange trading venues should be considered a single entity. Ordover and Bamberger do not appear to dispute this conclusion.

[3] Filing of Proposed Rule Change Relating to Approval of Market Data Fees for NYSE Arca Data, SEC Release No. 34-53592, 71 Fed. Reg. 33,496 (June 9, 2006).

[4] Proposed Order Approving Proposal by NYSE Arca, Inc. to Establish Fees for Certain Market Data and Request for Comment, SEC Release No. 34-57917, 73 Fed. Reg. 32,751 (June 10, 2008) [hereinafter "Proposed Order"].

[5] Dr. David S. Evans, An Economic Assessment of Whether "Significant Competitive Forces" Constrain an Exchange's Pricing of Its Depth-of-Book Market Data (July 10, 2008) [hereinafter "Report"].

- competition for order flow would not prevent the exercise of significant market power over depth-of-book data.

On August 1, 2008, Nasdaq submitted a letter to the SEC urging approval of the Proposed Order and attaching a supporting Statement of Janusz Ordover and Gustavo Bamberger.[6] Those authors reach three principal conclusions:[7]

- "[E]ven though market information from one platform may not be a perfect substitute for market information from one or more other platforms, the existence of alternative sources of information can be expected to constrain the prices platforms charge for market data."[8]
- "[A] trading platform cannot generate market information unless it receives trade orders. For this reason, a platform can be expected to use its market data product as a tool for attracting liquidity and trading to its exchange."[9]
- Competition among exchanges constrains the "total return" each exchange earns from its "sale of joint products," and thus the "total price of trading on that platform" is constrained by the "total price of trading on rival platforms."[10]

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[6] Statement of Janusz Ordover and Gustavo Bamberger (Aug. 1, 2008) [hereinafter "Statement"].

[7] The argument that platform competition constrains the total return of the exchange is one that Ordover and Bamberger make throughout their submission but is not presented in their conclusions, which instead focus on the first two arguments.

In addition to the economic flaws in Ordover and Bamberger's total return analysis that are discussed in Section IV below, Ordover and Bamberger ignore an important part of the relevant landscape—namely the legal framework within which exchanges must operate. For example, NetCoalition has advised me that Congress, by way of the Exchange Act, requires an "exclusive processor" of market data (such as NYSE) that distributes quotation and transaction data to do so on terms that are "fair and reasonable" and "not unreasonably discriminatory." Proposed Order, *supra* note 4, at 32,760 & n.156.

By arguing that a relatively low price for transaction services effectively offsets a relatively high price for market data, *see* Statement, *supra* note 6, ¶¶ 8, 23 & nn.23-24, Ordover and Bamberger ignore the above-referenced statutory mandate and thereby make their economic argument largely irrelevant within the context in which U.S. exchanges must operate.

[8] Statement, *supra* note 6, ¶ 38.

[9] Statement, *supra* note 6, ¶ 38.

[10] Statement, *supra* note 6, ¶¶ 7 & 23.

Those conclusions are conceptually flawed, and the authors provide no meaningful factual support for any of them.

In Section II, I address Ordover and Bamberger's flawed claim that alternative sources of depth-of-book data act as a significant competitive constraint on the prices that a given exchange can charge for its depth-of-book data. They do not, and could not, present evidence to support that claim. Neither Nasdaq nor any smaller exchange provides depth-of-book data that are reasonably substitutable for NYSE's depth-of-book data.

In Section III, I show that Ordover and Bamberger's claim that competition for order flow acts as a significant competitive constraint on an exchange's pricing of its depth-of-book data is analytically flawed and factually inconsistent with how exchanges work. Ordover and Bamberger assume a symmetrical demand relationship between order flow and depth-of-book data where none exists. Depth-of-book data prices do not affect the marginal incentive to place orders and, therefore, do not significantly affect order flow decisions. On the other hand, depth-of-book data revenue can be used to offset the costs of liquidity rebates and discounts that attract more order flow. Additional order flow increases the value of, and the prices that an exchange can charge for, its depth-of-book data.

In Section IV, I show that Ordover and Bamberger's "total return" analysis is based on the incorrect assumption that the price of depth-of-book data is part of the marginal cost faced by broker-dealers in making trading decisions. Even if one were to assume that depth-of-book data prices were one component of the "total price of trading" on a platform, that component does not affect the marginal incentives to

execute a trade. Because depth-of-book data prices are not part of the marginal cost of executing a trade, depth-of-book data prices are not constrained by inter-platform competition for orders. Further, even if depth-of-book data and trade execution services are "joint products" with "joint costs," the price of one does not necessarily constrain the price of the other because they are sold separately and face distinct competitive conditions.

II. PRICES FOR DEPTH-OF-BOOK DATA FROM ONE EXCHANGE ARE NOT SIGNIFICANTLY CONSTRAINED BY THE AVAILABILITY OF DEPTH-OF-BOOK DATA FROM OTHER EXCHANGES

Ordover and Bamberger claim that: "[E]ven though market information from one platform may not be a perfect substitute for market information from one or more other platforms, the existence of alternative sources of information can be expected to constrain the prices platforms charge for market data."[11]

Ordover and Bamberger provide no evidence to support their claim, other than asserting that they "understand" that "many 'professional' traders . . . view depth-of-book information from NYSE Arca and Nasdaq as reasonable substitutes because all depth-of-book products are effectively proxies for liquidity that would be available should the current NBBO change."[12] That assertion is contrary to what happens in the marketplace.

As an initial matter, Ordover and Bamberger's claim applies to depth-of-book data only from NYSE and Nasdaq. That is, even assuming Ordover and Bamberger

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[11] Statement, *supra* note 6, ¶ 38.

[12] Statement, *supra* note 6, ¶ 32.

were correct that the price of NYSE's depth-of-book data constrains Nasdaq's depth-of-book data prices, that would imply a duopoly over depth-of-book data. Except for special circumstances that Ordover and Bamberger have not identified or documented, duopolies do not have competitive prices. Indeed, the variety of prices for depth-of-book data indicates the lack of a market-clearing price that one would expect in a competitive market with significant substitution among products. Highest among depth-of-book data prices are those charged by Nasdaq and NYSE, reflecting their market power over their respective depth-of-book data products, while smaller trading venues have no choice but to charge little or nothing for their depth-of-book data.[13]

Moreover, Ordover and Bamberger present no empirical evidence to support their claim as to substitutability between NYSE and Nasdaq. They do not attempt to show, for example, that traders actually do substitute between depth-of-book data from NYSE and Nasdaq, and marketplace evidence is to the contrary.

While depth-of-book data from NYSE and from Nasdaq both provide information about liquidity if the price of a security changes from the NBBO, NYSE's and Nasdaq's respective depth-of-book data reflect liquidity of different magnitudes and quality. Although Ordover and Bamberger assert that Nasdaq's and NYSE's depth-of-book data are "proxies" for each other, that assertion is contradicted by differences in the quantity and quality of liquidity across equities and

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[13] The SEC cited evidence in its Proposed Order that suggested that small trading venues may have difficulties getting distribution of their market data in the absence of display rules governing the distribution of consolidated data. *See* Proposed Order, *supra* note 4, at 32,764 n.195 (citing Larry Harris, *Trading and Exchanges, Market Microstructure for Practitioners* 99 (2003)).

by their own evidence of the volatility of the exchanges' shares of trading volume.[14] If, as Ordover and Bamberger suggest, trading volume in NYSE-listed and Nasdaq-listed stocks constantly shifts, one exchange's depth-of-book data will not provide a reliable proxy for the other's data, which may reflect significantly different liquidity as a result of volatile competition for order flow.[15]

The Security Traders Association ("STA") observes that, as a matter of marketplace reality, a broker-dealer needs the depth-of-book data feeds from each significant venue on which a given security trades for a useful perspective of available liquidity:

> We do not believe that the depth-of-book feeds from the various exchanges are fungible. Depth-of-book feeds are not substitutes for one another: NASDAQ's depth-of-book data for IBM will be different from the NYSE depth-of-book data for IBM. On the contrary, each depth-of-book data feed reflects the market conditions for a particular security on that particular venue. For a full appreciation of the liquidity available in the entire marketplace . . . as a commercial and competitive matter, a broker-dealer needs the depth-of-book feeds from each significant venue on which the security trades.[16]

Moreover, as I explained in my previous report, a market professional's need for information about a particular security can be satisfied only by data about that particular security. For example, market information about the market depth of the

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[14] Statement, *supra* note 6, ¶¶ 10-12.

[15] For example, NYSE Euronext touts itself as the "the dominant source of liquidity in NYSE-listed securities, especially in thinly traded issues" with "more volume than NASDAQ in 99.4% of NYSE-listed stocks." NYSE Euronext Press Release *supra* note 2. A customer interested in assessing the liquidity and market depth of stocks listed on the New York Stock Exchange therefore could not satisfy that interest by purchasing only Nasdaq's depth-of-book data.

[16] Bart M. Green & John Giesea, STA Comment Letter at 3 (Sept. 11, 2008), http://www.sec.gov/comments/34-57917/3457917-15.pdf. [hereinafter "STA Comment Letter"].

securities of Microsoft would not be useful to a trader seeking to determine the market depth of IBM securities. Ordover and Bamberger, however, do not address the broad variations in the liquidity of individual securities across exchanges. Nor do they explain how one set of depth-of-book data for all securities on one exchange could be reasonably substitutable for depth-of-book data for all securities on another exchange.

In sum, Ordover and Bamberger provide no meaningful evidence to demonstrate that the depth-of-book data from other trading venues significantly constrain the pricing of depth-of-book data from NYSE or Nasdaq. In my previous submission, I demonstrated that the other three supposedly alternative sources of depth-of-book data identified by the Proposed Order (NYSE's own consolidated data; "pinging" the various markets by routing oversized marketable limit orders; and the threat of independent distribution of depth-of-book data by securities firms and data vendors) are not material substitutes for an exchange's depth-of-book data.[17]

I thus conclude that no reasonably substitutable alternatives to NYSE's depth-of-book data are available to act as the "significant competitive forces" that the Proposed Order required to presume that the proposed NYSE prices are "equitable, fair, reasonable, and not unreasonably discriminatory."[18]

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[17] Report, *supra* note 5, Section II.

[18] Proposed Order, *supra* note 4, at 32,751.

III. PRICES FOR DEPTH-OF-BOOK DATA ARE NOT SIGNIFICANTLY CONSTRAINED BY COMPETITION FOR ORDER FLOW

In my previous submission, I demonstrated that competition for order flow does not significantly constrain an exchange's market power over depth-of-book data—that order flow and market data are *not* "two sides of the same coin."[19] Without addressing my analysis, Ordover and Bamberger reach the opposite conclusion, claiming that competition for attracting liquidity and trading constrains prices for depth-of-book data.[20] They rely on two propositions. First, Ordover and Bamberger state that "a trading platform cannot generate market information unless it receives trade orders."[21] Second, they assert that, "[f]or this reason, a platform can be expected to use its market data product as a tool for attracting liquidity and trading to its exchange."[22]

Ordover and Bamberger provide no economic analysis or evidence as to why the second proposition should follow from the first. In economic terms, Ordover and Bamberger are asserting that a change in the price of depth-of-book data would have a similar impact on demand for order flow as a change in the price of order flow would have on the demand for depth-of-book data. That symmetrical and reciprocal relationship does not, in fact, exist.

The following propositions demonstrate that the relationship between the demand for depth-of-book data and the demand for order flow is asymmetrical.

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[19] Report, *supra* note 5, Section III.

[20] *See, e.g.*, Statement, *supra* note 6, ¶ 6 ("In Section II, we show that competition between trading platforms constrains the price of market data sold by each platform.").

[21] Statement, *supra* note 6, ¶ 38.

[22] Statement, *supra* note 6, ¶ 38.

(1) *The input relationship between order flow and depth-of-book data is asymmetrical.* The price of depth-of-book data is at most only one of many factors considered in placing trades. NYSE has itself explained that "[t]he markets base competition for order flow on such things as technology, customer service, transactions costs, ease of access, liquidity, and transparency."[23] Changing the price of only depth-of-book data is thus unlikely to have a significant effect on the demand for transactions.

Market data are also used for purposes other than trading and, in that regard, are not an input to order flow at all. As Ordover and Bamberger explain, market data are "useful in a number of ways" that do not involve trading, including "valuing securities and portfolios," "evaluating the performance of a broker or trader," or obtaining a "barometer of market sentiment."[24] They acknowledge that market data are useful to "firms that act as intermediaries between trading platforms and the public but do not trade themselves," such as Google and Yahoo![25] For customers purchasing depth-of-book data and not placing trades on an exchange, the depth-of-book data price thus stands entirely on its own.

In contrast, order flow is the sole input for generating and increasing the value of depth-of-book data. Indeed, depth-of-book data are a byproduct of order flow. Without order flow, depth-of-book data would not exist.

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[23] Proposed Order, *supra* note 4, at 32,764 n.193 (citing Letter from Mary Yeager, Corporate Secretary, NYSE Arca, to the Honorable Christopher Cox, Chairman, Commission, dated February 6, 2007, at 16).

[24] Statement, *supra* note 6, ¶¶ 20-21.

[25] Statement, *supra* note 6, ¶ 20 n.21.

(2) *The effects of changes in prices of trading on the demand for depth-of-book data, and vice versa, are also asymmetrical.* Depth-of-book data are priced and sold separately from trade execution services. Depth-of-book data are sold in monthly subscriptions and are typically based on a fixed monthly fee per device.[26] That fixed subscription fee is independent of the amount of orders generated by the subscriber and is not expressed as part of, or affected by, trade execution services.

An exchange charges subscribers the same per-device fee whether or not they place orders on the exchange. Indeed, as the SEC recognizes, an exchange may not "unreasonably discriminate among types of subscribers, such as by favoring participants in the NYSE Arca market or penalizing participants in other markets."[27] In addition, each monthly subscription provides data on all securities traded on an exchange, and customers are charged the same price whether or not they examine the depth-of-book data for one security, all securities, or some number in between.

In contrast, each trade is executed with respect to an individual security, and exchanges charge fees (with separate discounts and rebates for trade execution services) that are separate from depth-of-book data subscription fees. The trade execution fees are determined on a transactional basis and are designed specifically to affect trading incentives and attract liquidity. Those transaction-based fees for order flow allow traders to assess the costs and benefits of placing a given trade for a given security on a given venue and thus affect traders' marginal incentives to direct order flow among exchanges.

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[26] In addition, there may be a cap on the total monthly data fees paid by each company. There may also be per-company fees for access to the datafeeds from the exchange's servers. SEC Release No. 34-53592, *supra* note 3, at 33,496-33,497.

[27] Proposed Order, *supra* note 4, at 32,768.

An increase or decrease in the monthly subscription fee for depth-of-book data, however, does not change a trader's marginal cost to purchase or sell a particular security on a particular exchange. That is, in choosing where to place the next trade, an entity would not consider the cost of the subscription fee. Likewise, in setting the depth-of-book monthly subscription fee, the exchange would consider the effect of that fee on the marginal incentive to subscribe to depth-of-book data, but not on the marginal incentive to trade generally or for a particular security.[28]

(3) *The asymmetrical relationship between the demand for order flow and depth-of-book data is illustrated by considering the consequence of a small but significant price increase for each product.*[29] A five percent increase in the monthly subscription fee for depth-of-book data would not have any material effect on the demand for order flow for two reasons. First, as noted above, the increase in the price of depth-of book data would have no effect on the price of, and therefore the marginal demand for, order flow. Second, as also noted above, depth-of-book data are just one of many inputs into the demand for order flow.

On the other hand, a five percent increase in the price of transactions might well have a material effect on order flow and thus on the demand for depth-of-book data. If increasing the price of transactions would reduce the amount of orders, it would thereby reduce the amount of, and value of, depth-of-book data. In such a

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[28] My position here and in my prior Report does not assume that no relationship whatsoever exists between the pricing of depth-of-book data and the volume of order flow. Even if some traders may deem an exchange to be a non-viable trading venue if it declines to make depth-of-book data available at all (or at an extremely high price), the level of depth-of-book data pricing within a range that includes the exercise of significant market power will not affect traders' marginal incentives as to where to place their next buy or sell order.

[29] A price increase of approximately five percent is generally viewed as small but significant. *See* U.S. Dep't of Justice and Fed. Trade Comm'n, Horizontal Merger Guidelines §1.11 (Rev. 1997).

case, the willingness of customers to pay for depth-of-book data would decline, especially if those data reflected a significant reduction in liquidity.

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Ordover and Bamberger, and the Proposed Order, have ignored the asymmetry discussed above and thus have erred in their assessment as to whether an exchange can exercise market power over depth-of-book data. Although Ordover and Bamberger recognize that depth-of-book data are a direct byproduct of order flow,[30] they do not explore the important implication of that byproduct relationship.

That relationship indicates that competition for order flow will not constrain an exchange's depth-of-book data prices and may serve to increase them. Lower order flow prices generally will increase order flow, which, in turn, will increase the value of depth-of-book data. That is, by attracting additional order flow, an exchange will not only gain the transaction fees associated with the order flow, it will also increase the amount it can charge for its depth-of-book data.

Increased depth-of-book revenue can be used to offset the costs of liquidity rebates and discounts that attract order flow. Indeed, the STA observes that "raising the market data fees would enable [the exchanges] to pay higher rebates and thus, attract more order flow."[31] We see that observation empirically verified in the case of consolidated tape data. Trading venues use revenue from consolidated tape data to compete for order flow. As Nasdaq states: "Participants in the UTP Plan have used

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[30] Statement, *supra* note 6, ¶¶ 7 & 17.

[31] STA Comment Letter, *supra* note 16, at 3.

tape fee revenues to establish payment for order flow arrangements with their members and customers."[32]

The economically rational strategy for exchanges, given the asymmetrical relationship of order flow and depth-of-book data, is thus to set lower prices for order flow, which has the effect of increasing the value of, and the prices the exchanges can charge for, their depth-of-book data.

IV. PRICES FOR DEPTH-OF-BOOK DATA ARE NOT SIGNIFICANTLY CONSTRAINED BY INTER-PLATFORM COMPETITION

Ordover and Bamberger focus on the "total return" or "aggregate return" that a platform receives from trade execution services and depth-of-book and other market data.[33] They claim that the "total price of trading" on a platform is constrained by the total price of trading on alternative platforms.[34] Ordover and Bamberger include in the price of trading the prices of (at least) market data and trade execution.[35] Ordover and Bamberger thus appear to argue that, even if an exchange charges relatively high prices for market data, inter-platform competition will cause those market data prices to be effectively offset by relatively low prices for other products or services offered by the exchange, such as providing access to liquidity.[36]

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[32] Nasdaq Stock Market, Inc., Annual Report (Form 10-K), at 17 (Feb. 25, 2008).
[33] Statement, *supra* note 6, ¶ 7.
[34] Statement, *supra* note 6, ¶ 23.
[35] Statement, *supra* note 6, ¶ 23 & nn.23-24.
[36] Statement, *supra* note 6, ¶¶ 7-8, 23 & nn.23-24.

Even if one assumes that depth-of-book data prices are a component of the "total price of trading," as discussed in the previous section, that component does not affect the marginal incentives of a broker-dealer to execute a trade. On the other hand, transaction fees can and do affect order flow decisions. Thus, while inter-platform competition for trading may constrain the prices of trade execution services, it does not significantly constrain depth-of-book data fees.

Ordover and Bamberger further attempt to advance their "total return" argument by characterizing trade execution services and market data as "joint products" with "joint costs" and by asserting that trading platform competition will necessarily constrain the total return from those joint products.[37] To the contrary, where two "joint products" of the same facility are sold separately—as trade execution services and depth-of-book data are—the pricing of each product is determined by the distinct competitive conditions that each product confronts.

A classic example of joint products with joint costs is the production of wool and mutton. Wool and mutton are joint products of a sheep, and many of the costs of producing both products (*i.e.*, the care, feeding, and handling of the sheep) are the same. However, the demand conditions for wool could be independent of those for mutton.

Suppose, for example, that market conditions are such that only one firm can produce desirable wool (because its sheep have much better wool than its competitors' sheep), while many firms can produce desirable mutton (because the

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[37] Statement, *supra* note 6, ¶ 7 ("Competition among trading platforms can be expected to constrain the aggregate return each platform earns from its sale of joint products . . . .").

mutton from all sheep is perfectly substitutable). Under those conditions, the competition to produce mutton, however intense it might be, will not significantly constrain the monopoly wool producer's pricing of wool. If other firms cannot produce wool of satisfactory quality, the monopoly wool producer will face no competition in the pricing of wool, even as the pricing of mutton faces intense competition. Of course, that is unlikely to be the case for sheep farmers—our point is only that the existence of joint costs/joint products does not ensure a particular competitive outcome in either product market.

In the case of trading venues, competition for order flow does not significantly constrain depth-of-book data pricing simply because they are viewed as joint products. Regardless of competitive conditions for trade execution, an exchange can charge supracompetitive prices for depth-of-book data if the exchange does not face significant competitive constraints in the sale of such data and such data have value by reflecting substantial liquidity. As demonstrated in my previous report and Sections II and III above, that is the case here.

V. CONCLUSION

As explained above, Ordover and Bamberger's unsupported assertion that supposedly alternative sources of depth-of-book data act as a competitive constraint on an exchange's depth-of-book data is contradicted by empirical evidence. Data from different trading venues are not meaningfully substitutable. Exchanges with significant liquidity thus may charge prices for depth-of-book data that would exceed competitive levels.

In addition, Ordover and Bamberger's claim that competition for order flow acts as a significant competitive constraint on an exchange's pricing of its depth-of-book data incorrectly assumes a symmetrical and reciprocal relationship between the demand for, and the pricing of, order flow and depth-of-book data. In fact, their relationship is asymmetrical and results in an incentive to charge lower order flow prices and higher depth-of-book data prices.

Finally, Ordover and Bamberger's assertion that depth-of-book data prices are constrained by inter-platform competition for trading incorrectly assumes that the cost of depth-of-book data is part of the marginal cost of trading. In fact, depth-of-book data prices do not affect broker-dealers' marginal incentives to place trades. Nor does labeling depth-of-book data and trade execution services as "joint products" with "joint costs" make one a constraint on the pricing of the other. Each must be assessed in light of the individual competitive conditions that it confronts. Here, the lack of reasonably interchangeable sources of depth-of-book data provides exchanges with significant market power over the pricing of those data.

I conclude by reiterating the main propositions from my prior Report:

- NYSE likely has significant market power over the pricing of its depth-of-book market data;
- the supposedly alternative sources of depth-of-book data that the Proposed Order identifies would not significantly constrain market power over depth-of-book data; and
- competition for order flow would not prevent the exercise of significant market power over depth-of-book data.