



July 10, 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 on the Commission's proposed order (the "Proposed Order") approving the proposal by NYSEArca, Inc. (the "Exchange") to establish fees for its ArcaBook depth-of-book market data product.

In that regard, we requested Dr. David S. Evans, Chair of LECG, LLC's Global Competition Policy Practice, to conduct an economic assessment of the Commission's analysis and conclusion that "significant competitive forces" constrain the pricing of the Exchange's depth-of-book market data. For purposes of his analysis, Dr. Evans assumed for the sake of argument that the Commission's market-based standard for assessing the Exchange's proposal is correct.

Dr. Evans concludes in his Report, which we submit herewith, that the Commission's application of its own standard is flawed and that the terms of the ArcaBook proposal are not constrained by significant competitive forces. On the contrary, the economics and evidence indicate that:

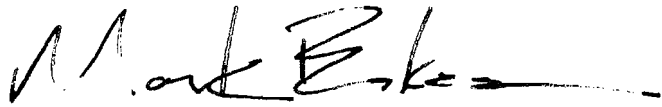
- the Exchange likely has significant market power over the pricing of its depth-of-book market data;
- the availability of the alternative sources of depth-of-book data that the SEC identifies would not constrain that market power; and
- competition for order flow would not constrain that market power.

We respectfully submit, for the reasons in Dr. Evans' report, that the Commission's determination that significant competitive forces constrain the Exchange's pricing of its ArcaBook data product is not supported by the analysis and evidence the Commission

presents. Even under the Commission's new market-based standard of review, the ArcaBook proposal should be rejected given the Exchange's failure to provide a substantial basis, other than competitive forces, that demonstrates that the Exchanges' proposal is equitable, fair, reasonable, and not unreasonably discriminatory.

Accordingly, the Commission's Proposed Order is not supported by substantial evidence. In addition, as Dr. Evans' Report demonstrates, the Commission failed to consider important evidence in light of prevailing economic principles. For those reasons, if the Proposed Order is issued, it would be arbitrary and capricious and contrary to law, and thus reversible by a United States Court of Appeals.

Respectfully submitted,



Markham C. Erickson  
Executive Director and General Counsel

Enclosure

cc: The Hon. Christopher Cox, Chairman  
The Hon. Paul S. Atkins, Commissioner  
The Hon. Kathleen L. Casey, Commissioner  
The Hon. Luis A. Aguilar, Commissioner  
The Hon. Troy A. Paredes, Commissioner  
The Hon. Elisse B. Walter, 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

**AN ECONOMIC ASSESSMENT OF WHETHER  
“SIGNIFICANT COMPETITIVE FORCES”  
CONSTRAIN AN EXCHANGE’S PRICING OF ITS  
DEPTH-OF-BOOK MARKET DATA**

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Visiting Professor**

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Lecturer**

**July 10, 2008**

## I. INTRODUCTION<sup>1</sup>

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

In the Proposed Order, the SEC describes what it calls a “market-based” approach to its oversight of depth-of-book data pricing and other terms.<sup>4</sup> The SEC bases its analysis on whether the exchange is subject to “significant competitive forces”<sup>5</sup> in setting the terms, including any applicable fees, of its proposal for unconsolidated data. If it believes the answer is yes, then the SEC will approve the proposal unless it determines there is a “substantial countervailing basis to find that the terms nevertheless fail to meet an applicable requirement of the Exchange Act or the rules thereunder.”<sup>6</sup> If it believes that the answer is no, then the SEC will require the exchange to provide “a substantial basis, other than competitive forces, in its proposed rule change demonstrating that the terms of the proposal are equitable, fair, reasonable, and not unreasonably discriminatory.”<sup>7</sup>

Based on this framework, the SEC presents its preliminary findings with respect to the Exchange’s Proposal. The SEC concludes that “[a]t least two broad types of significant competitive forces applied to NYSE Arca in setting the terms of

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<sup>1</sup> This Report was prepared at the request of NetCoalition.

<sup>2</sup> Filing of Proposed Rule Change Relating to Approval of Market Data Fees for NYSE Arca Data, SEC Release No. 34-53952, 71 FR 33496 (June 9, 2006). As I discuss below, for the purpose of analyzing competition among exchanges, all exchanges owned by the same corporate parent should be aggregated because they are controlled by the same economic agent, which seeks to maximize the profits of the combined operations. Thus, for purposes of economic analysis, NYSE Arca and NYSE should be considered a single entity, NYSE Group.

<sup>3</sup> Proposed Order Approving Proposal by NYSEArca, Inc. to Establish Fees for Certain Market Data and Request for Comment, SEC Release No. 34-57917, 73 Fed. Reg. 32751 (June 4, 2008) [hereinafter “Proposed Order”].

<sup>4</sup> *Id.* at 32761.

<sup>5</sup> *Id.* at 32762. For the purposes of this Report, I am assuming as correct the standard that is specified in the Proposed Order—that proposed terms for the sale of depth-of-book data are “equitable, fair, reasonable, and not unreasonably discriminatory” if those terms are subject to “significant competitive forces.” In particular, I am not addressing whether depth-of-book data necessarily constitute a relevant antitrust market but am addressing only whether “significant competitive forces” would necessarily constrain the setting of depth-of-book fees by the exchanges and thereby prevent the exercise of market power over those fees.

<sup>6</sup> *Id.*

<sup>7</sup> *Id.*

its Proposal.”<sup>8</sup> One source of competitive constraint claimed by the SEC is the availability of alternatives to an exchange’s depth-of-book data. The other source is competition for order flow among trading venues, including exchanges, electronic communication networks (ECNs) and alternative trading systems (ATSS).

This Report examines whether the SEC’s conclusion is sound as a matter of economics and whether it is supported by the evidence the SEC presents. I have been asked to assume that the SEC is correct that competition exists for order flow and to address the question of whether that assumed competition would preclude an exchange from exercising significant market power over the pricing of depth-of-book market data.<sup>9</sup>

I find that the SEC’s preliminary conclusion regarding the existence of significant competitive constraints on the Exchange’s pricing of depth-of-book data is not supported by the analysis and evidence that the SEC presents. On the contrary, the economics and evidence indicate that:

- the Exchange 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 SEC identifies would not constrain that market power; and
- competition for order flow would not constrain that market power.

The remainder of this Report is organized as follows. Section II explains the flaws in the SEC’s conclusion that economically significant alternatives to an exchange’s depth-of-book data exist and that such alternatives constrain the exchange’s pricing of its depth-of-book data. Section III explains the flaws in both

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<sup>8</sup> *Id.* at 32763.

<sup>9</sup> Market power refers to the ability to charge a price that exceeds the price that would be charged under competitive conditions. See DENNIS W. CARLTON & JEFFREY M. PERLOFF, *MODERN INDUSTRIAL ORGANIZATION* 642 (4<sup>th</sup> ed. 2005). Since most firms have some limited market power, economists typically focus on significant market power. Under the *Horizontal Merger Guidelines*, the ability to raise price above the competitive level by 5-10 percent for a sustained period of time is considered significant market power. See U.S. DEP’T. OF JUSTICE AND THE FED. TRADE COMM’N, *HORIZONTAL MERGER GUIDELINES* (1992, Revised 1997).

the SEC's premise and conclusion that competition for order flow constrains the pricing of depth-of-book data. Section IV concludes.

**II. THE ALTERNATIVES IDENTIFIED BY THE SEC DO NOT SIGNIFICANTLY CONSTRAIN THE PRICING OF AN EXCHANGE'S DEPTH-OF-BOOK DATA AND ARE NOT SUBSTITUTES.**

The SEC concludes that alternative sources of information “impose significant competitive pressures on an exchange in setting fees for its depth-of-book order data.”<sup>10</sup> It identifies four categories of data that are supposedly alternatives that constrain an exchange in pricing its depth-of-book data:

1. depth-of-book data from other trading venues;
2. the exchange's own consolidated data;
3. “pinging” the various markets by routing oversized marketable limit orders; and
4. the threat of independent distribution of depth-of-book data by securities firms and data vendors.<sup>11</sup>

**A. The SEC Does Not Adequately Support Its Claims of Alternative Products.**

The SEC does not present any evidence to support its claim that the four alternatives that it identifies are in fact economic substitutes for depth-of-book data that would constrain an exchange's pricing of that data. Ordinarily, an analysis of whether two products are substitutes for each other would consider whether consumers would readily switch between products in response to changes in relative prices. The SEC provides no evidence that any of the alternative sources of data it mentions are treated as substitutes by market participants, allow market participants

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<sup>10</sup> Proposed Order, *supra* note 3, at 32766.

<sup>11</sup> *Id.* at 32765.

to achieve the same objective, or have similar costs. The SEC simply lists alternatives and asserts that they are substitutes. That is not enough.

Common and well-accepted methods are used to determine whether products are sufficiently close substitutes such that an increase in the price of one product would lead consumers to substitute another product and thereby make that price increase unprofitable. A basic inquiry is whether products serve the same purpose from the standpoint of the customer. If a consumer were considering the substitutes for a BMW, she probably would not consider a bicycle as a substitute because, for virtually all uses, a BMW and a bicycle do not serve the same purposes in a reasonably interchangeable way. Even within the category of automobiles, low-end automobiles such as Kias may not be substitutes for high-end cars such as BMWs because potential buyers of BMWs would not usually consider a Kia as a reasonably substitutable alternative to a BMW.

As an alternative to the principle of reasonable interchangeability, the SSNIP (small but significant non-transitory increase in price) test is commonly used by the U.S. Department of Justice, the Federal Trade Commission, the European Commission, and many other competition authorities to identify which products are sufficiently close substitutes so as to constrain the exercise of market power.<sup>12</sup> The SSNIP test poses the hypothetical question of whether a producer could profitably increase the price of a product or group of products by 5-10 percent above the competitive level. If it is possible, then that product or group of products constitutes a market and products outside that market are not sufficiently strong substitutes to defeat an attempted price increase. If it is not possible, then other products must provide good enough substitutes and should be included in the market as competitive forces that constrain the exercise of market power.

The SEC neither purports to define a relevant market nor presents any evidence that demonstrates that its proffered alternatives to an exchange's depth-of-book data are reasonably interchangeable with such data or would constrain the

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<sup>12</sup> EINER ELHAUGE & DAMIEN GERADIN, GLOBAL COMPETITION LAW AND ECONOMICS 287-288 (2007).

pricing of such data under the SSNIP (or any other) test. As I discuss next, none of those alternatives is likely a significant constraint on the exchanges' pricing of depth-of-book data.

**B. The Alternative Sources of Depth-of-Book Data Identified by the SEC Are Likely Not Substitutes for an Exchange's Depth-of-Book Data.**

The purpose of assessing whether substitutes exist for NYSE Arca (or any other exchange's) depth-of-book data is to identify products that will act as competitive constraints if the Exchange attempts to exercise market power in its pricing of depth-of-book data. The relevant substitutes must therefore come from independent competitors that set prices independently of the Exchange. If another potential source of depth-of-book data is controlled by the same corporate entity, that product does not provide an effective competitive constraint—the corporate entity's profit-maximizing incentive is to coordinate the pricing of both products, not to use one to compete with the other.<sup>13</sup>

For the purposes of analyzing market power over depth-of-book data, the combined share of NYSE and NYSE Arca is relevant, not their respective individual shares. The pricing of depth-of-book data for both NYSE and NYSE Arca are controlled by the same corporate entity, NYSE Group. To the extent that, hypothetically, a price increase in NYSE Arca's depth-of-book data results in shifts to purchases of NYSE's depth-of-book data, those are revenues that are retained by the same corporate entity.

The SEC observes that NYSE and NYSE Arca “operate as separate trading centers with separate limit order books, and each distributes its depth-of-book order data separately for separate fees.”<sup>14</sup> That is beside the point. Even if NYSE and

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<sup>13</sup> For that reason, related corporate entities are treated as a single economic actor for antitrust purposes. *Cf. Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752, 769-72 (1984). In *Copperweld*, the Supreme Court rightly observed that, where entities are not “separate economic actors pursuing separate economic interests,” they should be considered “a single actor” on the marketplace. *Id.* at 769-70. The Court further stated that “there can be little doubt that the operations of a corporate enterprise organized into divisions must be judged as the conduct of a single actor. . . . A division within a corporate structure pursues the common interests of the whole, rather than interests separate from those of the corporation itself.” *Id.* at 770.

<sup>14</sup> Proposed Order, *supra* note 3, at 32763, n.184.



NYSE Arca are operated as separate exchanges, the same corporate entity controls and profits from both exchanges and will coordinate the pricing of the two. Aggregating the shares of distinct products sold by the same firm is the routine practice in merger review and in the antitrust case law.

I now consider the four data sources that the SEC claims are alternatives that significantly constrain the pricing of an exchange's depth-of-book data.

### 1. Depth-of-book data from other trading venues

The SEC first asserts that depth-of-book data from other trading venues constrain the Exchange's pricing of its own depth-of-book data. At the outset, we note that each exchange's depth-of-book data are unique to that exchange. Depth-of-book data from NYSE, for example, reflect different orders from depth-of-book data from Nasdaq or BATS or Direct Edge. To have a reasonably comprehensive picture of liquidity below the top of the book, depth-of-book data from all exchanges with substantial trading are required. That proposition underlies the rules and regulations that have led to the consolidated tape—*i.e.*, the requirement that all trading venues contribute their data so that the national-best-bid-and-offer and the last-transaction data can be compiled and displayed to the investment community.

In addition, depth-of-book data from different trading venues reflect liquidity of substantially different magnitudes and quality. Nasdaq and NYSE Group, for example, operate by far the leading exchanges for trading in U.S.-listed equities. Based on the statistics reported by the SEC for December 2007, NYSE accounts for 22.6 percent of all trading volume and NYSE Arca accounts for 15.4 percent. Thus, the NYSE Group accounts for 38.0 percent of all trading volume.<sup>15</sup> Nasdaq accounts for 29.1 percent of all trading volume.<sup>16</sup> NYSE Group and Nasdaq control the only

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<sup>15</sup> *Id.* at 32763 (Table 1). NYSE is in the process of acquiring the American Stock Exchange, which accounts for a further 0.8 percent. Press Release, NYSE Euronext, NYSE Euronext to Acquire the American Stock Exchange (Jan. 18, 2008), available at <http://www.nyse.com/press/1200568235016.html>.

<sup>16</sup> *Id.* at 32763 (Table 1). Nasdaq has also announced the pending acquisition of the Philadelphia Stock Exchange, which accounts for a further 0.1 percent. See Press Release, NASDAQ, NASDAQ to Acquire Philadelphia Stock Exchange (Nov. 7, 2007), available at <http://www.nasdaq.com/newsroom/news/newsroomnewsStory.aspx?textpath=pr2007\ACQPMZ200711070730PRIMZONEFULLFEED130788.htm&year=11/07/2007%20+7%3a30AM>.

trading venues of any significant size. While there are smaller trading venues—primarily BATS and Direct Edge—they account for substantially less trading volume.

In analyzing market power over depth-of-book data, it is important to recognize that the depth-of-book data for a given stock are unique. The depth-of-book data on trading in AT&T are distinct from the depth-of-book data on trading in Google. A trader interested in trading AT&T stock needs data on AT&T trading—if one exchange has a significant share of trading in AT&T, data from another exchange that has a significant share of trading in Google is not directly pertinent to the AT&T investment decision.

The dominance of NYSE Group and Nasdaq in pertinent liquidity is even more apparent when we consider separately trading in NYSE-listed and Nasdaq-listed stocks. For trading in NYSE-listed stocks in December 2007, NYSE Group exchanges had a 53.6 percent share and Nasdaq had a 18.4 share.<sup>17</sup> By contrast, the SEC reported shares for BATS of 5.1 percent and for Direct Edge of 3.0 percent for trading in NYSE-listed stocks.<sup>18</sup> For trading in Nasdaq-listed stocks in December 2007, Nasdaq had a 45.4 percent share and NYSE Group had a 14.8 percent share.<sup>19</sup> By contrast, the SEC reported shares for BATS of 7.9 percent and for Direct Edge of 6.9 percent.<sup>20</sup>

A broker-dealer interested in depth-of-book data is unlikely to ignore the depth-of-book data available from the leading trading venues. The value of the depth-of-book data from trading venues that have a significant share of trading volume in a significant group of securities is higher than the value of depth-of-book data from a trading venue that does not have such a share.

The availability of data from other trading venues therefore does not effectively constrain the prices that significant venues can charge. This finding is

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<sup>17</sup> I have used the same source and time period for these shares as reported by the SEC. See ArcaVision, available at <http://www.arcavision.com>. NYSE had a share of 41.2% while NYSE Arca had a share of 12.4%.

<sup>18</sup> Proposed Order, *supra* note 3, at 32763.

<sup>19</sup> See ArcaVision, available at <http://www.arcavision.com>. NYSE does not offer trading of Nasdaq-listed stocks.

<sup>20</sup> Proposed Order, *supra* note 3, at 32763.

confirmed by the asymmetry that the SEC acknowledges in the pricing of depth-of-book data by different trading venues.<sup>21</sup> Venues without significant liquidity in a substantial number of securities may have difficulty charging significant (or any) prices for their market data and may have difficulty getting their market data distributed (in the absence of regulatory requirements) while venues with significant liquidity—NYSE Group and Nasdaq—can and do charge significant prices for their data as I discuss further below.

## 2. Consolidated data

The SEC's second claimed alternative is consolidated data. The consolidated data consist of the national best bid and offer for a stock and the last sale for a stock reported in any market.<sup>22</sup> Depth-of-book data, however, reflect liquidity *below the top-of-book* that is different from, and in addition to, the liquidity reflected by consolidated data. As NYSE Arca explains:

Now more than ever, in order to see and estimate true market liquidity, you need to look beyond just the top of book price. When comparing all available liquidity at the inside to ArcaBook, you'll see that within five cents of the NBBO, ArcaBook data may provide six times more liquidity than is offered by all market centers' top of book at the market inside.<sup>23</sup>

The customers that purchase depth-of-book data are those that need the significant additional information on liquidity provided by depth-of-book data.<sup>24</sup> No rational purchaser would pay significant fees in excess of the fees that he or she pays for consolidated data to acquire depth-of-book data if the two were good substitutes.

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<sup>21</sup> *Id.* at 32769; *see also* Section III for a discussion of this issue.

<sup>22</sup> *Id.* at 32770.

<sup>23</sup> *See* ArcaBook: Speed, Depth and Value at a Competitive Price, *available at* <http://www.nyxdata.com/nysedata/DesktopModules/Bring2mind/DMX/Download.aspx?PortalId=0&EntryId=6095>.

<sup>24</sup> The SEC also states that “only 19,000 professional users purchase Nasdaq’s depth-of-book data product and 420,000 professional users purchase core data in Nasdaq-listed stocks.” (As I discuss below, *see infra* note 41, this figure may understate the number of professional users of all of Nasdaq’s depth-of-book data products.) The SEC believes that this strongly suggests that no exchange has monopoly pricing power for its depth-of-book data because the substantial majority of professional users either do not believe they need the data or that the cost exceeds the value they place on the data. That is the wrong conclusion to draw. Monopolists commonly set prices to restrict output—the fact that a monopolist is selling only to a subset of potential customers is consistent with its having set prices above competitive levels so that only those that value its product highly will purchase the product.

If the price of depth-of-book data were increased, the consumers of those data would not increase their purchases of consolidated data since they already consume those data and the data do not reflect additional liquidity. Likewise, if the price of depth-of-book data were decreased, the consumers of those data would not likely purchase less consolidated data. Thus, consolidated and depth-of-book data are not economic substitutes and the former cannot constrain the pricing of the latter.

### 3. “Pinging”

“Pinging” orders are “oversized marketable limit orders [designed] to access an exchange’s total liquidity available at an order’s limit price or better.”<sup>25</sup> Pinging orders are used to expose liquidity that is hidden in reserve orders on an exchange. A pinging order will execute against any hidden liquidity, and thus reveal depth information that is not available from the exchange’s depth-of-book data. Pinging orders find liquidity that is not displayed. They do not gather information on depth-of-book data that are available for purchase.

The SEC asserts that the use of pinging may be expanded into a viable substitute for an exchange’s depth-of-book data. The SEC appears to argue that, because pinging orders extract data that are not available from the exchange’s depth-of-book data, and is superior in *that* respect, pinging can also serve as a substitute to the depth-of-book data. But the SEC has provided no evidence that pinging provides a viable alternative that would significantly constrain the pricing of depth-of-book data by the exchanges.

In fact, pinging does not appear capable of replicating an exchange’s depth-of-book data. First, pinging places limit orders that incur the risk of execution to gather the data. If the execution is not optimal, the trade can involve a cost greater than the market data.

Second, the information on liquidity returned from a pinging order is substantially different from the information provided by an exchange’s depth-of-

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<sup>25</sup> Proposed Order, *supra* note 3, at 32765.

book data. When a pinging order is executed, the execution reveals only that the number of shares specified in the order were available at the specified price. The executed order does not indicate whether more liquidity at that price was available or whether any liquidity beyond that price remains available.

Alternatively, when a pinging order is not executed, one knows only that the specifically requested liquidity at that price is not available. But that information does not indicate if a lesser amount of liquidity at or beyond that price is available.

Pinging is thus an inferior substitute, if a substitute at all, for depth-of-book data. Despite the SEC's suggestion, an increase in the price of depth-of-book data would not plausibly result in a significant increase in pinging, and a decrease in the price of depth-of-book data would not plausibly result in a significant decrease in pinging. The SEC has not presented any evidence to the contrary.

#### **4. Collaboration**

The SEC's claim that the threat of potential entry by a collaborative venture of securities firms currently imposes a significant competitive constraint on the Exchange's pricing of its depth-of-book data is speculative, implausible, and unsubstantiated.

The U.S. Department of Justice and the Federal Trade Commission's *Horizontal Merger Guidelines* require entry to be "timely, likely, and sufficient in its magnitude, character and scope to deter or counteract" attempts to exercise market power.<sup>26</sup> To be timely, entry needs to take place within two years.<sup>27</sup> To be likely, entry needs to be profitable at competitive prices.<sup>28</sup> And to be sufficient, entry needs to deter or counteract the exercise of market power.<sup>29</sup>

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<sup>26</sup> U.S. DEP'T. OF JUSTICE AND THE FED. TRADE COMM'N., HORIZONTAL MERGER GUIDELINES § 3.0 (1992, Revised 1997).

<sup>27</sup> *Id.* § 3.2.

<sup>28</sup> *Id.* § 3.3. Specifically, the *Horizontal Merger Guidelines* use profitability at pre-merger prices as the relevant standard.

<sup>29</sup> *Id.* § 3.4.

The SEC has provided no evidence that the threat of entry by a collaborative effort is timely, likely or sufficient so as to impose a current competitive constraint on the Exchange's pricing of depth-of-book data. In fact, securities firms almost certainly could not successfully collaborate in a timely and sufficient manner so as to impose a significant constraint on the ability of the Exchange to exercise market power over its depth-of-book data.

Consider the hurdles and expense that the securities firms would face to provide complete depth-of-book data through collaboration. To provide such depth-of-book data, hundreds of securities firms would have to come together, agree to join a collaborative effort, and provide the depth-of-book data on a timely basis. To form a collaborative enterprise, one or more securities firms would have to act as entrepreneurs to organize their direct competitors, enlist still other securities firms in the venture, establish governance and voting structures, and form an on-going joint venture that compiles and distributes comprehensive data on a timely basis. The organizational costs of doing so are likely prohibitive.

The competing firms, which are diverse, would also have to agree how to split the costs and revenues associated with supplying the depth-of-book data. The process of securing such an agreement on acceptable business terms would likely be time-consuming, challenging, and costly. Forming successful joint ventures of two firms is ordinarily difficult; forming one among hundreds of competitors would be more difficult by far. For example, the venture may fail if only one significant securities firm refuses to participate or if large securities firms, recognizing this, refuse to participate in the absence of receiving a disproportionate share of the net benefits. In addition, the joint venture would have to address the numerous regulatory issues associated with collaborations among direct competitors.<sup>30</sup>

Even if the large competitor collaboration could be formed, its product may be of a quality that is inferior to that of the exchanges. To serve as an economically relevant substitute for depth-of-book products, the hypothetical collaboration's

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<sup>30</sup> See, e.g., U.S. DEP'T. OF JUSTICE AND THE FED. TRADE COMM'N, *Antitrust Guidelines for Collaborations Among Competitors* (April 2000).

depth-of-book data must be substantially comprehensive across exchanges, which in turn would require virtually industry-wide participation. In the likely event that the hypothetical collaboration's depth-of-book product is not substantially comprehensive, its incomplete information on available liquidity may well not serve as a viable substitute for an exchange's complete offering.

Moreover, the exchange would have to believe that the collaborative effort could provide the depth-of-book data at such a price that the exchange would not be able to exercise market power. The collaborative venture, however, would face a significant cost disadvantage relative to the exchanges. The exchanges obtain the depth-of-book data for free as a byproduct of their being SROs. The collaborative venture would collect the depth-of-book data at a higher cost and less efficiently than the exchanges. The collaborative venture would therefore confront a higher cost structure with greater logistical challenges than those of an exchange and, as a result, would not likely impose a significant constraint on the Exchange's pricing of depth-of-book data.

#### **5. Summary on the availability of substitutes**

Competition authorities and courts consider the availability of only close substitutes—ones that consumers would, in fact, turn to in the face of a price increase—as constraints on the exercise of significant market power. The SEC's analysis ignores that established framework and asserts, with no economic or factual basis, that several alternatives are substitutes for the depth-of-book data. The SEC seems to further assume that any degree of substitution (*e.g.*, bicycles for cars as modes of transportation) can constrain market power without any consideration of whether the products at issue are reasonably interchangeable for the relevant end use or whether one can defeat a price increase of the other.

### **III. COMPETITION FOR ORDER FLOW DOES NOT SIGNIFICANTLY CONSTRAIN THE EXCHANGE'S DEPTH-OF-BOOK DATA PRICING.**

In this section, I consider whether competition for order flow significantly constrains the pricing of an exchange's depth-of-book data, the other supposed competitive constraint that the SEC has identified in the Proposed Order. The SEC has claimed that competition for order flow and the pricing of depth-of-book data are "two sides of the same coin" and, therefore, competition for order flow is a significant constraint on any market power the exchanges possess over depth-of-book data. Both the SEC's premise and its conclusion are wrong.

#### **A. The SEC's Premise that Order Flow and Depth-of-Book Data Are "Two Sides of the Same Coin" Is Wrong.**

The lynchpin of the SEC's argument is that order flow competition and depth-of-book data are "two sides of the same coin" insofar as a strong and direct relationship exists between the two. That is wrong. The relationship between the two is neither strong nor direct.

An exchange has at least three sources of revenue relevant to the Proposed Order: liquidity providers, liquidity takers, and depth-of-book market data purchasers. The provision and taking of liquidity generates order flow and constitutes the trading process. Market data are a byproduct of the trading process.

A strong and direct relationship exists between order flow and prices for liquidity providers and liquidity takers. Liquidity providers are given rebates and other incentives to provide liquidity to the exchanges; those price incentives directly affect the volume of liquidity provided. Liquidity takers are charged for using this liquidity; those fees directly affect the volume of liquidity taken.

Depth-of-book data, by contrast, are a byproduct of the process of providing and taking liquidity (*i.e.*, order flow). Depth-of-book data do not directly lead to order flow and they are not priced to encourage order flow. Rather, depth-of-book data pricing reflects the value of the information provided—that is, the extent of liquidity disclosed. Exchanges charge fixed fees for each person using the data



independent of the amount of orders generated by that individual. Firms responsible for high trading volume are charged the same as firms that use the data for research purposes and do not trade at all.<sup>31</sup> I explain these points in more detail below.

An exchange's *trading* platform depends on the participation of *traders*. Some trading participants provide liquidity to the exchange and other trading participants take liquidity. A trade takes place only when a party offering to buy or sell at a given price meets another party that is willing to take the other side of the trade at that price. (Traders may be both liquidity providers and liquidity takers at different times for different trades.) Liquidity providers and takers are not symmetric, however, in their importance to the platform. The providers of liquidity attract users of liquidity, as well as other providers of liquidity, all of which generate trading activity for the platform.

We therefore expect prices to favor the side that is more important—orders that provide liquidity.<sup>32</sup> And, in fact, we observe pricing practices that offer significant incentives for liquidity providers. NYSE and Nasdaq, for example, both pay rebates to liquidity providers. For NYSE, in 2007, liquidity rebates totaled \$626 million, in comparison with its net revenues of \$317 million from fees for trading and access to the trading platform.<sup>33</sup> For Nasdaq, in 2007, liquidity rebates totaled \$1,050 million, in comparison with its net revenues of \$322 million from fees for trading and access to the trading platform.<sup>34</sup>

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<sup>31</sup> Indeed, the Proposed Order suggests that charging differing prices for market data depending on the purchaser's placement of order flow may be unreasonably discriminatory. See Proposed Order, *supra* note 3, at 32762, 32768. Our point here, however, is that fees are currently structured in a manner that does not have a direct effect on order flow.

<sup>32</sup> Jean-Charles Rochet & Jean Tirole, *Two-Sided Markets: A Progress Report*, 37 RAND J. OF ECON. 645 (2006).

<sup>33</sup> NYSE Euronext, Annual Report (Form 10-K) (March 25, 2008). Gross revenues for NYSE Group in the United States related to cash trading were \$1,165 million in 2007, with net revenues of \$317 million after \$626 million in liquidity rebates (including payments to specialists) and \$222 million in routing and clearing fees. (NYSE Group also received \$86 million related to derivatives trading.)

<sup>34</sup> Nasdaq OMX Group, Inc., Annual Report (Form 10-K) (Feb. 25, 2008). Gross revenues for Nasdaq in the United States related to trading were \$1,903 million in trading fees and \$77 million in platform access fees. Nasdaq had net trading related revenues of \$322 million after \$1,050 million in liquidity rebates, \$35 million in tape fees revenue shared with market participants for placing orders and reporting trades to Nasdaq (under two separate programs), and \$575 million in brokerage, clearance and exchange fees.

Smaller trading venues offer even more aggressive liquidity rebates. For example, the BATS ECN pays a \$0.0024 rebate per executed share for orders that add liquidity for Tapes A and C securities and charges a \$0.0025 fee per executed share for orders that remove liquidity.<sup>35</sup> That is, of the \$0.0025 transaction fee it receives from the taker of liquidity, it pays \$0.0024 out to the trader that provided the liquidity. For Tape B securities, BATS pays *more* in a rebate (\$0.0030) than it takes as a transaction fee (\$0.0025).

NYSE Arca recently announced similar pricing. For Tape A and C securities, the pricing structure is inverted, including a rebate of \$0.0028 for orders that add liquidity and a fee of \$0.0027 for orders that take liquidity. For Tape B securities, the rebate is \$0.0023 for orders that add liquidity and the fee is \$0.0028 for orders that take liquidity.<sup>36</sup>

As the Proposed Order observes, orders that provide liquidity attract other traders to the platform. The more liquidity and trading on a given platform, the greater the number of traders that are interested in participating on that platform. Trading venues compete to attract liquidity, which generates trading volume, which in turn generates trading revenues for the platform. Accordingly, the prices that are most relevant to attracting order flow are the transaction fees, including the liquidity rebates, associated with placing orders on a trading venue.

The pricing behavior reviewed above confirms that competition for order flow among trading venues is reflected most directly in the transaction fees they charge and the liquidity rebates they offer. Each trading venue sets its transaction prices and liquidity rebates to provide direct incentives for market participants to

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<sup>35</sup> See BATS Fee Schedule, Effective July 1, 2008, *available at* [http://www.batstrading.com/subscriber\\_resources/BATS%20Fee%20Schedule%20-%20effective%20July%201,%202008.pdf](http://www.batstrading.com/subscriber_resources/BATS%20Fee%20Schedule%20-%20effective%20July%201,%202008.pdf). BATS also charges a routing charge of \$0.0029 for orders routed to other venues.

<sup>36</sup> These are NYSE Arca's fees for its most active tier of trading customers. The fees for other tiers also reflect significant liquidity rebates. NYSE Arca also charges a routing fee of \$0.0029 for orders executed by another market center or participant, except on the NYSE where the routing fee is \$0.0008 (or \$0.0006 for customers using NYSE Arca's Primary Sweep Order). These fees are effective July 1, 2008. See NYSE Group, NYSE Arca Announces Unified Equities Transaction Pricing, Effective July 1 (June 19, 2008), *available at* <http://www.nyse.com/press/1213870771815.html>.

offer liquidity to and place orders on that venue. Supply and demand forces work as expected—fees are decreased and rebates are increased to attract more order flow.

Fees for depth-of-book data, however, do not vary with the purchaser's order flow generally or with the purchaser's order flow on the providing exchange. The exchanges therefore do not use depth-of-book data to stimulate trades, as they use rebates and fees for liquidity providers and takers. Rather, depth-of-book data are typically priced on a fixed monthly fee per device subscribed. In addition, some exchanges offer an option for an enterprise license to cover all users, a per company maximum fee cap, and a per company access fee.<sup>37</sup> I am not aware of exchanges' pricing their depth-of-book data based on the extent to which those data are used for orders.

**B. The SEC's Conclusion that Order Flow Competition Significantly Constrains Depth-of-Book Data Pricing Is Wrong.**

Based on the faulty premise that order flow and market data are two sides of the same coin, the SEC draws the conclusion that competition for order flow limits an exchange's ability to set prices for depth-of-book data. That is wrong.

Although an exchange may have an incentive to make available its depth-of-book data, the exchange nevertheless can charge prices above competitive levels for those data if the exchange is not constrained by significant competitive forces in their sale and such data have value to customers by reflecting substantial liquidity. Once a seller makes a product available, the price that the seller charges for the product is a function of the demand for the product and whether economically significant substitutes are available. In the case of depth-of-book data, the exchange will identify the profit-maximizing price for the data even if that price is higher than would be paid by a significant number of potential purchasers. The SEC implicitly recognizes that important point by noting that Nasdaq's depth-of-book product, which is presumably profitably priced, is purchased by a small percentage of Nasdaq's professional users.<sup>38</sup>

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<sup>37</sup> SEC Release No. 34-53952, *supra* note 2, at 33496-33497.

<sup>38</sup> See *infra* note 41.

Nasdaq's publicly reported revenue information confirms that exchanges with significant order flow have significant pricing power for their unconsolidated data.<sup>39</sup> In 2007, Nasdaq received consolidated data revenue of \$87 million and unconsolidated data revenue of \$88 million.<sup>40</sup> Thus, of its market data revenue, *more than half* was received from consumers of unconsolidated data. This figure is particularly striking because, according to the SEC, "only 19,000 professional users purchase Nasdaq's depth-of-book data product and 420,000 professional users purchase core data in Nasdaq-listed stocks."<sup>41</sup> That means that Nasdaq was able to extract more than 50 percent of its 2007 market data revenue from its sale of unconsolidated data, even though *less than 5 percent* of professional users purchased its depth-of-book data.

Furthermore, we would not expect pricing for market data to be constrained by "fierce" competition for order flow. Order flow competition implies that traders can and do switch easily among many alternative trading venues and that an exchange would have little or no leverage to charge higher prices to its trading participants. That competition appears to be reflected in the exchanges' transaction pricing and the substantial rebates they pay to liquidity providers.

By contrast, as discussed above, an exchange with substantial liquidity maintains significant leverage over the consumers of its depth-of-book data.<sup>42</sup> That dynamic—significant leverage over market data customers and little or no leverage over providers and takers of liquidity—results in prices for market data that reflect

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<sup>39</sup> I discuss Nasdaq's revenues as NYSE does not report its revenues from consolidated versus unconsolidated data.

<sup>40</sup> This is net of \$46 million in consolidated data fees that Nasdaq collects and is required (as a result of its role as the Securities Information Processor for Nasdaq-listed securities) to share with other trading venues based on their respective shares of trading in Nasdaq-listed securities.

<sup>41</sup> Proposed Order, *supra* note 3, at 32766. The SEC's reference to 19,000 professional users of Nasdaq's depth-of-book data may be an understatement. The Nasdaq letter cited by the SEC indicates that there were 19,000 professional users of TotalView. The Nasdaq letter did not indicate how many professional users purchased its other depth-of-book data products. See Letter from Jeffrey Davis, Vice President and Deputy General Counsel, The Nasdaq Stock Market, dated May 18, 2007, at 6.

<sup>42</sup> I have already shown in Section II that the purported alternatives offered by the SEC do not in fact provide economic substitutes for depth-of-book data and thus do not significantly constrain depth-of-book data pricing.

significant market power and prices for order flow that reflect competitive conditions.<sup>43</sup>

**C. The Evidence on Which the SEC Relies Does Not Support the SEC's Conclusions.**

The SEC presents four sources of support for its conclusion that order flow competition constrains pricing for depth-of-book data:

1. An industry textbook.
2. The Report of the SEC Advisory Committee on Market Information.
3. The strategy followed by BATS (an ECN) of not charging for market data.
4. Island's choosing not to display its order book to avoid being subject to the Inter-market Trading System (ITS) regulations and losing significant order flow.<sup>44</sup>

None support the SEC's conclusions.

The first two sources are statements to the effect that, in the absence of the regulatory requirement for *consolidated* data from all trading venues to be displayed, many data vendors would not display data from smaller trading venues and that those venues would therefore find it difficult to compete for order flow. Those statements do no more than acknowledge: (1) that the pricing power of market data derives from the significance of the liquidity that the market data reflect; and (2) that some degree of transparency may be an important component of a platform that is appealing to traders. Both points were discussed above, and neither establishes that competition for order flow constrains market data pricing.

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<sup>43</sup> The SEC asserts that, if "NYSE Arca were truly able to exercise monopoly power in pricing its non-core data, it likely would not choose a fee that generates only a small fraction of the transaction fees that admittedly are subject to fierce competitive forces." See Proposed Order, *supra* note 3, at 32769. That is a non-sequitur. That a firm charges fees for one product that result in total revenue that is greater or less than the total revenue from the sale of another product says nothing about the firm's market power over either product.

<sup>44</sup> *Id.* at 32764.

The third reference is to statements by the BATS ECN regarding its strategy of not charging for market data. That strategy is hardly surprising, as market data reflecting little liquidity have little value and the smaller trading venues that supply such data have little pricing power.

And the fourth reference is to the experience of the Island ECN when it chose not to display its order book at all to avoid the Inter-market Trading System (ITS) regulations and lost significant order flow. That experience hardly establishes that order flow constrains the prices of market data. As discussed above, even if a viable trading venue must make some of its market data available, the prices that can be charged for those data depend both on the significance of the liquidity that the data reflect and on the availability of economically significant substitutes.

Indeed, the Report of the SEC Advisory Committee on Market Information itself confirms that the larger exchanges retain market power over their data even if the smaller trading venues do not:

Supporters of the Display Rule point out, however, that while the abandonment of the rule plainly would take away any artificial market power of the non-primary markets, it is unlikely to be a significant restraint on the pricing power of the primary markets. To the extent that market participants need the data generated by, for example, the NYSE or Nasdaq, they would still be forced to buy it. Accordingly, the absence of the Display Rule would not ensure the appropriate level of fees for the primary markets' data.<sup>45</sup>

In sum, the evidence proffered by the SEC suggests only the following unremarkable propositions:

- smaller exchanges cannot charge significant prices for depth-of-book data because those data do not reflect significant liquidity; and
- larger exchanges can charge prices above competitive levels for depth-of-book data because they control—as noted in Section II—a significant portion of the liquidity for each stock (*e.g.*, 53.6 percent in the case of

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<sup>45</sup> SEC ADVISORY COMMITTEE ON MARKET INFORMATION, REPORT OF THE ADVISORY COMMITTEE ON MARKET INFORMATION: A BLUEPRINT FOR RESPONSIBLE CHANGE (Sept. 14, 2001).

NYSE Group for NYSE-listed stocks) and are not constrained by the availability of reasonably interchangeable substitutes.<sup>46</sup>

The SEC has presented no evidence or analysis that could support its claim that order flow and depth-of-book data are “two sides of the same coin” and that, therefore, “fierce” order flow competition necessarily constrains the exercise of significant market power in the provision of depth-of-book data.

#### IV. CONCLUSIONS

Scholarly literature and case law provide an analytical framework for assessing whether firms can exercise significant market power over prices and whether substitutes or other constraints discipline that market power. The SEC does not rely on that framework (or substitute a coherent one of its own) to reach its conclusion that the Exchange necessarily charges “equitable, fair, reasonable, and not unreasonably discriminatory” prices for its depth-of-book data because of “significant competitive forces.”

To the contrary, economics and the relevant facts establish:

- the Exchange 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 SEC identifies would not constrain that market power; and
- competition for order flow would not constrain that market power.

I therefore conclude, as a matter of economics, that the SEC has presented no credible analysis or evidence to support the position that the pricing of depth-of-book data is subject to significant competitive forces.

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<sup>46</sup> Indeed, comparing the absolute prices of several products, as the SEC does with respect to the depth-of-book products of NYSE, Nasdaq, and NYSE Arca (*see* Proposed Order, *supra* note 3, at 32769), does not speak to whether the price of any of the products reflects significant market power. The price of a given product relative to another product is a function of the demand for the given product, all else being equal. Sellers of products for which demand is relatively greater will be able to set relatively higher prices, and vice versa, even assuming the absence of economically significant substitutes for both products.