Competitive alternatives to SEC regulation of stock-market data

Financial Markets as Information Monopolies?

BY SHARON BROWN-HRUSKA AND JERRY ELLIG

With the boom in online investing and investor activism, it is surprising that retail investors do not know that every time they check the stock prices, they are dealing with an information monopoly. They would not know it, because there are none of the usual signs.

When investors check the stock quotes on their portfolio or an option price they are interested in, the information appears faster than they can type in the ticker symbol. With some brokers, investors can even get a continuous and personalized ticker that displays prices of trades that are taking place contemporaneously (in "real time"). For all that, investors do not even get a bill or an extra charge on their trading account. Per-trade commissions that presumably include the cost of such information are at all-time lows, with online transactions advertised as little as $8.00 per trade. But if there are no signs of monopoly-induced lethargy or discriminatory pricing on market data, why does the chief regulator of the financial markets, the Securities and Exchange Commission (SEC), propose to regulate the producers of information as monopolists and impose a utility-style pricing structure on them?

The answer to that question is not evident when you look at the recent pattern of prices for market data charged by the networks that report data for exchanges like the New York Stock Exchange or NASDAQ Stock Market. Since 1998, data prices applicable to individual investors have fallen by as much as 90 percent. (See Table 1.) A review of the record of all the networks that consolidate data on stocks, options, and other financial instruments shows that monopolistic behavior is hard to find.

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COST-BASED FEE STRUCTURE

THE SEC'S PROPOSED FEE STRUCTURE CAN BE PARTLY explained by the commission laying the groundwork for a monopoly in the first place. In the early 1970s, the SEC repeatedly called for the creation of a centralized system that would provide unrestricted public access to consolidated market data. In 1975, Congress granted the commission the authority to regulate securities communications systems—essentially giving the SEC the authority to create centralized market data consolidation and reporting systems. Congress and the commission appear to have assumed that such processing and reporting systems would be monopolies akin to public utilities—an assumption reflected in the current structure of the market.

In today's market structure, self-regulatory organizations (SROs) such as the New York Stock Exchange and the NASDAQ Stock Market are required to report market data to several processing networks, which in turn consolidate the information and sell it to securities firms, investors, and other users. There are multiple networks, but each network is the sole source of consolidated data for a given financial instrument. In the current system, fees to access market data are set through negotiations among representatives of the networks and various securities industry participants. If participants think the fees are too high, they can file a complaint with the SEC, which can investigate and order fee reductions. In a recent *Concept Release*, the commission proposed a cost-based fee structure (pp. 29–31). Under the proposal, no network would be permitted to earn revenues exceeding its costs, and networks could not charge "discriminatory" fees.

Monopoly Paradigm The SEC is concerned that monopolistic pricing of information could diminish access for, or discriminate against, individual (or "retail") investors:

> The Commission intends to assure that market information fees applicable to retail investors do not restrict their access to information, in terms of both number of subscribers and quality of service. In addition, such fees must not be unreasonably discriminatory when compared with the fees charged to professional users of market information. (*Concept Release*, p. 5)

Although much of the commission's argument employs the rhetoric of fairness to individual investors, the underlying issue is market power, pure and simple. If providers of information lack market power, then information is as widely available as practicable. If providers of information possess market power, then some or all investors may not be receiving information that is as plentiful or as reliable as possible. The effect on individual investors would be discriminatory only to the extent that networks possess and exercise a differential degree of market power in the sale of market data to individual investors.

Regulation in the Past Before adopting a binding form of utility regulation, the SEC should look outside the financial industry to see how such regulation has fared in the past. In many other industries traditionally regulated as utilities, legislators and regulators have spent the last 20 years searching for ways to promote competition and to reduce or eliminate price regulation. Competition and deregulation in the telecommunications, natural gas, airline, railroad, and trucking industries have produced $50 to $60 billion annually in lower prices, improved service quality, and other consumer benefits. Such results amply support the thinking that competition is a much more effective regulator than administrative decision-making.

Nevertheless, the SEC wants to impose cost-of-service regulation. The proposed guidelines are likely to harm investors for the following three principal reasons:

- Because networks already face natural constraints on their ability to exercise market power, the guidelines would likely increase costs while offering few offsetting benefits.

- Even if networks can exercise some market power, cost-of-service regulation could produce worse results than the current system, and it is unlikely to produce better results.

- The true source of any market power the networks might possess is the information cartel created by federal policy, which ignores the possibility for competition in the provision of market data.

NATURAL CONSTRAINTS ON NETWORK MARKET POWER

User Ownership The networks that consolidate and sell market data have a strong incentive to operate economically and to charge prices that are no higher than they need to be. The networks are governed by SROs, the organized stock and options markets. Those institutions are in turn governed by members. Most of the members are securities firms, who are also significant purchasers of information from the networks. Any monopoly overcharges reaped by networks would come at the expense of the SRO members, who ultimately govern the networks through the SROs. (For an explanation of how user ownership controls monopoly problems, see Houston.)

One might also think that user-owned networks could profit by charging discriminatory prices to non-SRO members such as vendors or individual investors who are direct subscribers. However, SRO members have a strong financial interest in ensuring that accurate, low-cost information is available to non-SRO members: Nonmembers are either investors who are the SROs' customers or information vendors who serve the SROs' customers.

Benefits from Information Dissemination Public dissemination of information regarding transaction prices, bid and offer quotations, order and quotation sizes, and other market variables is often referred to collectively as "market trans-

Table 1

Fees Applicable to Retail Investors

System and Type of Fee	1994	1998	Current	Percentage Reduction Since 1994	Percentage Reduction Since 1998
Network A, nonprofessional, monthly per subscriber	$4.25	$5.25	$0.50 to $1.00	76 to 88%	81 to 90%
NASDAQ, nonprofessional, monthly per person	4.00	4.00	2.00	50	50
NASDAQ, per query	0.015	0.01	0.005	67	50
Network B, nonprofessional, monthly per person	3.25	3.25	1.00	69	69
OPRA, nonprofessional, monthly per person	2.00	2.00	2.50	25 (increase)	25 (increase)
OPRA, per query	0.02	0.01 to 0.02	0.01 to 0.02	0 to 50	0 to 50

parency." Generating prices and quotations is not merely a byproduct of the trade activity but an integral part of the trading process. To attract trading interest, financial exchanges are organized to economize on trading and transaction costs, which include information collection and analysis, counterparty search, bargaining, and contract enforcement. Efficient organization of an exchange increases transaction volumes. The prices produced by an exchange have value because they affect other transactions, present and future, that take place on or away from the exchange.

Investors will use the trading system or exchange that minimizes their total costs, including information fees, while satisfying their preferences for immediacy and quality executions. The definition of execution quality, which varies with the investor, encompasses the elements of price, speed of execution, anonymity, transparency, liquidity, and transactions costs, both direct and indirect. Different investors will choose to trade in the markets that provide them with the combination of execution quality and transaction costs that best fits their preferences.

In the current climate in which investors are taking a more active role in managing their portfolios, they are less likely to hand over their money for an investment unless information is current, accurate, and readily available. Pricing financial market information in a way that precludes or limits access would have a negative effect on investors' willingness to use an exchange or another trading system. Therefore, exchanges and other trading systems have incentives to disseminate information in order to facilitate maximum investor participation.

Precedents from Contemporary Markets A critic might argue that the failure of stock exchanges to publicly report and consolidate market data before 1975 shows that the exchanges have incentives to keep market data private. However, financial markets have changed dramatically since that time. Because brokerage commissions are no longer fixed, brokers and trading venues alike have stronger incentives to compete for trading business. In addition, falling costs of information technology have made widespread real-time dissemination of market data to a wide audience practical and economical.

Contemporary futures markets demonstrate how widespread real-time information dissemination occurs in the absence of extensive regulatory mandates. Regulations issued by the Commodity Futures Trading Commission only require end-of-day reporting of total volume, open interest, futures for cash transactions, and exercised and unexercised options for the day. The exchanges themselves decide on the degree of contemporaneous price and quotation reporting, along with the fees charged for that information. Even without regulation to dictate the form and scope of information dissemination, the futures exchanges provide real-time continuous reporting of price information to vendors who in turn disseminate the information to the public.

The experience of the futures markets in the dissemination and pricing of information illustrates that the SEC's policy of seeking a uniform and centralized stream of information may be unnecessary, and possibly even harmful because it attenuates market forces that would lead SROs to provide the desired level and price of information for the customers they serve.

INEFFICIENCIES OF COST-OF-SERVICE REGULATION

EVEN IF NETWORKS POSSESS SOME MARKET POWER, COST-based regulation would not necessarily improve the status quo. The relevant choice is not between imperfect markets and idealized regulation, but between imperfect markets and imperfect regulation. The commission will maximize investor welfare only if it selects the least imperfect option—and the imperfections associated with cost-of-service regulation are large indeed.

Averch-Johnson Effect Regulatory scholars have long known that cost-of-service regulation can raise costs by distorting the regulated firm's choice of inputs. If the rate of return on investment permitted by regulation exceeds the firm's cost of capital, then the firm has an incentive to substitute capital for other inputs. If the rate of return permitted by regulation is less than the firm's cost of capital, then the firm has an incentive to avoid capital investments. Those possibilities are not just theoretical. There is strong evidence that the former distortion occurred in the electric utility industry during the 1960s and that the latter distortion occurred during the 1970s and 1980s. In both cases, consumers paid higher prices than necessary because of inefficiencies introduced by cost-of-service regulation.

Effective SEC oversight of cost-based fees for market data would ultimately require the commission to decide whether the rate of return that the networks earn on their capital investments is "reasonable." Thus, the commission would have ample opportunity to create incentives for networks either to over- or underinvest.

Attenuation of Entrepreneurial Incentives With prices and profits limited, regulated firms have less of an incentive to make highly risky investments that could generate large cost reductions or produce substantial revenue streams from new products and services. In theory, regulators could prevent that problem by permitting a firm to earn a sufficient risk premium. In practice, regulators face continual temptation to disallow the risk premium once an innovation has been introduced and proven successful because the successful innovation will likely remain in place even if regulation reduces its profitability. After the fact, it is often difficult to distinguish between high profits resulting from innovation and high profits resulting from market power. Expropriating those profits, however, reduces incentives for future innovation.

Market data networks may be vulnerable in that regard because reasonable people could disagree over whether

the networks in the future will be high-risk, high-tech innovators, or relatively stagnant utilities with little opportunity for innovation. If regulators impose price regulation that diminishes entrepreneurial incentives, the latter possibility could easily become true.

Political Influence Costs When regulation constrains prices, the regulated firm and its customers have incentives to capture wealth transfers by influencing regulators and legislators. Such battles are commonplace in regulated industries. Although the firms benefit from that fighting over the wealth transfers, the resources they expend are wasteful from a broader social perspective. Cost-of-service regulation permits the regulated firm to pass those costs on to its customers. Therefore, a comprehensive accounting of regulatory costs should include not just administrative costs, but also the resources expended on lobbying, lawyering, and expert opinions intended to persuade the SEC and Congress that a particular form of regulation or pricing structure should be adopted.

Market data fees are established through industry negotiations. Before adopting cost-of-service regulation, the SEC should consider the experience of a regulatory body that has been moving in the opposite direction. The Surface Transportation Board has limited authority to regulate rates and terms of service, but even this small amount of regulatory authority gives some industry participants an irresistible temptation to expend resources in an attempt to displace negotiation with regulation. One board member lamented in 1996:

> It is unfortunate that parties to this proceeding are unwilling to reach negotiated settlements on these issues.
>
> More unfortunate is that such reliance on government to solve private-sector problems encourages a cycle of dependence that weakens further the parties' negotiating resolve and encourages a return to third-party intervention that, as history records, was equally detrimental to both railroads and their customers.
>
> Indeed, without a negotiated settlement among the parties this issue likely is headed for the lap of Congress where solutions too often are hastily drawn, politically motivated and for a long-time afterward insulated from change even by private agreement of the parties who had the dispute.
>
> Whatever the eventual outcome, the fact remains that the parties have knocked loudly upon our door, ignored subsequent admonitions to settle these matters privately among themselves and continued to beg for government intervention…
>
> … I continue to believe that more efficient solutions to all shipper-carrier disputes are to be achieved in the marketplace and through direct negotiations without the intrusion of government. Perhaps my admonition in favor of negotiation should include this paraphrase from Isaiah 1:18–20: "Come let us reason together, or ye shall be devoured by the sword." (Owen, *Bottleneck Cases*)

Given the inefficiencies associated with regulation, it is no surprise that several classic economic studies have found that price regulation of utilities has actually done little or nothing to reduce prices. The tendency of regulation to raise costs and thwart innovation outweighs its tendency to reduce prices by curtailing profits.

Advocates of the SEC's proposed guidelines might argue perhaps that the drawbacks described above apply only to strict cost-of-service regulation, not to the more flexible guidelines that the commission has proposed. However, if the proposed cost-of-service guidelines accomplish the intended result of constraining network fees, they will create the perverse incentives that inflate costs and reduce innovation. Those incentives can be avoided only if the guidelines fail to constrain network fees—in which case it is pointless to promulgate the guidelines.

Incentive Regulation Many regulatory commissions are moving to various forms of "incentive regulation" that attempt to mitigate the negative aspects of cost-of-service regulation. The most common form of incentive regulation starts with cost-based rates but then allows prices in subsequent years to increase at the same percentage as some price index, *minus* an adjustment of several percentage points that reflects expected increases in productivity or decreases in costs. In that way, the regulated firm shares its cost reductions with customers.

Incentive regulation might appear to be a way of addressing the commission's desire that market data fees for retail investors reflect falling costs while avoiding many problems associated with cost-of-service regulation. However, the price data in the *Concept Release* suggest it is unlikely that incentive regulation would improve on the actual price performance of the networks.

Table 1 shows that most fees applicable to retail investors have fallen by 50 to 90 percent in nominal terms since 1994, with many large reductions occurring since 1998. (The commission reached a similar conclusion, noting that "most of the fees applicable to retail investors have been reduced in recent months by 50% to 80%" [*Concept Release*, p. 5].) Most notable are the price reductions associated with the two largest networks, Network A and NASDAQ Stock Market, which produce market data for the vast majority of publicly traded equities.

Incentive regulation in other industries does not accomplish this magnitude of price reduction. In fact, incentive regulation of utilities usually assumes a productivity adjustment of 1 to 5 percent annually, which means that prices are allowed to increase at a rate of 1 to 5 percentage points below the rate of increase of the

relevant price index. Figures of 1 or 2 percent appear in industries with less potential for technological change, like electric transmission and natural gas pipelines. In telecommunications, arguably the industry most similar to the market data networks, the expected productivity adjustment is somewhat higher. Most states applying incentive regulation to telecommunications assume a productivity adjustment of 2 or 3 percent annually. The Federal Communications Commission assumes an annual 6.5 percent productivity-induced price reduction when it regulates the prices that local telephone companies charge the long distance companies for access.

If the commission had implemented incentive regulation in 1994, even a huge productivity offset of 6.5 percent would have resulted in a nominal price reduction of only 26 percent between 1994 and the end of 1999. SEC-administered incentive regulation would have had to be draconian indeed if it were to improve on the price performance of the networks under current arrangements. Thus, neither cost-of-service regulation nor incentive regulation offers much hope for improving the actual level of network fees under the status quo.

GOVERNMENT POLICY AND COMPETITION

THE ADVANCES IN INFORMATION TECHNOLOGY AND investor sophistication that prompted the SEC's proposal suggest that competition in information provision is now possible. To see how such competition can work, consider the production of price information for a single security. Most major securities today trade in multiple venues, under the supervision of multiple SROs. Historically, the SEC has been concerned that trading in multiple venues would prevent at least some investors from receiving the best prices when they buy or sell. Commendably, the SEC has avoided concluding that the appropriate solution is to assign a monopolist exchange or dealer to each security. Instead, the SEC has pursued the centralization of quotation and price information. Each venue must report prices and quotations to a network that controls production of a consolidated stream of price information for that security. The network then sells the consolidated stream of information to multiple buyers who either use the information themselves or resell it to investors and other clients.

A more competitive market could constrain any tendency toward monopoly pricing of information. Such competition could occur in at least three ways: competition among trading venues, contestability among trading venues, or competition among the networks selling market data.

Competition among Trading Venues Instead of mandating consolidation of price data through a network, the SEC could simply let each SRO report its own stream of price data. Even if no network existed to centralize the data, competitive forces would ensure that each SRO offered comparable and accurate price information. Thanks to advances in information and communications technology, arbitrage across trading venues is inexpensive and rapid. Arbitrageurs can profit by subscribing to price data from all SROs and then trading securities across venues to profit from price discrepancies. Their action tends to equalize prices across venues. As a result, the competing streams of price information from different SROs will tend to be good substitutes. Investors and other consumers of information who are not engaged in short-term arbitrage can thus avoid the cost and trouble of purchasing price information generated by all trading SROs; they need only to subscribe to price information from one.

A critic might argue that such an arrangement would allow arbitrageurs to reap short-term profits at the expense of less-informed investors who do not choose to subscribe to all streams of price information. Such a profit opportunity could appear unfair to less-informed investors, and it might even be regarded as an example of the type of informational asymmetry that the creation of the national market system is supposed to stamp out.

That view is shortsighted. It is true that, under a system in which each SRO reported a data stream directly to the public, arbitrageurs could earn profits by trading with less-informed investors. However, that system could actually reduce the cost and improve the availability of market information to less-informed investors. The actions of arbitrageurs would ensure that information streams from competing venues trading the same financial instrument would be of comparable quality. Instead of (implicitly or explicitly) purchasing a consolidated stream of information from all SROs, investors would have the less-costly option of purchasing a stream of information from a single SRO. The provision of competitive information by SROs would also eliminate the potential for monopoly profits or heavy regulatory costs associated with current arrangements. Compared to those potentially large costs, the profits reaped by arbitrageurs may represent a less-costly means of making high-quality information available to the general public.

To understand the effect of competition among trading venues, the SEC must consider whether retail investors get a better combination of cost and information quality under a system in which monopolies consolidate data streams, or one under which arbitrage forces competing SROs to produce comparable data streams.

Contestability among Trading Venues Competition among exchanges can sometimes lead to a concentration of most liquidity and trading interest in a security in a single trading venue. However, such a concentration need not lead to monopoly pricing of market data, even if the venue has proprietary ownership of the information. The reason is that trading of financial instruments is a highly contestable market, and potential competition constrains the total price that a venue can charge for transactions and data.

Futures markets provide a good illustration of how venues with proprietary ownership of their price data are nevertheless constrained by potential competition. The London International Financial Futures and Options

Exchange (LIFFE) dominated the market for futures contracts on the European benchmark German 10-year bonds until the Deutsche Terminboerse (now Eurex) introduced a screen-based version of the same contract. Within months of its conversion to electronic trading, Eurex became the dominant new market for trading German bonds, completely displacing LIFFE and leading LIFFE to adopt an electronic trading system of its own. More recently, the Chicago Board of Trade and the Chicago Mercantile Exchange introduced competing futures and options contracts on mortgage-backed securities. While volume will likely migrate to one exchange, the experience of LIFFE suggests that market power is fleeting as long as traders can choose the market in which they trade.

Thus, even if all liquidity for a stock gets concentrated in one SRO, that SRO will not be able to set a monopoly price for information (or transactions) because one SRO could easily displace another by offering better terms. The displacement might be total, as in the case of the German bonds on LIFFE, or it might involve a particular sector of the market that finds one type of trading mechanism better matches its needs.

Competing Market Data Networks The SEC's *Concept Release* simply assumes that provision of consolidated information for each security is and will remain a natural monopoly. Although that assumption may have been accurate 30 years ago when no one provided consolidated quotation information, times have changed. Demand for market data has skyrocketed while computer and communications costs have plummeted. Both of those conditions suggest that, even if data consolidation was a natural monopoly in the 1970s, the market is almost certainly large enough to support multiple competitors today.

Market data, as pure information, cannot be "used up," of course; the fact that one user looks at a price quotation does not mean that there is any less information for others to use. That "nonrival consumption" characteristic of information might lead a superficial observer to conclude that data consolidation must be a natural monopoly because, it seems, only one firm is necessary to produce the consolidated stream. But the relevant costs for determining whether data consolidation is a natural monopoly are the computer and communications costs associated with receiving, processing, marketing, and sending data. It is those costs, in conjunction with demand, that should be examined to determine whether data consolidation is a natural monopoly.

Research on other industries widely believed to be natural monopolies, including telephone service, cable television, gas pipelines, and even electricity distribution, has revealed the prematurity of that judgment. In most of those industries, there is strong evidence that monopoly was more an artifact of government policy than an inevitable result of natural demand and cost conditions. Even where cost conditions suggest that a service is a natural monopoly, inefficiencies associated with regulation and the absence of competition are often so large that they offset any cost advantages associated with monopoly.

Multifaceted Competition The type of competition of interest is not solely to provide the most comprehensive market data at the lowest possible price. Another purpose of the competitive process is to provide different investors with the amount and type of market data they desire.

In general, the commission's one-size-fits-all approach to regulating the level and price of information may have unintended and potentially negative side effects on the markets. In the case of dealer markets, stringent but poorly enforced reporting requirements contributed to the dealers' practice of reporting trades out of sequence or delaying reporting. In addition, concerns about revealing the size of their orders have led institutions to avoid U.S. markets and opt for the delayed reporting of the London markets. Institutional traders normally conduct trades of large size, and they want to avoid the potential price impact that such a trade would generate if fully disclosed to the market as required by U.S. regulation.

Allowing SROs to compete on both the price and form of information provision gives markets the ability to satisfy the demands of a variety of investors, whether they are retail investors or institutions that service middle-income pension plans. Furthermore, regulation appears to lead to strategic behavior by traders, in some cases driving business away from U.S. markets, to less-regulated markets. As technology makes offshore markets more accessible to U.S. investors, it becomes even more vital that SROs and other U.S. trading interests be allowed to compete.

CONCLUSION

THE ROOT CAUSE OF ANY MARKET POWER PROBLEM IS THE assumption made by Congress and the SEC that consolidation of market data on each security and option must be a monopoly. Although that may have been a valid assumption 25 years ago, it is dubious today. To ensure that investors have the most affordable, useful, responsive, and innovative stock price data, the SEC should work to replace the monopoly in market data with competition.

Instead of allowing individual stock markets to own the price and quotation data they produce, securities regulation forces them to contribute it to a centralized pool in exchange for a share of the revenues from the sale of the information. Even within this system of attenuated property rights, the commission could foster competition by initiating a rulemaking specifically designed to identify and remove barriers that prevent data networks from competing with each other.

A more genuinely deregulatory approach would be to restore proprietary ownership of price and quotation data to the market centers that produce them. Such a system would allow exchanges and other trading systems to protect the investments made to develop and innovate their trading and information systems. Assigning the property rights to the producers of information has the potential to

improve market efficiency by increasing incentives for traders to invest in information collection. It also helps mitigate "free rider" problems that occur as a result of government mandates that say trade information must be disseminated at a uniform cost to competing trading venues. With proprietary ownership, the sale, licensing, and distribution of data could promote multiple and diverse streams of data, rather than the single source in place now that gives rise to the market power the SEC seeks to control. A proprietary system would allow investors to choose the form and amount of information that they subscribe to on the basis of their preferences.

While proprietary ownership of data would promote the most robust competition among market centers, either competitive option would be preferable to the status quo or the regulatory alternatives.

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