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BRIEFLY NOTED

Are Market Data Fees Too High? Should We Care?

BY IKE BRANNON AND ROBERT JENNINGS

When ordinary investors buy stock, they usually do so through a brokerage. The brokerage executes the trade on one of a dozen different stock exchanges in the United States.

Most people have heard of the New York Stock Exchange and Nasdaq, but there are several other U.S. exchanges, including the Investors Exchange (or IEX, referenced in Michael Lewis’s 2014 book *Flash Boys*) and the Better Alternative Trading System (BATS, now part of Cboe Global Markets). There also are trading venues that are not formally stock exchanges—the so-called “dark pools” run by Wall Street firms. And a significant amount of order flow simply gets “internalized” in a brokerage’s own system for matching orders.

When a brokerage buys or sells stock on behalf of a client, the brokerage is legally obligated to try to obtain the best execution possible. This requires it to have access to a wide variety of data on prices and quantities traded on an exchange, as well as the various bids and asks that are current. The exchanges charge for that information and their prices have risen dramatically over the last decade, a trend that was helped along by a provision in the 2010 Dodd–Frank Act. The question is whether those price increases can be justified under normal standards employed by the Securities and Exchange Commission. The SEC seems to have some concerns about that; it recently pushed back—at least temporarily—on the increases by overturning prior fee increase approvals given to Nasdaq and the NYSE. That has given brokerages some hope for more price relief in the future.

This is more than just a fight between exchanges and brokerages. If the price of these data keeps increasing, it may lead

to a reconsideration of the present execution standards. The more brokerages and hedge funds have to pay to execute trades, the higher they will set their fees for ordinary investors who have retirement funds invested with such entities. And thanks to the magic of compound interest, even small reductions in net returns can result in a significant reduction in the ultimate size of an investor’s nest egg.

Making data more available / The Securities Acts Amendments of 1975 charged the SEC to develop a “national market system” that would link the numerous financial markets. The SEC concluded that this law required the exchanges (and other non-exchange execution venues as well) to publish current bid and offer prices—and their quantities—as well as the price and quantities of recent trades.

To that end, the SEC required that the industry provide a consolidated information source known as a securities information processor (SIP), which would be run jointly by the exchanges and their private regulator, the Financial Industry Regulatory Authority (FINRA). This information is referred to as *core data*.

Exchanges also are free to sell *non-core data* that customers might also find valuable. This includes the so-called depth-of-book data—that is, the bids and offers currently on the limit order book that are not at the best prices. For example, assume that the current market for Acme Inc. is \$10.00 bid for 5,000 shares, while 3,000 shares are offered at \$10.01. In deciding how to route orders, firms might find it useful to know the quantity of Acme shares

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demanded below \$10.00 and quantity supplied above \$10.01—in other words, enough information to draw approximate supply and demand curves. Suppose there is a high demand for Acme at \$9.99 and below, but not much supply at \$10.02 and \$10.03. Market participants might find this information useful. It would be particularly important information for institutional brokers, who might wish to transact 250,000 shares when the current quote is relevant for only a small transaction. In many cases, these brokers are trading stocks for mutual funds owned by common investors.

In the last decade, the cost of obtaining these data has increased considerably. Table 1 contains some of the NYSE fees in both 2008 and 2018. Access fees nearly tripled over that time and new fees were introduced.

The SEC's targets for its recent order are the fees for depth-of-book products charged by the NYSE's ArcaBook and Nasdaq's Level 2, both of which were implemented in 2010. Dodd-Frank permitted exchanges to immediately implement fee increases while the SEC determined their appropriateness. Before then, the exchanges had to file a formal proposal to increase fees and then wait for SEC approval, an often-drawn-out process that included a public comment period.

Determining fair and reasonable fees/ Giving the SEC such a vague mandate has made its adjudications a bit problematic, but there are two commonly accepted ways to determine fair and reasonable in

this context. One would be to compare the fee to the marginal cost of providing the service, and the other would be to show that the fee is based on some sort of market price. The exchanges embrace the latter approach—understandably so because their incremental cost of providing those data is almost assuredly close to zero.

The exchanges claim that competition constrains their ability to impose fees in two ways. First, if their fees are too high, then customers will simply reroute orders to other exchanges. That would cost high-priced exchanges both data fees and trading fees for transactions carried out on their platforms. Second, the exchanges argue that the market data of other exchanges are substitutes for their data product. In this scenario, if the ArcaBook fee gets too high, then customers will simply drop ArcaBook and pick up market data from some other exchange because the limit order books across exchanges are highly correlated. In 2014 an administrative law judge agreed with the exchanges on this point.

However, a 2018 court case and an associated 2018 SEC finding concluded otherwise. While agreeing that the competition for order flow is intense, both the court and the SEC found that the exchanges had not done an adequate job of demonstrating that the link between order flow and market data fees was strong. In fact, in 2014 the SEC concluded that while depth-of-book market data drives order flow, most market participants do not purchase the depth-of-book market data, contrary to the competition argument. In

addition, the current findings question whether exchanges' depth-of-book products are, in fact, close substitutes. No one has apparently examined the data all that closely to determine the truth.

Our conclusion is that there are market participants that need depth-of-book data from all exchanges in order to meet their obligations to seek best execution for clients. This does not necessarily hold for every participant in the market, but an important subset cannot stop sending orders to a particular market or merely assume that the book on Exchange A is perfectly correlated with the book on Exchange B.

Justifying data price increases/ Complicating the market price standard is the fact that a few firms control the bulk of the order flow, which gives each a modicum of market power when negotiating fees. Nasdaq claims that 90% of its order flow comes from 100 firms—way too many for any sort of collusion to occur.

The court did not believe that the exchanges demonstrated that firms would divert order flow elsewhere if fees went up. In particular, the court found the exchange "evidence" to be merely anecdotal, as it amounted to a couple of examples of what happened to order flow when fees increased, which included one firm substantially diverting order flow.

There are multiple alternatives to the non-core data of an exchange: the exchange's own core data, the non-core data of other exchanges, purchasing non-core data from data vendors, or merely "pinging" orders (which entails sending an oversized order to an exchange to see what the depth behind the best price is). However, the existence of various substitutes does not imply that the exchanges lack market power; all of these alternatives are lacking in some way.

Several experts, working for the exchanges, produced an event study of market share of trading around data fee increases, complete with a regression analysis of market share of trading as a function of the fees. They found no significant correlation. However, the 2018 court ruled that

TABLE 1
ArcaBook Monthly Fees in 2008 and 2018

Fee	2008	2018
Access Fee ¹	\$750	\$2,000
Multiple Data Feed Fee	N/A	\$200
Redistribution Fee ²	N/A	\$2,000
Non-Display Fee ³	N/A	\$6,000 per device (capped)
Professional User Fee ⁴	\$30 per user	\$60 per user (capped)
Non-professional User Fee ⁴	\$10 per user (capped at \$20,000)	\$10 per user (capped at \$40,000)

1. The basic charge to get the particular data in question. 2. The cost for the right to resell. 3. The cost to have the data go directly to a computer without being displayed to any human (presumably to use in some sort of trading algorithm). 4. Fee for someone to actually see the data.

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these experts had not properly controlled for various important independent variables. The court eventually concluded that the best approach would be to estimate the product's elasticity of demand without specifying a particular methodology. We believe that a serious economic analysis should be conducted that does precisely this task, as we do not believe such a study currently exists.

What is best for retail investors? Exchanges have brokerages over a barrel with these fees, to some extent. In order to get the best execution for their clients as required by law, brokerages must obtain data from multiple exchanges. The exchanges have taken advantage of this requirement by dramatically increasing the price of their data beyond what can be justified by either costs or market competition, the two commonly accepted methods to justify data

price increases. The data substitutes for non-core data suggested by the exchanges—their own core data, non-core data from other exchanges, or pinging the market—are not viable substitutes.

We do not want to return to a world where retail investors would not necessarily get their trades executed in a timely manner and unwitting traders received prices that were hours or even a day out-of-date. However, it is not clear to us that the cost of the data that brokerages must obtain in order to comply with data execution rules are worth the benefits. As long as the SEC holds that these data must be acquired, then the commission should also ensure that data fees are appropriate. We do not believe that is currently the case. We suggest that the SEC look more closely at the fees as well as the broader information acquisition requirements for funds. **R**

cost that we found—estimated it would take 952 paperwork hours per firm at a cost of roughly \$185,000. That translated to an industry-wide burden of more than 3 million hours and aggregate costs exceeding \$700 million, potentially vaulting it into one of the most expensive Dodd-Frank rules on record.

To its credit, the SEC implicitly acknowledged this error when it released its regulatory impact analysis for the final rule. It increased its annual aggregate compliance cost estimate to \$526 million, a seven-fold increase, and paperwork compliance rose to more than 2.3 million hours, a four-fold increase. The total net present value cost jumped eight-fold in the final rule.

The benefits to society in return for these costs are unclear. We see no reason to think that this exercise has shed any useful light on U.S. income inequality or that the rule is ameliorating income inequality's causes. In addition, there is no evidence the requirement will prompt Congress to take any sort of action on executive pay; such action, if it happens, will be the product of ideology, not SEC reporting. In retrospect, even if compliance costs were minimal, that still would not justify the rule.

The SEC's final cost estimate incorporated numerous concessions to ease compliance costs. For instance, the final rule allowed multinationals operating in foreign jurisdictions with onerous privacy laws to exclude foreign employees if obtaining total compensation figures would violate those privacy laws. The final rule also limited the burden of collection to just consolidated subsidiaries instead of forcing companies to calculate the median pay of all employees. Finally, the SEC allowed companies to identify the median employee every three years instead of annually, provided there is no reason to believe there would be a significant change in the company's pay ratio.

Despite these cost-ameliorating measures, the pay ratio disclosure rule still ranks as the eighth most expensive Dodd-Frank rule promulgated, exceeding rules on home mortgage disclosure, standards for swap-dealers, and regulatory capital requirements. Knowing what we know now

SEC's Pay Ratio Regulation Reveals What We Already Knew

BY SAM BATKINS AND IKE BRANNON

It has been nearly four years since the Securities and Exchange Commission finalized its rule mandating that companies annually publish the ratio of chief executive officer compensation to the salary of the company's median employee. We've previously argued that this provision is one of the costliest regulations required by the 2010

Dodd-Frank Act, writing in these pages that "mandating the regular publication of a crude gauge of relative CEO compensation is a costly exercise that fixes precisely nothing" ("The Meaninglessness of the SEC Pay Disclosure Rule," Spring 2014). Given the information that has been reported to the SEC after this rule's implementation, we stand by that assessment.

Our chief complaint with the rule when it was first promulgated was that the SEC's cost estimate for compliance woe-

fully understated reality. To calculate the total compensation of every employee in a company—domestically and internationally—likely would require the use of significant resources and cost firms millions of dollars. However, in its initial proposed rule, the SEC pegged annual costs at just \$72 million for all affected firms, with an associated 545,000 paperwork-burden hours. This works out to roughly \$18,000 per company and 142 paperwork-burden hours.

Industry objected that these figures significantly underestimated the true compliance costs. For instance, respondents to a U.S. Chamber of Commerce survey of 118 firms—the only such survey on the rule's

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about the causes of the Great Recession, the pay ratio rule seems especially unjustified. Three years after implementation, the rule continues to impose unnecessary compliance costs without generating any measure of value for investors, the market, and perhaps even the politicians who insisted on its inclusion in Dodd-Frank.

A study by executive compensation consultant Deb Lifshey weighed in on the cost-effectiveness of the rule. She observed that it would prove to have disproportionate effects on large multinational firms, something we noted in our 2014 article.

often subjective enterprise. What's more, aggregating compensation for thousands of employees across numerous countries—a step that is necessary for multinational corporations—also requires numerous decisions to account for exchange-rate fluctuations and purchasing power differentials. Many of these companies may also have to integrate various payroll systems that do not otherwise connect, which can be a costly undertaking. Finally, the treatment of part-time and partial-year employees can easily bias the estimate: retail companies may have the majority of their workforce

one study found that companies with the highest-paid CEOs tend to have below-normal returns—good fodder for corporate board discussion. These days, it takes just a few seconds of sleuthing to uncover a ballpark estimate for the average pay of a particular company that is immune to the SEC's dictate. Those figures—such as the ones reported on the websites Glassdoor and Payscale—are voluntarily provided from current or prospective employees. For example, Payscale's data suggest that the typical employee at Honeywell earns \$81,000, while at General Electric the typical employee earns \$86,400. Both websites also disaggregate salary data within a company by profession, providing more relevant data than the SEC.

When the first set of pay ratios was reported, there were some attention-grabbing revelations. But the numbers were not as extreme as researchers anticipated. For instance, Lifshey found the median pay ratio was 70:1 for Russell 3,000 companies and 166:1 for Equilar 500 companies. Both figures are less than the estimates done prior to the regulation (and the 2008 financial crisis), but that does not mean that the rule resulted in some sort of decline in compensation. More likely, the stock market rise pre-2008 increased CEO compensation and a few firms accelerated compensation into the year prior to the beginning of pay ratio reporting or else arranged for some sort of contingent compensation

As always, the individual firm data provide more perspective than any national average, and extreme outliers can be illuminative. For instance, 10 companies reported a ratio of zero—indicating the CEO did not take a compensation package (a group that included Twitter and RE/MAX). The highest reported ratio was at Weight Watchers, where the CEO earned \$35 million compared to median employee compensation of just over \$6,000. A ratio of 6,000:1 may very well provoke a modicum of outrage, but it provides investors—who are supposed to benefit from such information—no useful context to understand the ratio. It does implicitly reveal the company has plenty of part-time staffers, which any educated inves-



More generally, she suggested that the larger the firm, the larger the ratio, with consumer-facing firms especially affected.

A redundant rule / When the SEC began contemplating the pay ratio rule, plenty of data relevant to the rule were already available. For instance, existing law already required the publication of CEO pay for public companies, which meant that the pay ratio rule merely required that companies do the arithmetic necessary to calculate median employee compensation (as opposed to just wages or salary), which turns out to be more complicated than meets the eye for numerous reasons. For starters, assigning a value to fringe benefits of each employee is a complicated and

working part-time, which means the CEO comparison is made to someone working less than 40 hours a week.

It is also not clear that the rule provides any new information. Numerous scholars had already estimated an overall CEO/median worker ratio before the formal regulation appeared in the *Federal Register*. A 2014 piece published by the Economic Policy Institute estimated a pay ratio of roughly 200:1, which was consistent with several contemporaneous studies. A few years earlier, the Society for Human Resource Management pegged the ratio at 344:1 and a 2009 study by the Center for American Progress estimated 240:1 in 2005.

There was plenty of research before the rule on CEO pay itself. For instance,

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tor would presumably already know. But it provides no relevant insight into the appropriateness of a given CEO's compensation.

Data for whom? / Several other provisions of Dodd-Frank were inserted with the intent to do little other than shame some firms. For instance, the law's "Conflict Minerals" rule required businesses to disclose whether its minerals originated in the Democratic Republic of Congo or an adjoining country. That turned out to be quite difficult—and costly—for some to ascertain.

But the pay ratio rule may be even more shabby than the others because it may not provide *anything* close to an accurate estimate of what Congress intended to be revealed. Deferred pay, accumulated bonuses, or one-time company-wide bonuses of the sort that were provided by numerous corporations in the wake of the 2017 tax reform will distort pay-ratio estimates. Hiring in a growing economy will have a similar distortionary effect. For instance, a company that adds 5,000 new employees mid-year will doubtless increase its pay ratio as many of those workers will be brought in at low "training" wages, but the net result of this development is an unalloyed good for the labor market and the company's workers.

If we are stuck with the pay ratio rule—and, absent Dodd-Frank reform, we most certainly are—then one way we could improve the statistic so that it measures something useful would be to adjust for part-time workers. Companies like Weight Watchers and McDonalds employ a bevy of part-time workers who may log as few as 10 hours a week. Using their data to determine the "median" informs absolutely no one of the true status of income inequality.

Such a fix would not be all that difficult. Robert Pozen and Kashif Qadeer of MIT's Sloan School of Management suggested in a 2018 *Wall Street Journal* op-ed that firms could simply consider full-time equivalents in their calculus, something that is commonly done in other contexts. The SEC could accomplish this by issuing an administrative guidance document allow-

ing for part-time pay to be annualized.

The pay ratio rule is, in fact, incongruous with the body of regulations promulgated by the SEC. By law those regulations must be intended to promote capital formation, increase market efficiency, or facilitate investor protection. It is difficult to argue that the pay ratio rule advances any of those goals, especially given the previous requirement that CEO compensation be publicly disclosed.

U.S. corporations currently keep two different sets of data: one for investors and the other for the government for the purpose of reporting taxes. Keeping those two disparate books may seem redundant, but it's for a good reason: the information that the IRS requires for tax purposes is not necessarily relevant for discerning how a corporation is actually performing.

The pay ratio represents a datum that is not relevant to either investors or the IRS.

The ratio is put forth for those who feel compelled to check the behavior of companies to ensure that they hew to whatever social standards policymakers are embracing at the moment. This sets a troubling precedent: will we soon be asking firms to provide other data that are irrelevant to management, shareholders, or the tax authority? R

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USDA Reform: Help Rural America by Freeing Scientific Innovation

BY AMANDA MAXHAM AND HENRY I. MILLER

Last year, the U.S. Department of Agriculture requested public comment on proposed measures to "improve efficiencies" at the department. Those measures mainly would reorganize the USDA by merging some agencies and shuffling boxes around its organizational chart. It would also establish a Rural Development Innovation Center (RDIC) to "identify and develop new tools to better serve rural communities in achieving prosperity."

Perhaps the changes will make life better for farmers and other rural residents in some ways. But if the USDA really wants to promote prosperity in rural America, it should pare back the excessive regulations that have been constraining agricultural innovation for the last three decades.

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Consider the USDA's questionable certification of "organic" products, which has been discussed in these pages previously. (See "The USDA's Meaningless Organic Label," Spring 2016.) Because the "organic" designation doesn't reflect any difference in food safety or healthfulness, and because the requirements for earning the "USDA Organic" label are wholly arbitrary—not to mention the USDA's questionable effectiveness in correctly identifying which products meet those requirements—consumers and producers

of organic products would likely be better served by private certification regimes that would respond to market demands rather than political whims.

Another example, also previously discussed in these pages, would be a drastic relaxation—if not an outright repeal—of USDA and Food and Drug Administration regulations that inhibit the development and use of genetically modified organisms (GMOs). (See “The USDA’s Anti-Science Activism,” Summer 2011.) The longstanding scientific consensus is that GMOs pose no more (and often less) risk to human health and the rest of the planet than organisms created through largely unregulated traditional techniques. Permitting broader use of genetic modification would open the way for developing both animals and plants that require fewer inputs, are more healthful and environmentally friendly, and would make land that would have been needed for agriculture available for other uses.

Likewise, the once-promising sector of “biopharming,” which uses genetic engineering techniques to induce crops such as corn, rice, and tobacco to produce high concentrations of high-value pharmaceuticals, is moribund as a result of USDA regulation. Not surprisingly, few companies or other potential sponsors are willing to invest in the development of badly needed genetically improved varieties of the subsistence crops grown in the developing world. Unwise excessive regulation has a wide ripple effect.

Needed regulatory reform at APHIS / The USDA, through the Biotechnology Regulatory Services organization within its Animal and Plant Health Inspection Service (APHIS), is responsible for the regulation of genetically engineered plants. APHIS had long regulated the importation and interstate movement of organisms (plants, bacteria, fungi, viruses, etc.) that are plant pests, which are defined by means of an inclusive list—essentially a binary “thumbs up or down” approach. A plant that an investigator might wish to introduce into the field is either on the prohibited list of plant pests and therefore

requires a permit, or it is exempt.

This straightforward approach is risk-based in that the organisms required to undergo case-by-case governmental review are an enhanced-risk group. But for more than a quarter-century, in addition to its basic risk-based regulation, APHIS has applied a parallel regime that focuses exclusively on plants altered or produced with the most precise genetic engineering techniques. Thus, APHIS distorts the original concept of a plant pest (something known to be harmful) because it has crafted a new category—a “regulated article”—defined in a way that captures virtually every recombinant DNA-modified plant for case-by-case review, regardless of its potential risk,

Permitting broader use of genetic modification would open the way for developing both animals and plants that are more environmentally friendly.

because it *might* be a plant pest.

In order to perform a field trial with a “regulated article,” a researcher must apply to APHIS and submit extensive paperwork before, during, and after the field trial. After conducting field trials for a number of years at many sites, the researcher must then submit a vast amount of data to APHIS and request “deregulation” of the organism, which is equivalent to approval for unconditional release and sale. These requirements make genetically engineered plants extraordinarily expensive to develop and test. The cost of discovery, development, and regulatory authorization of a new trait introduced between 2008 and 2012 averaged \$136 million according to Wendelyn Jones of DuPont Pioneer, a major corporation involved in crop genetics.

APHIS’s approach to recombinant DNA-modified plants is difficult to justify. Plants have long been selected by nature, as well as bred or otherwise manipulated by humans, for enhanced resistance or tolerance to external threats to their survival and productivity. These threats include

insects, disease organisms, weeds, herbicides, and environmental stresses. Plants have also been modified for qualities attractive to consumers, such as seedless watermelons and grapes and the tangerine-grapefruit hybrid called a tangelo.

APHIS has not shown any willingness to rationalize its regulatory approach, so the regulatory obstacles that discriminate against genetic engineering continue to impede the development of crops with both commercial and humanitarian potential. Many innovative genetically engineered crops foreseen in the early days of the technology have literally withered on the vine as regulatory costs have made testing and commercial development economically unfeasible.

The opportunity costs of unnecessary regulatory delays and inflated development expenses are formidable. As agricultural economists Gregory Graff, Gal Hochman, and David Zilberman

observed in a 2009 paper in the journal *AgBioForum*, “The forgone benefits from these otherwise feasible production technologies are irreversible, both in the sense that past harvests have been lower than they would have been if the technology had been introduced, and in the sense that yield growth is a cumulative process of which the onset has been delayed.”

Conclusion / If the USDA wants to undertake meaningful, long-overdue, and obviously needed reform, it should worry less about its organizational chart and more about the restraints it places on agricultural innovation. Department officials have acknowledged that plants modified with the new gene editing techniques will not be considered “regulated articles” because they don’t meet the definition in the regulations. But there’s nothing in its current reform plans that indicates a more appropriate, scientific approach to regulating recombinant DNA-modified plants or for removing the USDA’s involvement in the organics market. R