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Ms. Elizabeth M. Murphy
Secretary
Securities and Exchange Commission
100 F Street, N.E.
Washington, D.C. 20549-1090

Re: Suspension of and Order Instituting Proceedings to Determine Whether to
Approve or Disapprove a Proposed Rule Change to Offer a Customer Rebate
Release No. 34-70940; File No. SR-Phlx-2013-113

Dear Ms. Murphy:

NASDAQ OMX PHLX LLC (“Phlx” or the “Exchange”) respectfully submits this comment letter in further support of its proposal to amend the Customer Rebate Program in Section B of its Pricing Schedule to increase the rebates available to certain market participants who transact customer orders on Phlx (the “Proposed Rule”).¹ This comment letter responds to arguments raised by several other commenters who oppose the Proposed Rule.

As Phlx explained in its initial submission, the Proposed Rule would offer a pro-competitive rebate to market participants who trade on Phlx. To obtain the proposed rebate, a market participant must execute at least 2.5% of its national customer volume in multiply-listed options in a particular month on any of three Nasdaq-affiliated exchanges—Phlx, The NASDAQ Options Market LLC (“NOM”), and/or NASDAQ OMX BX, Inc. (“BX Options”) (collectively, the “NASDAQ OMX exchanges”). A market participant could execute the entire 2.5% of volume on Phlx alone and qualify for the rebate. Alternatively, the market participant could aggregate volume across any of the three affiliated exchanges to meet the proposed threshold. In

¹ See Exchange Act Release No. 34-70866 (Nov. 13, 2013) (Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Offer a Customer Rebate).

either case, the market participant would receive the rebate (an additional \$0.02 per contract, above and beyond other available customer rebates) only on orders executed on Phlx itself.

The proposed rebate furthers the purposes of the Exchange Act in multiple respects, particularly the Commission's principal mandate of protecting investors. By increasing the rebates available to market participants who transact customer orders on PHLX, the proposed rule would reduce the transaction costs of doing business on the Exchange, which would ultimately reduce the costs passed on to investors. As a result, investors would be more likely to direct customer liquidity to the Exchange, which would result in tighter spreads, increased trading opportunities, and an overall better functioning trading platform. Thus, the proposed rebate would redound to the benefit of both the market participants who receive it and the investing public as a whole. The rebate would also provide an incentive for other exchanges to match the discounted prices by developing their own innovative pricing strategies or increasing the quality of their execution services.

The Proposed Rule also allows the Exchange to better serve the diverse needs of its customers. Each of the NASDAQ OMX exchanges offers a somewhat different pricing and service model, which accommodates the wide array of demands that market participants make on behalf of investors. For example, NOM appeals to customers who prefer "maker-taker" pricing structures, while Phlx allows market participants to execute Complex Orders and benefit from price improvement. The Proposed Rule enables market participants to route an order to NOM or BX Options when they believe that is in the best interests of their clients—while still receiving credit toward Phlx's volume rebates. The Proposed Rule thus provides at least two direct benefits to Phlx's customers: it offers them better prices and provides them with greater leeway to route orders to alternative exchanges when they believe that doing so would be better for investors.

Given these extensive benefits, it is not surprising that the only customer to weigh in on the Proposed Rule, Citadel LLC ("Citadel"), agrees with Phlx that the rule "is consistent with the standards applicable to exchange rules under the Exchange Act and the applicable requirements for rule filings, while benefitting investors and the public interest."² According to Citadel, "the Proposal provides members with greater flexibility in making routing decisions," which "allows members to better fulfill their duties to customers and manage their businesses while encouraging competition among exchanges."³ Citadel therefore requests "that the Commission reinstate and approve the Rule Filing, and resist calls from other commenters (who also happen to be competitor exchanges) to disapprove it."⁴ That is undoubtedly the correct result.

As Citadel observed, several of Phlx's competitors have encouraged the Commission to disapprove the Proposed Rule. The Commission, however, should treat with substantial skepticism any argument by an exchange that a competitor should not be permitted to reduce its

² Citadel Comment at 2 (Dec. 18, 2013).

³ *Id.* at 3.

⁴ *Id.* at 2.

prices. That is especially true in this instance, where Phlx's competitors rely primarily on boilerplate recitations of the various statutory standards imposed by the Exchange Act without any legal or factual showing that the proposed rebate actually violates those standards.

First, the competitors argue that the proposed rebate is unfairly discriminatory because market participants who do not trade on other Nasdaq-affiliated exchanges will be disadvantaged. The premise of that argument, however, is demonstrably false, as any market participant can qualify for the rebate by executing the required volume on Phlx alone. Moreover, unfair discrimination cannot be established simply by demonstrating that customers with different trading preferences will pay different fees. There is nothing impermissible about an exchange offering a discount based on volume of trading or based in part on a customer's purchase of a related product or service. Such enticements are the hallmark of a competitive market. If customers find them attractive, the discounts will be successful in increasing order flow, and other exchanges can respond with their own pricing proposals or enhanced services. The potential result will be reduced pricing for all investors, regardless of where they trade. If the discount is unattractive, then it will fail under the weight of market pressures, without the need for regulatory intervention.

Second, Phlx's competitors argue that the proposed rebate places an unreasonable burden on competition. But they offer no evidence to support that conclusory assertion. Where competitors lose volume to a lower price and are forced to respond with their own competitive offers (as was the case here when the proposed rebate was in effect), that is not a burden on competition—it is the *essence* of competition. In this regard, it is important to recognize that the Exchange Act protects *competition*, not competitors from losing business in a competitive marketplace. That these competitors would prefer to keep prices high and *avoid* competition is not a sound basis for the Commission to block the proposed rebate—and it certainly is not in the public interest.

For this reason, it is highly unusual for courts or regulators to block proposed price reductions. Such limitations on rebates are appropriate only in very limited circumstances that are not present here. As the enclosed expert report of Professors Robert Willig and Gustavo Bamberger explains, “volume” and “bundled” rebates pose no threat to competition where, as here, they are used by a firm without monopoly power and rivals can profitably compete by offering discounts of their own.⁵ Phlx's rivals offer no evidence that they cannot profitably compete, and they concede that options exchanges operate in a highly competitive market. Their inability to marshal any evidence against Phlx's proposed discount is telling—it demonstrates that competitors' main concern about the proposed rebate is that they do not *want* to have to match Phlx's low prices. But a bare desire to avoid competition is not a satisfactory reason for regulatory action or rate-making.

Third, the competitors argue that the text of Section 6(b)(4) of the Exchange Act prohibits exchanges from basing rebates in part on activity that occurs on an affiliated exchange. Those commenters misread the statute, which places no limitations on exchanges' ability to

⁵ See Statement of Robert Willig and Gustavo Bamberger at 14-21.

consider a customer's trading volume on affiliated exchanges when setting prices. To the contrary, the Commission's order approving the New York Stock Exchange's ArcaBook product, which Phlx's competitors cite as precedent *against* the proposed rule, *presupposes* that exchanges will at times offer coordinated pricing proposals. Again, competitors want the Commission to use the Exchange Act to short-circuit the competitive process by declaring all pricing proposals that involve affiliated exchanges to be automatically out of bounds. Nothing in the Exchange Act, economic theory, the evidence relating to this proposal, or sound regulatory practice dictates that result.

Rather, the Proposed Rule meets all requirements of the Exchange Act, benefits those market participants who qualify for the proposed rebate, and benefits all investors who trade on Phlx. Consistent with the comment of Citadel, the only customer to offer an opinion, the Proposed Rule should be approved.

I. Phlx's Proposed Rule Is Not Unfairly Discriminatory.

A. The Proposed Rule Would Increase The Rebates Available To Market Participants Who Transact Orders On Phlx.

Contrary to the assertions of Phlx's competitors, Phlx's Proposed Rule does not create "unfair discrimination between customers, issuers, brokers, or dealers."⁶ To the contrary, the Proposed Rule would supplement Phlx's already popular customer rebate program by offering an additional rebate to market participants who meet the specified volume threshold on Phlx and other NASDAQ options exchanges.

In proposing the enhanced rebate, Phlx recognized that market participants might enhance their efficiency and benefit their customers by fragmenting their order flow among different options markets to improve execution quality and lower costs for their customers. In order to meet these customer needs and incentivize efficient trading activity, Phlx proposed a rule that allows market participants to receive an enhanced rebate by either sending more customer volume to Phlx alone, or by aggregating customer volume across three Nasdaq-affiliated exchanges. The Proposed Rule thus would enable market participants to take advantage of the rebate even in cases where the duty of best execution counseled in favor of fragmenting orders across multiple exchanges. Simply put, it cannot be unfairly discriminatory to *broaden* the availability of a rebate to more market participants.

Indeed, providing this additional rebate to Phlx's members would further multiple purposes of the Exchange Act. By reducing fees, the proposed rebate would lower the transaction costs that market participants must incur to execute orders on Phlx. Thus, the proposed rebate would benefit investors and the national market system as a whole by reducing costs, increasing the incentives for exchanges to compete for order flow, and encouraging market participants to direct more liquidity to the Exchange. Customer liquidity benefits all market participants by providing greater trading opportunities, which in turn facilitate tighter spreads, promoting a "virtuous cycle" that could lead to market participants directing yet more order flow

⁶ 15 U.S.C. § 78f(b)(5).

to the Exchange. Given these likely results, the Exchange's proposal would benefit not only the market participants receiving the proposed rebate, but all other Phlx market participants as well.

The Proposed Rule would also enable Phlx members to take advantage of an additional rebate without neglecting their execution obligations. If a market participant believes that it would better satisfy its duty of best execution to direct a certain percentage of customer volume to another Nasdaq-affiliated exchange, it may do so, without fearing that it would thereby sacrifice a rebate. If, on the other hand, a market participant directed sufficient liquidity to Phlx alone, it could qualify for the rebate on that basis as well. Phlx's proposal simply expands the options available to market participants. Thus, far from unfairly discriminating, the Proposed Rule actually helps level the playing field for market participants who trade on more than one Nasdaq-affiliated exchange.

B. It Is Not Unfairly Discriminatory To Offer A Volume-Based Rebate Or Any Other Differentiated Pricing Arrangement To All Participants In A Competitive Market.

Moreover, the Proposed Rule is not unfairly discriminatory because *any* Phlx market participant can qualify for the Customer Rebate Program. As long as a market participant meets the relevant criteria, anyone who trades on Phlx can avail itself of the increased rebate. Given the ease with which market participants can become members of Phlx and its affiliated exchanges, there are no significant barriers to anyone taking advantage of the enhanced rebate. The Proposed Rule therefore does not discriminate against or exclude any market participant or class of participants—it is available on equal terms to all.

Phlx's competitors (but not Phlx's customers) nevertheless argue that it is inherently discriminatory to offer a different price to two market participants who trade the same volume on Phlx where the discount is based on the fact that one participant trades more heavily on another Nasdaq-affiliated exchange.⁷ But while that may be an example of price differentiation, these commenters do not explain, nor could they, how such an arrangement is *unfairly* discriminatory.

First, the Proposed Rule is merely one example of the type of pro-competitive discount that the Commission historically has approved when made available (like the Proposed Rule) to all market participants. To be sure, *all* rebates predicated on volume or some other condition differentiate between customers who meet the condition and those who do not. But that does not mean that the rebate is unfairly discriminatory. The Commission has for many years accepted multiple pricing structures that result in differential pricing and permit exchanges to charge less to customers who contribute more, including:

- **Volume tiers:** Equity and options pricing has long included volume tiers that provide discounts to the heaviest liquidity providers, highly capitalized broker/dealers or takers;
- **Fee caps:** Many exchanges have fee caps and enterprise licenses that favor heavy users of a system over other users;

⁷ See MIAX Comment at 2 (Nov. 27, 2013); CBOE Comment at 3 (Dec. 20, 2013).

- ***Professional vs. Non-professional data recipients:*** Different recipients pay different fees for the same market data based upon their status;
- ***Equity Investors:*** The Commission has accepted the sale and purchase of equity ownership in exchanges predicated upon incentives for continued order flow provision;
- ***Directed Participants:*** Several exchanges have programs differentiating between participants who accept directed orders and those who do not;
- ***Order Capacity Differentiation:*** The options exchanges have differentiated between retail customers and professional customers, broker/dealers clearing in the “Firm” range at The Options Clearing Corp, broker/dealers registered as market makers, away market makers, early-adopting market makers, and many others; and
- ***Order Handling Methods:*** The Commission has permitted price differentiation based on whether an order is processed manually versus electronically.

Of particular relevance here, the Commission has consistently approved volume-based rebates, which are pro-competitive and help reduce costs and increase available liquidity for investors.⁸ But the commenters’ attack on the Proposed Rule would apparently require the abolishment of volume-based rebates and other previously accepted differential pricing structures because (in their view) “disparate treatment between similarly positioned market participants is unfair discrimination.”⁹ This is incorrect as a matter of economics, and as an interpretation of the Exchange Act.

Second, the proposed rebate does not discriminate between customers who trade exclusively on Phlx and those who trade on multiple Nasdaq-affiliated exchanges. If a market participant is able to execute the required 2.5% or more of national customer volume exclusively on Phlx, that participant is entitled to the rebate. Members are not required to transact any volume on other Nasdaq-affiliated exchanges; in fact, they have an incentive to transact on Phlx alone because only qualifying customer orders *executed* on Phlx are entitled to the rebate. Alternatively, a market participant can qualify for the rebate by executing the required 2.5% or more of national customer volume across Phlx, NOM, and/or BX. Phlx customers are therefore treated equally regardless of whether they trade exclusively on Phlx or trade on multiple Nasdaq-affiliated exchanges.

Third, contrary to the arguments of Phlx’s competitors, the proposed rebate does not unfairly discriminate against market participants who choose to execute a certain volume of transactions on other, non-affiliated exchanges.¹⁰ Phlx obviously has a legitimate commercial

⁸ See *infra* Section II.

⁹ MIAX Comment at 2 (Nov. 27, 2013).

¹⁰ CBOE Comment at 3 (Dec. 20, 2013); MIAX Comment at 2 (Nov. 27, 2013).

reason to limit its rebate to market participants who trade on *it or its affiliated* exchanges. Indeed, even under the current rebate structure, customers have incentives to direct liquidity away from other exchanges and toward Phlx or one of its affiliates. For example, a customer could choose to divert liquidity from ISE to Phlx in order to take advantage of existing volume-based rebates. That is not unfair discrimination; rather, it is the essence of competition.

Fourth, and finally, the Proposed Rule does not unfairly discriminate against other exchanges that vie with Phlx and its affiliates for liquidity. Other exchanges remain free to establish customer rebates at the same volume levels (or even lower levels) than those proposed by Phlx. To the extent that a competitor does not operate multiple exchanges, the proposed rebate would not require that a competitor establish a new exchange in order to compete. Instead, such an exchange could offer the same rebate to customers who execute the designated volume on a single exchange. The Proposed Rule in fact does just that with respect to customers who execute the threshold volume exclusively on Phlx. In addition, other exchanges could also offer lower prices or enhanced services as competing incentives.

Of course, if an exchange believes that it would be attractive to customers to have a choice between multiple, affiliated exchanges, it may create such exchanges, as some self-regulatory organizations (“SROs”)—including commenters CBOE and ISE—have already done.¹¹ There are no significant barriers to SROs creating additional options exchanges. To the contrary, new market entrants, such as MIAX, have offered incentivized pricing to attract new order flow.¹²

Conspicuously, none of the commenters points to any specific impediments that would prevent them from competing with Phlx by offering alternative pricing proposals. They present no data showing, for example, that other exchanges could not adequately recover marginal costs if they matched Phlx’s proposed rebate or employed lower prices or enhanced services as competing incentives. Instead, it appears that the commenters simply do not want to have to compete with Phlx. But the desire to stifle competition is not a valid reason to oppose a proposed rebate.

In short, it is not unfairly discriminatory when a proposed rule incentivizes other exchanges to respond to a competitor’s reduced prices or a competitor’s differentiated pricing strategy. Rather, that is the hallmark of a well-functioning, competitive market.

II. The Proposed Rule Does Not Place An Unnecessary Burden On Competition.

A. The Proposed Discount Will Not Burden Competition.

Phlx’s competitors are equally wrong when they suggest that the Proposed Rule would place an unnecessary or inappropriate burden on competition under Section 6(b)(8) of the Exchange Act.¹³ The Proposed Rule is, at bottom, a price cut. Courts generally have met claims

¹¹ See Proposed Rule at 34.

¹² See *id.* at 34-35.

¹³ CBOE Comment at 4 (Dec. 20, 2013); ISE Comment at 3-4 (Dec. 20, 2013).

that low prices harm competition with great skepticism because consumers benefit directly from lower prices and “cutting prices in order to increase business often is the very essence of competition.”¹⁴ Accordingly, both the courts and the Commission are reluctant to prohibit discounting because doing so could “chill the very conduct the antitrust laws are designed to protect.”¹⁵

The fact that price competition may disadvantage Phlx’s competitors does not change that analysis. The antitrust laws were enacted “for ‘the protection of *competition*, not *competitors*.’”¹⁶ Taking business from rivals is the heart of competition; whenever a firm successfully improves its product or cuts its prices, it does so in order to take market share from competitors. While the loss of business may harm competing firms, that harm is a byproduct of robust competition, not an invitation for regulatory intervention.¹⁷ As the Commission has recognized, “[i]t is important that the Commission avoid stifling competition on the merits—including competition on price—out of a concern for protecting competitors from pricing pressure.”¹⁸

Caution is especially warranted here, given that the only opposition to the Proposed Rule comes from Phlx’s competitors and the sole customer who has submitted a comment (Citadel) supports the Exchange’s proposed discount. As Judge Easterbrook explains, “courts should treat with great skepticism complaints by competitors who are injured by the low prices that customers adore, when the customers are content.”¹⁹

No evidence or cognizable economic theory indicates that the Proposed Rule threatens competition in any way. For example, the commenters concede that the Proposed Rule does not constitute a form of anticompetitive tying. ISE states unequivocally that it “agree[s] that there is no illegal tying in the Phlx proposal.”²⁰ For its part, CBOE appears to admit as much by arguing against the Exchange’s proposal on the ground that it constitutes a form of tying “in the loose

¹⁴ *Pac. Bell Tel. Co. v. linkLine Commc’ns, Inc.*, 555 U.S. 438, 451 (2009) (internal citation omitted).

¹⁵ *Id.*; Exchange Act Release No. 34-62001, 2010 SEC LEXIS 1514, at *22 (Apr. 29, 2010) (File No. SR-BX-2010-027); *see also Brooke Group Ltd. v. Brown & Williamson Tobacco Corp.*, 509 U.S. 209, 226 (1993); *Atlantic Richfield Co. v. USA Petroleum Co.*, 495 U.S. 328, 337-38 (1990); *Cargill, Inc. v. Monfort of Colo., Inc.*, 479 U.S. 104, 116-17, 121 n.17 (1986); *Matsushita Elec. Indus. Co. v. Zenith Radio Corp.*, 475 U.S. 574, 589, 594 (1986).

¹⁶ *Brooke Group*, 509 U.S. at 224 (emphasis in original) (citation omitted).

¹⁷ *See, e.g., Ball Mem. Hosp., Inc. v. Mut. Hosp. Ins., Inc.*, 784 F.2d 1325, 1338 (7th Cir. 1986) (Easterbrook, J.) (“[I]njuries to rivals are byproducts of vigorous competition, and the antitrust laws are not balm for rivals’ wounds.”).

¹⁸ Exchange Act Release No. 34-62001, 2010 SEC LEXIS 1514, at *22 (Apr. 29, 2010) (File No. SR-BX-2010-027).

¹⁹ *A.A. Poultry Farms, Inc. v. Rose Acre Farms, Inc.*, 881 F.2d 1396, 1403-04 (7th Cir. 1989).

²⁰ ISE Comment at 5 (Dec. 20, 2013).

sense of ‘connecting’ or ‘putting together’” but not “in any technical way alluding to the anti-trust concept of ‘tying.’”²¹ Whatever it may mean by this, neither CBOE nor any of the other commenting competitors has suggested that a “loose sense of ‘connecting’ or ‘putting together’” threatens competition in any way.

Rather than argue that the discount is an illegal tie, Phlx’s competitors appear to rest their case on the contention that single-exchange operators cannot offer a precisely identical rebate.²² Notably, however, none of the competitors even suggests—much less offers supporting evidence—that it cannot compete by offering its own rebates, adjusting the thresholds for customers to achieve rebates, or otherwise making their exchanges more attractive to customers.²³

As a matter of economics and antitrust law, there is nothing inherently suspicious or unlawful about a rebate or discount that is bundled across multiple products or services. Indeed, offering a bundled discount is often pro-competitive and is desired by customers in a wide range of markets.²⁴ And, as with any price discount, courts and regulators have been justifiably skeptical about proscribing bundled discounts.²⁵ Accordingly, courts in antitrust cases have held that bundled discounts should only be proscribed where an equally efficient rival simply cannot profitably compete on the merits because it lacks the breadth of products of the firm offering the bundled discount.²⁶ On the other hand, where a competitor can match the bundled discount by offering discounts to customers on the lines of products that it sells, then there is no competitive concern. Here, any argument that competitors could not profitably match the discount would not be credible. In these circumstances, there is no threat of harm to competition.²⁷

²¹ CBOE Comment at 5 n.9 (Dec. 20, 2013).

²² MIAX Comment at 3 (Nov. 27, 2013).

²³ See Willig & Bamberger at 20-25 (rivals could compete by cutting prices or improving services).

²⁴ See *id.* at 14-15; see also Antitrust Modernization Commission, Report and Recommendations at 94-95 (April 2007) (hereinafter “Antitrust Modernization Commission”), available at: http://govinfo.library.unt.edu/amc/report_recommendation/amc_final_report.pdf; IIIA Phillip E. Areeda & Herbert Hovenkamp, Antitrust Law, at 305-10 (3d ed. 2008) (hereinafter “Antitrust Law”).

²⁵ See, e.g., *Virgin Atl. Airways Ltd. v. British Airways PLC*, 257 F.3d 256, 259 (2d Cir. 2001); IIIA Antitrust Law at 305-10, 326.

²⁶ See *Ortho Diagnostic Sys., Inc. v. Abbott Labs., Inc.*, 920 F. Supp. 455, 467 (S.D.N.Y. 1996); Antitrust Modernization Commission at 99-100; IIIA Antitrust Law at 325-30.

²⁷ See IIIA Antitrust Law at 331-32 (liability should be barred where even one competitor can match the bundled discount); see also *Invacare Corp. v. Respironics, Inc.*, 1:04-cv-1580, 2006 U.S. Dist. LEXIS 77312, at *37 (N.D. Ohio Oct. 23, 2006) (liability inappropriate because “there are competing firms that can match the bundle”); *Ortho Diagnostic*, 920 F. Supp. at 472 n.25 (tying claim “sounds especially hollow” where plaintiff could profitably

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Phlx's competitors cannot credibly contend that they are unable to match the proposed discount because the evidence does not support this argument. For example, MIAX, which itself only operates one exchange, responded to the Proposed Rule by lowering the volume thresholds for its own discount program and increasing the size of its rebates.²⁸ This response—implemented just one month after Phlx announced the proposed rebate—demonstrates the pro-competitive nature of the Proposed Rule, which prompted Phlx's competitors to reduce their own prices, to the benefit of customers.

The competitive nature of the market also makes anticompetitive harm unlikely. In their own fee filings, Phlx's competitors recognize that the options exchange market is "highly competitive"²⁹ and that "exchange fees are constrained by . . . robust competition among the options exchanges."³⁰ Even if, under some scenario, one of the single-exchange operators were to prove completely unable to match the proposed discount (or formulate another way to differentiate itself from the competition), Phlx would still face competition from five other exchange operators and eight other exchanges, including three exchange operators that themselves operate multiple exchanges (and thus would not even arguably be unable to match the discount).³¹ If the Proposed Rule were approved, these rivals would continue to compete vigorously with Phlx, and the discount's only effect would be to provide low prices to consumers. Because Phlx faces competition from several rivals, of all shapes and sizes, that can match the proposed rebate, there is simply no risk that the Proposed Rule represents an anticompetitive bundled discount.³²

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match the bundled discount); Willig & Bamberger at 14-21 (Phlx's proposal will not disadvantage competitors because it does not have market power and rivals can match the rebate).

²⁸ See Miami International Securities Exchange LLC, Release No. 34-71009 (Dec. 6, 2013) (File No. SR-MIAX-2013-56).

²⁹ International Securities Exchange, LLC, Re: File No. SR-PHLX-2013-113, at 2 (Dec. 20, 2013) (File No. SR-PHLX-2013-13); see also Miami International Securities Exchange LLC, Notice of Filing and Immediate Effectiveness of Proposed Rule Change to Adopt a Priority Customer Rebate Program, 78 FR 42138, 42139 (July 15, 2013).

³⁰ Chicago Board Options Exchange, Inc., Re: Proposed Amendments to Rule 610 of Regulation NMS at 2 (June 21, 2010) (File No. S7-09-10).

³¹ It is irrelevant for present purposes that NASDAQ is the only operator with three exchanges. The vast majority of NASDAQ's options trades take place on NOM or Phlx; BX Options has only a 1% market share. Moreover, as NASDAQ discussed in its original filing, its competitors are able to open new exchanges. See Proposed Rule at 34.

³² Willig & Bamberger at 7-12, 14-25.

Finally, even if the Proposed Rule did pose some theoretical risk of harm to competition, that harm would be outweighed by the important benefits that the Proposed Rule provides. The rule therefore would not constitute an “*undue* burden on competition not necessary or appropriate in furtherance of the purposes of the Act.”³³ As Citadel has argued, the proposed discount will “help attract order flow to Phlx to the benefit of all Phlx members” and “provide[] members with greater flexibility in making routing decisions.”³⁴ More fundamentally, as discussed above, the Proposed Rule is a price cut. Price competition benefits consumers directly. This benefit would itself outweigh any purported harm to competing exchanges that could result from Phlx’s proposed discount.³⁵

B. In A Competitive Market, The Commission Can Permissibly Conclude That Prices Set By Exchanges Are Presumptively Fair And Reasonable.

In their comments, Phlx’s competitors make little effort to demonstrate that Phlx’s discounts would pose any risk to competition, whether actual or theoretical. Instead, they focus primarily on the erroneous contention that, as a matter of law, the Commission cannot conclude that a well-functioning competitive market ensures that exchanges’ fees are fair and reasonable. This argument is flawed. Both the courts and the Commission have recognized that prices set for products and services in a competitive market are presumptively fair and reasonable and do not place an unnecessary burden on competition within the meaning of the Exchange Act.

When it established the present “national market system” in the 1975 amendments to the Exchange Act, Congress afforded the Commission the flexibility to remove unnecessary regulatory barriers to competition and to permit market forces to determine prices where appropriate. “The objective [in enacting the 1975 amendments to the Exchange Act was] to enhance competition and to allow economic forces, interacting within a fair regulatory field, to arrive at appropriate variations in practices and services.”³⁶ Accordingly, Congress expressly charged the Commission with supervising the development of a system that would “evolve through the interplay of competitive forces as unnecessary regulatory restrictions are removed.”³⁷

³³ Exchange Act Release No. 34-71257, 2014 SEC LEXIS 70, at *15 (Jan. 8, 2014) (File No. SR-Phlx-2014-03) (emphasis added).

³⁴ Citadel Comment at 2-3 (Dec. 18, 2013).

³⁵ MIAX also argues that Phlx’s pricing proposal will hamper competition among market participants because it will injure Phlx members who are not also members of NOM or BX Options. *See* MIAX Comment at 3 (Nov. 27, 2013). As discussed above, however, no matter how a volume- or share-based rebate is structured, there will always be a possibility that some participants might not qualify for the rebate. If that alone were sufficient to constitute a burden on competition, then MIAX’s own volume-based rebates would be anticompetitive. Moreover, MIAX’s argument fails to account for the fact that Phlx participants can obtain the full rebate without trading on NOM or BX Options, or may readily become members of NOM and/or BX Options if they are not already.

³⁶ S. Rep. 94-75, 94th Cong., 1st Sess. 8 (1975).

³⁷ H.R. Rep. No. 94-229, at 92 (1975) (Conf. Rep.).

Consistent with this charge, the Commission and the courts have repeatedly expressed their preference for competition over regulatory intervention in determining prices, products, and services in the securities markets.³⁸ In Regulation NMS, for example, the Commission indicated that market forces should generally determine the price of non-core market data because national market system regulation “has been remarkably successful in promoting market competition in its broader forms that are most important to investors and listed companies.”³⁹ Likewise, in *NetCoalition v. NYSE Arca, Inc.*, 615 F.3d 525 (D.C. Cir. 2010), the D.C. Circuit upheld the Commission’s use of a market-based approach in evaluating the fairness of market data fees against a challenge claiming that Congress mandated a cost-based approach.⁴⁰ As the court emphasized, the Commission “intended in Regulation NMS that ‘market forces, rather than regulatory requirements’ play a role in determining the market data . . . to be made available to investors and at what cost.”⁴¹

Accordingly, as long as a well-functioning competitive market exists, the Commission should presume that prices are fair and reasonable and that they do not place an unnecessary burden on competition. As Professors Willig and Bamberger explain, the options exchange industry is fiercely competitive; rivals battle continuously for market share, price competition is robust, and entry is common.⁴² Phlx’s competitors concede the existence of this competitive market in their comments and have not identified any evidence that could overcome the resulting presumption that the discount proposed by Phlx is fully consistent with Section 6(b)(8) of the Exchange Act.

C. Commenters’ Reliance On The NYSE ArcaBook Order Is Misplaced.

CBOE and ISE also rely on an excerpt from the Commission’s Order approving NYSE’s ArcaBook product to argue that coordinated action between two affiliated exchanges is somehow inherently anticompetitive.⁴³ According to these commenters, the Order demonstrates that exchanges cannot cooperate with each other with respect to fees.⁴⁴ To the contrary, the ArcaBook Order *presupposes* that affiliated exchanges will at times act jointly and that they will not violate the requirements of the Exchange Act by doing so.

After acknowledging in the relevant portion of the ArcaBook Order that “Exchanges under common control clearly have incentives to avoid competing with each other,” the Commission explained that the “regulatory structure *limits* the potential for related exchanges to act jointly in ways that would inappropriately inhibit competition by other exchanges and trading

³⁸ See Proposed Rule at 12 & n.21.

³⁹ Exchange Act Release No. 34-51808 (June 9, 2005) (“Regulation NMS Adopting Release”).

⁴⁰ See *NetCoalition*, 615 F.3d at 534.

⁴¹ *Id.* at 537.

⁴² Willig & Bamberger at 7-12.

⁴³ CBOE Comment at 5-6 (Dec. 20, 2013); ISE Comment at 1-2 (Dec. 20, 2013).

⁴⁴ See ISE Comment at 1-2 (Dec. 20, 2013).

centers with each related exchange.”⁴⁵ Because the regulatory structure merely *limits* the ways in which related exchanges can act jointly—and specifically, imposes limits when joint conduct would “*inappropriately inhibit* competition”—CBOE and ISE are wrong to contend that the Act contains a blanket prohibition against affiliated exchanges cooperating with respect to fees in any circumstances.

In fact, the limitations on coordinated action by affiliated exchanges are the same limitations placed on any SRO rule—that is, prices must be fair and reasonable and not unfairly discriminatory. As explained above, Phlx’s proposed rebate satisfies those requirements. The Commission has not placed any unique limitation on coordinated action taken by affiliated exchanges.

Indeed, the Commission’s rules and decisions make clear that agreements between individuals within (or subsidiaries of) a particular company do not constitute improper collusion.⁴⁶ That principle is the result of the simple fact that, within every company, individuals and related entities must reach countless agreements as to how to price, market, and produce the company’s products. Subjecting all of these agreements to rigorous antitrust scrutiny would be impractical. It would also be counterproductive. Unless it has monopoly power, a company that attempts to charge supra-competitive prices for its own products will simply lose sales to its rivals. Regulatory intervention is unnecessary in such circumstances, regardless of whether a single corporate entity or two related corporate entities are setting the price.

Thus, properly understood, the ArcaBook Order at most stands for the proposition that an exchange cannot justify a harm imposed on a market participant on one exchange by referring to an offsetting benefit that the market participant will receive on another exchange. As stated by the Commission, “a proposed exchange rule must stand or fall based, among other things, on the interests of customers, issuers, broker-dealers, and other persons using the facilities of that exchange.”⁴⁷ But Phlx’s Proposed Rule does not disadvantage the interests of any of these groups. To the contrary, market participants *on Phlx* will benefit from the proposed rebate because they will pay lower costs and because more liquidity will be directed to the Exchange. And this is true whether the market participants execute the required volume entirely on Phlx or across all NASDAQ-affiliated exchanges.⁴⁸ Nothing in the ArcaBook Order calls the proposed rebate into question.⁴⁹

⁴⁵ ArcaBook Order, 73 FR 74770, 74793 (Dec. 9, 2008) (emphasis added).

⁴⁶ *In re: Central and Sw. Fuels, Inc.*, 49 S.E.C. 404, 412 n.13 (1985) (70-6534) (citing *Copperweld Corp. v. Independence Tube Corp.*, 467 U.S. 752 (1984)).

⁴⁷ ArcaBook Order, 73 FR at 74793 (emphasis added).

⁴⁸ See *supra* Section I.B.

⁴⁹ Even if CBOE and ISE were right about the ArcaBook Order, and the Commission’s rules could be read to require a more searching scrutiny of intra-exchange coordination, their claims of harm to competition would still fail. The Proposed Rule does not bar price competition between Phlx, BX Options, and NOM. Nor have the NASDAQ OMX exchanges agreed to set a minimum price at which they will sell their products. Instead, the
(Cont'd on next page)

III. Section 6(b)(4) Of The Exchange Act Does Not Prohibit The Proposed Rule.

Section 6(b)(4) of the Exchange Act requires that the rules of an exchange “provide for the equitable allocation of reasonable dues, fees, and other charges among its members and issuers and other persons using its facilities.”⁵⁰ Focusing on the phrase “its facilities,” CBOE and ISE contend that Section 6(b)(4) somehow requires that “dues, fees, and other charges” not be allocated “on the basis of anything except use of the facilities of the charge-imposing exchange.”⁵¹ According to CBOE and ISE, the Proposed Rule is inconsistent with this statutory language because the phrase “its facilities” prohibits Phlx from offering a rebate based in part on volume executed on another exchange.

The commenters’ reading of Section 6(b)(4) is erroneous. The phrase “persons using its facilities” simply refers to one category of market participant that is bound by an exchange’s rules—along with “members” and “issuers.” It does not purport to describe the *basis* on which fees may be determined, or to restrict the right of an exchange to offer these market participants a discount that may be based in part on their trading activity on an affiliated exchange. Because the Proposed Rule is appropriately limited to market participants who transact business on Phlx, and the proposed rebate only applies to orders executed on Phlx, the Rule is fully consistent with this aspect of Section 6(b)(4).

Moreover, contrary to CBOE’s claims,⁵² the Proposed Rule is neither “[un]reasonable” nor “[in]equitable.” As Phlx has already explained at length, the Proposed Rule is reasonable because it provides an opportunity for market participants to receive enhanced rebates and therefore enables them to lower the costs passed on to investors.⁵³ Like any rebate program enhancement, the proposal should be considered presumptively reasonable. Indeed, the

(Cont'd from previous page)

Proposed Rule allows Phlx customers to earn eligibility for a better price on their Phlx transactions while using the somewhat different pricing and service options available on NOM or BX Options. In that sense, Phlx has worked to create a pricing system that better serves the needs of its customers than would be possible if customers could only qualify for its rebates by trading on Phlx itself. To the extent that this can be called “cooperation,” it is cooperation to create a better product. The Supreme Court has recognized that agreements between competitors to create a better product can be pro-competitive and must be assessed under the rule of reason, even when those agreements affect a component of pricing. *See, e.g., Broadcast Music, Inc. v. Columbia Broadcast Sys., Inc.*, 441 U.S. 1 (1979). As described more fully above, the Proposed Rule must be upheld under that analysis because Phlx does not have market power and there is no indication that the proposed discount would negatively affect competition.

⁵⁰ 15 U.S.C. § 78f(b)(4).

⁵¹ CBOE Comment at 2-3 (Dec. 20, 2013); *see* ISE Comment at 4 (Dec. 20, 2013).

⁵² CBOE Comment at 3 (Dec. 20, 2013).

⁵³ Proposed Rule at 14.

Proposed Rule benefits not only market participants receiving the proposed rebate, but also other market participants to the extent the rebate encourages investors to direct a larger amount of liquidity to the Exchange.⁵⁴ Any pricing structure that has these beneficial effects necessarily constitutes an “equitable allocation” of fees.

IV. The Commission Has Already Approved Similar Pricing Arrangements That Involve Multiple Exchanges Or Aggregated Customer Volume.

Finally, the Proposed Rule should be approved because the Commission has previously permitted materially similar pricing arrangements. It would be arbitrary and capricious, and thus inconsistent with the Administrative Procedure Act, for the Commission to disapprove Phlx’s rule given its approval of similar rules in the past.⁵⁵

As set out in the Proposed Rule, discounts involving affiliated exchanges are not novel.⁵⁶ The New York Stock Exchange LLC (“NYSE”), for example, waives certain annual fees for issuers that transfer the listing of their primary class of common shares to NYSE from another NYSE-affiliated exchange. ISE nevertheless contends that the example is “irrelevant since it has nothing to do with trading, let alone combining trading activity conducted on multiple exchanges.”⁵⁷ But ISE fails to explain why this is a meaningful distinction in determining whether Phlx’s rules “permit unfair discrimination between customers, issuers, brokers, or dealers.”⁵⁸ Like the Proposed Rule, the NYSE policy is an example of an exchange determining the application of a fee based in part on activity that occurs on another exchange.

Moreover, on at least four occasions, the Commission has permitted particular trading venues to consider volume executed away from that venue for rebate and fee calculation purposes.⁵⁹ First, there is a NOM rebate available to participants who transact a certain amount of volume on NOM and also execute orders on NASDAQ’s cash equity market.⁶⁰ A NOM participant may qualify for this rebate based on its activity in both options and cash equities markets—even though some market participants may prefer to trade only on one or the other. Second, Phlx members can qualify for a customer rebate by including SPDR S&P 500 (“SPY”) volume in the calculation of qualifying orders for the purpose of determining customer rebate tiers. Because Phlx does not pay customer rebates on SPY volume as specified in the Customer

⁵⁴ *Id.* at 15-17.

⁵⁵ *See, e.g., Indep. Petroleum Ass’n of Am. v. Babbitt*, 92 F.3d 1248, 1258 (D.C. Cir. 1996) (“An agency must treat similar cases in a similar manner unless it can provide a legitimate reason for failing to do so.”); *FCC v. Fox Television Stations, Inc.*, 556 U.S. 502, 515-16 (2009).

⁵⁶ *See* Proposed Rule at 26-27.

⁵⁷ ISE Comment at 6 (Dec. 20, 2013).

⁵⁸ 15 U.S.C. § 78f(b)(5).

⁵⁹ *See* Proposed Rule at 25-26.

⁶⁰ *See* NOM Rules at Chapter XV, Section 2.

Rebate Program,⁶¹ this policy allows volume other than the volume on which the rebate is paid to be considered for eligibility purposes. The Proposed Rule does the same thing by permitting volume traded on Nasdaq-affiliated exchanges to be used to determine eligibility for an enhanced rebate on Phlx. Third, the options regulatory fee (“ORF”) is a fee that some exchanges charge based on the total volume of a market participant’s trades across all exchanges. Fourth, as highlighted by Citadel, the Commission has affirmatively approved a proposal in which volume tiers are calculated based on a market participant’s aggregate activity on two affiliated markets.⁶²

ISE attempts to distinguish the first two examples—the NOM rebate and the use of SPY volume in calculating rebate tiers—on the basis that they “relate solely to the fees charged by one registered exchange and thus have no bearing on a proposal to base the fees of one exchange on the volume of trading on affiliated exchanges.”⁶³ ISE is correct that neither of the first two examples involves affiliated exchanges. But ISE’s conclusion that they “thus have no bearing” on Phlx’s proposal simply does not follow. In both examples, the Commission has allowed an exchange to base fee calculation on trading volume other than the volume on which the rebate is paid. Phlx’s proposed rebate employs a materially similar pricing arrangement, and ISE fails to explain why its proffered factual distinction makes any difference, or why the NOM rebate and the use of SPY volume in calculating rebate tiers should be allowed while the Proposed Rule should not.

ISE’s argument with respect to ORF fares no better. ISE admits, as it must, that “ORF is relevant” here because “a number of options exchange[s] do impose that fee based on combined trading volume on all exchanges.”⁶⁴ According to ISE, however, ORF provides no support for the Proposed Rule because “the ORF structure is almost an exact opposite of the Phlx fee.”⁶⁵ Specifically, ISE contends, the purpose of imposing an ORF on transactions on all exchanges is “to remove any incentive by members to avoid the fee by trading off that exchange,” whereas the purpose of the Proposed Rule is “to encourage trading on the Phlx, the exchange collecting the fee.”⁶⁶ Even assuming this is true, ISE once again fails to explain why this is a meaningful distinction. If exchanges are allowed to engage in certain activity in order to *prevent* members from trading *off* that exchange, they should be allowed to engage in the same activity in order to *entice* members to trade *on* that exchange. They are two sides of the same coin. ISE provides no support whatsoever for the principle that an exchange is allowed to base fee calculation on volume executed on other exchanges for purposes of avoiding attrition of customer volume, but not for purposes of encouraging additional volume (which, as noted above, benefits market participants through increased liquidity). As ISE concedes, the Commission has already allowed

⁶¹ See Section B of the Exchange’s Pricing Schedule.

⁶² See Citadel Comment at 7 (Dec. 18, 2013) (citing Exchange Act Release No. 34-50787 (Dec. 2, 2004)).

⁶³ ISE Comment at 6 (Dec. 20, 2013).

⁶⁴ *Id.*

⁶⁵ *Id.*

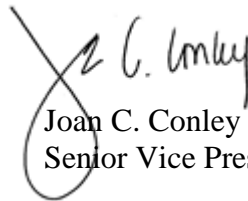
⁶⁶ *Id.*

exchanges to consider volume executed on other exchanges for fee calculation purposes. There is no principled basis for the Commission to reach a different conclusion with respect to Phlx's Proposed Rule.

* * *

In sum, the Commission should approve Phlx's Proposed Rule, which increases the rebates available to market participants who transact orders on Phlx. The only customer to comment on the Proposed Rule, Citadel, has requested that the Proposed Rule be reinstated. Only Phlx's competitors have called for the rule to be disapproved—presumably because they do not want to compete with Phlx by offering analogous discounts or enhanced services to consumers. Shielding competitors from competition, however, is not a valid reason to disallow a rule under the Exchange Act. As demonstrated above, the proposed rebate complies with all relevant requirements of the Act: It is not unfairly discriminatory, does not place an unnecessary burden on competition, and represents an equitable allocation of fees. For these reasons, and for those set forth in Phlx's initial comment letter, the Proposed Rule should be approved.

Respectfully submitted,

A handwritten signature in dark ink, appearing to read "Joan C. Conley", is written over a circular stamp or seal.

Joan C. Conley
Senior Vice President and Corporate Secretary

Statement of Robert Willig and Gustavo Bamberger

I. INTRODUCTION.

1. I, Robert Willig, am Professor of Economics and Public Affairs at Princeton University where I have held a joint appointment in the Economics Department and at the Woodrow Wilson School of Public and International Affairs for 36 years. Previously, I was a Supervisor in the Economics Research Department of Bell Laboratories. My teaching and research have specialized in the fields of industrial organization, government-business relations, and welfare theory. I served as Deputy Assistant Attorney General for Economics in the Antitrust Division of the United States Department of Justice from 1989 to 1991, and in that capacity served as the Division's Chief Economist. I have authored some 80 articles in the economics literature, and am the author of *Welfare Analysis of Policies Affecting Prices and Products* and *Contestable Markets and the Theory of Industry Structure* (with W. Baumol and J. Panzar). I am also a co-editor of *The Handbook of Industrial Organization*, which summarizes the state of economic thinking on the structure of industries and the nature of competition among firms, and have served on the editorial boards of the American Economic Review, the Journal of Industrial Economics and the MIT Press Series on Regulation. I am an elected Fellow of the Econometric Society and was an associate of The Center for International Studies.

2. I have appeared as an expert witness before Congress, federal and state courts, federal administrative agencies, and state public utility commissions on subjects involving competition, regulation, intellectual property rights, and antitrust. I have worked as a consultant with the Federal Trade Commission, the Organization for Economic Cooperation and Development, the Inter-American Development Bank, the World Bank, and a wide variety of private clients. I serve as a Senior Consultant at Compass Lexecon, an economic consulting firm specializing in antitrust and regulatory economics analysis. A full list of my articles and

other professional publications and activities is presented in my *curriculum vitae*, which is attached along with a list of prior testimony as Appendix A.

3. I, Gustavo Bamberger, am an Executive Vice President of Compass Lexecon. I received a B.A. degree from Southwestern at Memphis, and M.B.A. and Ph.D. degrees from the University of Chicago Graduate School of Business. I have provided testimony or statements on a variety of economic issues to the United States Securities and Exchange Commission ("SEC"), the U.S. Senate, the U.S. Federal Energy Regulatory Commission, the U.S. International Trade Commission, the U.S. Department of Transportation, U.S. state regulatory agencies, U.S. courts, the Canadian Competition Tribunal, the New Zealand Commerce Commission and the High Court of New Zealand. A copy of my *curriculum vitae* is attached as Appendix B.

4. We have been asked by counsel for The NASDAQ OMX Group, Inc. ("NASDAQ") to evaluate its proposal to amend the "Customer Rebate Program" offered by NASDAQ OMX PHLX LLC ("PHLX") to customers trading multiply listed equity options on PHLX. Currently, PHLX customers can earn rebates on certain trades by reaching certain thresholds during a month.¹ Under the terms of the Customer Rebate Program, a customer's volume for the purpose of meeting rebate thresholds depends only on its trading volume on PHLX.²

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1. For the current terms of PHLX's Customer Rebate Program, see http://nasdaqomxphlx.cchwallstreet.com/NASDAQOMXPHLXTools/PlatformViewer.asp?selectednode=chp_1_4_4&manual=%2Fnasdaqomxphlx%2Fphlx%2Fphlx-rulesbrd%2F ("PHLX Pricing Schedule").
 2. For the purposes of the Customer Rebate Program, PHLX defines a customer as follows: "The term '**Customer**' applies to any transaction that is identified by a member or member organization for clearing in the Customer range at The Options Clearing Corporation ('OCC') which is not for the account of broker or dealer or for the account of a 'Professional' (as that term is defined in Rule 1000(b)(14))." See PHLX Pricing Schedule, at Preface. "Market participants" in the options exchange industry are sometimes categorized into three groups: customers, market makers, and broker dealers (see, for example, Howard Tai, Aite, "Weather Forecast for the U.S. Equities Options Industry: Cloudy With a Chance of Showers," Figure 4, p. 9).

5. Under the terms of its proposed amendment – sometimes referred to as “Cross SRO” pricing – PHLX would increase its rebate by \$0.02 per contract for customers achieving the highest rebate level (i.e., “Tier 5,” for customers whose monthly trading volume exceeds 2.50 percent of “national customer volume” in certain options). For the purpose of determining a customer’s monthly trading volume, PHLX proposes to determine a customer’s share of national customer volume for the month by aggregating the trading volume of a customer and all its affiliates on PHLX and two other equity options exchanges owned by NASDAQ -- NASDAQ Options Market (“NOM”) and NASDAQ OMX BX Options (“BX”). A customer would earn the additional rebate only on eligible trades on PHLX. That is, trades on NOM and BX could be used to meet the threshold for the additional rebate on PHLX trades, but NOM and BX trades would not receive the additional rebate.

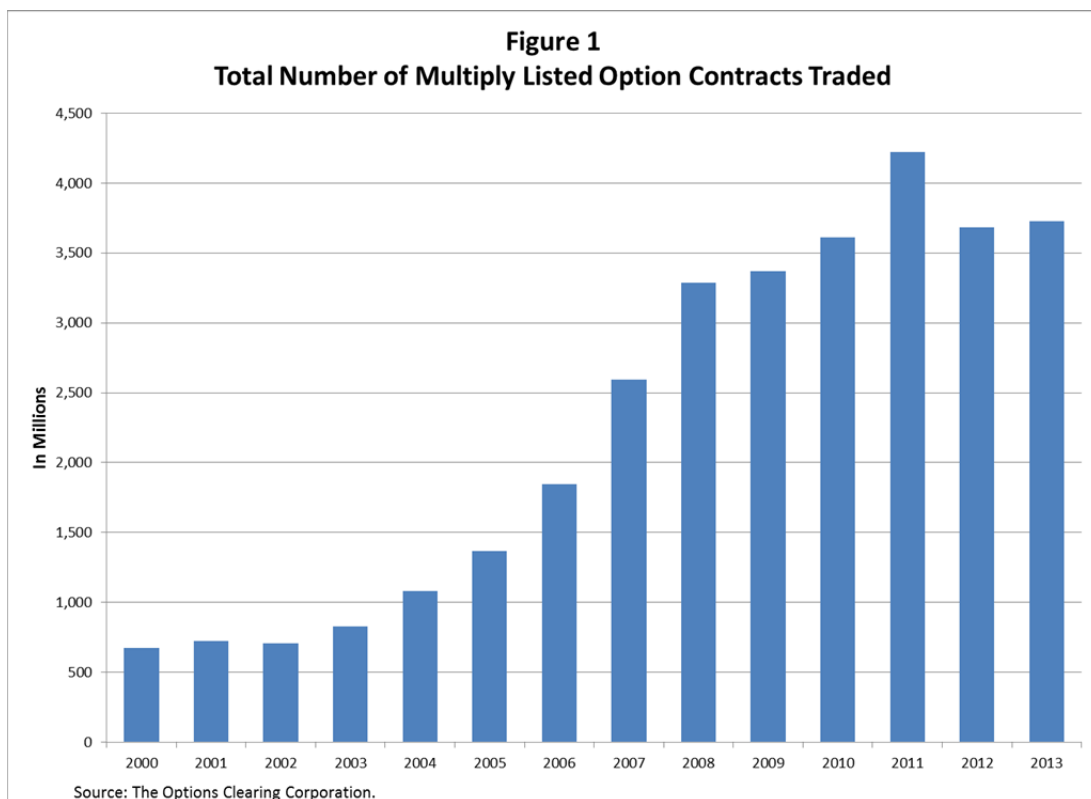
6. As we discuss in the rest of this statement, we reach the following major conclusions:

- PHLX is subject to significant competitive forces from rival equity options exchanges.
- Exchanges are characterized by large fixed costs and low (or zero) marginal or incremental costs of serving an additional customer or handling a customer’s additional trading volume. In general, economic efficiency in these circumstances requires that different customers pay different prices in a manner that stimulates overall volume.
- PHLX’s pricing proposal does not raise antitrust concerns. PHLX’s proposed amendment could be characterized as a type of “bundling,” because the price paid by a customer may depend on purchases of different “products” (i.e., trading services from different exchanges). “Bundling” is a common and generally procompetitive practice, particularly raising no valid concerns when practiced by a firm that lacks substantial market power.
- Criticisms of PHLX’s proposed amendment from PHLX rivals provide no economic basis to oppose PHLX’s proposal. Instead, those criticisms are consistent with our view that PHLX’s pricing proposal is procompetitive.

II. PHLX IS SUBJECT TO SIGNIFICANT COMPETITIVE FORCES FROM OTHER EQUITY OPTIONS EXCHANGES.

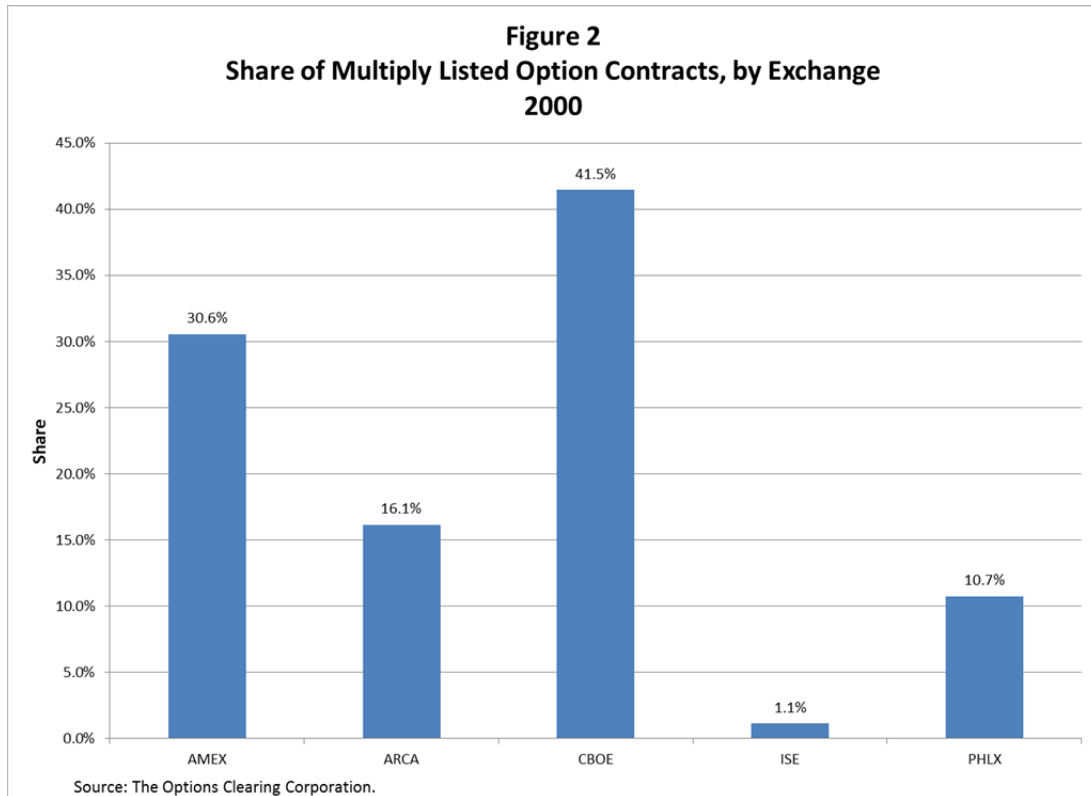
A. Background Information.

7. Equity options were generally listed on only one exchange until August 1999.³ Between 2000 and 2011, the volume of multiply listed option contracts traded increased by a factor of about six – from about 673 million contracts in 2000 to about 4.22 billion contracts in 2011.⁴ Between 2011 and 2013, the number of multiply listed contracts traded fell by about 15 percent. See Figure 1.



3. See, for example, P. de Fontnouvelle, R. Fishe and J. Harris, “The Behavior of Bid-Ask Spreads and Volume in Options during the Competition for Listings in 1999, *Journal of Finance*, Vol. LVIII, No. 6, December 2003.
4. Statistics on options exchange activity are generally reported on the basis of number of contracts traded (not on the basis of the value of those contracts). The exchange volume and shares we report are based on the number of multiply listed option contracts traded by all market participants (i.e., customers, market makers and broker dealers) unless we state otherwise. The volumes and shares we report exclude “exclusive” options (i.e., options traded on only one exchange, such as options based on S&P indices).

8. In 2000, equity options were traded on five exchanges: NYSE Amex Options (“AMEX”); Chicago Board Options Exchange, Inc. (“CBOE”); NYSE Arca Options (“ARCA”); PHLX; and International Securities Exchange, LLC (“ISE”).⁵ The two largest exchanges in terms of volume – AMEX and CBOE – accounted for over 70 percent of multiply listed options contracts traded. See Figure 2 for shares by exchange in 2000.

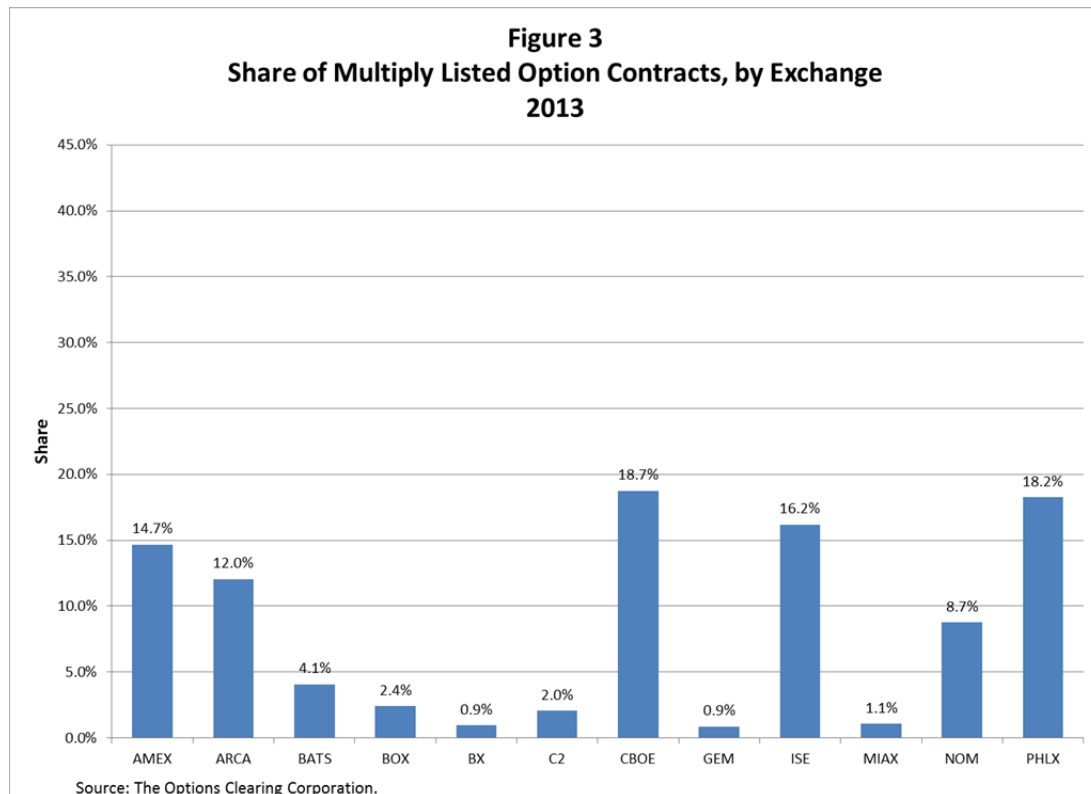


9. The number of platforms trading equity options more than doubled between 2000 and 2013 – from five to 12 – with almost all of that entry occurring in the last five years:

- BOX Options Exchange LLC (“BOX”) began operations in 2004;
- NOM entered in 2008;
- BATS Options Market (“BATS”) and C2 Options Exchange (“C2”) entered in 2010;
- BX and Miami Options Exchange (“MIAX”) entered in 2012; and
- ISE Gemini (“GEM”) entered in 2013.

5. We refer to each exchange by its current name. In 2000, the New York Stock Exchange (“NYSE”) did not own AMEX or ARCA.

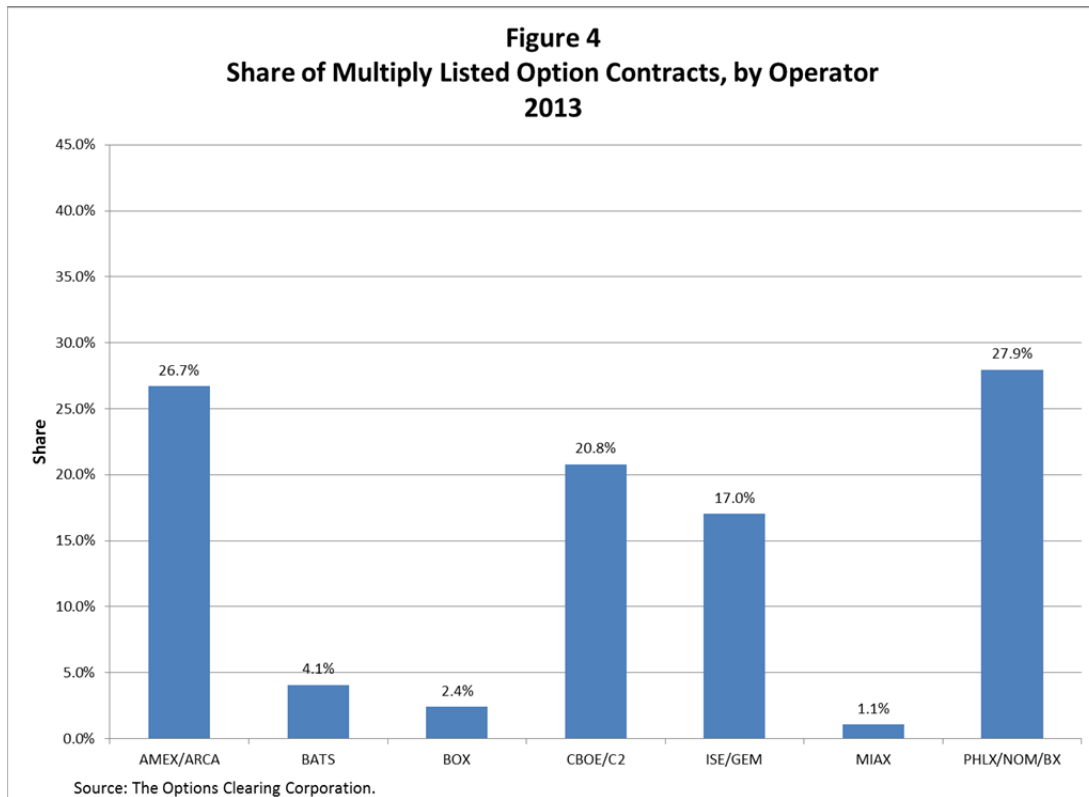
See Figure 3 for shares by exchange in 2013.



10. Several exchanges are owned by the same “operator.” In particular, the 12 exchanges are controlled by seven operators. In addition to NASDAQ, which owns three exchanges, three additional operators own two exchanges each: AMEX and ARCA; CBOE and C2; and ISE and GEM are owned by the same operator. In some cases, an operator acquired control of another exchange through an acquisition; in other cases, an operator with one exchange launched an additional exchange.

- NASDAQ acquired PHLX in 2008, and launched NOM in the same year. NASDAQ subsequently launched BX in 2012.
- AMEX and ARCA are controlled by one operator through acquisition. In particular, the New York Stock Exchange (“NYSE”) acquired ARCA in 2004 and AMEX in 2008.
- CBOE launched C2 in 2010.
- ISE launched GEM in 2013.

See Figure 4 for shares by operator in 2013.



B. The Economic Evidence Indicates that Equity Options Exchanges Operate in a Competitive Environment.

11. The economic evidence indicates that equity options exchanges operate in a competitive environment. First, there is substantial “churn” in exchange shares over time, indicating that exchanges regularly compete for business with each other. Second, exchanges reduce prices or increase rebates to win business from rival exchanges. Third, successful entry into the industry has occurred often. Fourth, individual exchanges are viable even at relatively small scales.

1. Exchanges’ Shares are Unstable.

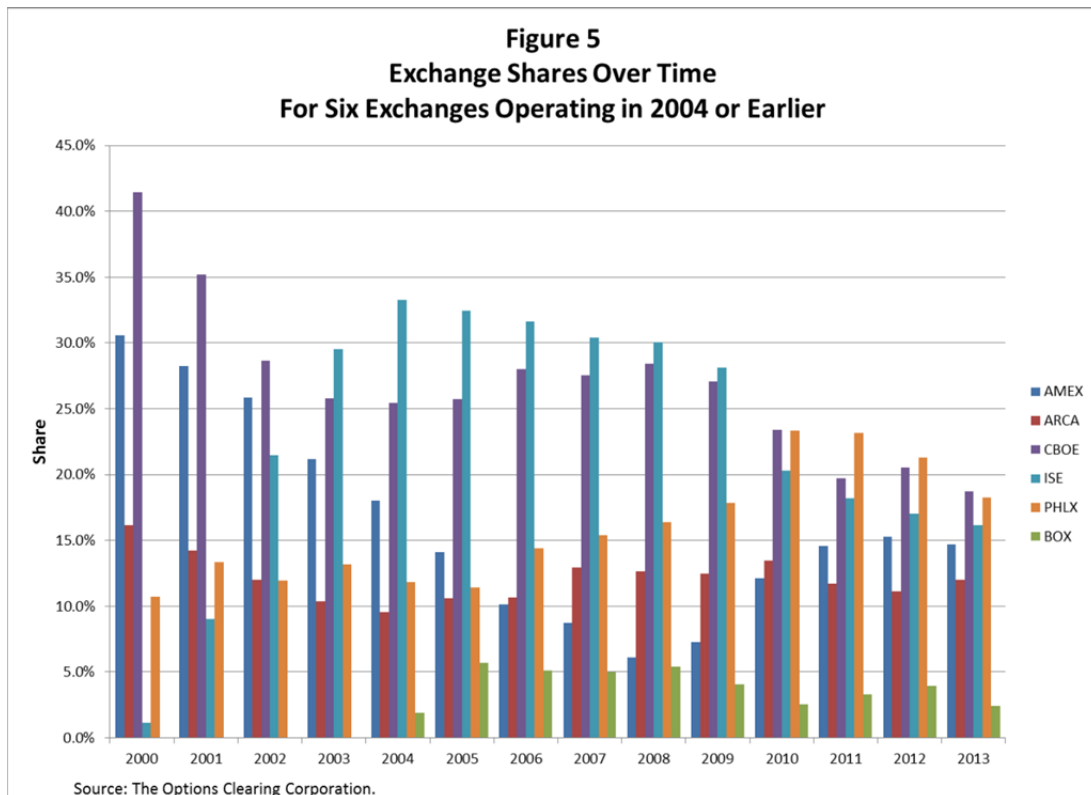
12. Exchanges’ shares of multiply listed contracts traded have changed substantially since 2000. Among the six exchanges that have operated since 2004:

- CBOE, the exchange with the largest share of multiply listed options in 2000 (41.5 percent), lost almost 40 percent of its share by 2004 (falling to a share of 25.4 percent),

generally increased its share between 2004 and 2008, and has largely lost share since 2008. In 2013, CBOE's share was 18.7 percent.

- AMEX, with the second largest share in 2000 (30.6 percent), lost over 80 percent of its share by 2008 (falling to 6.1 percent), but has more than doubled its share since 2008. In 2013, AMEX's share was 14.7 percent.
- ARCA lost share between 2000 and 2004, but largely gained share between 2004 and 2013.
- PHLX's share was relatively flat between 2000 and 2005, increased substantially between 2005 and 2010, and fell between 2010 and 2013.
- ISE's share grew rapidly from 1.1 percent in 2000 to 21.5 in 2002. By 2003, ISE had the leading share (29.5 percent) among the then-existing exchanges. ISE further increased its share to 33.3 percent in 2004, but ISE's share has fallen in every subsequent year. In 2013, ISE's share was 16.2 percent, less than half of its 2004 peak.
- BOX entered in 2004 with a share of 1.9 percent; BOX's share reached 5.7 percent in 2005. BOX's share remained between five and six percent through 2008. BOX's share fell below five percent in 2009. In 2013, BOX's share was 2.4 percent, less than half of its 2005 peak.

See Figure 5 for shares over time for these six exchanges.



2. Exchanges Compete by Reducing Prices and/or Increasing Rebates.

13. Exchanges can, and do, compete by reducing fees they charge or increasing rebates they pay to market participants. We understand that, during 2012 – 2013, major pricing changes by options exchanges included:

- On January 3, 2012: (1) BATS introduced volume rebates for adding liquidity, and (2) CBOE introduced its “Volume Incentive Program I” customer rebates.⁶
- On June 1, 2012, BATS increased its volume rebates for adding liquidity.⁷
- On January 2, 2013, PHLX introduced customer rebates.⁸
- On February 1, 2013, CBOE introduced its “Volume Incentive Program II,” increasing its customer rebates.⁹
- On July 1, 2013, MIAX introduced a customer rebate program and reduced its market-maker rates.¹⁰
- On November 1, 2013: (1) ISE increased rebates to market makers with relatively large volume; and (2) PHLX introduced its Cross SRO pricing.¹¹
- On December 2, 2013: (1) ISE adjusted its volume-based tiered rebates for certain customer orders; and (2) MIAX increased its customer rebates.¹²

6. See http://cdn.batstrading.com/resources/fee_schedule/2012/BATS-Options-Exchange-Pricing-Update-Effective-January-3-2012.pdf and <http://www.sec.gov/rules/sro/cboe/2011/34-66054.pdf>.

7. See http://cdn.batstrading.com/resources/fee_schedule/2012/BATS-Options-Exchange-Pricing-Update-Effective-June-1-2012.pdf.

8. See <http://nasdaqomxphlx.cchwallstreet.com/NASDAQOMXPHLX/pdf/phlx-filings/2013/SR-Phlx-2013-01.pdf>.

9. See <http://www.sec.gov/rules/sro/cboe/2013/34-68887.pdf>.

10. See http://www.miaxoptions.com/sites/default/files/filing-files/SR_MIAX_2013_31.pdf.

11. See <http://www.sec.gov/rules/sro/ise/2013/34-70872.pdf> and <http://www.sec.gov/rules/sro/phlx/2013/34-70866.pdf>. We include the PHLX Cross SRO pricing action in our analysis because we understand that after that action was suspended, PHLX subsequently increased its rebates to make certain customers “whole” for the loss of the rebates caused by that suspension. See <http://nasdaqomxphlx.cchwallstreet.com/NASDAQOMXPHLX/pdf/phlx-filings/2013/SR-Phlx-2013-114.pdf>.

12. See <http://www.sec.gov/rules/sro/ise/2013/34-71081.pdf> and http://www.miaxoptions.com/sites/default/files/filing-files/SR_MIAX_2013_56.pdf.

14. We note that the exchanges taking these actions specifically cite competition from other exchanges as a reason for their actions. For example, in its filing accompanying its July 2013 rebate program, MIAX stated:

The Exchange [i.e., MIAX] notes that it operates in a highly competitive market in which market participants can readily favor competing venues if they deem fee levels at a particular venue to be excessive. In such an environment, the Exchange must continually adjust its fees to remain competitive with other exchanges and to attract order flow to the Exchange. The Exchange believes that the proposed rule change reflects this competitive environment because it reduces the Exchange's fees in a manner that encourages market participants to direct their customer order flow, to provide liquidity, and to attract additional transaction volume to the Exchange. Given the robust competition for volume among options markets, many of which offer the same products, implementing a volume based customer rebate program to attract order flow like the one being proposed in this filing is consistent with the above-mentioned goals of the Act.¹³

Similarly, in its filing accompanying its February 2013 rebate program, CBOE stated:

The Exchange [i.e., CBOE] also notes that it operates in a highly-competitive market in which market participants can readily direct order flow to competing venues if they deem fee levels at a particular venue to be excessive. The proposed rule change reflects a competitive pricing structure designed to incent market participants to direct their order flow to the Exchange, and the Exchange believes that such structure will help the Exchange remain competitive with those fees and rebates assessed by other venues.¹⁴

ISE described one of its pricing actions in similar terms:

The Exchange [i.e., ISE] operates in a highly competitive market in which market participants can readily direct their order flow to competing venues. In such an environment, the Exchange must continually review, and consider adjusting, its fees and rebates to remain competitive with other exchanges.¹⁵

15. We find that these pricing actions were generally successful, in the sense that they typically increased the share of the exchange reducing its prices and/or increasing its rebates. To evaluate the effect of these pricing actions, we compare the average exchange share in the month prior to the pricing action to the average exchange share in the subsequent month. For example, to evaluate the effect of BATS's rebate increase effective June 1, 2012,

13. See http://www.miaxoptions.com/sites/default/files/filing-files/SR_MIAX_2013_31.pdf, at 9 - 10.

14. See <http://www.sec.gov/rules/sro/cboe/2013/34-68887.pdf>, at 7.

15. See <http://www.sec.gov/rules/sro/ise/2013/34-70872.pdf>, at 7.

we compare BATS's share in May 2012 to its June 2012 share. On the dates on which pricing actions by two exchanges took place (i.e., January 3, 2012; November 1, 2013; and December 2, 2013), we report the combined share of the two exchanges because one exchange may have taken share from the other (i.e., we analyze the net change in share of the two exchanges). We also repeat our analysis using a two-month "window."¹⁶

16. For six of the seven dates in our analysis, we find that the pricing actions are associated with increases in exchange share, ranging in size from an increase of about three percent to 30 percent in exchange share points (e.g., an increase from 10.0 share points to 12.0 share points is an increase of 20 percent). Our general results are similar when we use a two-month "window" (although the magnitude of the increase for the July 2013 pricing action becomes substantially larger). See Table 1.

Table 1

Impact of Key Price Changes on Market Share									
Date	Exchange	1 Month Before and After				2 Months Before and After			
		Previous Period Share	Subsequent Period Share	Increase in Share Points	Percentage Increase in Share	Previous Period Share	Subsequent Period Share	Increase in Share Points	Percentage Increase in Share
1/3/2012	BATS/CBOE	19.31%	24.05%	4.74%	24.55%	20.60%	24.71%	4.11%	19.95%
6/1/2012	BATS	3.26%	3.88%	0.62%	19.09%	3.32%	3.90%	0.58%	17.58%
1/2/2013	PHLX	24.77%	21.52%	(3.25%)	(13.12%)	22.67%	21.12%	(1.56%)	(6.86%)
2/1/2013	CBOE	14.92%	16.48%	1.57%	10.52%	15.52%	17.14%	1.62%	10.41%
7/1/2013	MIAX	1.06%	1.37%	0.32%	29.93%	0.72%	1.43%	0.72%	100.13%
11/1/2013	ISE/PHLX	31.80%	32.73%	0.93%	2.93%	32.18%	32.85%	0.67%	2.09%
12/2/2013	ISE/MIAX	16.59%	17.13%	0.54%	3.25%	16.85%	17.13%	0.28%	1.65%
Source: The Options Clearing Corporation.									

16. For the two-month analysis of the November 1, 2013 pricing actions, the "after" period includes December 2013, which could be affected by the pricing actions of December 2, 2013 (i.e., MIAX's pricing action in December 2013 could have reduced the December 2013 share of ISE and PHLX, and the ISE pricing action in December 2013 also could have reduced the December 2013 share of PHLX). For the last date in our analysis – December 2, 2013 – the "after" period in our two-month analysis is only one month because our share information ends with December 2013.

17. The results summarized in Table 1 indicate that the pricing actions we analyze “harmed” competitors, in the sense that the exchange reducing its price took business from competitors. But, importantly, such effect is not harm to *competition*; rather, it is the essence of competition. For this reason, economists distinguish between harm to competitors and harm to competition. Harm to competitors that results from the competitive process, such as where one competitor wins business by virtue of a price reduction or introduction of a superior product, is desirable and beneficial to consumers. Indeed, limiting such competitive activity in order to protect competitors from losing business would ordinarily result in a reduction in competition and a loss of overall consumer welfare.

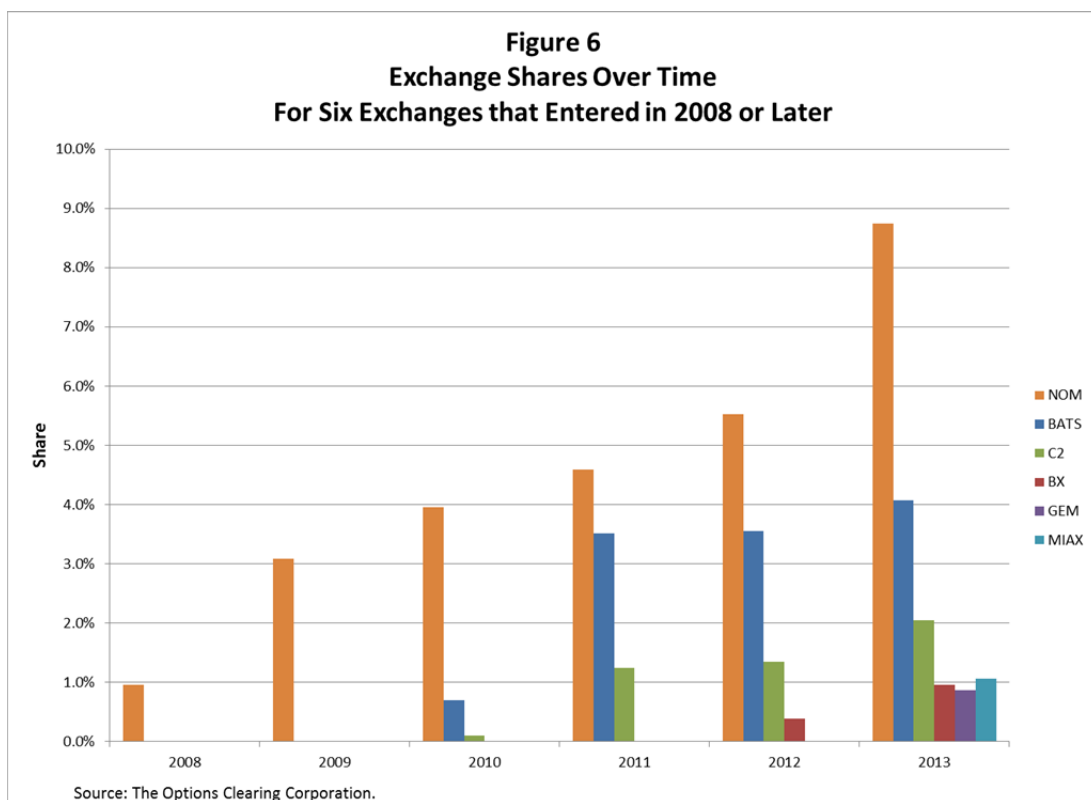
18. The only exception to our finding that exchange share increased after a major pricing action is the PHLX pricing action of January 2, 2013. However, we understand that PHLX’s share typically “spikes” in December of each year because of a substantial volume of “dividend spread” trades that take place on PHLX.¹⁷ As a result, PHLX’s share typically falls between December and January. For example, between December 2011 and January 2012, PHLX’s share fell 5.8 share points, while PHLX’s share drop between December 2012 and January 2013 was substantially smaller (3.2 share points). This pattern suggests that, all else equal, PHLX’s January 2012 pricing action had a positive effect on PHLX’s share (i.e., PHLX’s share would have dropped more absent its pricing action).¹⁸

17. We understand that dividend spread trades are non-electronic (floor) trades. As such, these trades are reflected in exchanges’ share, but would not qualify for rebates under the terms of PHLX’s proposed Cross SRO rebate.

18. We understand that it is not possible to distinguish dividend spread trades from other trades in the available volume data. However, we understand that dividend spread trades are typically not entered into by customers, as distinguished from other market participants. Because customers can be distinguished from other market participants in the available data, we repeat our analysis using exchange shares based only on customer trades. We find that PHLX’s share of customer volume was 15.09 percent in December 2012 and 20.61 percent in January 2013, an increase of 5.52 share points. These results also indicate that, all else equal, PHLX’s January 2012 pricing action had a positive effect on PHLX’s share. For the other six pricing actions in our analysis, we also find that those actions were associated with increases in exchange share of customer volume in the month following the

3. Successful Entry has been Common.

19. As we have discussed, the number of equity options exchanges more than doubled – from five to 12 – between 2003 and 2013. Each of the exchanges that entered between 2004 and 2012 was able to increase its share, often substantially. Each of these exchanges continues offering equity option trading services. See Figure 6 for shares over time for exchanges that entered in 2008 or later. By 2013, the five exchanges that began operations in the last five years accounted for 17.7 percent of volume in 2013.



4. Exchanges are Viable at Relatively Small Scale.

20. In theory at least, “network” (or “liquidity”) effects could potentially lead to a situation where one or more exchanges captures such a large share of equity option trades of

(...continued)
pricing actions.

options on one or more securities that other exchanges are unable to compete effectively for those trades. In such a situation, it is possible that only exchanges that could achieve sufficient scale would survive in the long term, resulting in a relatively concentrated industry, and, perhaps, a reduction in competition.

21. We find no evidence that such “network” effects are sufficiently consequential in this industry that an exchange must achieve a relatively large scale to be a viable competitor. First, as we have discussed, the two exchanges with the largest shares in 2000 rapidly lost share in subsequent years, which would be unexpected if network effects were a key determinant of success. Second, also as we have discussed, entry has occurred numerous times in this industry, indicating that achieving sufficient scale to be viable is not a “barrier to entry.” Third, none of the options exchanges that entered since 2000 subsequently exited. Finally, achieving a large share has not been a prerequisite for success in this industry. In 2013, for example, each of the 12 exchanges had a share of less than 20 percent, and half had a share of less than five percent.

III. ECONOMIC ANALYSIS OF PHLX’s PROPOSED CUSTOMER REBATE PROGRAM AMENDMENT.

A. Summary of PHLX’s Proposed Customer Rebate Program Amendment.

22. PHLX’s current Customer Rebate Program offers customers rebates, under certain conditions, on trades of “Multiply Listed Options (including SPY) that are electronically-delivered and executed.” “Customer Rebate Tiers” are based on “Percentage Thresholds of National Customer Volume in Multiply-Listed Equity and ETF Options Classes, excluding SPY Options (Monthly).”¹⁹

19. See

http://nasdaqomxphlx.cchwallstreet.com/NASDAQOMXPHLXTools/PlatformViewer.asp?selectednode=chp_1_4_4&manual=%2Fnasdaqomxphlx%2Fphlx%2Fphlx-rulesbrd%2F.

23. Under the terms of the proposed amendment, customers could qualify for the highest rebate – Tier 5, based on a percentage of national customer volume in multiply listed equity options of more than 2.5 percent – by aggregating volume transacted on PHLX with volume transacted on the NOM and/or BX exchanges. Customers reaching Tier 5 status based on aggregate volume would receive an additional rebate of \$0.02 per contract for trades made on PHLX (i.e., trades on NOM and BX can be used to qualify for the rebate on PHLX, but only qualifying customer trades on PHLX receive the additional rebate).

B. The Economics of Pricing Products in the Presence of Scale Economies and Low Marginal Costs.

24. Exchanges are characterized by high fixed costs and low (or zero) marginal or incremental costs of serving an additional customer or additional transaction volume from a given customer. This type of cost structure is common in many industries. For example, in the software industry, developing new software typically requires a large initial investment (and continuing large investments to “upgrade” the software), but once the software is developed, the incremental cost of providing that software to an additional user is typically small, or even zero (e.g., if the software can be downloaded over the internet after being purchased).²⁰

25. There is a substantial economic literature that addresses the pricing principles for products and services in industries with this type of cost structure. Economic analysis shows that charging prices equal to marginal cost is the most efficient pricing rule. However, given the cost structure in this industry, marginal-cost pricing is not economically feasible because it cannot raise sufficient revenues to defray an exchange’s total costs, including fixed and common costs, as well as marginal costs.

20. See W. Baumol and D. Swanson, “The New Economy and Ubiquitous *Competitive Price Discrimination*: Identifying Defensible Criteria of Market Power,” *Antitrust Law Journal*, Vol. 70, No. 3 (2003).

26. Given that marginal-cost pricing is generally not feasible in high fixed-cost industries, some deviations from such pricing are unavoidable. One alternative might be to charge all customers a price equal to average total cost (including a return to capital). It is, however, well known that uniform average-cost pricing – that is, charging the same price equal to average cost to all customers – is not socially efficient. In general, economic efficiency in these circumstances requires that customers whose demand is more responsive to price changes pay prices closer to marginal cost as opposed to customers who are less responsive to price changes.

27. To see why deviations from uniform pricing in industries with large fixed costs are efficient, consider the following simplified example. Suppose that an exchange has two types of customers, type A and type B. Suppose that a customer of type A is relatively more sensitive to price than a customer of type B. Start with a situation in which both customer types are charged the same price and transact the same volume. If the exchange reduces the price to type A customers and increases the price to type B customers by the same amount, type A customers will expand their volume by more than type B customers reduce theirs (because type A customers are more sensitive to price than type B customers). As a result, total volume would increase by enough to increase total revenue, even as the average price charged declines (since the newly lower price applies now to more volume than does the newly higher price). The increase in the exchange's total output allows it to "spread" its fixed costs over more trades; the increase in total revenue helps sustain the exchange's ability to cover its fixed and common costs; and the drop in the average price means that the customers are on average benefited. Thus, this kind of price differentiation is economically efficient and is of benefit to both the exchange and the totality of its customers.

28. More generally, by offering a lower price to customers whose demand is more responsive to price, the seller stimulates demand and may be able to offer a discount off the starting price (set at an average cost level) even to the less price-responsive customers.

Furthermore, because customers that are relatively insensitive to price typically value the service more than customers that are relatively sensitive to price, this type of pricing implies that customers that value the service relatively more highly pay a relatively higher share of the exchange's fixed and common costs.

29. Economists call this type of pricing structure "differential pricing" or "price discrimination." There is nothing problematic with such pricing once it is realized that in the face of high fixed and common costs, neither marginal-cost pricing nor uniform pricing are desirable from efficiency principles; and as detailed above, there is a great deal to recommend this pricing structure.

30. Another form of differential pricing entails quantity (volume) discounts. In this pricing scenario, the incremental price (that is, the price for incremental units) falls with volume. This makes business and efficiency sense as long as the incremental price exceeds (or in the limit equals) the incremental cost of the additional sales. In this case, the total volume of sales expands, which is socially efficient, and consumers and the firm benefit.²¹ In fact, volume discounts are ubiquitous in industries characterized by high fixed costs and low marginal costs. Indeed, as we have discussed, PHLX's current rebate program is based on a type of quantity discount.

31. Differential pricing can benefit all groups of customers, provided it is implemented within some limits. In particular, when competition constrains the overall profits earned by a supplier, such as is the case with exchanges, differential pricing will, on balance, tend to benefit all customers as compared to, for example, uniform pricing. As we have discussed, there is substantial competition among exchanges on which equity options can be traded. Hence, in the industry discussed here, differential pricing involving volume discounts should be encouraged rather than discouraged. Indeed, as we discuss in more detail in our response to comments

21. For proof from economic theory, see R. Willig, "Pareto Superior Nonlinear Outlay Schedules," *Bell Journal of Economics*, Vol. 9, No. 1, Spring 1978.

filed by rival exchanges, volume discounts are widely used in the industry, and PHLX's rivals, including MIAX, CBOE and ISE, recognize the procompetitive benefits of such discounts.

IV. PHLX'S PRICING PROPOSAL DOES NOT RAISE ANTITRUST CONCERNS.

32. We first note that PHLX's proposed amendment reduces average prices paid by customers for trading equity options. As a general matter, rebates and other forms of price reductions are procompetitive. Indeed, as CBOE, one of the commenters that opposes PHLX's proposed Customer Rebate Program amendment explains:

It has long been recognized that exchange rebates can and do serve legitimate policy purposes, consistent with the Exchange Act, including lowering order routing costs to broker-dealers seeking best execution of customer orders, attracting liquidity, facilitating technological advancements in retail customer order handling practices, and facilitating competition amongst broker-dealers and exchanges. Thus, rebate practices of exchanges have been allowed by the Commission in the past as an acceptable means of seeking to attract additional order flow.²²

33. ISE characterizes the PHLX proposed amendment as a form of "bundling."²³ "Bundling" is a common and generally procompetitive practice, particularly when practiced by a firm that lacks substantial market power (which, as we have discussed, is the case here). We note that ISE states explicitly that PHLX does not have "monopoly power":

Phlx argues that it is not proposing to illegally "tie" Phlx executions services to executions on NOM and BX. . . . We believe that tying would be dispositive in this context only if there was a combination in the pricing of a competitive product and a monopoly product, such as an exclusively-listed product. While that it not the case here, it certainly does not provide a basis for approving the filing.²⁴

34. It is not unusual for firms to offer discounts that are linked to total spend across a number of products. These types of pricing plans often reflect the fact that customers are differentiated on more than one dimension in terms of their willingness to spend for any given

22. See <https://www.sec.gov/comments/sr-phlx-2013-113/phlx2013113-6.pdf> ("CBOE Comment"), at 3 (footnote omitted).

23. See <https://www.sec.gov/comments/sr-phlx-2013-113/phlx2013113-5.pdf> ("ISE Comment"), at 3.

24. ISE Comment, at 5 (footnote omitted, emphasis added). The ISE Comment also states: "we agree that there is no illegal tying in the Phlx proposal."

product. In such a case, combining different products into one package makes it easier to design a plan that will appeal to a broader group of potential customers and stimulate overall sales than would a plan that offered discounts based only on the volume of one kind of activity or another. NASDAQ's three exchanges offer different combinations of pricing, rebates and services. For example, PHLX offers its customers a "price improvement mechanism," which is not available on NOM or BX.²⁵ Similarly, BX offers rebates to customers that remove liquidity, which is not the case on PHLX or NOM.

35. Citadel LLC ("Citadel"), a large customer of equity options exchange services, explains its support for PHLX's proposal in terms of the differentiation of services offered across different exchanges and the needs of Citadel's customers:

On receipt of every customer order, a broker-dealer that is a member of several options exchanges must decide where to route that order. This decision is generally based on a large number of factors, including best execution considerations specific to the order, as well as each exchange's functionality, technology, speed of execution, order types, price improvement opportunities, and transaction fees or rebates. Exchange operators, including NASDAQ OMX Group, seek to offer, in many cases through multiple exchange platforms, a range of execution alternatives that allow their member/users broad flexibility to achieve their business objectives and to discharge their regulatory responsibilities in regard to order routing and execution.

Transaction fees and rebates based on volume tiers present a difficult issue for firms to consider when making these routing decisions. In addition to the particulars of the order, a firm must consider whether or not a particular order would move the firm closer to reaching a volume tier. If so, the firm must consider whether that possibility, and the potential benefits to the firm and its customers from reaching the tier, outweigh other factors that might cause the firm to otherwise route the order to a different exchange. In effect, routing to an exchange in order to seek to reach a volume tier may involve a trade-off, where a benefit or preferred functionality on one exchange is given up in return for the financial incentive that comes from reaching the volume tier, subject, of course, to the firm's duty of best execution.

[Phlx's] Proposal would significantly reduce this problem. By allowing Phlx members to obtain credit toward the Eligibility Threshold even for orders executed on Phlx's affiliated options exchanges, the Proposal would recognize that members cannot route every order to Phlx, and in some cases will have compelling reasons to send orders to its sister exchanges. In effect, the Proposal provides members with greater flexibility in making routing decisions, while at the same time providing significant incentives to route significant order flow to the Phlx. The Commission should support the Proposal as it

25. We understand that other exchanges, including CBOE and AMEX, also offer customers price improvement mechanisms.

allows members to better fulfill their duties to customers and manage their businesses while encouraging competition among exchanges. In fact, prohibiting this type of Proposal could cause a firm to be incentivized to send an order to Phlx in order to reach the volume tier, even though, for other reasons, it would be more advantageous to the firm or its customer to send the order to NOM or BX.²⁶

36. Competitive concerns from a practice of bundling discounts across a range of products (i.e., in this case, trading equity options across multiple platforms) potentially arise when such bundling-cum-discounting is used to foreclose entry (or expansion) of rival firms that may not be able to offer an array of products as broad as that offered by the incumbent or compete by other means, such as by cutting price. Such concerns do not apply here. For example, PHLX's rivals can compete with PHLX's Cross SRO rebate program by reducing fees and/or increasing rebates at individual exchanges. Indeed, as we have discussed, within a month of PHLX's introduction of its amended rebate program, both ISE and MIAX increased their rebates, and the net effect of those pricing actions was an increase in the aggregate share of those two exchanges.²⁷ This evidence indicates that rival exchanges could, and did, respond competitively to PHLX's amended rebate program.²⁸ As we have discussed, this type of pricing activity – rivals responding to price cuts with their own price cuts – is the hallmark of competition. Except in unusual circumstances, which do not apply here, this type of competition is procompetitive and beneficial to customers.

37. Moreover, it is not likely that PHLX's combined offer will induce rival exchanges to exit or become less competitively potent due to a reduction in volume. After all, there are no products or services offered by PHLX and its affiliates that other exchanges do not or could not

26. See <https://www.sec.gov/comments/sr-phlx-2013-113/phlx2013113-4.pdf> ("Citadel Comment"), at 2-3.

27. ISE's share fell from 14.95 percent in November 2012 to 14.32 percent in December 2012. MIAX's share increased from 1.64 percent in November 2012 to 2.80 percent in December 2012. Thus, the decline in ISE's share may have been caused by competition from MIAX. The aggregate share of the two exchanges increased from 16.59 percent in November 2012 to 17.12 percent in December 2012 (as reported in Table 1).

28. As we have discussed, although PHLX's Cross SRO program was suspended, PHLX implemented another pricing action to make its customers "whole" for the loss of rebates associated with the Cross SRO pricing action.

offer themselves, if that were necessary to counter competitively the proposed Cross SRO rebates. It is also not likely that the combined offer will have the effect of creating significant barriers to entry or expansion for new exchanges. As we have discussed:

- Three other operators (CBOE/C2, AMEX/ARCA and ISE/GEM) operate multiple exchanges, and so would be able to offer rebates based on trades on exchanges with differentiated characteristics. We also note that two of these operators (CBOE and ISE) have recently introduced a second exchange.
- Successful entry has been common in this industry.
- Equity options exchanges are viable at relatively small scale.

V. CRITICISMS OF PHLX'S PROPOSED AMENDMENT FROM PHLX RIVALS PROVIDE NO ECONOMIC BASIS TO OPPOSE PHLX'S PROPOSAL. INSTEAD, THOSE CRITICISMS ARE CONSISTENT WITH OUR VIEW THAT PHLX'S PRICING PROPOSAL IS PROCOMPETITIVE.

38. We understand that three comments that oppose PHLX's proposed Customer Rebate Program amendment have been filed with the SEC.²⁹ Each of these comments was filed by an entity that owns an exchange that competes with PHLX – MIAX, CBOE and ISE. We have reviewed each of these comments, and find that each provides no economic basis to oppose PHLX's proposal.³⁰ Instead, we find that the criticisms from PHLX's rivals are consistent with our view that the proposed rebate amendment is a form of competition that benefits customers.

39. We also note that, as we have discussed, each of these exchanges describes the options exchange industry as "highly competitive." None of the comment letters filed by these rival exchanges purports to show that PHLX's amended rebate program, if implemented, would materially reduce competition among exchanges.

29. Direct Edge Holdings, LLC ("Direct Edge") also filed a short letter with its "initial comments." Direct Edge recommended that the PHLX proposal be subject to "a period of public notice and comment pursuant" but did not present economic arguments in opposition to PHLX's proposal. See <https://www.sec.gov/comments/sr-phlx-2013-113/phlx2013113-2.pdf>.

30. Each comment letter also puts forth legal and/or regulatory objections to PHLX's proposal. We do not address the legal and/or regulatory arguments in the three comment letters.

A. MIAX's Comment Letter Provides no Economic Basis to Oppose PHLX's Proposal.

40. MIAX claims that "MIAX as a single independent new options exchange would have no ability to compete against a fee structure that leverages the execution volume and fees across 3 competing options exchanges."³¹ There is no basis for MIAX's claim.

41. MIAX can compete with PHLX and other exchanges by reducing its fees. Indeed, as we have discussed, MIAX increased its customer rebates in December 2013, within a month of the original implementation of PHLX's amended rebate program. As we have discussed, MIAX's share increased after that pricing action, showing that MIAX can, and did, compete with PHLX after PHLX introduced its Cross SRO pricing.

42. MIAX also could attempt to compete more effectively by providing improved services, including by launching another exchange (as ISE and CBOE have recently done) to offer differentiated services.

43. In support of its claim that PHLX's proposal could disadvantage MIAX, MIAX presents an example of two customers, whom it calls BD1 and BD2:

BD1 and BD2 are both the same class of market participant and execute the same exact transaction volume, of 2% of the national customer volume on PHLX. However, BD1 sends the balance of their customer order flow of 1% to MIAX because they value low latency and quality of execution, while BD2 sends the balance of their customer order flow of 1% to NOM. An equitable allocation of reasonable fees and dues that was not unfairly discriminatory would result in the charging BD1 and BD2 the exact same fees for the identical trading activity on PHLX. In contrast, PHLX's Proposal would result in BD1 and BD2 being charged different fees even though they are performing the same exact activity on PHLX. BD1 would be eligible for a \$0.14 rebate, while BD2 would be eligible for a \$0.17 rebate for executing the identical 2% of the national customer volume on PHLX. BD1 would be essentially penalized for sending their additional customer order flow to MIAX instead of sending it to an affiliate options exchange of PHLX. This disparate treatment between similarly positioned market participants is unfair discrimination. BD1 would be treated worse than BD2 not based on the transaction

31. See <https://www.sec.gov/comments/sr-phlx-2013-113/phlx2013113-3.pdf> ("MIAX Comment"), at 3.

volume that they performed on PHLX, but for the lack of trading volume on another independent self-regulatory organization.³²

44. In MIAX's example, however, BD2 could, today, switch half its volume from NOM to PHLX and thereby increase its rebate per contract. Similarly, BD1 could, today, switch half its volume from MIAX to PHLX and increase its rebate per contract. Thus, for customers like BD1 and BD2, MIAX must compete today with PHLX for customers that could increase their rebate by moving volume from another platform to PHLX. Under the terms of PHLX's proposed amendment, MIAX may have to compete more vigorously with PHLX. But such an effect would be procompetitive, not anticompetitive.

45. In any event, even if MIAX's example showed that PHLX's proposed amendment could allow it to take business from MIAX, MIAX does not show – or even claim – that the proposed amendment would harm competition or customers that trade equity options.

B. CBOE's Comment Letter Provides no Economic Basis to Oppose PHLX's Proposal.

46. As we have discussed, CBOE recognizes that exchange rebates "can and do serve legitimate policy purposes." CBOE claims that "[t]he Phlx Rebate Proposal, however, is significantly different from those allowed rebates."³³ In particular, CBOE claims that PHLX's proposed amendment "would advantage members that are also members of NOM and/or BX that direct orders to those exchanges, while disadvantaging Phlx members who do not have such memberships. Similarly, the Proposal would increase the relative costs of trading for customers of the latter group, while lowering those costs for customers of the former."³⁴

47. PHLX's proposal is a form of price reduction. CBOE appears to criticize the proposal based on the fact that some customers might qualify for the discount, while others might not, either because they do not have sufficient volume to qualify for the rebate or because

32. MIAX Comment, at 2.

33. CBOE Comment, at 3.

34. CBOE Comment, at 3.

despite having sufficient volume they choose to trade elsewhere. That criticism is misguided. PHLX's current rebate program – like the similar rebate programs used by CBOE and other exchanges – already provides greater discounts to high-volume customers. Nonetheless, CBOE itself recognizes that such volume-based rebates “serve legitimate policy purposes.”

48. CBOE also claims that if PHLX's proposed rebate amendment were approved, “the competitive positions of all other options exchanges – reliant on only their own volumes for the purpose of rebate structures and calculations – are adversely affected.”³⁵ We first note that actions taken by one firm that “adversely affect” the competitive positions of its rivals are the hallmark of competition. That is, we agree that PHLX's proposal, if approved, could allow PHLX to take business from CBOE and other rival exchanges, but such an outcome is an example of competition at work. Competitive actions often harm rivals, but benefit consumers. For example, CBOE's introduction of its “Volume Incentive Plan” in January 2012 likely harmed its rivals (including PHLX) and benefited customers trading equity options (and was followed by a response from PHLX that further benefited customers).

49. Furthermore, CBOE and other exchange operators are not “reliant on only their own volumes for the purpose of rebate structures and calculations.” CBOE (as well as AMEX/ARCA and ISE/GEM) could also introduce rebate programs based on volumes at different exchanges. As we have discussed, exchanges have introduced different pricing/rebate structures several times over the last several years, and rival exchanges have responded to those competitive actions.³⁶

35. CBOE Comment, at 4.

36. We note that CBOE states that it “is of the view that competitive forces do not suffice” to counteract or remedy certain negative effects that CBOE claims would result from approval of PHLX's proposal (CBOE Comment, at 5). CBOE provides no explanation for why it holds this “view,” particularly given that CBOE has described the options exchange industry as “highly competitive.”

C. ISE's Comment Letter Provides no Economic Basis to Oppose PHLX's Proposal.

50. ISE claims that “[a]n exchange with a single market structure and fee schedule cannot compete against fees that conglomerates of exchanges charge.”³⁷ This claim is similar to MIAX's, and is wrong for the same reasons. First, ISE can compete with PHLX and other exchanges by reducing its fees. Second, ISE also could introduce a rebate program based on volumes at its two exchanges. ISE claims that an operator with only one exchange would find it time consuming and costly to register an affiliated exchange. ISE's claim ignores that it – as well as CBOE and AMEX/ARCA – already operate multiple exchanges. Thus, the time and expense of registering a new affiliated exchange does not prevent ISE, CBOE and AMEX/ARCA from introducing similar rebate programs.

51. ISE also claims that “[g]enerally, allowing separate exchanges to cooperate on fees lessens competition between those exchanges and harms investors.”³⁸ ISE provides no explanation for why it believes that its claim is “generally” true.³⁹ As we have discussed, in a situation in which separate exchanges are under common ownership and have differentiated characteristics that may appeal differently to differentiated customers or trades, coordinating on fees among those commonly owned exchanges can lead to a socially efficient outcome that benefits customers. In any event, ISE provides no analysis purporting to show that PHLX's specific proposal “lessens competition,” particularly in light of ISE's description of the options exchange industry as “highly competitive.” Indeed, ISE appears to recognize that PHLX's proposal reduces trading costs when it claims that “[t]he fee is not reasonable simply because it lowers costs.”⁴⁰

37. ISE Comment, at 3.

38. ISE Comment, at 4.

39. We note that ISE states that it is “generally wary of . . . broad overstatements” (ISE Comment, at 5).

40. ISE Comment, at 5.

VI. CONCLUSION.

52. In this statement, we evaluate PHLX's proposal to amend the "Customer Rebate Program" it offers customers trading multiply listed equity options. Under the terms of its proposed amendment, PHLX would increase the rebate it pays its highest-volume customers, and would determine a customer's monthly trading volume by aggregating the customer's trading volume on PHLX, NOM and BX.

53. Based on the analysis discussed in this statement, we reach the following major conclusions:

- PHLX is subject to significant competitive forces from rival equity options exchanges.
- Exchanges are characterized by large fixed costs and low (or zero) marginal or incremental costs of serving an additional customer or handling a customer's additional trading volume. In general, economic efficiency in these circumstances requires that different customers pay different prices in a manner that stimulates overall volume.
- PHLX's pricing proposal does not raise antitrust concerns. PHLX's proposed amendment could be characterized as a type of "bundling," because the price paid by a customer may depend on purchases of different "products." "Bundling" is a common and generally procompetitive practice, particularly raising no valid concerns when practiced by a firm that lacks substantial market power.
- Criticisms of PHLX's proposed amendment from PHLX rivals provide no economic basis to oppose PHLX's proposal. Instead, those criticisms are consistent with our view that PHLX's pricing proposal is procompetitive.



Robert Willig



Gustavo Bamberger

January 24, 2014

Appendix A

Curriculum Vitae

Name: **Robert D. Willig**

Address: 220 Ridgeview Road, Princeton, New Jersey 08540

Birth: 1/16/47; Brooklyn, New York

Marital Status: Married, four children

Education: Ph.D. Economics, Stanford University, 1973
Dissertation: Welfare Analysis of Policies
Affecting Prices and Products.
Advisor: James Rosse

M.S. Operations Research, Stanford University, 1968.

A.B. Mathematics, Harvard University, 1967.

Professional Positions:

Professor of Economics and Public Affairs, Princeton University, 1978-.

Principal External Advisor, Infrastructure Program, Inter-American Development Bank, 6/97-8/98.

Deputy Assistant Attorney General, U.S. Department of Justice, 1989-1991.

Supervisor, Economics Research Department, Bell Laboratories, 1977-1978.

Visiting Lecturer (with rank of Associate Professor), Department of Economics and Woodrow Wilson School, Princeton University, 1977-78 (part time).

Economics Research Department, Bell Laboratories, 1973-77.

Lecturer, Economics Department, Stanford University, 1971-73.

Other Professional Activities:

ABA Section of Antitrust Law Economics Task Force, 2010-2012

Advisory Committee, Compass Lexecon 2010 -,

OECD Advisory Council for Mexican Economic Reform, 2008 -2009,

Senior Consultant, Compass Lexecon, 2008 -,

Director, Competition Policy Associates, Inc., 2003-2005

Advisory Board, Electronic Journal of Industrial Organization and Regulation Abstracts, 1996-.

Advisory Board, Journal of Network Industries, 2004-.

Visiting Faculty Member (occasional), International Program on Privatization and Regulatory Reform, Harvard Institute for International Development, 1996-2000.

Member, National Research Council Highway Cost Allocation Study Review Committee, 1995-98.

Member, Defense Science Board Task Force on the Antitrust Aspects of Defense Industry Consolidation, 1993-94.

Editorial Board, Utilities Policy, 1990-2001

Leif Johanson Lecturer, University of Oslo, November 1988.

Member, New Jersey Governor's Task Force on Market-Based Pricing of Electricity, 1987-89.

Co-editor, Handbook of Industrial Organization, 1984-89.

Associate Editor, Journal of Industrial Economics, 1984-89.

Director, Consultants in Industry Economics, Inc., 1983-89, 1991-94.

Fellow, Econometric Society, 1981-.

Organizing Committee, Carnegie-Mellon-N.S.F. Conference on Regulation, 1985.

Board of Editors, American Economic Review, 1980-83.

Nominating Committee, American Economic Association, 1980-1981.

Research Advisory Committee, American Enterprise Institute, 1980-1986.

Editorial Board, M.I.T. Press Series on Government Regulation of Economic Activity, 1979-93.

Program Committee, 1980 World Congress of the Econometric Society.

Program Committee, Econometric Society, 1979, 1981, 1985.

Organizer, American Economic Association Meetings: 1980, 1982.

American Bar Association Section 7 Clayton Act Committee, 1981.

Principal Investigator, NSF grant SOC79-0327, 1979-80; NSF grant 285-6041, 1980-82; NSF grant SES-8038866, 1983-84, 1985-86.

Aspen Task Force on the Future of the Postal Service, 1978-80.

Organizing Committee of Sixth Annual Telecommunications Policy Research Conference, 1977-78.

Visiting Fellow, University of Warwick, July 1977.

Institute for Mathematical Studies in the Social Sciences, Stanford University, 1975.

Published Articles and Book Chapters:

"The Liftoff of Consumer Benefits from the Broadband Revolution" (with Mark Dutz and Jon Orszag), Review of Network Economics (2012) vol. 11, issue 4, article 2.

"Competition and innovation-driven inclusive growth" (with Mark Dutz, Ioannis Kessides and Stephen O'Connell), in Promoting Inclusive Growth: Challenges and Policies, Luiz de Mello and Mark Dutz (eds.), OECD, 2011.

"Unilateral Competitive Effects of Mergers: Upward Pricing Pressure, Product Quality, and Other Extensions," Review of Industrial Organization (2011) 39:19–38.

"Antitrust and Patent Settlements: The Pharmaceutical Cases," (with John Bigelow) in The Antitrust Revolution (Fifth Edition), John Kwoka and Lawrence White (eds.), 2009.

"The 1982 Department of Justice Merger Guidelines: An Economic Assessment," (with J. Ordoover) reprinted in Economics of Antitrust Law, Benjamin Klein (ed.), Edward Elgar, 2008.

"On the Antitrust Treatment of Production Joint Ventures," (with Carl Shapiro) reprinted in Economics of Antitrust Law, Benjamin Klein (ed.), Edward Elgar, 2008.

“Consumer’s Surplus Without Apology,” reprinted in Applied Welfare Economics, Richard Just, Darrel Hueth and Andrew Schmitz (eds.), Edward Elgar, 2008; reprinted in Readings in Social Welfare: Theory and Policy, Robert E. Kuenne (ed.), Blackwell, 2000, pp. 86-97; reprinted in Readings in Microeconomic Theory, M. M. La Manna (ed.), Dryden Press, 1997, pp. 201-212.

“The Risk of Contagion from Multi-Market Contact,” (with Charles Thomas), The International Journal of Industrial Organization, Vol. 24, Issue 6 (Nov. 2006), pp 1157 – 1184.

“Pareto-Superior Nonlinear Outlay Schedules,” reprinted in The Economics of Public Utilities, Ray Rees (ed.), Edward Elgar, 2006; reprinted in The Economics of Price Discrimination, G. Norman, (ed.), Edward Elgar, 1999.

“Economic Effects of Antidumping Policy,” reprinted in The WTO and Anti-Dumping, Douglas Nelson (ed.), Edward Elgar, 2005.

“Merger Analysis, Industrial Organization Theory and the Merger Guidelines,” reprinted in Antitrust and Competition Policy, Andrew Kleit (ed.) Edward Elgar, 2005

“Antitrust Policy Towards Agreements That Settle Patent Litigation,” (with John Bigelow), Antitrust Bulletin, Fall 2004, pp. 655-698.

“Economies of Scope,” (with John Panzar), reprinted in The Economics of Business Strategy, John Kay (ed.), Edward Elgar, 2003.

“Panel on Substantive Standards for Mergers and the Role of Efficiencies,” in International Antitrust Law & Policy, Barry E. Hawk (ed.), Juris Publishing, 2003.

“Practical Rules for Pricing Access in Telecommunications,” (with J. Ordovery) in Second Generation Reforms in Infrastructure Services, F. Basanes and R. Willig (eds.), Johns Hopkins Press, 2002.

“Comments on Antitrust Policy in the Clinton Administration,” in American Economic Policy in the 1990s, J. Frankel and P. Orszag (eds.), MIT Press, 2002.

“Entrepreneurship, Access Policy and Economic Development: Lessons from Industrial Organization,” (with M. Dutz and J. Ordovery), European Economic Review, (44)4-6 (2000), pp. 739-747.

“Public Versus Regulated Private Enterprise,” reprinted in Privatization in Developing Countries, P. Cook and C. Kirkpatrick (eds.), Edward Elgar, 2000.

“Deregulation v. the Legal Culture: Panel Discussion,” in Is the Telecommunications Act of 1996 Broken?, G. Sidak (ed.), AEI Press, 1999.

“Economic Principles to Guide Post-Privatization Governance,” in Can Privatization Deliver? Infrastructure for Latin America, R. Willig co-editor, Johns Hopkins Press, 1999.

“Access and Bundling in High-Technology Markets,” (with J. A. Ordover), in Competition, Innovation and the Microsoft Monopoly: Antitrust in the Digital Marketplace, J. A. Eisenach and T. Lenard (eds.), Kluwer, 1999.

“Competitive Rail Regulation Rules: Should Price Ceilings Constrain Final Products or Inputs?,” (With W. J. Baumol), Journal of Transport Economics and Policy, Vol. 33, Part 1, pp. 1-11.

“Economic Effects of Antidumping Policy,” Brookings Trade Forum: 1998, 19-41.

“Interview With Economist Robert D. Willig,” Antitrust, Vol. 11, No. 2, Spring 1997, pp.11-15.

“Parity Pricing and its Critics: A Necessary Condition for Efficiency in Provision of Bottleneck Services to Competitors,” (with W. J. Baumol and J. A. Ordover), Yale Journal on Regulation, Vol. 14, No. 1, Winter 1997, pp. 145-164.

“Restructuring Regulation of the Rail Industry,” (with Ioannis Kessides), in Private Sector, Quarterly No. 4, September 1995, pp. 5 - 8. Reprinted in Viewpoint, October, 1995, The World Bank. Reprinted in Private Sector, special edition: Infrastructure, June 1996.

“Competition and Regulation in the Railroad Industry,” (with Ioannis Kessides), in Regulatory Policies and Reform: A Comparative Perspective, C. Frischtak (ed.), World Bank, 1996.

"Economic Rationales for the Scope of Privatization," (with Carl Shapiro), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 95-130.

"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), reprinted in The Political Economy of Privatization and Deregulation, E. E. Bailey and J. R. Pack (eds.), The International Library of Critical Writings in Economics, Edward Elgar Publishing Co., 1995, pp. 245-260.

“Economists’ View: The Department of Justice Draft Guidelines for the Licensing and Acquisition of Intellectual Property,” (with J. Ordover), Antitrust, V. 9, No. 2 (spring 1995), 29-36.

"Public Versus Regulated Private Enterprise," in Proceedings of the World Bank Annual Conference on Development Economics 1993, L. Summers (ed.), The World Bank, 1994.

"Economics and the 1992 Merger Guidelines: A Brief Survey," (with J. Ordover), Review of Industrial Organization, V. 8, No. 2, (1993), pp. 139-150.

"The Role of Sunk Costs in the 1992 Guidelines' Entry Analysis," Antitrust, V. 6, No. 3 (summer 1992).

"Antitrust Lessons from the Airlines Industry: The DOJ Experience," Antitrust Law Journal, V. 60, No. 2 (1992).

"William J. Baumol," (with E. E. Bailey), in New Horizons in Economic Thought: Appraisals of Leading Economists, W. J. Samuels (ed.), Edward Elgar, 1992.

"Anti-Monopoly Policies and Institutions," in The Emergence of Market Economies in Eastern Europe, Christopher Clague and Gordon Rausser (eds.), Basil Blackwell, 1992.

"Economics and the 1992 Merger Guidelines," (with Janusz Ordover), in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"On the Antitrust Treatment of Production Joint Ventures," (with Carl Shapiro), reprinted in Collaborations Among Competitors: Antitrust Policy and Economics, Eleanor Fox and James Halverson (eds.), American Bar Association, 1992.

"Merger Analysis, Industrial Organization Theory, and Merger Guidelines," Brookings Papers on Economic Activity -- Microeconomics 1991, pp. 281-332.

"On the Antitrust Treatment of Production Joint Ventures," (with C. Shapiro), Journal of Economic Perspectives, Vol. 4, No. 3, Summer 1990, pp. 113-130.

"Economic Rationales for the Scope of Privatization," (with Carl Shapiro), in The Political Economy of Public Sector Reform and Privatization, E.N. Suleiman and J. Waterbury (eds.), Westview Press, Inc., 1990, pp. 55-87.

"Contestable Market Theory and Regulatory Reform," in Telecommunications Deregulation: Market Power and Cost Allocation, J.R. Allison and D.L. Thomas (eds.), Ballinger, 1990.

"Address To The Section," Antitrust Law Section Symposium, New York State Bar Association, 1990.

"Price Caps: A Rational Means to Protect Telecommunications Consumers and Competition," (with W. Baumol), Review of Business, Vol. 10, No. 4, Spring 1989, pp. 3-8.

"U.S.-Japanese VER: A Case Study from a Competition Policy Perspective," (with M. Dutz) in The Costs of Restricting Imports, The Automobile Industry. OECD, 1988.

"Contestable Markets," in The New Palgrave: A Dictionary of Economics, J. Eatwell, M. Milgate, and P. Newman (eds.), 1987.

"Do Entry Conditions Vary Across Markets: Comments," Brookings Papers on Economic Activity, 3 - 1987, pp. 872-877.

"Railroad Deregulation: Using Competition as a Guide," (with W. Baumol), Regulation, January/February 1987, Vol. 11, No. 1, pp. 28-36.

"How Arbitrary is 'Arbitrary'? - or, Toward the Deserved Demise of Full Cost Allocation," (with W. Baumol and M. Koehn), Public Utilities Fortnightly, September 1987, Vol. 120, No. 5, pp. 16-22.

"Contestability: Developments Since the Book," (with W. Baumol), Oxford Economic Papers, December 1986, pp. 9-36.

"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation," in Proceedings from the Telecommunications Deregulation Forum; Karl Eller Center; 1986.

"Perspectives on Mergers and World Competition," (with J. Ordover), in Antitrust and Regulation, R.E. Grieson (ed.), Lexington, 1986.

"On the Theory of Perfectly Contestable Markets," (with J. Panzar and W. Baumol), in New Developments in The Analysis of Market Structure, J. Stiglitz and F. Mathewson (eds.), MIT Press, 1986.

"InterLATA Capacity Growth and Market Competition," (with C. Shapiro), in Telecommunications and Equity: Policy Research Issues, J. Miller (ed.), North Holland, 1986.

"Corporate Governance and Market Structure," in Economic Policy in Theory and Practice, A. Razin and E. Sadka (eds.), Macmillan Press, 1986.

"Antitrust for High-Technology Industries: Assessing Research Joint Ventures and Mergers," (with J. Ordover), Journal of Law and Economics, Vol 28(2), May 1985, pp. 311-334.

"Non-Price Anticompetitive Behavior by Dominant Firms Toward the Producers of Complementary Products," (with J. Ordover and A. Sykes), in Antitrust and Regulation, F.M. Fisher (ed.), MIT Press, 1985.

"Telephones and Computers: The Costs of Artificial Separation," (with W. Baumol), Regulation, March/April 1985.

"Transfer Principles in Income Redistribution," (with P. Fishburn), Journal of Public Economics, 25 (1984), pp. 1-6.

"Market Structure and Government Intervention in Access Markets," in Telecommunications Access and Public Policy, A. Baughcam and G. Faulhaber (eds.), 1984.

"Pricing Issues in the Deregulation of Railroad Rates," (with W. Baumol), in Economic Analysis of Regulated Markets: European and U. S. Perspectives, J. Finsinger (ed.), 1983.

"Local Telephone Pricing in a Competitive Environment," (with J. Ordover), in Telecommunications Regulation Today and Tomorrow, E. Noam (ed.), Harcourt Brace Jovanovich, 1983.

"Economics and Postal Pricing Policy," (with B. Owen), in The Future of the Postal Service, J. Fleishman (ed.), Praeger, 1983.

"Selected Aspects of the Welfare Economics of Postal Pricing," in Telecommunications Policy Annual, Praeger, 1987.

"The Case for Freeing AT&T" (with M. Katz), Regulation, July-Aug. 1983, pp. 43-52.

"Predatory Systems Rivalry: A Reply" (with J. Ordover and A. Sykes), Columbia Law Review, Vol. 83, June 1983, pp. 1150-1166. Reprinted in Corporate Counsel's Handbook - 1984.

"Sector Differentiated Capital Taxation with Imperfect Competition and Interindustry Flows," Journal of Public Economics, Vol. 21, 1983.

"Contestable Markets: An Uprising in the Theory of Industry Structure: Reply," (with W.J. Baumol and J.C. Panzar), American Economic Review, Vol. 73, No. 3, June 1983, pp. 491-496.

"The 1982 Department of Justice Merger Guidelines: An Economic Assessment," (with J. Ordover), California Law Review, Vol. 71, No. 2, March 1983, pp. 535-574. Reprinted in Antitrust Policy in Transition: The Convergence of Law and Economics, E.M. Fox and J.T. Halverson (eds.), 1984.

"Intertemporal Failures of the Invisible Hand: Theory and Implications for International Market Dominance," (with W.J. Baumol), Indian Economic Review, Vol. XVI, Nos. 1 and 2, January-June 1981, pp. 1-12.

"Unfair International Trade Practices," (with J. Ordover and A. Sykes), Journal of International Law and Politics, Vol. 15, No. 2, winter 1983, pp. 323-337.

"Journals as Shared Goods: Reply," (with J. Ordover), American Economic Review, V. 72, No. 3, June 1982, pp. 603-607.

"Herfindahl Concentration, Rivalry, and Mergers," (with J. Ordover and A. Sykes), Harvard Law Review, V. 95, No. 8, June 1982, pp. 1857-1875.

"An Economic Definition of Predation: Pricing and Product Innovation," (with J. Ordover), Yale Law Journal, Vol. 90: 473, December 1981, pp. 1-44.

"Fixed Costs, Sunk Costs, Entry Barriers, and the Sustainability of Monopoly," (with W. Baumol), Quarterly Journal of Economics, Vol. 96, No. 3, August 1981, pp. 405-432.

"Social Welfare Dominance," American Economic Review, Vol. 71, No. 2, May 1981, pp. 200-204.

"Economies of Scope," (with J. Panzar), American Economic Review, Vol. 72, No. 2, May 1981, pp. 268-272.

"Income-Distribution Concerns in Regulatory Policymaking," (with E.E. Bailey) in Studies in Public Regulation (G. Fromm, ed.), MIT Press, Cambridge, 1981, pp. 79-118.

"An Economic Definition of Predatory Product Innovation," (with J. Ordover), in Strategic Predation and Antitrust Analysis, S. Salop (ed.), 1981.

"What Can Markets Control?" in Perspectives on Postal Service Issues, R. Sherman (ed.), American Enterprise Institute, 1980.

"Pricing Decisions and the Regulatory Process," in Proceedings of the 1979 Rate Symposium on Problems of Regulated Industries, University of Missouri-Columbia Extension Publications, 1980, pp. 379-388.

"The Theory of Network Access Pricing," in Issues in Public Utility Regulation, H.M. Trebing (ed.), MSU Public Utilities Papers, 1979.

"Customer Equity and Local Measured Service," in Perspectives on Local Measured Service, J. Baude, et al. (ed.), 1979, pp. 71-80.

"The Role of Information in Designing Social Policy Towards Externalities," (with J. Ordover), Journal of Public Economics, V. 12, 1979, pp. 271-299.

"Economies of Scale and the Profitability of Marginal-Cost Pricing: Reply," (with J. Panzar), Quarterly Journal of Economics, Vol. 93, No. 4, November 1979, pp. 743-4.

"Theoretical Determinants of the Industrial Demand for Electricity by Time of Day," (with J. Panzar) Journal of Econometrics, V. 9, 1979, pp. 193-207.

"Industry Performance Gradient Indexes," (with R. Dansby), American Economic Review, V. 69, No. 3, June 1979, pp. 249-260.

"The Economic Gradient Method," (with E. Bailey), American Economic Review, Vol. 69, No. 2, May 1979, pp. 96-101.

"Multiproduct Technology and Market Structure," American Economic Review, Vol. 69, No. 2,

May 1979, pp. 346-351.

"Consumer's Surplus Without Apology: Reply," American Economic Review, Vol. 69, No. 3, June 1979, pp. 469-474.

"Decisions with Estimation Uncertainty," (with R. Klein, D. Sibley, and L. Rafsky), Econometrica, V. 46, No. 6, November 1978, pp. 1363-1388.

"Incremental Consumer's Surplus and Hedonic Price Adjustment," Journal of Economic Theory, V. 17, No. 2, April 1978, pp. 227-253.

"Recent Theoretical Developments in Financial Theory: Discussion," The Journal of Finance, V. 33, No. 3, June 1978, pp. 792-794.

"The Optimal Provision of Journals Qua Sometimes Shared Goods," (with J. Ordovery), American Economic Review, V. 68, No. 3, June 1978, pp. 324-338.

"On the Comparative Statics of a Competitive Industry With Infra-marginal Firms," (with J. Panzar), American Economic Review, V. 68, No. 3, June 1978, pp. 474-478.

"Pareto Superior Nonlinear Outlay Schedules," Bell Journal of Economics, Vol. 9, No. 1, Spring 1978, pp. 56-69.

"Predatoriness and Discriminatory Pricing," in The Economics of Anti-Trust: Course of Study Materials, American Law Institute-American Bar Association, 1978.

"Economies of Scale in Multi-Output Production," (with J. Panzar), Quarterly Journal of Economics, V. 91, No. 3, August 1977, pp. 481-494.

"Weak Invisible Hand Theorems on the Sustainability of Multi-product Natural Monopoly," (with W. Baumol and E. Bailey), American Economic Review, V. 67, No. 3, June 1977, pp. 350-365.

"Free Entry and the Sustainability of Natural Monopoly," (with J. Panzar), Bell Journal of Economics, Spring 1977, pp. 1-22.

"Risk Invariance and Ordinally Additive Utility Functions," Econometrica, V. 45, No. 3, April 1977, pp. 621-640.

"Ramsey-Optimal Pricing of Long Distance Telephone Services," (with E. Bailey), in Pricing in Regulated Industries, Theory and Application, J. Wenders (ed.), Mountain State Telephone and Telegraph Co., 1977, pp. 68-97.

"Network Externalities and Optimal Telecommunications Pricing: A Preliminary Sketch," (with R. Klein), in Proceedings of Fifth Annual Telecommunications Policy Research Conference,

Volume II, NTIS, 1977, pp. 475-505.

"Otsenka ekonomicheskoi effektivnosti proizvodstvennoi informatsii" ["The Evaluation of the Economic Benefits of Productive Information"] in Doklady Sovetskikh i Amerikanskikh Spetsialistov Predstavlennye na Pervyi Sovetsko-Amerikanskii Simpozium po Ekonomicheskoi Effektivnosti Informat sionnogo Obsluzhivaniia [Papers of Soviet and American Specialists Presented at the First Soviet- American Symposium on Costs and Benefits of Information Services], All Soviet Scientific Technical Information Center, Moscow, 1976.

"Vindication of a 'Common Mistake' in Welfare Economics," (with J. Panzar), Journal of Political Economy, V. 84, No. 6, December 1976, pp. 1361-1364.

"Consumer's Surplus Without Apology," American Economic Review, V. 66, No. 4, September 1976, pp. 589-597.

Books

Second Generation Reforms in Infrastructure Services, F. Basanes and R. Willig (eds.), Johns Hopkins Press, 2002.

Can Privatization Deliver? Infrastructure for Latin America, R. Willig co-editor, Johns Hopkins Press, 1999.

Handbook of Industrial Organization, (edited with R. Schmalensee), North Holland Press, Volumes 1 and 2, 1989.

Contestable Markets and the Theory of Industry Structure, (with W.J. Baumol and J.C. Panzar), Harcourt Brace Jovanovich, 1982. Second Edition, 1989.

Welfare Analysis of Policies Affecting Prices and Products, Garland Press, 1980.

Unpublished Papers and Reports:

"'Reverse Payments' in Settlements of Patent Litigation: Split Opinions on Schering-Plough's K-Dur (2005 and 2012)" (with John P. Bigelow), in **The Antitrust Revolution, Sixth Edition**, (J. Kwoka and Laurence White, eds.), Oxford University Press, forthcoming.

"Delta-Northwest: Merger Approval Driven by Consumer Benefits from Airline Network Effects" (with Mark Israel, Bryan Keating and Daniel Rubinfeld), in **The Antitrust Revolution, Sixth Edition**, (J. Kwoka and Laurence White, eds.), Oxford University Press, forthcoming.

"Unilateral Competitive Effects" (with Bryan Keating), in **The Oxford Handbook on International Antitrust Economics**, (Roger D. Blair and D. Daniel Sokol, eds.), Oxford

University Press, forthcoming.

"Airline Network Effects and Consumer Welfare" (with Bryan Keating, Mark Israel and Daniel Rubinfeld), 2012, under revision for **Review of Network Economics**

"Commentary on Economics at the FTC: Hospital Mergers, Authorized Generic Drugs, and Consumer Credit Markets" (with Nauman Ilias, Bryan Keating, and Paolo Ramezzana), 2012, under revision for **Review of Industrial Organization**.

"Recommendations for Excessive-Share Limits in the Surfclam and Ocean Quahog Fisheries" (with Glenn Mitchell and Steven Peterson), Report to National Marine Fisheries Service and the Mid-Atlantic Fishery Management Council, 5/23/2011.

"Public Comments on the 2010 Draft Horizontal Merger Guidelines," paper posted to Federal Trade Commission website, 6/4/2010

"An Econometric Analysis of the Matching Between Football Student-Athletes and Colleges," (with Yair Eilat, Bryan Keating and Jon Orszag), submitted for publication.

Supreme Court Amicus Brief Regarding Morgan Stanley Capital Group Inc. v. Public Utility District No. 1 of Snohomish County, Washington, (co-authored), AEI-Brookings Joint Center Brief No. 07-02, 12/2/07

"(Allegedly) Monopolizing Tying Via Product Innovation," statement before the Department of Justice/Federal Trade Commission Section 2 Hearings, November 1, 2006.

"Assessment of U.S. Merger Enforcement Policy," statement before the Antitrust Modernization Commission, 11/17/05.

"Investment is Appropriately Stimulated by TELRIC," in Pricing Based on Economic Cost, 12/2003.

"Brief of Amici Curiae Economics Professors, re Verizon v. Trinko, In the Supreme Court of the U.S.," (with W.J. Baumol, J.O. Ordover and F.R. Warren-Boulton), 7/25/2003.

"Stimulating Investment and the Telecommunications Act of 1996," (with J. Bigelow, W. Lehr and S. Levinson), 2002.

"An Economic Analysis of Spectrum Allocation and Advanced Wireless Services," (with Martin N. Baily, Peter R. Orszag, and Jonathan M. Orszag), 2002

"Effective Deregulation of Residential Electric Service," 2001

"Anticompetitive Forced Rail Access," (with W. J. Baumol), 2000

"The Scope of Competition in Telecommunications" (with B. Douglas Bernheim), 1998

"Why Do Christie and Schultz Infer Collusion From Their Data? (with Alan Kleidon), 1995.

"Demonopolization," (with Sally Van Siclen), OECD Vienna Seminar Paper, 1993.

"Economic Analysis of Section 337: The Balance Between Intellectual Property Protection and Protectionism," (with J. Ordover) 1990.

"The Effects of Capped NTS Charges on Long Distance Competition," (with M. Katz).

"Discussion of Regulatory Mechanism Design in the Presence of Research Innovation, and Spillover Effects," 1987.

"Industry Economic Analysis in the Legal Arena," 1987.

"Deregulation of Long Distance Telephone Services: A Public Interest Assessment," (with M. Katz).

"Competition-Related Trade Issues," report prepared for OECD.

"Herfindahl Concentration Index," (with J. Ordover), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, March 1981.

"Market Power and Market Definition," (with J. Ordover), Memorandum for ABA Section 7 Clayton Act Committee, Project on Revising the Merger Guidelines, May 1981.

"The Continuing Need for and National Benefits Derived from the REA Telephone Loan Programs - An Economic Assessment," 1981.

"The Economics of Equipment Leasing: Costing and Pricing," 1980.

"Rail Deregulation and the Financial Problems of the U.S. Railroad Industry," (with W.J. Baumol), report prepared under contract to Conrail, 1979.

"Price Indexes and Intertemporal Welfare," Bell Laboratories Economics Discussion Paper, 1974.

"Consumer's Surplus: A Rigorous Cookbook," Technical Report #98, Economics Series, I.M.S.S.S., Stanford University, 1973.

"An Economic-Demographic Model of the Housing Sector," (with B. Hickman and M. Hinz), Center for Research in Economic Growth, Stanford University, 1973.

Invited Conference Presentations:

Brookings Institution Conference on The Economics of the Airline Industry "Airline Network Effects and Consumer Welfare"	2012
AGEP Public Policy Conference on Pharmaceutical Industry Economics, Regulation and Legal Issues; Law and Economics Center, George Mason University School of Law "Pharmaceutical Brand-Generic Disputes"	2012
U.S.-EU Alliance Study Peer Review Conferences "Review of Cooperative Agreements in Transatlantic Airline Markets" "The Research Agenda Ahead"	2012 2012
Antitrust in the High Tech Sector Conference "Developments in Merger Enforcement"	2012
Georgetown Center for Business and Public Policy, Conference on the Evolution of Regulation "Reflections on Regulation"	2011
Antitrust Forum, New York State Bar Association "Upward Price Pressure, Market Definition and Supply Mobility"	2011
American Bar Association, Antitrust Section, Annual Convention "The New Merger Guidelines' Analytic Highlights"	2011
OECD and World Bank Conference on Challenges and Policies for Promoting Inclusive Growth "Inclusive Growth From Competition and Innovation"	2011
Villanova School of Business Executive MBA Conference "Airline Network Effects, Competition and Consumer Welfare"	2011
NYU School of Law Conference on Critical Directions in Antitrust "Unilateral Competitive Effects"	2010
Conf. on the State of European Competition Law and Enforcement in a Transatlantic Context "Recent Developments in Merger Control"	2010
Center on Regulation and Competition, Universidad de Chile Law School "Economic Regulation and the Limits of Antitrust Law"	2010
Center on Regulation and Competition, Universidad de Chile Law School "Merger Policy and Guidelines Revision"	2010
Faculty of Economics, Universidad de Chile	

"Network Effects in Airlines Markets"	2010
Georgetown Law Global Antitrust Enforcement Symposium "New US Merger Guidelines"	2010
FTI London Financial Services Conference "Competition and Regulatory Reform"	2010
NY State Bar Association Annual Antitrust Conference "New Media Competition Policy"	2009
Antitrust Law Spring Meeting of the ABA "Antitrust and the Failing Economy Defense"	2009
Georgetown Law Global Antitrust Enforcement Symposium "Mergers: New Enforcement Attitudes in a Time of Economic Challenge"	2009
Phoenix Center US Telecoms Symposium "Assessment of Competition in the Wireless Industry"	2009
FTC and DOJ Horizontal Merger Guidelines Workshop "Direct Evidence is No Magic Bullet"	2009
Northwestern Law Research Symposium: Antitrust Economics and Competition Policy "Discussion of Antitrust Evaluation of Horizontal Mergers"	2008
Inside Counsel Super-Conference "Navigating Mixed Signals under Section 2 of the Sherman Act"	2008
Federal Trade Commission Workshop on Unilateral Effects in Mergers "Best Evidence and Market Definition"	2008
European Policy Forum, Rules for Growth: Telecommunications Regulatory Reform "What Kind of Regulation For Business Services?"	2007
Japanese Competition Policy Research Center, Symposium on M&A and Competition Policy "Merger Policy Going Forward With Economics and the Economy"	2007
Federal Trade Commission and Department of Justice Section 2 Hearings "Section 2 Policy and Economic Analytic Methodologies"	2007
Pennsylvania Bar Institute, Antitrust Law Committee CLE "The Economics of Resale Price Maintenance and Class Certification"	2007
Pennsylvania Bar Institute, Antitrust Law Committee CLE	

“Antitrust Class Certification – An Economist’s Perspective”	2007
Fordham Competition Law Institute, International Competition Economics Training Seminar “Monopolization and Abuse of Dominance”	2007
Canadian Bar Association Annual Fall Conference on Competition Law “Economic Tools for the Competition Lawyer”	2007
Conference on Managing Litigation and Business Risk in Multi-jurisdiction Antitrust Matters “Economic Analysis in Multi-jurisdictional Merger Control”	2007
World Bank Conference on Structuring Regulatory Frameworks for Dynamic and Competitive South Eastern European Markets “The Roles of Government Regulation in a Dynamic Economy”	2006
Department of Justice/Federal Trade Commission Section 2 Hearings “(Allegedly) Monopolizing Tying Via Product Innovation”	2006
Fordham Competition Law Institute, Competition Law Seminar “Monopolization and Abuse of Dominance”	2006
Practicing Law Institute on Intellectual Property Antitrust “Relevant Markets for Intellectual Property Antitrust”	2006
PLI Annual Antitrust Law Institute “Cutting Edge Issues in Economics”	2006
World Bank’s Knowledge Economy Forum V “Innovation, Growth and Competition”	2006
Charles University Seminar Series “The Dangers of Over-Ambitious Antitrust Regulation”	2006
NY State Bar Association Antitrust Law Section Annual Meeting “Efficient Integration or Illegal Monopolization?”	2006
World Bank Seminar “The Dangers of Over-Ambitious Regulation”	2005
ABA Section of Antitrust Law 2005 Fall Forum “Is There a Gap Between the Guidelines and Agency Practice?”	2005
Hearing of Antitrust Modernization Commission “Assessment of U.S. Merger Enforcement Policy”	2005

LEAR Conference on Advances in the Economics of Competition Law “Exclusionary Pricing Practices”	2005
Annual Antitrust Law Institute “Cutting Edge Issues in Economics”	2005
PRIOR Symposium on States and Stem Cells “Assessing the Economics of State Stem Cell Programs”	2005
ABA Section of Antitrust Law – AALS Scholars Showcase “Distinguishing Anticompetitive Conduct”	2005
Allied Social Science Associations National Convention “Antitrust in the New Economy”	2005
ABA Section of Antitrust Law 2004 Fall Forum “Advances in Economic Analysis of Antitrust”	2004
Phoenix Center State Regulator Retreat “Regulatory Policy for the Telecommunications Revolution”	2004
OECD Competition Committee “Use of Economic Evidence in Merger Control”	2004
Justice Department/Federal Trade Commission Joint Workshop “Merger Enforcement”	2004
Phoenix Center Annual U.S. Telecoms Symposium “Incumbent Market Power”	2003
Center for Economic Policy Studies Symposium on Troubled Industries “What Role for Government in Telecommunications?”	2003
Princeton Workshop on Price Risk and the Future of the Electric Markets “The Structure of the Electricity Markets”	2003
2003 Antitrust Conference “International Competition Policy and Trade Policy”	2003
International Industrial Organization Conference “Intellectual Property System Reform”	2003
ABA Section of Antitrust Law 2002 Fall Forum “Competition, Regulation and Pharmaceuticals”	2002

Fordham Conference on International Antitrust Law and Policy “Substantive Standards for Mergers and the Role of Efficiencies”	2002
Department of Justice Telecom Workshop “Stimulating Investment and the Telecommunications Act of 1996”	2002
Department of Commerce Conference on the State of the Telecom Sector “Stimulating Investment and the Telecommunications Act of 1996”	2002
Law and Public Affairs Conference on the Future of Internet Regulation “Open Access and Competition Policy Principles”	2002
Center for Economic Policy Studies Symposium on Energy Policy “The Future of Power Supply”	2002
The Conference Board: Antitrust Issues in Today’s Economy “The 1982 Merger Guidelines at 20”	2002
Federal Energy Regulatory Commission Workshop “Effective Deregulation of Residential Electric Service”	2001
IPEA International Seminar on Regulation and Competition “Electricity Markets: Deregulation of Residential Service”	2001
“Lessons for Brazil from Abroad”	2001
ABA Antitrust Law Section Task Force Conference “Time, Change, and Materiality for Monopolization Analyses”	2001
Harvard University Conference on American Economic Policy in the 1990s “Comments on Antitrust Policy in the Clinton Administration”	2001
Tel-Aviv Workshop on Industrial Organization and Anti-Trust “The Risk of Contagion from Multimarket Contact”	2001
2001 Antitrust Conference “Collusion Cases: Cutting Edge or Over the Edge?”	2001
“Dys-regulation of California Electricity”	2001
FTC Public Workshop on Competition Policy for E-Commerce “Necessary Conditions for Cooperation to be Problematic”	2001
HIID International Workshop on Infrastructure Policy “Infrastructure Privatization and Regulation”	2000
Villa Mondragone International Economic Seminar “Competition Policy for Network and Internet Markets”	2000

New Developments in Railroad Economics: Infrastructure Investment and Access Policies “Railroad Access, Regulation, and Market Structure”	2000
The Multilateral Trading System at the Millennium “Efficiency Gains From Further Liberalization”	2000
Singapore – World Bank Symposium on Competition Law and Policy “Policy Towards Cartels and Collusion”	2000
CEPS: Is It a New World?: Economic Surprises of the Last Decade “The Internet and E-Commerce”	2000
Cutting Edge Antitrust: Issues and Enforcement Policies “The Direction of Antitrust Entering the New Millennium”	2000
The Conference Board: Antitrust Issues in Today’s Economy “Antitrust Analysis of Industries With Network Effects”	1999
CEPS: New Directions in Antitrust “Antitrust in a High-Tech World”	1999
World Bank Meeting on Competition and Regulatory Policies for Development “Economic Principles to Guide Post-Privatization Governance”	1999
1999 Antitrust Conference “Antitrust and the Pace of Technological Development” “Restructuring the Electric Utility Industry”	1999 1999
HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance “Privatization and Post-Privatization Regulation of Natural Monopolies”	1999
The Federalist Society: Telecommunications Deregulation: Promises Made, Potential Lost? “Grading the Regulators”	1999
Inter-American Development Bank: Second Generation Issues In the Reform Of Public Services “Post-Privatization Governance” “Issues Surrounding Access Arrangements”	1999 1999
Economic Development Institute of the World Bank -- Program on Competition Policy “Policy Towards Horizontal Mergers”	1998
Twenty-fifth Anniversary Seminar for the Economic Analysis Group of the Department of	

Justice		
“Market Definition in Antitrust Analysis”		1998
HIID International Workshop on Privatization, Regulatory Reform and Corporate Governance		
“Infrastructure Architecture and Regulation: Railroads”		1998
EU Committee Competition Conference – Market Power		
“US/EC Perspective on Market Definition”		1998
Federal Trade Commission Roundtable		
“Antitrust Policy for Joint Ventures”		1998
1998 Antitrust Conference		
“Communications Mergers”		1998
The Progress and Freedom Foundation Conference on Competition, Convergence, and the Microsoft Monopoly		
Access and Bundling in High-Technology Markets		1998
FTC Program on The Effective Integration of Economic Analysis into Antitrust Litigation		
The Role of Economic Evidence and Testimony		1997
FTC Hearings on Classical Market Power in Joint Ventures		
Microeconomic Analysis and Guideline		1997
World Bank Economists --Week IV Keynote		
Making Markets More Effective With Competition Policy		1997
Brookings Trade Policy Forum		
Competition Policy and Antidumping: The Economic Effects		1997
University of Malaya and Harvard University Conference on The Impact of Globalisation and Privatisation on Malaysia and Asia in the Year 2020		
Microeconomics, Privatization, and Vertical Integration		1997
ABA Section of Antitrust Law Conference on The Telecommunications Industry		
Current Economic Issues in Telecommunications		1997
Antitrust 1998: The Annual Briefing		
The Re-Emergence of Distribution Issues		1997
Inter-American Development Bank Conference on Private Investment, Infrastructure Reform and Governance in Latin America & the Caribbean		
Economic Principles to Guide Post-Privatization Governance		1997

Harvard Forum on Regulatory Reform and Privatization of Telecommunications in the Middle East	
Privatization: Methods and Pricing Issues	1997
American Enterprise Institute for Public Policy Research Conference	
Discussion of Local Competition and Legal Culture	1997
Harvard Program on Global Reform and Privatization of Public Enterprises	
“Infrastructure Privatization and Regulation: Freight”	1997
World Bank Competition Policy Workshop	
“Competition Policy for Entrepreneurship and Growth”	1997
Eastern Economics Association Paul Samuelson Lecture	
“Bottleneck Access in Regulation and Competition Policy”	1997
ABA Annual Meeting, Section of Antitrust Law	
“Antitrust in the 21st Century: The Efficiencies Guidelines”	1997
Peruvian Ministry of Energy and Mines Conference on Regulation of Public Utilities	
“Regulation: Theoretical Context and Advantages vs. Disadvantages”	1997
The FCC: New Priorities and Future Directions	
“Competition in the Telecommunications Industry”	1997
American Enterprise Institute Studies in Telecommunications Deregulation	
“The Scope of Competition in Telecommunications”	1996
George Mason Law Review Symposium on Antitrust in the Information Revolution	
“Introduction to the Economic Theory of Antitrust and Information”	1996
Korean Telecommunications Public Lecture	
“Market Opening and Fair Competition”	1996
Korea Telecommunications Forum	
“Desirable Interconnection Policy in a Competitive Market”	1996
European Association for Research in Industrial Economics Annual Conference	
“Bottleneck Access: Regulation and Competition Policy”	1996
Harvard Program on Global Reform and Privatization of Public Enterprises	
“Railroad and Other Infrastructure Privatization”	1996

FCC Forum on Antitrust and Economic Issues Involved with InterLATA Entry “The Scope of Telecommunications Competition”	1996
Citizens for a Sound Economy Policy Watch on Telecommunications Interconnection “The Economics of Interconnection”	1996
World Bank Seminar on Experiences with Corporatization “Strategic Directions of Privatization”	1996
FCC Economic Forum on the Economics of Interconnection Lessons from Other Industries	1996
ABA Annual Meeting, Section of Antitrust Law The Integration, Disintegration, and Reintegration of the Entertainment Industry	1996
Conference Board: 1996 Antitrust Conference How Economics Influences Antitrust and Vice Versa	1996
Antitrust 1996: A Special Briefing Joint Ventures and Strategic Alliances	1996
New York State Bar Association Section of Antitrust Law Winter Meeting Commentary on Horizontal Effects Issues	1996
FTC Hearings on the Changing Nature of Competition in a Global and Innovation-Driven Age Vertical Issues for Networks and Standards	1995
Wharton Seminar on Applied Microeconomics Access Policies with Imperfect Regulation	1995
Antitrust 1996, Washington D.C. Assessing Joint Ventures for Diminution of Competition	1995
ABA Annual Meeting, Section of Antitrust Law Refusals to Deal -- Economic Tests for Competitive Harm	1995
FTC Seminar on Antitrust Enforcement Analysis Diagnosing Collusion Possibilities	1995
Philadelphia Bar Education Center: Antitrust Fundamentals Antitrust--The Underlying Economics	1995
Vanderbilt University Conference on Financial Markets	

Why Do Christie and Schultz Infer Collusion From Their Data?	1995
ABA Section of Antitrust Law Chair=s Showcase Program Discussion of Telecommunications Competition Policy	1995
Conference Board: 1995 Antitrust Conference Analysis of Mergers and Joint Ventures	1995
ABA Conference on The New Antitrust: Policy of the '90s Antitrust on the Super Highways/Super Airways	1994
ITC Hearings on The Economic Effects of Outstanding Title VII Orders "The Economic Impacts of Antidumping Policies"	1994
OECD Working Conference on Trade and Competition Policy "Empirical Evidence on The Nature of Anti-dumping Actions"	1994
Antitrust 1995, Washington D.C. "Rigorous Antitrust Standards for Distribution Arrangements"	1994
ABA -- Georgetown Law Center: Post Chicago-Economics: New Theories - New Cases? "Economic Foundations for Vertical Merger Guidelines"	1994
Conference Board: Antitrust Issues in Today's Economy "New Democrats, Old Agencies: Competition Law and Policy"	1994
Federal Reserve Board Distinguished Economist Series "Regulated Private Enterprise Versus Public Enterprise"	1994
Institut d'Etudes Politiques de Paris "Lectures on Competition Policy and Privatization"	1993
Canadian Bureau of Competition Policy Academic Seminar Series, Toronto. "Public Versus Regulated Private Enterprise"	1993
CEPS Symposium on The Clinton Administration: A Preliminary Report Card "Policy Towards Business"	1993
Columbia Institute for Tele-Information Conference on Competition in Network Industries, New York, NY "Discussion of Deregulation of Networks: What Has Worked and What Hasn't"	1993
World Bank Annual Conference on Development Economics "Public Versus Regulated Private Enterprise"	1993

Center for Public Utilities Conference on Current Issues Challenging the Regulatory Process	
"The Economics of Current Issues in Telecommunications Regulation"	1992
"The Role of Markets in Presently Regulated Industries"	1992
The Conference Board's Conference on Antitrust Issues in Today's Economy, New York, NY	
"Antitrust in the Global Economy"	1992
"Monopoly Issues for the '90s"	1993
Columbia University Seminar on Applied Economic Theory, New York, NY	
"Economic Rationales for the Scope of Privatization"	1992
Howrey & Simon Conference on Antitrust Developments, Washington, DC	
"Competitive Effects of Concern in the Merger Guidelines"	1992
Arnold & Porter Colloquium on Merger Enforcement, Washington, DC	
"The Economic Foundations of the Merger Guidelines"	1992
American Bar Association, Section on Antitrust Law Leadership Council Conference, Monterey, CA	
"Applying the 1992 Merger Guidelines"	1992
OECD Competition Policy Meeting, Paris, France	
"The Economic Impacts of Antidumping Policy"	1992
Center for Public Choice Lecture Series, George Mason University Arlington, VA	
"The Economic Impacts of Antidumping Policy"	1992
Brookings Institution Microeconomics Panel, Washington, DC,	
"Discussion of the Evolution of Industry Structure"	1992
AT&T Conference on Antitrust Essentials	
"Antitrust Standards for Mergers and Joint Ventures"	1991
ABA Institute on The Cutting Edge of Antitrust: Market Power	
"Assessing and Proving Market Power: Barriers to Entry"	1991
Second Annual Workshop of the Competition Law and Policy Institute of New Zealand	
"Merger Analysis, Industrial Organization Theory, and Merger Guidelines"	1991
"Exclusive Dealing and the <u>Fisher & Paykel</u> Case"	1991
Special Seminar of the New Zealand Treasury	
"Strategic Behavior, Antitrust, and The Regulation of Natural Monopoly"	1991

Public Seminar of the Australian Trade Practices Commission "Antitrust Issues of the 1990's"	1991
National Association of Attorneys General Antitrust Seminar "Antitrust Economics"	1991
District of Columbia Bar's 1991 Annual Convention "Administrative and Judicial Trends in Federal Antitrust Enforcement"	1991
ABA Spring Meeting "Antitrust Lessons From the Airline Industry"	1991
Conference on The Transition to a Market Economy - Institutional Aspects "Anti-Monopoly Policies and Institutions"	1991
Conference Board's Thirtieth Antitrust Conference "Antitrust Issues in Today's Economy"	1991
American Association for the Advancement of Science Annual Meeting "Methodologies for Economic Analysis of Mergers"	1991
General Seminar, Johns Hopkins University "Economic Rationales for the Scope of Privatization"	1991
Capitol Economics Speakers Series "Economics of Merger Guidelines"	1991
CRA Conference on Antitrust Issues in Regulated Industries "Enforcement Priorities and Economic Principles"	1990
Pepper Hamilton & Scheetz Anniversary Colloquium "New Developments in Antitrust Economics"	1990
PLI Program on Federal Antitrust Enforcement in the 90's "The Antitrust Agenda of the 90's"	1990
FTC Distinguished Speakers Seminar "The Evolving Merger Guidelines"	1990
The World Bank Speakers Series "The Role of Antitrust Policy in an Open Economy"	1990
Seminar of the Secretary of Commerce and Industrial Development of Mexico "Transitions to a Market Economy"	1990

Southern Economics Association	
"Entry in Antitrust Analysis of Mergers"	1990
"Discussion of Strategic Investment and Timing of Entry"	1990
American Enterprise Institute Conference on Policy Approaches to the Deregulation of Network Industries	
"Discussion of Network Problems and Solutions"	1990
American Enterprise Institute Conference on Innovation, Intellectual Property, and World Competition	
"Law and Economics Framework for Analysis"	1990
Banco Nacional de Desenvolvimento Economico Social Lecture	
"Competition Policy: Harnessing Private Interests for the Public Interest"	1990
Western Economics Association Annual Meetings	
"New Directions in Antitrust from a New Administration"	1990
"New Directions in Merger Enforcement: The View from Washington"	1990
Woodrow Wilson School Alumni Colloquium	
"Microeconomic Policy Analysis and Antitrust--Washington 1990"	1990
Arnold & Porter Lecture Series	
"Advocating Competition"	1991
"Antitrust Enforcement"	1990
ABA Antitrust Section Convention	
"Recent Developments in Market Definition and Merger Analysis"	1990
Federal Bar Association	
"Joint Production Legislation: Competitive Necessity or Cartel Shield?"	1990
Pew Charitable Trusts Conference	
"Economics and National Security"	1990
ABA Antitrust Section Midwinter Council Meeting	
"Fine-tuning the Merger Guidelines"	1990
"The State of the Antitrust Division"	1991
International Telecommunications Society Conference	
"Discussion of the Impact of Telecommunications in the UK"	1989
The Economists of New Jersey Conference	
"Recent Perspectives on Regulation"	1989

Conference on Current Issues Challenging the Regulatory Process	
"Innovative Pricing and Regulatory Reform"	1989
"Competitive Wheeling"	1989
Conference Board: Antitrust Issues in Today's Economy	
"Foreign Trade Issues and Antitrust"	1989
McKinsey & Co. Mini-MBA Conference	
"Economic Analysis of Pricing, Costing, and Strategic Business Behavior"	1989
	1994
Olin Conference on Regulatory Mechanism Design	
"Revolutions in Regulatory Theory and Practice: Exploring The Gap"	1989
University of Dundee Conference on Industrial Organization and Strategic Behavior	
"Mergers in Differentiated Product Industries"	1988
Leif Johanson Lectures at the University of Oslo	
"Normative Issues in Industrial Organization"	1988
Mergers and Competitiveness: Spain Facing the EEC	
"Merger Policy"	1988
"R&D Joint Ventures"	1988
New Dimensions in Pricing Electricity	
"Competitive Pricing and Regulatory Reform"	1988
Program for Integrating Economics and National Security: Second Annual Colloquium	
"Arming Decisions Under Asymmetric Information"	1988
European Association for Research in Industrial Economics	
"U.S. Railroad Deregulation and the Public Interest"	1987
"Economic Rationales for the Scope of Privatization"	1989
"Discussion of Licensing of Innovations"	1990
Annenberg Conference on Rate of Return Regulation in the Presence of Rapid Technical Change	
"Discussion of Regulatory Mechanism Design in the Presence of Research, Innovation, and Spillover Effects"	1987
Special Brookings Papers Meeting	
"Discussion of Empirical Approaches to Strategic Behavior"	1987
"New Merger Guidelines"	1990
Deregulation or Regulation for Telecommunications in the 1990's	
"How Effective are State and Federal Regulations?"	1987

Conference Board Roundtable on Antitrust	
"Research and Production Joint Ventures"	1990
"Intellectual Property and Antitrust"	1987
Current Issues in Telephone Regulation	
"Economic Approaches to Market Dominance: Applicability of Contestable Markets"	1987
Harvard Business School Forum on Telecommunications	
"Regulation of Information Services"	1987
The Fowler Challenge: Deregulation and Competition in The Local Telecommunications Market	
"Why Reinvent the Wheel?"	1986
World Bank Seminar on Frontiers of Economics	
"What Every Economist Should Know About Contestable Markets"	1986
Bell Communications Research Conference on Regulation and Information	
"Fuzzy Regulatory Rules"	1986
Karl Eller Center Forum on Telecommunications	
"The Changing Economic Environment in Telecommunications: Technological Change and Deregulation"	1986
Railroad Accounting Principles Board Colloquium	
"Contestable Market Theory and ICC Regulation"	1986
Canadian Embassy Conference on Current Issues in Canadian -- U.S. Trade and Investment	
"Regulatory Revolution in the Infrastructure Industries"	1985
Eagleton Institute Conference on Telecommunications in Transition	
"Industry in Transition: Economic and Public Policy Overview"	1985
Brown University Citicorp Lecture	
"Logic of Regulation and Deregulation"	1985
Columbia University Communications Research Forum	
"Long Distance Competition Policy"	1985
American Enterprise Institute Public Policy Week	
"The Political Economy of Regulatory Reform"	1984
MIT Communications Forum	
"Deregulation of AT&T Communications"	1984

Bureau of Census Longitudinal Establishment Data File and Diversification Study Conference "Potential Uses of The File"	1984
Federal Bar Association Symposium on Joint Ventures "The Economics of Joint Venture Assessment"	1984
Hoover Institute Conference on Antitrust "Antitrust for High-Technology Industries"	1984
NSF Workshop on Predation and Industrial Targeting "Current Economic Analysis of Predatory Practices"	1983
The Institute for Study of Regulation Symposium: Pricing Electric, Gas, and Telecommunications Services Today and for the Future "Contestability As A Guide for Regulation and Deregulation"	1984
University of Pennsylvania Economics Day Symposium "Contestability and Competition: Guides for Regulation and Deregulation"	1984
Pinhas Sapir Conference on Economic Policy in Theory and Practice "Corporate Governance and Market Structure"	1984
Centre of Planning and Economic Research of Greece "Issues About Industrial Deregulation"	1984
	"Contestability: New Research Agenda" 1984
Hebrew and Tel Aviv Universities Conference on Public Economics "Social Welfare Dominance Extended and Applied to Excise Taxation"	1983
NBER Conference on Industrial Organization and International Trade "Perspectives on Horizontal Mergers in World Markets"	1983
Workshop on Local Access: Strategies for Public Policy "Market Structure and Government Intervention in Access Markets"	1982
NBER Conference on Strategic Behavior and International Trade "Industrial Strategy with Committed Firms: Discussion"	1982
Columbia University Graduate School of Business, Conference on Regulation and New Telecommunication Networks "Local Pricing in a Competitive Environment"	1982
International Economic Association Roundtable Conference on New Developments in the Theory of Market Structure	

"Theory of Contestability"	1982
"Product Dev., Investment, and the Evolution of Market Structures"	1982
N.Y.U. Conference on Competition and World Markets: Law and Economics	
"Competition and Trade Policy--International Predation"	1982
CNRS-ISPE-NBER Conference on the Taxation of Capital	
"Welfare Effects of Investment Under Imperfect Competition"	1982
Internationales Institut für Management und Verwaltung Regulation Conference	
"Welfare, Regulatory Boundaries, and the Sustainability of Oligopolies"	1981
NBER-Kellogg Graduate School of Management Conference on the	
Econometrics of Market Models with Imperfect Competition	
"Discussion of Measurement of Monopoly Behavior: An	
Application to the Cigarette Industry"	1981
The Peterkin Lecture at Rice University	
"Deregulation: Ideology or Logic?"	1981
FTC Seminar on Antitrust Analysis	
"Viewpoints on Horizontal Mergers"	1982
"Predation as a Tactical Inducement for Exit"	1980
NBER Conference on Industrial Organization and Public Policy	
"An Economic Definition of Predation"	1980
The Center for Advanced Studies in Managerial Economics Conference on The Economics of	
Telecommunication	
"Pricing Local Service as an Input"	1980
Aspen Institute Conference on the Future of the Postal Service	
"Welfare Economics of Postal Pricing"	1979
Department of Justice Antitrust Seminar	
"The Industry Performance Gradient Index"	1979
Eastern Economic Association Convention	
"The Social Performance of Deregulated Markets for Telecom Services"	
1979	
Industry Workshop Association Convention	
"Customer Equity and Local Measured Service"	1979
Symposium on Ratemaking Problems of Regulated Industries	
"Pricing Decisions and the Regulatory Process"	1979

Woodrow Wilson School Alumni Conference "The Push for Deregulation"	1979
NBER Conference on Industrial Organization "Intertemporal Sustainability"	1979
World Congress of the Econometric Society "Theoretical Industrial Organization"	1980
Institute of Public Utilities Conference on Current Issues in Public Utilities Regulation "Network Access Pricing"	1978
ALI-ABA Conference on the Economics of Antitrust "Predatoriness and Discriminatory Pricing"	1978
AEI Conference on Postal Service Issues "What Can Markets Control?"	1978
University of Virginia Conference on the Economics of Regulation "Public Interest Pricing"	1978
DRI Utility Conference "Marginal Cost Pricing in the Utility Industry: Impact and Analysis"	1978
International Meeting of the Institute of Management Sciences "The Envelope Theorem"	1977
University of Warwick Workshop on Oligopoly "Industry Performance Gradient Indexes"	1977
North American Econometric Society Convention "Intertemporal Sustainability"	1979
"Social Welfare Dominance"	1978
"Economies of Scope, DAIC, and Markets with Joint Production"	1977
Telecommunications Policy Research Conference "Transition to Competitive Markets"	1986
"InterLATA Capacity Growth, Capped NTS Charges and Long Distance Competition"	1985
"Market Power in The Telecommunications Industry"	1984
"FCC Policy on Local Access Pricing"	1983
"Do We Need a Regulatory Safety Net in Telecommunications?"	1982
"Anticompetitive Vertical Conduct"	1981
"Electronic Mail and Postal Pricing"	1980
"Monopoly, Competition and Efficiency": Chairman	1979

"A Common Carrier Research Agenda"	1978
"Empirical Views of Ramsey Optimal Telephone Pricing"	1977
"Recent Research on Regulated Market Structure"	1976
"Some General Equilibrium Views of Optimal Pricing"	1975
National Bureau of Economic Research Conference on Theoretical Industrial Organization	
"Compensating Variation as a Measure of Welfare Change"	1976
Conference on Pricing in Regulated Industries: Theory & Application	
"Ramsey Optimal Pricing of Long Distance Telephone Services"	1977
NBER Conference on Public Regulation	
"Income Distributional Concerns in Regulatory Policy-Making"	1977
Allied Social Science Associations National Convention	
"Merger Guidelines and Economic Theory"	1990
Discussion of "Competitive Rules for Joint Ventures"	1989
"New Schools in Industrial Organization"	1988
"Industry Economic Analysis in the Legal Arena"	1987
"Transportation Deregulation"	1984
Discussion of "Pricing and Costing of Telecommunications Services"	1983
Discussion of "An Exact Welfare Measure"	1982
"Optimal Deregulation of Telephone Services"	1982
"Sector Differentiated Capital Taxes"	1981
"Economies of Scope"	1980
"Social Welfare Dominance"	1980
"The Economic Definition of Predation"	1979
Discussion of "Lifeline Rates, Succor or Snare?"	1979
"Multiproduct Technology and Market Structure"	1978
"The Economic Gradient Method"	1978
"Methods for Public Interest Pricing"	1977
Discussion of "The Welfare Implications of New Financial Instruments"	1976
"Welfare Theory of Concentration Indices"	1976
Discussion of "Developments in Monopolistic Competition Theory"	1976
"Hedonic Price Adjustments"	1975
"Public Good Attributes of Information and its Optimal Pricing"	1975
"Risk Invariance and Ordinally Additive Utility Functions"	1974
"Consumer's Surplus: A Rigorous Cookbook"	1974
University of Chicago Symposium on the Economics of Regulated Public Utilities	
"Optimal Prices for Public Purposes"	1976
American Society for Information Science	
"The Social Value of Information: An Economist's View"	1975
Institute for Mathematical Studies in the Social Sciences Summer Seminar	

"The Sustainability of Natural Monopoly"	1975
U.S.-U.S.S.R. Symposium on Estimating Costs and Benefits of Information Services "The Evaluation of the Economic Benefits of Productive Information"	1975
NYU-Columbia Symposium on Regulated Industries "Ramsey Optimal Public Utility Pricing"	1975

Research Seminars:

Bell Communications Research (2)	University of California, San Diego
Bell Laboratories (numerous)	University of Chicago
Department of Justice (3)	University of Delaware
Electric Power Research Institute	University of Florida
Federal Reserve Board	University of Illinois
Federal Trade Commission (4)	University of Iowa (2)
Mathematica	Universite Laval
Rand	University of Maryland
World Bank (3)	University of Michigan
Carleton University	University of Minnesota
Carnegie-Mellon University	University of Oslo
Columbia University (4)	University of Pennsylvania (3)
Cornell University (2)	University of Toronto
Georgetown University	University of Virginia
Harvard University (2)	University of Wisconsin
Hebrew University	University of Wyoming
Johns Hopkins University (2)	Vanderbilt University
M. I. T. (4)	Yale University (2)
New York University (4)	Princeton University (many)
Northwestern University (2)	Rice University
Norwegian School of Economics and Business Administration	Stanford University (5) S.U.N.Y. Albany

Appendix B

GUSTAVO E. BAMBERGER
Executive Vice President

September 2013

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Chicago, IL 60604 (312) 322-0276

Home Address: 5134 S. Woodlawn Ave.
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EDUCATION

Ph.D., UNIVERSITY OF CHICAGO, 1987, GRADUATE SCHOOL OF BUSINESS

M.B.A., UNIVERSITY OF CHICAGO, 1984, GRADUATE SCHOOL OF BUSINESS

B.A., SOUTHWESTERN AT MEMPHIS, 1981

EMPLOYMENT

COMPASS LEXECON (formerly Lexecon), Chicago, Illinois (3/87-Present): Executive Vice President

UNIVERSITY OF CHICAGO, (1984, 1986): Lecturer

GOVERNORS STATE UNIVERSITY, (1986): Community Professor

UNIVERSITY OF CHICAGO, (1982-1986): Teaching Assistant

UNIVERSITY OF CHICAGO, (1982-1986): Research Assistant

ACADEMIC HONORS AND FELLOWSHIPS

University of Chicago Fellowship, 1981-1984

H.B. Earhart Fellowship, 1985-1986

RESEARCH PAPERS

“Antitrust and Higher Education: Was There a Conspiracy to Restrict Financial Aid?”
co-authored with D. Carlton and R. Epstein, RAND Journal of Economics, (Vol. 26, No. 1, Spring 1995, pp. 131-147).

"Antitrust and Higher Education: MIT Financial Aid (1993)," co-authored with D. Carlton, in The Antitrust Revolution: Economics, Competition, and Policy, John Kwoka and Lawrence White, eds., 1998.

"Airline Networks and Fares", co-authored with D. Carlton, in Handbook of Airline Economics, 2nd ed., Darryl Jenkins, ed., 2003.

"Revisiting Maximum Resale Price Maintenance: State Oil v. Khan (1997), in The Antitrust Revolution: Economics, Competition, and Policy, John Kwoka and Lawrence White, eds., 2004.

"An Empirical Investigation of the Competitive Effects of Domestic Airline Alliances," co-authored with D. Carlton and L. Neumann, Journal of Law and Economics, (Vol. 47, No. 1, April 2004, pp. 195-222).

"Predation and the Entry and Exit of Low-Fare Carriers," co-authored with D. Carlton, in Advances in Airline Economics: Competition Policy and Antitrust, Darin Lee, ed., 2006.

TESTIMONIAL EXPERIENCE

Direct, Rebuttal and Cross-Examination Testimony of Gustavo E. Bamberger on behalf of Producer - Marketers Transportation Group, before the Illinois Commerce Commission in Docket No. 90-0007, April 24, 1990 (Direct); July 6, 1990 (Rebuttal); and May 30, 1990 and August 3, 1990 (Cross-Examination).

Testimony of Gustavo E. Bamberger in Re: United States of America v. Irving A. Rubin: In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 91 CR 44-2, December 3, 1993.

Testimony of Gustavo E. Bamberger in Re: Center for Public Resources Arbitration, E. Merck and EM Industries, Incorporated, against Abbott Laboratories, February 8, 1994.

Deposition and Testimony of Gustavo E. Bamberger in the Matter of: Michael R. Sparks, Debtor: In the United States Bankruptcy Court for the Northern District of Illinois, Eastern Division, No. 92 B 21692, May 9, 1994 (Deposition and Testimony).

Joint Affidavit and Joint Reply Affidavit of John P. Gould and Gustavo E. Bamberger in Re: In the Matters of Review of the Pioneer's Preference Rules and Amendment of the Commission's Rules to Establish New Personal Communications Services: Proceedings before the Federal Communications Commission, ET Docket 93-266, Gen. Docket 90-314, July 26, 1994 (Affidavit); and August 8, 1994 (Reply Affidavit).

Statement of John P. Gould and Gustavo E. Bamberger on Implementing Legislation for the Uruguay Round of GATT (S. 2467) (Pioneer Preference Provisions) Before the Senate Commerce Commission, November 14, 1994.

Report and Deposition of Gustavo E. Bamberger in Re: Khan, et al. v. State Oil Company; In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 94 C 00035, May 30, 1995 (Report); and July 27, 1995 (Deposition).

Statement and Supplemental Statement of Alan O. Sykes and Gustavo E. Bamberger in Re: Fresh Tomatoes and Bell Peppers, Investigation No. TA-201-66, United States International Trade Commission, June 3, 1996 (Statement); and June 10, 1996 (Supplemental Statement).

Testimony of Gustavo E. Bamberger in Re: Wisconsin Public Service Corporation; WPS Energy Services, Inc.; and WPS Power Development, Inc.; Before the Federal Energy Regulatory Commission, Docket No. ER96-1088-000, July 22, 1996.

Pre-Filed Direct, Rebuttal and Re-Direct Testimony of Gustavo E. Bamberger in Re: Disapproval of Rate Filings for American Casualty Company of Reading, Pennsylvania, and Continental Casualty Company, Before the State Office of Administrative Hearings (Texas), SOAH Docket No. 454-96-0800, September 10, 1996 (Direct); September 16, 1996 (Rebuttal); and September 27, 1996 (Re-Direct).

Affidavit of Gustavo E. Bamberger in Re: Summit Family Restaurants Inc., a Delaware Corporation; HTB Restaurants Inc., a Delaware Corporation; and CKE Restaurants Inc., a Delaware Corporation vs. HomeTown Buffet, Inc., a Delaware Corporation; and Buffets, Inc., a Minnesota Corporation; In the U.S. District Court for the District of Utah, Central Division, No. 96 CV 0688B, September 17, 1996.

Report, Supplemental Report, Affidavit, Deposition and Affidavit of Gustavo E. Bamberger in Re: Blue Cross & Blue Shield United of Wisconsin, and Compcare Health Services Insurance Corporation v. The Marshfield Clinic and Security Health Plan of Wisconsin, Inc.; In the U.S. District Court for the Western District of Wisconsin, No. 94-C-0137-C, December 19, 1996 (Report with William J. Lynk); February 10, 1997 (Supplemental Report William J. Lynk); March 10, 1997 (Affidavit with William J. Lynk); March 18, 1997 (Deposition); and April 4, 1997 (Affidavit).

Affidavit of Dennis W. Carlton and Gustavo E. Bamberger in Re: Pacific Gas & Electric Company, San Diego Gas & Electric Company, and Southern California Edison Company; United States of America Before the Federal Energy Regulatory Commission, FERC Docket No. ER96-1663-000, January 16, 1997.

Testimony and Prepared Statement of Gustavo E. Bamberger on behalf of Sacramento Municipal Utility District in Re: Pacific Gas and Electric Company, San Diego Gas & Electric Company and Southern California Edison Company; Before the Federal Energy Regulatory Commission Technical Conference on Structural Mitigation Options, Docket No. ER96-1663-000, January 17, 1997.

Affidavit, Report, Rebuttal Report and Deposition of Gustavo E. Bamberger in Re: Henry & Joann Rozema, Island Sports Center, Inc., Mark McKay, Lawrence Halida, Harriet Halida, and Kathleen Malek, on behalf of themselves and all others similarly situated v. The Marshfield Clinic, Security Health Plan of Wisconsin, Inc., North Central Health Protection Plan, and Rhinelander Medical Center, S.C.; In the U.S. District Court for the Western District of Wisconsin, No. 94-C-592-C, July 11, 1997 (Affidavit); July 23, 1997 (Report with William J. Lynk); September 2, 1997 (Rebuttal Report); and September 11-12, 1997 (Deposition).

Deposition, Testimony and Surrebuttal Testimony of Gustavo E. Bamberger in Re: Deltic Farm & Timber, Co., Inc. vs. Great Lakes Chemical Corporation: In the U.S. District Court for the Western District of Arkansas, El Dorado Division, No. 95-1090, November 13, 1997 (Deposition); December 9, 1997 (Testimony); and December 10, 1997 (Surrebuttal Testimony).

Report, Deposition and Testimony of Gustavo E. Bamberger in Re: In the Arbitration of Bandag, Incorporated, Claimant, v. Treadco, Inc., Respondent; Treadco, Inc., Counter-Claimant and Claimant, v. Bandag, Incorporated, Martin Carver, William Sweatman, J.J. Seiter, Ronald Toothaker, and Ronald Hawks, Counter-Respondent and Respondents: American Arbitration Association, Chicago, Illinois, No. 51 114 0038 95, May 21, 1998 (Report); August 18, 1998 (Deposition); and November 12 and 16, 1998 (Testimony).

Testimony, Affidavit, Affidavit, Report, Deposition, Affidavit and Testimony of Gustavo E. Bamberger in Re: Hamilton, et al. v. Accu-Tek, et al.: In the U.S. District Court for the Eastern District of New York, No. 95 CV 0049, July 27, 1998 (Testimony before Magistrate Judge Cheryl L. Pollak); August 13, 1998 (Affidavit); October 2, 1998 (Affidavit); October 16, 1998 (Report); November 13, 1998 (Deposition); December 12, 1998 (Affidavit); and December 29, 1998 and January 27-28, 1999 (Testimony).

Expert Report of Robert H. Gertner and Gustavo E. Bamberger in Re: BDPCS, INC., d/b/a BEST DIGITAL, and BDPCS Holdings, Inc., formerly known as Questcom, Claimants, v. U S WEST, Inc. and U S WEST Communications, Inc., Respondents: American Arbitration Association, Denver Office, No. 77 181 00204 97, July 31, 1998.

Statement of Dennis W. Carlton and Gustavo E. Bamberger in Re: Enforcement Policy Regarding Unfair Exclusionary Conduct in the Air Transportation Industry: Before the Department of Transportation, Office of the Secretary, Washington, D.C., Docket OST-98-3713, September 24, 1998.

Responsive Direct Testimony and Cross-Examination Testimony of Gustavo E. Bamberger for Intervenor Oklahoma Gas and Electric Company in Re: Joint Application of American Electric Power Company, Inc., Public Service Company of Oklahoma and Central and South West Corporation Regarding Proposed Merger: Before the Corporation Commission of the State of Oklahoma, Cause No. PUD 980000444, March 29, 1999 (Responsive Direct Testimony with Dennis Carlton); and April 21, 1999 (Cross-Examination).

Prepared Answering Testimony and Exhibits of Gustavo E. Bamberger and Dennis W. Carlton on Behalf of Oklahoma Gas and Electric Company in Re: American Electric Power Company, Inc. and Central and South West Corporation: United States of America Before the Federal Energy Regulatory Commission, FERC Docket Nos. ER98-40-000, ER98-2770-000, ER98-2786-000, April 28, 1999.

Affidavit of Gustavo E. Bamberger on Behalf of Allegheny Energy in Re: Dominion Resources, Inc. and Consolidated Natural Gas Company: United States of America Before the Federal Energy Regulatory Commission, FERC Docket No. EC99-81-000, August 5, 1999.

Rebuttal Report of Dennis W. Carlton and Gustavo E. Bamberger; Reply Report of Dennis W. Carlton and Gustavo E. Bamberger; Rebuttal Report of Dennis W. Carlton and Gustavo E. Bamberger to Professor Michael Ward; Testimony of Dennis W. Carlton and Gustavo E. Bamberger; Critique of the Memorandum of Fact and Law of the Commissioner of Competition by Gustavo E. Bamberger in Re: The Commissioner of Competition and Superior Propane Inc. and ICG Propane Inc.; Before The Competition Tribunal, No. CT-98/2, September 14, 1999 (Rebuttal Report); September 19, 1999 (Reply Report); September 27, 1999 (Rebuttal Report to Professor Michael Ward); December 13-14, 1999 (Testimony); and January 31, 2000 (Critique).

Declaration and Reply Declaration of Robert H. Gertner and Gustavo E. Bamberger in the Matter of: Application by New York Telephone Company (d/b/a Bell Atlantic - New York), Bell Atlantic Communications, Inc., NYNEX Long Distance, and Bell Atlantic Global Networks, Inc., for Provision of In-Region, InterLATA Services in New York; Before the Federal Communications Commission, CC Docket No. 99-295, September 29, 1999 (Declaration) and November 8, 1999 (Reply Declaration).

Statement of Gustavo E. Bamberger and Hans-Jürgen Petersen in the Matter of: Proceeding on Motion of the Commission to Investigate Performance-Based Incentive Regulatory Plans for New York Telephone Company – Track 2; Before the State of New York Public Service Commission, Case 92-C-0665, November 30, 1999.

Report and Deposition of Gustavo E. Bamberger In Re: Northwest Airlines Corp. et al., Antitrust Litigation; In the U.S. District Court for the Eastern District of Michigan, Master File No. 96-74711, March 31, 2000 (Report); and July 21, 2000 (Deposition).

Testimony and Cross-Examination of Gustavo E. Bamberger on Behalf of Sacramento Municipal Utility District Regarding Public Interest Issues Raised by Alternative Methods of Valuation In Re: Application of Pacific Gas & Electric Company to Market Value Hydroelectric Generating Plants and Related Assets Pursuant to Public Utility Code Sections 367(b) and 851; Before the Public Utilities Commission of the State of California, Application No. 99-09-053, June 8, 2000 (Testimony); and June 27, 2000 (Cross-Examination).

Comments on the SEC's Proposed Auditor Independence Standards, SEC File No. S7-13-00, filed with the Securities and Exchange Commission, on behalf of Arthur Andersen, Deloitte & Touche, KPMG and the American Institute of Certified Public Accountants (with Charles C. Cox and Kenneth R. Cone), September 25, 2000.

Joint Reply Declaration, Joint Supplemental Declaration and Joint Supplemental Reply Declaration of Robert H. Gertner and Gustavo E. Bamberger in the Matter of: Application by Verizon New England Inc., Bell Atlantic Communications, Inc. (d/b/a Verizon Long Distance), NYNEX Long Distance Company (d/b/a Verizon Enterprise Solutions), and Verizon Global Networks Inc., for Authorization To Provide In-Region, InterLATA Services in Massachusetts; Before the Federal Communications Commission, CC Docket No. 00-176 and CC Docket No. 01-9, November 3, 2000 (Reply Declaration); January 16, 2001 (Supplemental Declaration); and February 28, 2001 (Supplemental Reply Declaration).

Declaration of Robert H. Gertner and Gustavo E. Bamberger, submitted to the Federal Communications Commission, in Re: Bell Atlantic/NYNEX Merger Performance Monitoring Reports, November 30, 2000.

Testimony and Rebuttal Testimony of Gustavo E. Bamberger on Behalf of Sacramento Municipal Utility District In Re: Application of Pacific Gas & Electric Company to Market Value Hydroelectric Generating Plants and Related Assets Pursuant to Public Utility Code Sections 367(b) and 851: Before the Public Utilities Commission of the State of California, Application No. 99-09-053, December 5, 2000 (Testimony); and January 16, 2001 (Rebuttal Testimony).

Report, Rebuttal Report, Revised Damage Report, Deposition and Declaration of Gustavo E. Bamberger in Re: Republic Tobacco, L.P. v. North Atlantic Trading Company, Inc., North Atlantic Operating Company, Inc. and National Tobacco Co., L.P.: In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 98 C 4011, February 5, 2001 (Report); April 20, 2001 (Rebuttal Report); April 20, 2001 (Revised Damage Report); May 15-16 (Deposition); and November 5, 2001 (Declaration).

Joint Declaration of Robert H. Gertner and Gustavo E. Bamberger in the Matter of: Application by Verizon New York Inc., Verizon Long Distance, Verizon Enterprise Solutions, Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization To Provide In-Region, InterLATA Services in Connecticut: Before the Federal Communications Commission, CC Docket No. 01-100, April 23, 2001.

Direct, Supplemental and Cross-Examination Testimony of Gustavo E. Bamberger in Re: Petition for Approval of a Statement of Generally Available Terms and Conditions Pursuant to §252(f) of the Telecommunications Act of 1996 and Notification of Intention to File a Petition for In-region InterLATA Authority With the FCC Pursuant to §271 of the Telecommunications Act of 1996: Before the Alabama Public Service Commission, Docket No. 25835, May 16, 2001 (Direct); June 19, 2001 (Supplemental); and June 27, 2001 (Cross-Examination).

Affidavit of Robert H. Gertner and Gustavo E. Bamberger in the Matter of: BellSouth Telecommunications, Inc.'s Entry into InterLATA Services Pursuant To Section 271 of the Telecommunications Act of 1996: Before the Georgia Public Service Commission, Docket No. 6863-U, May 31, 2001.

Direct Testimony of Gustavo E. Bamberger in the Matter of: Application of BellSouth Telecommunications, Inc. To Provide In-Region InterLATA Services Pursuant to Section 271 of the Telecommunications Act of 1996: Before the North Carolina Utilities Commission, Docket No. P-55, Sub 1022, June 11, 2001.

Direct Testimony of Gustavo E. Bamberger in Re: Consideration of the Provision of In-Region InterLATA Services By BellSouth Telecommunications, Inc. Pursuant to Section 271 of the Telecommunications Act of 1996: Before the Mississippi Public Service Commission, Docket No. 97-AD-0321, June 15, 2001.

Direct, Rebuttal and Cross-Examination Testimony of Gustavo E. Bamberger in Re: Application of BellSouth Telecommunications, Inc. to Provide In-Region InterLATA Services Pursuant to Section 271 of the Telecommunications Act of 1996: Before the Public Service Commission of South Carolina, Docket No. 2001-209-C, June 18, 2001 (Direct); July 16, 2001 (Rebuttal); and July 26-27, 2001 (Cross-Examination).

Affidavit of Robert H. Gertner and Gustavo E. Bamberger in Re: Consideration and review of BellSouth Telecommunication, Inc.'s pre-application compliance with Section 271 of the Telecommunications Act of 1996, including but not limited to, the fourteen requirements set forth in Section 271(c)(2)(B) in order to verify compliance with Section 271 and provide a recommendation to the Federal Communications Commission regarding BellSouth Telecommunications, Inc.'s application to provide interLATA services originating in-region: Before the Louisiana Public Service Commission, Docket No. U-22252-E, June 21, 2001.

Joint Declaration and Joint Reply Declaration of Robert H. Gertner, Gustavo E. Bamberger and Michael P. Bandow in the Matter of: Application by Verizon Pennsylvania Inc., Verizon Long Distance, Verizon Enterprise Solutions, Verizon Global Networks Inc., and Verizon Select Services Inc., for Authorization To Provide In-Region, InterLATA Services in Pennsylvania: Before the Federal Communications Commission, CC Docket No. 01-138, June 21, 2001 (Declaration); and August 6, 2001 (Reply Declaration).

Direct Testimony of Gustavo E. Bamberger in Re: BellSouth Telecommunications, Inc.'s Entry into Long Distance (interLATA Service) in Tennessee Pursuant to Section 271 of the Telecommunications Act of 1996: Before the Tennessee Regulatory Authority, Docket No. 97-00309, July 30, 2001.

Expert Report and Testimony of Gustavo E. Bamberger in Re: In the Arbitration of Legend Healthcare, Inc. v. United Healthcare Services, Inc., et al.: American Arbitration Association, Commercial Arbitration No. 65 Y 193 00194 00, August 1, 2001 (Report); and September 27, 2001 (Testimony).

Reply Declaration of Dennis W. Carlton, Hal S. Sider and Gustavo E. Bamberger in the Matter of: Review of Regulatory Requirements for Incumbent LEC Broadband Telecommunications Services: Before the Federal Communications Commission, CC Docket No. 01-337, April 22, 2002.

Expert Preliminary Report, Supplemental Expert Report, Rebuttal Expert Report, Deposition, Declaration, Supplemental Declaration and Declaration of Gustavo E. Bamberger in Re: Nobody in Particular Presents, Inc., v. Clear Channel Communications, Inc., Clear Channel Entertainment, Inc., Clear Channel Radio, Inc., Clear Channel Broadcasting Inc., KBCO-FM, KBPI-FM, KFMD-FM, KRFX-FM, and KTCL-FM, In the U.S. District Court for the District of Colorado, Civil Action No. 01-N-1523, May 3, 2002 (Preliminary Report); July 26, 2002 (Supplemental Report); August 20, 2002 (Rebuttal Report); September 17, 2002 (Deposition); October 31, 2002 (Declaration); January 24, 2003 (Supplemental Declaration); and July 21, 2003 (Declaration).

Comments Regarding Regulation of Broadband Internet Access Services in the Matter of: Inquiry Concerning High-Speed Access to Internet Over Cable and other Facilities, GN Docket No. 00-185; in the Matter of: Deployment of Wireline Services Offering Advanced Telecommunications Capability, CC Docket No. 98-147; in the Matter of: Computer III Further Remand Proceedings: Bell Operating Company Provision of Enhanced Services, CC Docket No. 95-20; and in the Matter of: 1998 Biennial Regulatory Review: Review of Computer III and ONA Safeguards and Requirements, CC Docket No. 98-10 (with Kenneth Arrow, Gary Becker, Dennis Carlton, Daniel Fischel, Robert Gertner, Joseph Kalt and Hal Sider), May 3, 2002.

Expert Report, Reply Expert Report and Declaration of William Landes, Hal Sider and Gustavo Bamberger, and Declaration, Deposition and Supplemental Declaration of Gustavo E. Bamberger in Re: Vitamin Antitrust Litigation: In the U.S. District Court for the District of Columbia, M.D.L. No. 1285, May 23, 2002 (Report); July 17, 2002 (Reply Report); August 1, 2002 (Declaration with Landes and Sider); August 5, 2002 (Declaration); August 9, 2002 (Deposition); and September 27, 2002 (Supplemental Declaration).

Deposition of Gustavo E. Bamberger in Re: Devin Daniels, et al. v. Philip Morris Companies, Inc., et al.: In San Diego Superior Court, Case No. 719446, June 10, 2002.

Declaration of Gustavo E. Bamberger and Michael P. Bandow in Re: EB-01-1H-0352, Supplemental Response to Questions Posed by the Commission in its May 21, 2002 Letter re Verizon's Provisioning of Special Access Services, submitted to the Federal Communications Commission, July 31, 2002.

Affidavit, Expert Report and Deposition of Gustavo E. Bamberger in Re: National Association for the Advancement of Colored People (NAACP) and National Spinal Cord Injury Association (NSCIA) v. Acusport Corporation; Ellet Brothers, Inc., RSR Management Company, and RSR Group, Inc., individually and on behalf of similarly situated entities; and National Association for the Advancement of Colored People (NAACP) et al., v. American Arms, Inc., et al.: In the U.S. District Court for the Eastern District of New York, CV 99-7037 and CV 99-3999, August 20, 2002 (Affidavit); February 19, 2003 (Report); and March 6, 2003 (Deposition).

Report of Gustavo E. Bamberger in Re: Nevada Power Company v. Lexington Insurance Company et al.: In the U.S. District Court for the Southern District of Nevada, CV-S-01-0045-PMP-PAL, October 23, 2002.

Deposition of Gustavo E. Bamberger in Re: Firearm Cases: In Superior Court of the State of California, County of San Diego, Judicial Council Coordination Proceeding No. 4095, November 6, 2002.

Expert Rebuttal Report, Expert Report and Deposition of Gustavo E. Bamberger in Re: Baum Research and Development, Inc. and Steve Baum v. Hillerich & Bradsby Co., Inc.; Easton Sports, Inc.; Worth, Inc.; National Collegiate Athletic Association; and Sporting Goods Manufacturers Association: In the U.S. District Court for the Eastern District of Michigan, 98-72946, January 13, 2003 (Expert Rebuttal Report and Expert Report); and May 28-29, 2003 (Deposition).

Declaration of Gustavo E. Bamberger and Michael P. Bandow in Re: EB-01-1H-0352, Supplemental Response to Questions Posed by the Commission in its January 24, 2003 Letter re: Verizon's Provisioning of Special Access Services, submitted to the Federal Communications Commission, March 14, 2003.

Dennis W. Carlton, Janice H. Halpern and Gustavo E. Bamberger, "Economic Analysis of the News Corporation/DIRECTV Transaction," and "Response to William P. Rogerson and Daniel L. Rubinfeld and Duncan Cameron," submitted to the Federal Communications Commission, MB Docket No. 03-124, July 1, 2003; and September 8, 2003.

Expert Report, Deposition, Declaration and Testimony of Gustavo Bamberger in Re: Western Asbestos Company; Western MacArthur Company; and Mac Arthur Company, Debtors: In United States Bankruptcy Court, Northern District of California, Oakland Division, Nos. 02-46284, 02-46285, 02-46286, September 15, 2003 (Expert Report); October 21, 2003 (Deposition); November 17, 2003 (Declaration); and November 21, 2003 (Testimony).

Expert Report, Deposition and Testimony of Gustavo E. Bamberger in the Matter of the Arbitration Between: Rangemark Insurance Services, Inc., Petitioner vs. Claremont Liability Insurance Company, Respondent, October 24, 2003 (Expert Report); November 14, 2003 (Deposition); and February 12, 2004 (Testimony).

Joint Declaration of Gustavo E. Bamberger and Bradley N. Reiff, Joint Reply Declaration of Gustavo E. Bamberger and Bradley N. Reiff, Deposition of Gustavo E. Bamberger, Joint Expert Report of Gustavo E. Bamberger and Bradley N. Reiff, Joint Expert Rebuttal Report of Gustavo E. Bamberger and Bradley N. Reiff and Deposition of Gustavo E. Bamberger in Re: Currency Conversion Fee Antitrust Litigation: In the U.S. District Court for the Southern District of New York, MDL Docket No. 1409, November 11, 2003 (Joint Declaration); December 18, 2003 (Deposition); April 2, 2004 (Joint Reply Declaration); December 22, 2004 (Joint Expert Report); April 15, 2005 (Joint Expert Rebuttal Report); and May 20, 2005 (Deposition).

Expert Report, Deposition and Reply Expert Report of Gustavo E. Bamberger in Re: Marketing and Management Information, Inc. v. The United States: In the U.S. Court of Federal Claims, No. 99-194C, March 16, 2004 (Expert Report); April 20-21, 2004 (Deposition); and May 6, 2004 (Reply Expert Report).

Joint Expert Witness Statement of Gustavo Bamberger, David Gillen, Margaret Guerin-Calvert, Andrew Hanssen, Jerry Hausman, Timothy Hazledine, Janusz Ordoover, Robert Willig and Kieran Murray; Affidavit of Gustavo Ernesto Bamberger and Dennis William Carlton in Reply; Second Affidavit of Gustavo Ernesto Bamberger and Dennis William Carlton; Affidavit of Gustavo Ernesto Bamberger; and Testimony of Gustavo Bamberger in the Matter of: An appeal from determinations of the Commerce Commission between Air New Zealand Limited, Qantas Airways Limited, Appellants and Commerce Commission, Respondents: In the High Court of New Zealand Auckland Registry, CIV 2003-404-6590, May 21, 2004 (Joint Expert Witness Statement); June 4, 2004 (Reply Affidavit); July 2, 2004 (Second Affidavit); July 12, 2004 (Affidavit of Gustavo Bamberger); and July 13-16, 2004 (Testimony).

Expert Report, Supplemental Expert Report, Deposition and Rebuttal Expert Report of Gustavo Bamberger in Re: Congoleum Corporation et al.: In United States Bankruptcy Court, District of New Jersey, Case 03-51524 (KCS), July 9, 2004 (Expert Report); January 26, 2005 (Supplemental Expert Report); February 9, 2005 and March 18, 2005 (Deposition); and February 23, 2005 (Rebuttal Expert Report).

Statement and Letter of Gustavo Bamberger in the Matter of: A La Carte and Themed Tier Programming and Pricing Options for Programming Distribution on Cable Television and Direct Broadcast Satellite Systems: Before the Federal Communications Commission, MB Docket No. 04-207, July 15, 2004 (Statement); and November 4, 2004 (Letter with Michael G. Baumann, John M. Gale, Thomas W. Hazlett, Michael L. Katz, Kent W. Mikkelsen and Bruce M. Owen).

Expert Report, Supplemental Expert Report, Deposition and Testimony of Gustavo Bamberger in Re: Braid Electric Company, Claimant vs. Square D Company / Schneider Electric, Respondent: American Arbitration Association, Case No. 51 Y 181 01712 03, August 16, 2004 (Expert Report); October 8, 2004 (Supplemental Expert Report); October 29, 2004 (Deposition); and November 15, 2005 (Testimony).

Declaration, Deposition, Affidavit, Reply Declaration and Reply Report on Remand of Gustavo Bamberger in Re: Issuer Plaintiff Initial Public Offering Antitrust Litigation and Public Offering Fee Antitrust Litigation: In the U.S. District Court for the Southern District of New York, 00 Civ. 7804 (LMM) (DFE) and 98 Civ. 7890 (LMM), September 16, 2004 (Declaration); January 27, 2005 (Deposition); October 24, 2005 (Affidavit); October 17, 2007 (Reply Declaration); and March 6, 2008 (Reply Report on Remand).

Expert Report and Deposition of Gustavo Bamberger in Re: Congoleum Corporation v. Ace American Insurance Company, et al.: In the Superior Court of New Jersey, Law Division: Middlesex County, Docket No. MID-L-8908-01, December 17, 2004 (Expert Report); and March 18, 2005 (Deposition).

Declaration of Gustavo Bamberger in Re: Gas Plus, a California Corporation; and Gas Plus San Marcos, Inc., a California Corporation vs. Exxon Mobil Corporation, a Corporation; Mark McEnomy, an individual; Anthony Moss, an individual; and Does 1-50, inclusive: In the Superior Court of the State of California in and for the County of San Diego, North County Division, Case No. GIN 032455, February 14, 2005.

Declaration, Expert Report, Expert Rebuttal Report and Deposition of Gustavo Bamberger in Re: Robert Ross and Randal Wachsmuth, on behalf of themselves and all others similarly situated vs. American Express Company, American Express Travel Related Services, Inc., and American Express Centurion Bank: In the U.S. District Court for the Southern District of New York, 04 CV 05723, February 18, 2005 (Declaration); September 12, 2005 (Expert Report); November 14, 2005 (Expert Rebuttal Report); and December 14, 2005 (Deposition).

Expert Report of Gustavo E. Bamberger and Dennis W. Carlton, Testimony of Gustavo E. Bamberger and Rebuttal Report of Gustavo E. Bamberger in the Matter of: EchoStar Satellite, L.L.C v. Fox Television Holdings, Inc., Fox/UTV Holdings, Inc. and News Corporation Limited: American Arbitration Association, Case No. 71 472 E 00690 04, March 2, 2005 (Expert Report); March 12, 2005 (Testimony); and April 5, 2005 (Rebuttal Report).

Declaration, Reply Declaration and Ex Parte Submission of Gustavo E. Bamberger, Dennis W. Carlton and Alan L. Shampine in Re: Verizon Communications Inc. and MCI, Inc., Applications for Approval of Transfer of Control: Before the Federal Communications Commission, WC Docket No. 05-75, March 11, 2005 (Declaration); May 24, 2005 (Reply Declaration); and September 9, 2005 (Ex Parte Submission).

Statement of Gustavo Bamberger and Lynette Neumann, Further Statement of Gustavo Bamberger and Lynette Neumann, Updated Analysis of Effect of RSN Availability on DBS Penetration (with L. Neumann); Analysis of the Effect of "Clustering" on the Availability and Penetration of Digital Cable, High-Speed Data and Telephony Services (with L. Neumann); and Supporting Declaration of Gustavo Bamberger and Lynette Neumann in Re: Applications of Adelphia Communications Corporation, Comcast Corporation, and Time Warner Cable Inc., For Authority to Assign and/or Transfer Control of Various Licenses: Before the Federal Communications Commission, MB Docket No. 05-192, July 21, 2005 (Statement); March 1, 2006 (Further Statement); March 17, 2006 (Updated Analysis); March 30, 2006 (Effect of "Clustering"); and April 5, 2006 (Supporting Declaration).

Comments of Gustavo E. Bamberger, Dennis W. Carlton and Alan L. Shampine in the Matter of: The Joint Petition of Verizon Communications Inc., and MCI, Inc. for a Declaratory Ruling Disclaiming Jurisdiction Over, or, in the Alternative, for Approval of Agreement and Plan of Merger: Before the State of New York Public Service Commission, Case 05-C-0237, August 5, 2005.

Declaration of Gustavo Bamberger in Re: USG Corporation, a Delaware corporation, et al., Debtors, USG Corporation, et al., Movant v. Official Committee of Asbestos Personal Injury Claimants, Official Committee of Unsecured Creditors, Official Committee of Asbestos Property Damage Claimants and Legal Representative for Future Claimants, Respondents: In The U.S. District Court For The District Of Delaware, Chapter 11, Jointly Administered, Case No. 01-2094 (JKF), Civil Action No. 04-1559 (JFC) Civil Action No. 04-1560 (JFC), September 28, 2005.

Declaration, Deposition and Testimony of Gustavo Bamberger in Re: Marvin D. Chance, Jr., on behalf of himself and all other similarly situated Kansas residents, Thomas K. Osborn, on behalf of himself and all other similarly situated New York residents v. United States Tobacco Company, United States Tobacco Sales and Marketing Company, Inc., United States Tobacco Manufacturing Company, Inc., and UST, Inc.: In the District Court of Seward County, Kansas, Case No. 02-C-12, September 29, 2005 (Declaration); November 1, 2005 (Deposition); and January 19, 2006 and April 4, 2006 (Testimony).

Expert Report, Rebuttal Report and Deposition of Gustavo Bamberger in Re: Jame Fine Chemicals, Inc. (d/b/a JFC Technologies) v. Hi-Tech Pharmacal Co., Inc. v. MedPointe Inc. as successor in interest to and formerly known as Carter-Wallace, Inc., and ABC Corporation and XYZ, Inc., companies and/or corporations whose true identities are unknown to Third-Party Plaintiff: In the U.S. District Court for the District of New Jersey, Civil Action No. 00-3545 (AET), October 3, 2005 (Report); May 8, 2006 (Rebuttal Report); and June 15, 2006 (Deposition).

Deposition and second Deposition of Gustavo Bamberger in Re: John Crane, Inc. v. Admiral Insurance Company, et al., In the Circuit Court of Cook County, Illinois, County Department, Chancery Division, Case No. 04-CH-08266, October 17, 2005 (Deposition); and November 2, 2006 (Second Deposition).

Submission, Testimony and Additional Submission of Gustavo Bamberger for Unison Networks Limited to the New Zealand Commerce Commission, October 28, 2005 (Submission); December 6, 2005 (Testimony); and January 11, 2006 (Additional Submission).

Submission of Gustavo Bamberger for Transpower New Zealand Limited to the New Zealand Commerce Commission, February 27, 2006.

Brief of Evidence of Gustavo Ernesto Bamberger and Testimony of Gustavo Bamberger in the Matter of: The Commerce Commission, Plaintiff and New Zealand Bus Limited, First Defendant and Blairgowrie Investments Limited, Copland Neyland Associates Limited, Rhoderick John Treadwell and Kerry Leigh Waddell, Karyn Justine Cosgrave and Ian Waddell, Second Defendants and Infratil Limited, Third Defendant: In the High Court of New Zealand Wellington Registry, CIV 2006-485-585, May 17, 2006 (Brief of Evidence); and May 30, 2006 (Testimony).

Rebuttal Testimony of Gustavo Bamberger on Damages and Deposition in Re: Tessera, Inc. vs. Micron Technology, Inc., Micron Semiconductor Products, Inc., Infineon Technologies AG, Infineon Technologies Richmond, LP, and Infineon Technologies North America Corp. and Qimonda AG: In the U.S. District Court for the Eastern District of Texas, Marshall Division, Case No. 2:05CV-94, June 23, 2006 (Rebuttal Testimony) and July 22, 2006 (Deposition).

Expert Report and Deposition of Gustavo Bamberger in Re: Electronic Data Systems Corporation and EDS Information Services, L.L.C. v. MCI Communications Services, Inc.: American Arbitration Association, Arbitration No. 13 181 00976 06, July 20, 2006 (Expert Report); and August 11, 2006 (Deposition).

Declaration, Revised Declaration and Deposition of Gustavo Bamberger in Re: Jason Feuerabend, a Wisconsin resident, on behalf of himself and all others similarly situated v. UST Inc., U.S. Smokeless Tobacco Brands Inc., U.S. Smokeless Tobacco Co., U.S. Smokeless Tobacco Manufacturing Limited Partnership, and Does 1-20 inclusive: In the Circuit Court of Milwaukee County, Wisconsin, Case No. 02CV007124, September 21, 2006 (Declaration); December 1, 2006 (Revised Declaration); and December 5, 2006 (Deposition).

Expert Report of Gustavo Bamberger in Re: Ronald Alcorn, d/b/a Highland Park Amoco; et al. vs. BP Products North America, Inc.: In the United States District Court for the District of Minnesota, Court File No. 04-120 (PAM/JSM), October 23, 2006.

Declaration of Gustavo Bamberger in Re: Smokeless Tobacco Cases I-IV: In the Superior Court of the State of California, City and County of San Francisco, Judicial Council Coordination Proceeding Nos. 4250, 4258, 4259 & 4262, March 21, 2007.

Testimony of Gustavo Bamberger before the Arkansas Oil and Gas Commission on behalf of Great Lakes Chemical Corp. and Tetra Technologies, Inc., Subject: Approval of Royalty Payment Procedure, Docket No. 173-2007-04, April 25, 2007.

Declaration of Gustavo Bamberger and Lynette Neumann in Re: In the Matter of National Exchange Carrier Association, Inc.'s Proposed 2007 Modification of Average Schedule Formulas: Before the Federal Communications Commission: WC Docket No. 06-223, May 4, 2007.

Brief of Evidence of Gustavo Ernesto Bamberger, Reply Brief of Evidence of Gustavo Ernesto Bamberger, Bamberger, Evans, and Hausman Joint Propositions, Summary of Evidence of Gustavo Bamberger and Testimony in the Matter of: The Commerce Commission, Plaintiff and Telecom Corporation of New Zealand Limited, First Defendant and Telecom New Zealand Limited, Second Defendant: In the High Court of New Zealand Wellington Registry, CIV 2000-485-673, June 10, 2007 (Brief); August 13, 2007 (Reply Brief); September 17, 2007 (Joint Propositions); September 19, 2007 (Summary); and September 19-20, 2007 (Testimony).

Declaration of Gustavo Bamberger in Re: Massachusetts Smokeless Tobacco Litigation: In the Superior Court of the Commonwealth of Massachusetts, Superior Court Dept. Docket No. 03-0320, Case No. 02-5038 BLS, August 1, 2007.

Statement of Evidence, Reply Statement of Evidence and Testimony of Gustavo Ernesto Bamberger in the Matter of: Each an appeal against a determination of the Commerce Commission between Woolworths Limited, Appellant and the Commerce Commission, Respondent, and Foodstuffs (Auckland) Limited, Foodstuffs South Island Limited, Foodstuffs (Wellington) Co-Operative Society Limited, Appellants and the Commerce Commission, Respondent, and The Warehouse Group Limited, Appellant and the Commerce Commission, Respondent: In the High Court of New Zealand Wellington Registry, CIV 2007-485-1255, CIV 2007-485-1379 and CIV 2007-485-1731, September 20, 2007 (Statement); October 29, 2007 (Reply Statement); and October 29-31, 2007 (Testimony).

Affidavit of Gustavo Bamberger in Re: United States of America v. Faust Villazan, Faustech Industries, Inc., Siemens Medical Solutions USA Inc., f/k/a Siemens Medical Systems, Daniel Desmond, and Ellen Roth: In the U.S. District Court for the Northern District of Illinois, Eastern Division, No. 05 CR 792, October 11, 2007.

Declaration of Gustavo Bamberger in Re: Burns & Roe Enterprises, Inc., et al., Debtors: In the United States Bankruptcy Court, District of New Jersey, Case Nos. 00-41610(RG) and 05-47946(RG) (Consolidated), October 17, 2007.

Statement, Report and Deposition of Gustavo Bamberger in Re: American Optical Corporation, Warner-Lambert Company, LLC, and W-L LLC v. Admiral Insurance Company, et al.: In the Superior Court of New Jersey Law Division: Union County, Docket No. UNN-L-2505-01, December 13, 2007 (Statement); December 26, 2007 (Report); and February 12, 2008 (Deposition).

Declaration of Gustavo E. Bamberger in Support of Plaintiffs' Opposition to Defendants' Motion for Partial Summary Judgment on Plaintiffs' Per Se Claim, Deposition and Declaration in Re: ATM Fee Antitrust Litigation: In the United States District Court, Northern District of California, Master File No. C04-2676 CRB, December 21, 2007 (Declaration); February 1, 2008 (Deposition); and August 20, 2010 (Declaration).

Declaration, Deposition, Reply Declaration and Deposition of Gustavo Bamberger in Re: Payment Card Interchange Fee and Merchant-Discount Antitrust Litigation: In the United States District Court, Eastern District of New York, Master File No. 1:05-md-1720-JG-JO, May 8, 2008 (Declaration); July 30-31, 2008 (Deposition); January 29, 2009 (Reply Declaration); and May 27, 2009 (Deposition).

Statement of Janusz Ordoover and Gustavo Bamberger, filed with the Securities and Exchange Commission, Release No. 34-57917, on behalf of NASDAQ Stock Market, August 1, 2008.

Expert Report, Deposition, Expert Rebuttal Report, Testimony, Rebuttal Testimony, Supplemental Expert Report, Supplemental Expert Rebuttal Report and Deposition of Gustavo Bamberger in Re: Valassis Communications, Inc. v. News America Incorporated, a/k/a News America Marketing Group, News America Marketing FSI, Inc. a/k/a News America Marketing FSI, LLC and News America Marketing In-Store Services, Inc. a/k/a News America Marketing In-Store Services, LLC: In the United States District Court, Eastern District of Michigan, Southern Division, Case No. 2:06-cv-10240 and State Court of Michigan, in the Circuit Court for the County of Wayne, Case No. 07-706645-CZ, November 21, 2008 (Expert Report); December 23, 2008 (Deposition); February 6, 2009 (Expert Rebuttal Report); Testimony (June 11, 2009); Rebuttal Testimony (July 16, 2009); Supplemental Expert Report (December 21, 2009); Supplemental Expert Rebuttal Report (January 14, 2010); and Deposition (January 19, 2010) (Case No. 2:06-cv-10240 only for Supplemental Reports and second deposition).

Brief of Evidence of Dennis William Carlton and Gustavo Ernesto Bamberger, Affidavit of Gustavo Ernesto Bamberger in support of amended notice of opposition by the Commerce Commission to the amended notice of application by the bank defendants and the notice of application by MasterCard for orders as to admissibility of evidence, and Reply Brief of Evidence of Dennis William Carlton and Gustavo Ernesto Bamberger in the Matter of: The Commerce Commission, Plaintiff and Cards NZ Limited, First Defendant and others and DSE (NZ) Limited, First Plaintiff and others and Card NZ Limited, First Defendants and others: In the High Court of New Zealand Auckland Registry, CIV 2006-485-2535 and CIV-2006-485-2693, May 4, 2009 (Brief of Evidence); May 20, 2009 (Affidavit); September 4, 2009 (Reply Brief).

Expert Report of Gustavo Bamberger in Re: Valassis Communications, Inc. v. News America Incorporated, a/k/a News America Marketing Group, News America Marketing FSI, Inc. a/k/a News America Marketing FSI, LLC and News America Marketing In-Store Services, Inc. a/k/a News America Marketing In-Store Services, LLC: In the Superior Court of the State of California for the County of Los Angeles, May 11, 2009.

Affidavit of Gustavo Ernesto Bamberger in opposition to application by plaintiff for stay of execution, Brief of Evidence of Gustavo Ernesto Bamberger, Summary Statement of Gustavo Bamberger and Testimony in the Matter of: Todd Pohokura Limited, Plaintiff and Shell Exploration NZ Limited, First Defendant and OMV New Zealand Limited, Second Defendant: In the High Court of New Zealand Wellington Registry, CIV 2006-485-1600, November 4, 2009 (Affidavit); November 25, 2009 (Brief of Evidence); March 25, 2010 (Summary Statement); and March 25-26, 29-30 (Testimony).

Report of Gustavo Bamberger, Report of Gustavo Bamberger on the Revised January 6, 2010 Plan and Deposition in Re: Pittsburgh Corning Corporation: In the United States Bankruptcy Court for the Western District of Pennsylvania, Case No. 00-22876 JKF, November 13, 2009 (Report); January 28, 2010 (Report on Revised Plan); and February 22, 2010 (Deposition).

Report and Reply Report of Dennis W. Carlton and Gustavo E. Bamberger and Cross-Examination of Gustavo E. Bamberger in Re: Air Canada and Toronto Port Authority and Porter Airlines Inc.: Federal Court, File No. 10-T-6, February 5, 2010 (Report); May 18, 2010 (Reply Report); and June 15, 2010 (Cross-Examination).

Expert Report of Daniel R. Fischel and Gustavo E. Bamberger, Expert Report of David K.A. Mordecai and Gustavo E. Bamberger and Deposition of Gustavo E. Bamberger in Re: Genetically Modified Rice Litigation: In the United States District Court, Eastern District of Missouri, Eastern Division, Texana Rice Mill, Ltd., et al. v. Bayer CropScience, LP, et al., Case No. 4:07-cv-00416 CDP; Gulf Pacific Rice Co., Inc., et al. v. Bayer CropScience, LP, et al., Case No. 4:08-cv-1545-CDP; Phoenix Advisors Limited v. Bayer CropScience, LP, et al., Case No. 4:08-cv-1794-CDP; Farmers Rice Milling Co., Inc. v. Bayer CropScience, LP, et al., Case No. 4:07-cv-01780-CDP; Kennedy Rice Dryers, L.L.C. v. Bayer CropScience, LP, et al., Case No. 4:07-cv-01773-CDP; Planters Rice Mill, L.L.C. v. Bayer CropScience, LP, et al., Case No. 4:07-cv-01795-CDP; Beaumont Rice Mills, Inc. v. Bayer CropScience, LP, et al., Case No. 4:07-cv-00524-CDP; Master Case No. 4:06 MD 1811 CDP, April 23, 2010 (Report with Fischel); February 3, 2011 (Report with Mordecai); and April 12, 2011 (Deposition).

Expert Report of Daniel R. Fischel and Gustavo E. Bamberger and Deposition of Gustavo E. Bamberger in Re: Genetically Modified Rice Litigation: In the United States District Court, Eastern District of Missouri, Eastern Division, Tilda Ltd v. Riceland Foods, Inc., Producers Rice Mill, Inc., Bayer Cropscience Inc., and Bayer Cropscience LP; Producers Rice Mill, Inc. v. Bayer Cropscience LP and Bayer Cropscience Holding Inc., Bayer Corporation, Bayer Cropscience AG, Bayer AG, and Bayer Bioscience nv, Case No. 4:07-Cv-00457, Master Case No. 4:06 MD 1811 CDP, July 14, 2010 (Expert Report); and September 15, 2010 (Deposition).

Declaration; Supplemental Declaration; Second Supplemental Declaration; and Third Supplemental Declaration of Gustavo Bamberger in Re: Credit/Debit Card Tying Cases: In the Superior Court for the State of California, City and County of San Francisco, J.C.C.P. No.: 4335, July 29, 2010 (Declaration); October 19, 2012; March 11, 2013 (Second Declaration); and March 27, 2013 (Third Declaration).

Expert Report of Daniel R. Fischel, Gustavo E. Bamberger and David K.A. Mordecai in Response to the Reports of Professors Carter and Babcock in Re: Genetically Modified Rice Litigation: In the United States District Court, Eastern District of Missouri, Eastern Division, Master Case No. 4:06 MD 1811 CDP, July 30, 2010.

Expert Report of Daniel R. Fischel, Gustavo E. Bamberger and David K.A. Mordecai in Response to the Report of Dr. Ford in Re: Genetically Modified Rice Litigation: In the United States District Court, Eastern District of Missouri, Eastern Division, Master Case No. 4:06 MD 1811 CDP, July 30, 2010.

Report of Dennis W. Carlton and Gustavo E. Bamberger for Vector Limited to the New Zealand Commerce Commission, August 23, 2010.

Expert Report of Gustavo Bamberger and Affidavit of Dr. Gustavo Bamberger in Support of Defendant ExxonMobil Oil Corporation's Opposition To Plaintiffs' Cross-Motion for Summary Judgment in Re: JOC Inc. T/A Summit Exxon and Sung Eel Chang Auto, Inc. T/A Ashwood Exxon vs. ExxonMobil Oil Corporation: In the United States District Court for the District of New Jersey, Civil Action No.: 08-05344 (FSH) (PS), September 27, 2010; and April 11, 2011 (Affidavit).

Statement of Janusz Ordoover and Gustavo Bamberger and Reply Statement of Janusz Ordoover and Gustavo Bamberger, filed with the Securities and Exchange Commission, File No. SR-NASDAQ-2010-174, on behalf of NASDAQ Stock Market, December 30, 2010 (Statement); and April 4, 2011 (Reply Statement).

Dennis W. Carlton and Gustavo E. Bamberger, "Economic Analysis of the Proposed LAN/TAM Merger," April 12, 2011 and "Review of Code Share Literature," May 12, 2011, filed on behalf of LAN Airlines S.A.

Expert Report of Gustavo Bamberger and Declaration and Direct Testimony of Dr. Gustavo Bamberger in Support of Ace Fire's Objections to Confirmation of the Second Amended Joint Plan of Reorganization of Plant Insulation Company, as Amended in Re: Plant Insulation Co., Debtor: In the United States Bankruptcy Court for the Northern District of California, San Francisco Division, Case No. 09-31347-TC, September 26, 2011 (Expert Report); and November 28, 2011 (Declaration and Direct Testimony).

Expert Report, Deposition, Expert Rebuttal Report and second Deposition of Gustavo Bamberger in Re: E. I. du Pont de Nemours and Company v. Kolon Industries, Inc.: In the United States District Court, Eastern District of Virginia, Richmond Division, Civil Action No. 3:09CV58, November 11, 2011 (Expert Report); November 29, 2011 (Deposition); December 22, 2011 (Expert Rebuttal Report); and January 6, 2012 (Second Deposition).

Submission and Supplemental Submission of Dennis Carlton, Charles Augustine and Gustavo Bamberger on behalf of Meridian Energy to the New Zealand Electricity Authority, February 23, 2012 (Submission); and March 8, 2012 (Supplemental Submission).

Expert Report, Amended Expert Report, Expert Rebuttal Report and Deposition of Gustavo Bamberger in Re: Aetna, Inc. v. Blue Cross Blue Shield of Michigan: In the United States District Court, Eastern District of Michigan, Southern Division, Civil Action No. 2:11-CV-15346, June 14, 2013 (Report); June 26, 2013 (Amended Report); September 10, 2013 (Rebuttal); and September 20, 2013 (Deposition).