

reveal that CBOE and AMEX divided contract volume approximately evenly in three of the nine classes that were traded on both exchanges. ^{125/} In five other such classes, the exchange that was not primary was still able to attract consistently more than 25 per cent of the total volume. ^{126/} With respect to classes that were traded on AMEX or CBOE and a secondary exchange, however, Table 12 clearly shows that the secondary exchanges were not able to attract significant volume in classes that are multiply traded with AMEX or CBOE. Moreover, Table 14 demonstrates the small percentage of total volume that the secondary exchanges are able to attract in all option classes. This table identifies the percentage of total volume for all multiply traded classes that each options exchange maintained during the February through August, 1977 period and shows that CBOE and AMEX maintained 71.05 per cent and 26.13 per cent respectively of the total volume while the PSE, PHLX, and MSE maintained 1.53 per cent, 1.04 per cent, and .35 per cent respectively.

More recently, contract volume continues to be dispersed between CBOE and AMEX for classes traded on both of these exchanges. Table 15 provides data with respect to the percentage of total contract volume that

^{125/} Burroughs Corporation, DuPont, and Digital.

^{126/} Bally Manufacturing Corporation, Disney Productions, Merrill Lynch, MGIC Investment Corporation and Tandy Corporation.

these exchanges maintained during August, 1978 for each of the ten classes that they both traded at that time. In eight of the ten classes, the secondary exchange was able to attract more than 15 per cent of the total volume, 127/ and, in four of the ten classes, the secondary exchange captured more than 30 per cent of that volume. 128/ PHLX and PSE, on the other hand, have delisted many of the classes that they once multiply traded 129/ and attracted virtually no volume during August, 1978 in the classes that they multiply traded with CBOE or AMEX. 130/ Accordingly, significant market fragmentation continues to exist for option classes traded on both CBOE and AMEX.

2. Brokerage Firm Order Routing Decisions in the Fragmented Market Environment

When there are multiple markets for the same security, market participants must decide to which market they will send their orders to buy or sell that security. As agents for their customers, brokers have an obligation to execute their customers' orders at the best price available under the

127/ American Express, Bally Manufacturing Corporation, Digital, Disney Productions, DuPont, Merrill Lynch, MGIC Investment Corporation, and National Semiconductor Corporation.

128/ American Express, Bally Manufacturing Corporation, Digital, and National Semiconductor Corporation.

129/ See Table 1.

130/ The average contract volume for August, 1978 on the secondary exchanges for the seven classes they multiply traded with CBOE or AMEX was 95 contracts, which was less than .01 per cent of the total volume in those classes.

circumstances. ^{131/} As a result, brokerage firms have developed numerous methods of determining where to send orders for options traded on more than one exchange.

Most firms handling substantial numbers of public orders in multiply traded options have designed automated systems to transmit customer orders for such options to the exchange that the firm has designated as "primary." Although the bases that these large retail firms use for designating an exchange as "primary" vary from firm to firm, a principal factor that the firms consider is the volume of public orders that are executed on each exchange. Firms also consider, albeit to a lesser extent, (i) the experience of their traders with respect to the quality of the competing markets in terms of price continuity, bid/ask spreads, and depth, (ii) the speed with which executions can be obtained at each market center, and (iii) the operational efficiency of each exchange. Once an exchange is designated as primary, the firms generally review their designation only if they receive numerous complaints from customers about the quality of executions, volume on that exchange declines appreciably, or an unusual operational problem or market occurrence compels a reexamination of the designation.

^{131/} See, e.g. Arleen W. Hughes, 27 S.E.C. 629, 636 (1948), aff'd., 1974 F2d 966 (D.C. Cir., 1949); Wolfson, Phillips and Russo, Brokers, Dealers and Securities Markets, Section 2.09 (1977); and SEC, Policy Statement of the Securities and Exchange Commission on the Structure of a Central Market System, p. 46-47 (1973).

Not all customer orders, however, are automatically sent to the exchange that has been designated as primary. Institutional orders, for instance, are normally given "special handling." This involves sending the orders to the firm's upstairs trading desk and checking, usually by making a telephone inquiry to the trading floors, the quality of the market on each exchange on which the option is traded. Large orders from other customers may receive similar treatment. ^{132/} In addition, firms generally permit customers to specifically indicate the market to which an order should be sent, and some firms permit their registered representatives to exercise discretion and route customer orders to the market that has not been designated as primary if transaction and quotation information available to the registered representative indicates that the nonprimary market is clearly superior to the primary market at the time that the customer order is to be transmitted for execution. However, firms do not routinely explain the customer's right and ability to choose the market to which his order will be sent, and, perhaps as a result, customers seldom exercise this right. Moreover, some firms do not permit their registered representatives any discretion with regard to routing customer

^{132/} One large retail firm indicated that it permits its registered representatives discretion to designate any customer order for more than 10 contracts for special handling. Another such firm indicated that it instructs its registered representatives to direct all customer orders for more than 25 contracts to its upstairs trading desk. A third such firm automatically sends all agency orders for more than 100 contracts to its upstairs trading desk and allows its registered representatives discretion to designate orders of more than 50 but less than 100 contracts for special handling.

orders, and those that allow some discretion may actively discourage the use of such authority. By contrast, orders for a firm's own account are always given special handling. 133/

A decision by a major retail firm to designate one market or another as "primary" may have significant ramifications for market centers and marketmakers competing to attract orders for a multiply traded option. In this regard, the PHLX experience with the multiple trading of Boise Cascade options is instructive:

Prior to the institution of dual trading, on February 9, 1976, PHLX operated a deep and liquid market in Boise Cascade which attracted substantial public order flow. Then CBOE began to trade those options. Within three months, CBOE had become the primary market and Boise Cascade activity at PHLX had become sporadic and insignificant. * * * The mechanisms by which this transformation took place are neither secret nor complex. * * * The high volume brokers whose orders were critical to the maintenance of a major market did not, by and large, consider it practical to make an individual decision with respect to each order. They dealt with one exchange or the other, and the choice of exchange depended on two factors: (1) whether one exchange seemed to have significantly more activity than the other; and (2) which exchange seemed more convenient in view of the communications facilities and personnel which the broker had already committed to the exchange for purposes of dealing in other options. When dual trading started, the

133/ Of course, the number of proprietary and special handling orders executed daily may be a relatively small percentage of the total number of orders automatically routed by a brokerage firm with a substantial retail business. For example, one major retail firm indicated that, on a typical trading day, its trading desk executed . 50 proprietary and 190 agency special handling orders out of approximately 3,200 orders.

exchanges' volume appeared to have rough parity with each other. Once the convenience factor began to draw brokers into the CBOE sphere of influence, and was augmented by the size of the market factor, the movement from a sole market in PHLX to a virtually sole market at CBOE became inevitable. 134/

From this experience, PHLX concluded:

Dual trading in the current option environment, then, is in reality simply the transfer of an options market from the smaller exchange to the larger, with only a brief period of activity that could be regarded as competitive in any sense. Long range competition will be possible only if natural public trading in an option should reach a level which would support multiple markets, or if a composite market can be developed by the electronic linking of option markets. 135/

The multiple trading experience of PSE was similar to that of PHLX. PSE concluded "that, because of established patterns of order flow and because of the procedures many large retail houses use in designating markets, dual trading has not succeeded in introducing meaningful competition between marketmakers on our exchange and marketmakers on the older options exchanges * * * ." 136/ Summarizing its multiple trading experience, PSE stated:

134/ Statement of the Philadelphia Stock Exchange, Inc., in response to Securities Exchange Act Release No. 13325, supra, n.73, dated March 17, 1977, at 2.

135/ Id., at 3.

136/ Statement of the Pacific Stock Exchange, Inc. in response to Securities Exchange Act Release No. 13325, supra, n.73, dated March 17, 1977, at 1.

Where PSE has begun trading classes of options previously traded on CBOE or AMEX, the share of total volume that PSE has been able to attract has generally been quite low. Where PSE has begun trading a new class of options simultaneously with CBOE (Houston Oil and Minerals and Bank of America) it has seen a fairly large share of the volume for the first few weeks of dual trading (ranging from approximately 35% to 65%), with its share of volume decreasing after the first few weeks as firms increasingly designated the other exchange. 137/

In conclusion, PSE stated:

We do not believe our lack of success with dual trading can be attributed to any failings of our market makers or to any failure on the part of PSE to provide adequate facilities, personnel and support for options trading. * * * The way order-routing decisions are made by a large number of securities firms, however, insures that the bulk of business will be done at the CBOE or Amex, even though PSE might provide a better market, either generally or frequently.

This process is illustrated well by a study PSE conducted of trading in Houston Oil and Minerals options, a class of options which PSE began trading simultaneously with CBOE. 138/ Officials recorded PSE's quotes and CBOE's quotes periodically during the day for 10 trading days in December [1976]. This study * * * showed the markets being quoted by PSE market makers generally to be somewhat superior to the market quoted on the CBOE. Despite the quality of the markets made by PSE market makers, and despite lower execution costs resulting from PSE's practice of having exchange

137/ Id.

138/ The PSE study comparing PSE and CBOE markets during December, 1976 is contained as Appendix Exhibit 8. It should, of course, be noted that option quotations were not firm and did not contain size at the time of the PSE study. See n.176 and discussion at 258-266, infra.

employees operate the order book, the "market" in Houston Oil and Minerals options moved slowly and inexorably to the CBOE. 139/

The effect that a major retail firm's designation of a market center as primary and subsequent routing of retail orders to that market center

139/ Statement of the Pacific Stock Exchange, supra, n.136, at 1-2. The AMEX stated that its experience with stocks and the primary market designation is essentially the same as that of the options exchanges. As AMEX has observed:

The experience of the Amex over the past couple of years in attempting to maintain competing markets in stocks of companies transferring their listing to the NYSE provides some interesting comparisons. There have been approximately ten such companies which at the time of listing on the NYSE elected to also retain their Amex listing. At the time of such transfer, the Amex was receiving practically all of the order flow in each security. Almost immediately after the transfer the NYSE was designated as the primary market for the security by a sizable number of firms and they redirected substantially all of their order flow to that exchange. Despite extensive efforts by the Amex specialists involved to make fair, orderly and competitive markets in such securities they were unable to stem the redirection of the order flow to the NYSE market.

Experience shows that during the first few weeks following each transfer, order flow was split between the two exchanges. But within a matter of several weeks, or a few months at most, the image of the NYSE as the primary market for these stocks spread to practically all member firms and order flow to the Amex dwindled to a mere trickle—despite the highly competitive markets being made by Amex specialists, the reduced floor commissions that were sometimes offered and the special attention given to the furnishing of prompt service. At present, only three of such companies are actively traded on both NYSE and Amex, and for the first seven months of 1978 the Amex share of the total volume in these issues was a miniscule seven-tenths of one percent.

AMEX Letter, supra, n.90, at 16-17.

may have on the competitive balance between exchanges and marketmakers is most vividly shown by a recent situation involving CBOE, AMEX and Merrill Lynch. On May 19, 1978, Merrill Lynch changed its primary market designation for American Express, Bally Manufacturing Corporation ("Bally"), Digital, and National Semiconductor Corporation ("National Semiconductor") option classes from CBOE to AMEX. The decision was made as a result of "operational difficulties" that Merrill Lynch had encountered on CBOE and did not involve a "judgment concerning the quality of the markets on either exchange * * * ." 140/ Table 16 summarizes CBOE total and public customer monthly contract volume and market share for the four classes involved in the change of designation from January, 1978 through October, 1978. The table shows that CBOE's contract volume and market share declined significantly after the Merrill Lynch change. In American Express, for example, CBOE averaged 53 per cent of the total volume from January through April, 1978, but averaged only 41.20 per cent of this volume from June through October. More dramatically, CBOE averaged 65 per cent of the total public volume between January and April, but averaged only 42.40 per cent of this volume during the June through October period. Similarly, CBOE total market share averaged 57.50 per cent, 63.50 per cent, and 83.25 per cent in Bally, Digital, and National Semiconductor, respectively,

140/ Letter to Roberta S. Karmel from Wallace O. Sellers, *supra*, n.122, at 1.

from January through April but these average market shares fell to 37.60 per cent, 36.00 per cent, and 64.80 per cent from June through October. Varying by like amounts, CBOE average percentage of total customer volume declined from 63.25 per cent for Bally, 63.50 per cent for Digital, and 92.00 per cent for National Semiconductor in the January to April period to 31.40 per cent, 32.20 per cent, and 65.60 per cent respectively during the June to October period. Tables 17 A - D demonstrate these declines graphically.

This experience indicates that primary market designations may become self-fulfilling prophecies. More specifically, Merrill Lynch's decision to route automatically its customer orders to AMEX made AMEX the primary market for American Express, Bally, and Digital options even though the quality of CBOE's market had in no way changed. In other words, the switching of Merrill Lynch customer orders in these three classes gave AMEX sufficient volume to become the "primary" market and thus to justify the automatic routing of customer orders to that exchange. As CBOE has stated:

[I]t is clear that a great many firms follow the practice of designating as the "primary market" for a given class of options the exchange having the largest public order flow in that class. Consequently, the decisions of a relatively few firms commanding large order flows tend to be determinative of the designations of all others, thus entrenching the position of the designated exchange and making it more difficult for other exchanges to compete on the basis of intrinsic merit. 141/

141/ CBOE Letter, supra, n.87, at 12-13 (footnotes omitted).

It must also be recognized that a broker's obligation to obtain the best price for his customer under the circumstances may not be completely discharged at the time that an order is sent to a market center. If, for example, significant pricing disparities exist between markets, it may be necessary to check the markets at other market centers before executing a customer's order to assure that a better price is not available elsewhere. The markets at other market centers may be checked by observing the quotations that the other market centers disseminate ^{142/} or by calling the upstairs trading desk using the firm's direct line telephones on the trading floor. Currently, however, there is no mechanism for routing orders in multiply traded option classes from one option exchange floor to another. Without such a market linkage system, option orders for multiply traded classes can not be sent directly from one exchange to another promptly and efficiently even if quotation or other quality of market information suggests that a better price may be obtainable on an exchange other than the one to which it was originally sent.

3. Market Fragmentation, Option Pricing, and Order Interaction

It has been argued that security prices in a fragmented market "will be less likely to reflect a prompt and complete assessment of current value by all buying and selling interest" than if all orders for the

^{142/} Option quotation information from all exchanges trading a particular class is generally available on cathode ray tubes on the options exchange trading floors.

security are brought together and permitted to interact. ^{143/} Further, concern has been expressed that the "mix of buy and sell orders in a particular market may differ significantly from the mix in another market, and, thus, lead to disparate pricing decisions in the two markets." ^{144/}

The pricing of Bally options at the opening on September 1, 1978 illustrates these problems. Table 18 compares the opening prices for Bally calls on AMEX and CBOE on September 1, 1978 in the November, February, and May 60 and 70 series. This table indicates that the opening prices on the two exchanges varied significantly for each series. The November 70 series, for example, opened at \$10 on AMEX and \$5 on CBOE and the February 70 series opened at \$13 on AMEX and \$9 on CBOE. The table also shows that these differences in opening prices can not be wholly, or even largely, attributed to changes in the price of the underlying stock. The November 70 series, for instance, opened at \$5 at 10:44 E.S.T. with the stock at \$62 1/4 while AMEX opened at \$10 twenty minutes later with the stock at \$61 7/8. Similarly, the February 70s opened at 11:01 E.S.T. on CBOE at \$9 with the stock at \$62 3/4 but opened at \$13 on AMEX ten minutes later with the stock down to \$60 3/4.

These pricing disparities appear to be primarily attributable to imbalances of supply and demand on AMEX. In the November 70 series,

^{143/} Securities Exchange Act Release No. 13662, supra, n.124, at 959.

^{144/} CBOE Letter, supra, n.87, at 11.

for example, the AMEX specialist sold 675 contracts and AMEX ROTs sold 95 contracts at the opening. Total opening volume, however, was 1481 contracts. Thus, public demand exceeded public supply by approximately 100 per cent for that series, and it appears that the opening price reflected this imbalance as well as the risk that the specialist assumed to fill the public demand. In the February 70 series, the situation was much the same. The specialist sold 280 contracts and ROTs sold 320 contracts at the opening on volume of 630 contracts, public demand exceeding public supply by 2000 per cent. 145/ On CBOE, on the other hand, total opening volume in the November 70 series was 196 contracts with members of the public buying 126 contracts and selling 135 contracts and CBOE marketmakers purchasing only 9 contracts. In the February 70 series, CBOE opening volume was 150 contracts. The public demanded 120 contracts and supplied 18 contracts, and CBOE marketmakers filled the remaining demand. 146/

This example illustrates that market fragmentation may adversely affect the pricing of multiply traded options. It also demonstrates that dispersion of public orders among market centers under existing circumstances may preclude a portion of those orders from interacting and obtaining an execution at the best price available. Public buyers of the Bally November and February 70s whose orders were executed on AMEX at AMEX

145/ See Table 14.

146/ Id.

opening prices, for example, may have been able to purchase the same options on CBOE at the same time for substantially less. These orders, however, did not have an opportunity to interact with public orders that had been sent to CBOE and were not exposed to CBOE marketmakers. Thus, CBOE public orders and excess marketmaking capacity were not used to minimize the effects of the imbalance of public orders on AMEX and to distribute the risk associated with such a severe imbalance among market participants who may have been willing to assume such risk. 147/

In sum, neither AMEX nor CBOE opening prices reflected a complete assessment of all the buying and selling interest in Bally options and, as a consequence, neither marketplace was able to price these options accurately. Moreover, public orders that had been sent to either exchange may not have been executed at the most favorable prices available since they were not exposed to the full interplay of supply and demand. This example, however, is clearly the exception rather than the rule. Dispersion of order flow among market centers need not result in pricing inefficiencies since public dissemination of quotation and transaction information may to a large extent assure that professional and nonprofessional market participants "are apprised, on a current and continuous basis,

147/ The minimal involvement of CBOE marketmakers in the CBOE openings and the fact that CBOE marketmakers participated in transactions for 7,812 contracts of Bally options on September 1, 1978 (52.5 per cent of total CBOE volume) suggest that CBOE had excess marketmaking capacity at the time of the AMEX opening.

of those markets offering the most favorable execution opportunities (at least for orders of modest size) so that they have the opportunity to direct * * * orders appropriately * * * ." 148/ In addition, competition among marketmakers on the floors of exchanges multiply trading an option class and, in many circumstances, the trading activities of professional traders and arbitrageurs may discipline option pricing among market centers to a substantial degree. 149/

C. Conclusions

1. The Multiple Trading of Standardized Options and the Exchange Act

The 1975 Amendments direct the Commission "to facilitate the establishment of a national market system for securities." 150/ A national market system is intended to encompass "all segments of the corporate securities markets including * * * options" 151/ and has "as a fundamental goal the elimination of fragmented markets for securities suitable for auction trading." 152/ Primary objectives of a national market system are (i) "the centralization of all buying and

148/ Securities Exchange Act Release No. 13662, supra, n.124, at 961.

149/ The trading activities of professional traders and arbitrageurs are described in Chapter III.

150/ Section 11A(a)(2) of the Exchange Act [15 U.S.C. 78k-1(a)(2)].

151/ Senate Report, supra, n.17, at 7. See also Conference Report, supra, n.18, at 92.

152/ Id., at 17. See also House Report, supra, n.21, at 50.

selling interest so that each investor will have the opportunity for the best possible execution of his order," 153/ and (ii) "the linking of all markets * * * through communication and data processing facilities [to] foster efficiency, enhance competition, increase the information available to brokers, dealers and investors, facilitate the off-setting of investors' orders, and contribute to best execution of such orders." 154/

The Exchange Act "approaches the problem of encouraging the development and implementation of a national market system from the point of view of preserving the competing markets for securities that have developed, breaking down all barriers to competition that do not serve a valid regulatory purpose, and encouraging maximum reliance on communication and data processing equipment consistent with justifiable costs." 155/ The Exchange Act seeks to "enhance competition and to allow economic forces, interacting within a fair regulatory field, to arrive at appropriate variations in practices and services," 156/ and "open competition among market makers" is to assure that investors "obtain the best execution of their orders" and that "the total market for each security is as

153/ Id., at 7. See also House Report, supra, n.21, at 50-51.

154/ Section 11A(a)(1) of the Exchange Act [15 U.S.C. 78k-1(a)(1)].

155/ Senate Report, supra, n.17, at 8. See also House Report, supra, n.21, at 15.

156/ Id.

liquid and orderly as the characteristics of that security warrant." 157/
 Moreover, existing market centers are to "compete and evolve according
 to their own natural genius." 158/

Multiple trading is at the heart of the national market system that
 the Congress envisioned. Clearly, market centers can not compete for
 orders if they do not permit the trading of the same securities, and
 marketmakers can not "make simultaneous markets" 159/ or have an
 opportunity to "active[ly] participat[e] in the flow of orders" 160/
 if they are not trading the same securities. When adopting the 1975
 Amendments, the Congress recognized this fact and concluded that multiple
 trading was "appropriate to a national market system in which all market-
 makers and brokers are permitted to deal freely with one another without
 unnecessary regulatory constraints." 161/

Multiple trading, however, should occur "within a fair regulatory
 field" 162/ to be consistent with the Exchange Act. 163/ Moreover, to

157/ Id., at 12.

158/ House Report, supra, n.21, at 51.

159/ Senate Report, supra, n.17, at 14.

160/ Id. See also House Report, supra, n.21, at 50.

161/ Senate Report, supra, n.17, at 20.

162/ Id., at 8; House Report, supra, n.21, at 51.

163/ Section 11A(a)(1), for example, provides that competition among
 brokers and dealers and among market centers must be "fair."

the extent that multiple trading (i) inhibits "economically efficient execution of securities transactions," 164/ (ii) precludes "the practicability of brokers executing investors' orders in the best market," 165/ (iii) results in market fragmentation, 166/ or (iv) imposes a burden on competition "not necessary or appropriate in furtherance of the purposes of [the Exchange Act]," 167/ it may be deemed inconsistent with the Exchange Act.

2. The Multiple Trading Experience

The effects that multiple trading has had upon the markets for multiply traded option classes are difficult to measure. Data that the Options Study gathered, however, suggest that multiple trading may improve the quality of the markets for multiply traded classes, at least over the short term. Although movements in the prices of the underlying stocks and changes in the mix of in- and out-of-the-money series may influence the prices of multiply traded options, analysis (i) of classes that did not experience such stock price movements or

164/ Section 11A(a)(1) of the Exchange Act [15 U.S.C. 78k-1(a)(1)].

165/ Id.

166/ See discussion at 49-65, supra and 71-75, infra.

167/ Sections 23(a)(2) [15 U.S.C. 78w(a)(2)]. See also Sections 6(b)(8), 15A(b)(9), 19(b)(2), and 19(c) [15 U.S.C. f(b)(8), o-3(b)(9), s(b)(2) and (c)].

changes in series traded, and (ii) which took these factors into account indicate that price continuity, liquidity, and depth for multiply traded classes may improve after the initiation of multiple trading. ^{168/} In fact, improvements within the first few weeks of multiple trading may be quite dramatic. The Options Study, however, was not able to determine the duration of such improvements due to the short period for which it had requested data and the increasing influence that other market factors exert on option prices as time passes.

Multiple trading has had other important effects on the markets for multiply traded classes. For example, it has at least partially caused competing exchanges and potential competitors to develop automated order routing and processing systems and to improve their floor operations in an effort to attract or keep orders for multiply traded options. In addition, multiple trading has in some instances caused competing brokers, similarly trying to attract or keep option orders, to reduce the commissions for executing orders in multiply traded classes. Perhaps most significantly, multiple exchange option trading has provided market

^{168/} More subjectively, professional options traders, on and off exchange floors, with whom the Options Study spoke were almost unanimously of the view that multiple trading had generally improved the quality of the market for multiply traded classes.

participants with a choice of markets in which to execute their orders and has increased the marketmaking capacity with which these orders can interact.

It must be kept in mind, however, that experience with multiple exchange option trading is still limited. For example, of the 218 option classes that are presently traded on the options exchanges, only 15 are now traded on more than one exchange. Moreover, these 15 are among the most active and liquid of the listed classes. Whether improvements in market quality, operational and other efficiencies, and enhanced competition among exchanges and among brokers and dealers would result from the multiple trading of less active and less liquid classes, and, if so, to what extent, are questions that the Options Study has not addressed. The Options Study believes that such questions are better answered by data 169/ and experience than by theory. 170/

169/ See, e.g., Special Study, supra, n.63, at 942.

170/ In this regard, it should be noted that the least active class traded on CBOE in 1977 had an average daily volume of 65 contracts, that 4 classes listed on that exchange had average daily volume of less than 100 contracts in that year, and that 16 classes had average daily volume on less than 200 contracts during that time. CBOE Market Statistics - 1978, at 5.

Multiple exchange option trading has also resulted in significant fragmentation of the markets for classes traded on CBOE and AMEX. PHLX, PSE, and MSE, on the other hand, have not been able to attract sufficient orders in classes that CBOE or AMEX also trade to compete effectively with these exchanges. In fact, the PHLX and PSE have been compelled to delist most of the classes that they have multiply traded with CBOE or AMEX, 171/ and significant fragmentation of the markets for multiply traded classes exists only with respect to classes that both CBOE and AMEX list.

3. Market Fragmentation and the Exchange Act

The fragmentation of the markets for multiply traded option classes may be inconsistent with some purposes of the Exchange Act. At present, buying and selling interests for multiply traded classes are not centralized 172/ and "the linking of all markets * * * [to] facilitate the off-setting of investors' orders, and contribute to best execution of such orders" 173/ has not occurred. Although the Congress intended that

171/ See Table 1.

172/ See discussion at 51-52, 61-65, supra.

173/ Section 11A(a)(1) of the Exchange Act [15 U.S.C. 78k-1(a)(1)].

market fragmentation would be eliminated in the securities markets by creating a national market system which would electronically tie together all market centers that trade the same security, this goal has not been realized with respect to multiply traded options. As the Senate Securities Industry Study stated:

The dangers of market fragmentation must be evaluated in light of the objectives of the Exchange Act. There appears to be general agreement that the success and quality of an auction market depend on a concentration of public buying and selling orders in the market. In other words, if the maximum benefits of market centralization are to be achieved, the full interplay of supply and demand must be present in a single market. Therefore, looked at solely from this point of view, any "diversion" of orders * * * would be inimical to the public interest. It does not, however, follow from this that all orders should be "brought back" to [one market center]. What does follow is that all steps possible should be taken to develop promptly a national market system within which the full interplay of supply and demand can properly be reflected. * * * What is required is not the encouragement of the concentration of order flow in [one market center], but the development and implementation at the earliest possible time of a strong communications systems linking all markets and all market makers. 174/

To achieve the "maximum benefits of market centralization," the Commission and the self-regulatory organizations would need to develop "a

174/ Senate Securities Industry Study, supra, n.60, at 44-45.

strong communications system linking all markets and market makers" for multiply traded options. Such a system would be designed to assure "economically efficient execution of * * * transactions," "the practicability of brokers executing investors' orders in the best market," and, consistent with these factors, the opportunity "for investors' orders to be executed without the participation of a dealer." 175/ As first steps toward this end, the Commission and the self-regulatory organizations should begin to develop market linkages which would provide for (i) coordinated openings among all markets that permit the trading of an option class, and (ii) a prompt and efficient means of sending orders to purchase or sell multiply traded options among all market centers that permit the trading of these options. When evaluating plans to expand multiple exchange option trading, the Commission may wish to evaluate specifically the steps that have been taken to develop such market linkages. In addition, to the extent that quotation information that is currently available must be improved to permit maximum utilization of a market linkage system, the Commission and self-regulatory organizations should begin to consider the improvements that need to

175/ Section 11A(a)(1) of the Exchange Act [15 U.S.C. 78k-1(a)(1)].

be made in the quotation gathering and dissemination procedures of the options exchanges and the best methods for implementing such improvements "at the earliest possible time." 176/

176/ The effectiveness of an intermarket linkage system is to a large extent dependent upon the quality and reliability of the market information that the connected market centers disseminate. The Intermarket Trading System ("ITS") for certain stocks, for example, is an electronic intermarket order routing facility which permits orders for the purchase and sale of multiply traded stocks to be sent directly from one market center to another. See Securities Exchange Act Release No. 14416 (January 26, 1978), 14 SEC Docket 31, (February 7, 1978) (the "January Release"), and Securities Exchange Act Release No. 14661 (April 14, 1978), 14 SEC Docket 806 (May 2, 1978). The ITS system, however, is based upon the availability of composite quotations for all stocks that are traded through the ITS linkage.

Pursuant to Commission Rule 11Ac1-1, each self-regulatory organization is obliged to collect and disseminate to vendors quotations and quotation sizes for all stocks as to which last sale information is publicly disseminated via the consolidated transaction reporting system. 17 C.F.R. 240.11Ac1-1. See Securities Exchange Act Release No. 14415 (January 26, 1978) and January Release, supra, at 38-39. These quotations must be firm at the prices and in the amounts displayed, subject only to exceptions for revised quotations or quotation sizes and for unusual market conditions precluding dissemination of accurate quotation information. With respect to the relationship between this composite quotation system and order routing, the Commission has stated:

The Commission believes that the availability of comprehensive quotation information, a fundamental building block of the national market system, will improve both brokers' and public investors' knowledge of current prices at which reported securities can be bought or sold throughout the country. In turn, availability of this information should (i) lead to increased efforts by brokers to make informed order routing decisions from among the various competing market centers (in order to choose that particular market affording at a particular point in time, the most favorable

(footnote continued on next page)

4. Primary Market Designations and Automated Order Routing

The existence of alternative market centers with the marketmaking and operational capacity to absorb a substantial volume of retail orders requires firms to determine to which market centers their customer orders should be sent. Many brokerage firms may have too many customer orders in multiply traded option classes to permit, under present conditions, an order-by-order evaluation of the quality of competing markets. These firms use their order routing systems to transmit automatically small customer orders for these classes to the exchange that a firm designates as "primary." Since volume is usually a principal factor considered in making a primary market

(footnote continued)

execution opportunities to their customers); (ii) foster improvements in existing methods of routing orders to all market centers; [and] (iii) enhance fair competition among markets; * * * .

January Release, supra, at 38-39.

Rule 11Ac1-1, however, does not apply to options trading. See Securities Exchange Act Release No. 14415, supra, at 24, n.49. Quotation information in the markets for multiply traded options, therefore, often is not firm and does not contain the number of contracts for which a bid or offer is good. As a consequence, it may be difficult under prevailing circumstances for brokers on one options exchange floor to evaluate accurately whether a better market may exist for a multiply traded class on another exchange even if a system linking the options exchange floors were in effect. But see discussion at 260-265, infra, with respect to the difficulties associated with obtaining firm quotes with size in the options markets.