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DECIMALS 2000—WILL THE EXCHANGES CONVERT?

HEARING

BEFORE THE

SUBCOMMITTEE ON
FINANCE AND HAZARDOUS MATERIALS

OF THE

COMMITTEE ON COMMERCE
HOUSE OF REPRESENTATIVES

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(III)

DECIMALS 2000—WILL THE EXCHANGES CONVERT?

TUESDAY, JUNE 13, 2000

HOUSE OF REPRESENTATIVES,
COMMITTEE ON COMMERCE,
SUBCOMMITTEE ON FINANCE AND HAZARDOUS MATERIALS,
Washington, DC.

The subcommittee met, pursuant to notice, at 2:35 p.m., in room 2123, Rayburn House Office Building, Hon. Michael G. Oxley (chairman) presiding.

Members present: Representatives Oxley, Shimkus, Wilson, Fossella, Towns, Engel, and Luther.

Staff present: David Cavicke, majority counsel; Linda Rich, majority counsel; Robert Simison, legislative clerk; Shannon Vildostigvi; professional staff; Brian McCullough, professional staff; and Consuela Washington, minority counsel.

Mr. OXLEY. The subcommittee will come to order. The Chair would recognize himself for an opening statement.

Three years ago I introduced a bill, along with Ed Markey and Tom Bliley, the Common Sense Stock Pricing Act to convert the U.S. securities markets to decimals. Some folks thought I was behaving like a Democrat telling industry what to do. I supported decimals for three reasons: One, competition in spreads; two, ease of understanding; and three, international competitiveness. Three years later, we have a date when our securities markets will make the switch from trading in fractions to trading in decimals. Given the deadlines that have come and gone along the way, I am reminded of the words of the great philosopher, Ringo Starr, "you know it don't come easy."

We have a firm commitment from the SEC, the exchanges, and the industry for conversion to decimals beginning this September. The patience Congress has shown should not be mistaken for anything other than our steadfast desire to protect investors through competition.

Decimals is a classic case of a concentrated benefit to some with a cost spread widely and invisibly. Chairman Bliley, Congressman Markey and I took the lead to protect the public when others failed.

Conversion to decimals is a win for our markets. Investors will be able to pay a fair and accurate price for securities. No longer will they be forced to quote and trade in the SEC-mandated increments of a 16th, or before that, an 8th. They will quote and trade securities in prices set by competitive forces. When competition establishes trade increments, whether it be a spread of a nickel, a

penny, or less, a fair price will be paid. The SEC should not meddle with the competitive process. Competition alone should set the quoting and trade increments.

The study on minimum increments requested by the SEC should not become an excuse for collusion. Competitive spreads in decimals will save investors money, as much as $3 million a day, according to the GAO. Although that may not seem like a lot of money to Wall Street, it is to the American investor.

Over the years, the SEC has stood by while fractions have transferred investor money to Wall Street. Today we take a step closer to allowing the market to put that money back in their pockets, and as a result of the leadership of Chairman Levitt, we are getting there.

I am pleased that Island ECN will begin trading in decimals on July 3. I want to salute them for their leadership in the market. They were able to recognize the need and visualize the benefits of decimal conversion. For doing so they will get a jump on the rest of the competition. I also would be disappointed to see SEC rules or industry plans that inhibit the ability of any competitor to compete on price.

The challenge is for the rest of the market to stick to the conversion schedule to which they have agreed. The SEC needs to monitor the market participants to ensure that all parties are ready to convert to decimals by the new implementation deadline. The GAO will continue its work auditing both the SEC and industry to see that this is completed. Soon investors will receive the benefits of H.R. 1053, the Common Sense Stock Pricing Act of 1997 by trading in a decimalized market, a victory we all can be proud of. Decimals in 2000, the time has come.

At the dawn of the 21st century, our markets will no longer trade in the increment of the 18th century. I want to specifically thank our panelists today for their leadership and hard work on this issue, Chairman Levitt, for your continued guidance and leadership, Chairman Grasso and Chairman Zarb, for your active participation in this. This is a team effort where we have come, and I can't thank you enough. With that, let me turn to my good friend, the ranking member from New York, Mr. Towns, for an opening statement.

[The prepared statement of Hon. Michael G. Oxley follows:]

PREPARED STATEMENT OF HON. MIKE OXLEY, CHAIRMAN, SUBCOMMITTEE ON FINANCE AND HAZARDOUS MATERIALS

Three years ago I introduced a bill, the Common Cents Stock Pricing Act, to convert the U.S. securities markets to decimals. Some folks thought I was behaving like a Democrat—telling industry what to do. I supported decimals for three reasons: (1) competition in spreads; (2) ease of understanding; and (3) international competitiveness.

Three years later we have a date when our securities markets will make the switch from trading in fractions to trading in decimals. Given the deadlines that have come and gone along the way, I am reminded of the words of the philosopher Ringo Starr—"you know it don't come easy."

We have a firm commitment from the SEC, the exchanges, and the industry for conversion to decimals beginning this September. The patience Congress has shown should not be mistaken for anything other than our steadfast desire to protect investors though competition. Decimals is a classic case of a concentrated benefit to some with the cost spread widely and invisibly. Chairman Bliley, Congressman Markey, and I took the lead to protect the public when others failed.

Conversion to decimals is a win for our markets. Investors will be able to pay a fair and accurate price for securities. No longer will they be forced to quote and trade in the SEC mandated increments of a 1/16th. They will quote and trade securities in prices set by competitive forces. When competition establishes trade increments, whether it be a spread of a nickel, a penny, or less, a fair price will be paid. The SEC should not meddle with the competitive process. Competition alone should set the quoting and trade increments. The study on minimum increments requested by the SEC should not become an excuse for collusion.

Competitive spreads decimals will bring will save investors money—as much as $3 million a day—according to the GAO. Although that may not seem like a lot of money to Wall Street, it is to the American investor. Over the years the SEC has stood by while fractions have transferred investor money to Wall Street. Today, we take a step closer to allowing the market to put that money back in their pockets.

I am pleased that Island ECN will begin trading in decimals on July 3rd. I want to salute them for their leadership in the market. They were able to recognize the need and visualize the benefits of decimal conversion, and for doing so will get a jump on the rest of the competition. I also would be disappointed to see SEC rules, or industry plans, that inhibit the ability of any competitor to compete on price.

Now the challenge is for the rest of the market to stick to the conversion schedule to which they have agreed. The SEC needs to monitor the market participants to ensure all parties are ready to convert to decimals by the new implementation deadline. The GAO will continue its work auditing both the SEC and industry to see that this gets done.

Soon investors will receive the benefits of H.R. 1053, the Common Sense Stock Pricing Act of 1997 by trading in a decimalized market—a victory we can all be proud of.

Decimals in 2000—the time has come. At the dawn of the 21st century our markets will no longer trade in the increment of the 18th century.

I yield back.

Mr. TOWNS. Thank you very much, Mr. Chairman. I want to thank you for holding this hearing. I also want to thank you for behaving like a Democrat and for your long-standing commitment to decimal trading in the U.S. equity markets.

U.S. securities markets are very, very important to the economy of New York City. Therefore, I am committed to making sure that these markets are competitive internationally. Decimal trading is an important part of keeping the U.S. equity market internationally competitive, because all of the world's other equity markets already trade in decimals. I am especially pleased with my good friend, one of the witnesses here today, Dick Grasso, the chairman of the New York Stock Exchange. Dick is a visionary, and it is good to see you here. He has successfully positioned the New York Stock Exchange to compete in the 21st century, and we congratulate you for that.

Decimal trading has benefits for investors, too. Trading in pennies or nickels will certainly make it easier for retail investors to track price movements in their stocks. Trading in pennies will also result in narrower spreads in many stocks providing significant savings to investors.

The impact of decimal trading will reach far beyond this. In fact, I don't believe that anyone yet fully understands how far-reaching these changes will be. Decimal trading will affect message traffic and is likely to have an impact on quote debt and incentives to engage in payments for order flow.

The challenges in starting decimal trading are great and we will not underestimate that. For this reason, I think it is very prudent to begin decimal trading with a pilot program before fully implementing decimal trading in all stocks. Again, Mr. Chairman, I thank you for calling this hearing and I look forward to the testi-

mony coming from the various witnesses, and on that note, I will yield back.

Mr. OXLEY. I thank the gentleman for his contribution. I now recognize the gentleman from Staten Island, Mr. Fossella.

Mr. FOSSELLA. Thank you, Mr. Chairman. And welcome to the panel, distinguished as they may be. Let me commend you as well, and Chairman Bliley, my good colleague, Ed Towns for pursuing this as well as Ed Markey, who is not here.

As I said earlier today, this is a common sense measure that I think is long overdue, and one of the things that was stated earlier, I think it was Mr. Zarb had talked about one of the wonders of the last several years has been the growth and participation by ordinary Americans who, decades ago, probably would not have participated in the enhancement of wealth in this country, and it is a great thing.

I think 1 day every family should own a share of corporate America and will be better off for it. But this is a measure that I think goes beyond those who just failed math who may not understand fractions. It is something whose time has come. Over the last couple of years, while the industry, mind you, there were folks who were in the trenches trying to make this conversion happen, they deserve a lot of credit too for doing so in an appropriate way and to the degree that we were able to work and interface with the industry.

I always found them to be honest and people of integrity as those you see before us, Chairman Levitt, and especially Dick Grasso as well on the New York Stock Exchange. Not only is it important in the envy of the world in terms of the capital markets that we should be very proud of, and these gentlemen and all of whom they represent, but it is also important to the people I represent. New York City, as Ed Towns said, is really so closely related to the financial service industry and the markets, and we should never lose that, but also because people that live in Ed Towns' district and people that live in my district work every day for the New York Stock Exchange and for Nasdaq. So for that, I am grateful. Let's get on with the hearing.

[Additional statements submitted for the record follow:]

PREPARED STATEMENT OF HON. TOM BLILEY, CHAIRMAN, COMMITTEE ON COMMERCE

Mr. Chairman, three years ago I joined you and Ed Markey to move our stock markets to decimals. Decimals are important for two reasons. The first is that investors will save money—a lot of it—by ending SEC mandated minimum spreads. According to the GAO investors will save $2 billion per year. The second reason is that decimals are easier to understand. Nobody knows how much 13/16ths is, but everybody knows how much eighty-one cents is.

After we marked up the Common Cents Stock Pricing Act of 1997, our witnesses before us today committed to get it done. We have waited patiently for three years, and through a number of excuses, for conversion to take place. Today, I understand our witnesses will commit to begin conversion in September and complete it by April 9 of next year.

This is not one minute too soon. Each day you wait, investors lose $3 million to Wall Street. I expect you will keep your commitment and make this change happen. When we began this process, we were opposed by much of Wall Street and the SEC. Now, the continuation of trading in fractions is widely considered an embarrassment. The SEC and the industry need to make this their number one priority.

I would like to applaud those market participants who are ready to make the conversion to decimals sooner. The Island, ECN has announced that it will begin offering decimal trading on July 3. Island should be commended for their efforts to bring

greater transparency to the market and American investors. Competition is the best protector of investors. We should be sure that no barriers are placed in the way of those who want to offer better prices to the public.

I also repeat my insistence that there be no mandated minimum increments for quoting or trading. Those practices are illegal under the antitrust laws. Competition', not collusion, should set prices. I trust that the study of minimum increments called for by the SEC will not be a vehicle for continued obstruction of market forces.

Mr. Chairman, I would like to congratulate you on your hard work to bring decimals to our markets. Your tireless advance of this issue is letting American investors see the light at the end of the tunnel. Soon they will also be seeing a more competitive market where the market decides the price of stocks and not the government. We in Congress led, and the public is the better for it.

I yield back.

PREPARED STATEMENT OF HON. ELIOT L. ENGEL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF NEW YORK

Mr. Chairman, I first want to thank you and the distinguished members of this Subcommittee for having this hearing today. I am equally pleased that Chairmen Levitt, Grasso, and Zarb taking time to appear before this Subcommittee to discuss the issue of decimalization.

As you know, Mr. Chairman converting to decimal trading has been one of my concerns since 1997. All market participants, whether individual investors or professionals, would be affected in some way by a conversion to decimal pricing.

While at times progress toward decimal trading has not been as fast as it could be, I also want to be sure that Exchanges and market participants have taken measures to prudently implement a transition.

I understand that NYSE is prepared to move forward with decimalization and applaud its efforts bringing NYSE and the U.S. financial market in line with our International counterparts. However, like a symphony orchestra, unless all market participants do their parts the financial market may experience unintended consequences. I am aware that NASD may not be fully prepared to move toward decimalization and look forward to asking questions related to this topic.

Once again, I thank the Chairman and Subcommittee for holding a hearing on this important matter.

PREPARED STATEMENT OF HON. JOHN D. DINGELL, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF MICHIGAN

Mr. Chairman, I commend you for holding this hearing and I welcome the panel of distinguished witnesses.

I believe that an orderly transition to decimal pricing in the United States securities markets will benefit the markets and investors. It will make stock prices more understandable to the average investor. It also will narrow the quotation spreads in many stocks, thus providing significant savings to investors. While there is not a big difference between a nickel and the current $\frac{1}{16}$th (6.25 cents), there is if the variation drops to a penny. A penny spread may not prove economical for market makers, in which case bid and ask prices will widen, and the market, and not the securities industry, will decide how narrow or wide spreads will be.

The Securities and Exchange Commission (SEC) issued an order on June 8 calling for a phased-in decimal conversion schedule and full systems testing. The order directs the exchanges and Nasdaq to submit a plan that would phase in decimal pricing for listed stocks and certain options starting no later than September 5, 2000, and phase in decimal pricing for Nasdaq securities beginning no later than March 12, 2001. All securities must be priced in decimals no later than April 9, 2001. I believe that this plan is reasonable and responsible, and I will support it.

I do want to raise one concern that I hope will be addressed during the implementation of the SEC's order. The conversion to decimal pricing for listed securities allows for up to three months of testing, while the testing for Nasdaq securities appears to be only three weeks. Given the proposed NASD timetable, which I understand to be two weeks of self-testing from February 26, 2001 to March 12, 2001, I am not satisfied that the industry will have sufficient time to test systems in conjunction with the Nasdaq's new computer system and be ready for full conversion by March 31, 2001. I urge the SEC, Nasdaq, and the industry to work together to resolve this shortcoming within the parameters of the SEC order.

Mr. OXLEY. I thank the gentleman. We now turn to our distinguished panel and the aforementioned individual. Let me begin with Chairman Levitt, chairman of the Securities And Exchange Commission, the longest serving chairman of the Securities And Exchange Commission in our Nation's history. Again, we thank you for your leadership and vision on this issue, Arthur.

STATEMENTS OF HON. ARTHUR LEVITT, CHAIRMAN, SECURITIES AND EXCHANGE COMMISSION; RICHARD A. GRASSO, CHAIRMAN AND CEO, NEW YORK STOCK EXCHANGE, INC.; AND FRANK G. ZARB, CHAIRMAN AND CEO, NATIONAL ASSOCIATION OF SECURITIES DEALERS, INC.

Mr. LEVITT. Chairman Oxley and members of the subcommittee, I appreciate the opportunity to address you concerning the transition to decimal pricing in both our securities and options markets. Your leadership, along with Chairman Bliley, Congressman Markey and other Members of Congress, has paved the way for our Nation's securities markets to begin making this truly watershed change this year. The significance of the transformation to decimals is likely to be enormous. Many seasoned market veterans disagree in their predictions of exactly what decimal pricing will mean for our markets. Most agree, however, that, in the end, investors will clearly benefit, particularly small investors using market orders. As prices are quoted in smaller and smaller increments, it will be easier and cheaper for dealers and investors to improve the bid or offer on a given security; but the imperative to embrace decimal pricing goes beyond the quality of our domestic markets.

As securities markets become more global with many stocks traded in multiple jurisdictions, U.S. markets must adopt the international convention of decimal pricing to remain competitive. I firmly believe the time is now to make this important move to decimals. The changeover, however, must proceed in a prudent manner. Vigilance on all of our parts and a sharp focus on the maintenance of orderly markets have never been more important.

We have issued an order directing the exchanges and Nasdaq to submit a plan that would phase in decimal pricing for listed stocks and certain options starting no later than this coming September, and for Nasdaq securities no later than March 12, 2001. At least some securities must begin quoting in pennies in September, and all securities must be priced in decimals no later than April 9, 2001. But we have afforded markets the flexibility to set a more aggressive phase-in schedule provided that they can satisfy themselves that there will be minimal disruptions to the markets. I expect that this plan will move our markets appropriately and prudently toward decimal pricing, the goal all of us share, a goal that was moved constructively and aggressively by this committee and by a number of members of your staffs. I realize that many of you have been frustrated with the pace of the market's conversion to decimals. I share these frustrations. Earlier this year I was surprised to learn of the NASD's inability to meet the July 3 conversion deadline.

I do appreciate, however, that unprecedented volume spikes and unexpected test results contributed to that delay. The experience reaffirms my judgment that technology must remain second to

none among the priorities of each of our markets, and that close Commission oversight is critical. Since March, we have received numerous briefings by the NASD's technology group, and we have scheduled weekly conference calls between the NASD, the Commission, and private technology consultants selected by us. I believe that the Nasdaq is taking the formidable challenges it faces extremely seriously, and I am completely optimistic that they will meet this schedule on time.

I look forward to the cooperation and collective effort of all market participants as we move closer to bringing decimal pricing to our markets. It is a profound and a positive step both for America's investors and for America's competitive edge in the coming global marketplace.

Thank you.

[The prepared statement of Hon. Arthur Levitt follows:]

PREPARED STATEMENT OF HON. ARTHUR LEVITT, CHAIRMAN, SECURITIES AND EXCHANGE COMMISSION

Chairman Oxley and Members of the Subcommittee: I would like to thank Chairman Oxley and the members of the Subcommittee for the opportunity to testify on behalf of the U.S. Securities and Exchange Commission concerning the implementation of decimal pricing. Your leadership has paved the way for our nation's securities markets to begin making this truly revolutionary change this year.

I. EXECUTIVE SUMMARY

The convention of quoting stock prices in fractions dates back more than two hundred years. Currently, the United States securities markets are the only major markets not to price stocks in decimals. As the securities markets become more global, with many stocks traded in multiple jurisdictions, the U.S. securities markets need to adopt the international convention of decimal pricing to remain competitive. And the overall benefits of decimal pricing are likely to be significant. Investors may benefit from lower transaction costs due to narrower spreads.[1] Moreover, the markets will be easier to understand for the average investor, who is used to dealing in dollars and cents for every-day transactions. It is time for the U.S. securities markets to make this change.

The Commission recognizes the efforts of Chairman Oxley, Chairman Bliley, Congressman Markey, and other members of Congress in spearheading the conversion to decimal pricing. We want to assure you that the Commission is also committed to implementing decimal pricing as soon as possible. That is why the Commission issued an order directing the exchanges and Nasdaq to submit a plan that would phase in decimal pricing for listed stocks and certain options starting no later than September 5, 2000, and phase in decimal pricing for Nasdaq securities beginning no later than March 12, 2001.[2] Under the order, all securities must be priced in decimals no later than April 9, 2001—shortly after the end of the quarter.

I realize that many of you are frustrated with the pace of the U.S. markets' conversion to decimals. I share some of these frustrations. The Commission has been working with the securities industry to implement decimal pricing since 1997. Like Congress, we believe the time is right for the securities industry to convert to decimal pricing.

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[1] The Canadian exchanges implemented decimal pricing on April 15, 1996. This change reduced the minimum tick size on the primary Canadian exchange, the Toronto Stock Exchange ("TSE"), from 12.5 cents to 5 cents for stocks trading above $5. For stocks trading between $3 and $5, the minimum tick size was reduced from 5 cents to 1 cent. The minimum tick size for stocks trading under $3 was unchanged. According to a 1997 study, spreads for stocks listed solely on the TSE narrowed by 20.18%. This study also indicated that investors save 139 million Canadian dollars per year as a result of the narrowing of the spread (or 102 million U.S. dollars). Because the value of shares traded annually in the U.S. is approximately 30 times that on the Canadian markets, the potential cost savings for U.S. investors that trade at the spread using market orders could be significant. *See* Jeffery M. Bacidore, *The Impact of Decimalization on Market Quality: An Empirical Investigation of the Toronto Stock Exchange,* 6 Journal of Financial Intermediation 92, 100-115 (1997).

[2] *See* Securities Exchange Act Release No. 42914 (June 8, 2000).

Nevertheless, it is critical that this conversion take place in a safe and orderly manner. The Commission has serious concerns about a full-scale conversion to decimal pricing in listed securities without an orderly phase-in. In particular, based on our discussions with the industry, we are concerned that making an immediate leap to decimal pricing could jeopardize systems capacity and capabilities. Without adequate time for planning and systems testing, an immediate full-scale conversion has the potential to create widespread operational problems, which in turn could adversely affect investors.

Of course, some of the planning and testing has already been completed. Most of these prior efforts, however, assumed that Nasdaq stocks would be converted to decimals at the same time as listed stocks. Any different plan to trade listed stocks in decimals, Nasdaq stocks in fractions, and some options in both, raises issues that must be addressed. For these reasons, we believe that the prudent approach is to phase-in decimals starting in September 2000 to ensure that the markets continue to operate in a fair and orderly manner, and that investors are fully apprised of the changes ahead. Nevertheless, we have left the markets and the securities industry the flexibility to set a more aggressive phase-in schedule, provided that they can satisfy themselves that there will be mimimal disruptions to the markets.

I will now briefly discuss the chronology of events leading up to this point, including the recent Commission order.

II. BACKGROUND

Throughout the mid and late 1990s, the Commission engaged the securities industry and the public in a discussion regarding the need for decimal pricing in the U.S. securities markets. On March 13, 1997, this debate moved to the legislative arena when Congressman Oxley introduced a bill in the U.S. House of Representatives that would have directed the Commission to adopt a rule requiring quotations in dollars and cents for transactions in equity securities. Subsequently, the New York Stock Exchange announced that it would implement decimal pricing by January 2000. Other markets soon followed suit. In light of this activity, the bill was not taken to full markup in the House Commerce Committee.

On May 8, 1998, the General Accounting Office ("GAO") determined that "[e]nsuring that securities industry systems are ready for the Year 2000 is too important to the continued functioning of the industry to risk failure by attempting to implement decimal trading before the Year 2000 effort is completed."[3] I concurred in this assessment, but I also noted the importance of setting a date certain by which the markets must move to decimal pricing. At that time, I believed that the industry should strive to implement decimal pricing by June 30, 2000.

On August 25, 1998, Commission staff requested that the exchanges and the National Association of Securities Dealers, Inc. ("NASD") provide information regarding the status of rule and systems changes that would need to be adopted to implement decimal pricing. Their responses indicated that a range of rules and systems would require modification to accommodate decimal pricing. Because of the impact of decimal pricing on the securities industry as a whole, virtually all the market participants, and the Commission, believed that a coordinated approach to implementation was necessary. To expedite the conversion to decimal pricing and to alleviate the industry's antitrust concerns,[4] on January 28, 2000, the Commission ordered the exchanges and NASD to begin implementing decimals on July 3, 2000, and to complete implementation for all equities and options within six months after the July 3rd date.[5]

The January 28th order also required the markets to submit, by March 13, 2000, a joint plan detailing specifically how decimal pricing would be implemented. To mitigate the potential strain on the computer capacity of the industry and to minimize the potential for systems errors, the order permitted the markets to phase-in decimals over several months and permitted trading to begin in nickel increments for equities and greater increments for options.

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[3] Testimony of Thomas J. McCool, Director, Financial Institutions and Markets Issues, GAO, before the Subcommittee on Finance and Hazardous Materials, Committee on Commerce, U.S. House of Representatives on May 8, 1998. The GAO also recommended that the Commission, in directing the securities industry's move to decimal pricing, assess: (1) the potential impact of decimal trading on the industry's processing and communication capacity; and (2) the impact on market regulations and exchange rules.

[4] As joint discussions regarding the implementation of decimal pricing became more detailed, the exchanges and NASD began voicing concerns regarding antitrust liability. *See, e.g.,* letter from Colleen P. Mahoney to Harvey J. Goldschmid, General Counsel, Commission, dated October 14, 1999.

[5] *See* Securities Exchange Act Release 42360 (Jan. 28, 2000), 65 FR 5004 (Feb. 2, 2000) ("Decimals Order").

Prior to issuing the January 28th order, the Commission staff surveyed the exchanges and NASD regarding their preparation for decimal pricing. I understand that Nasdaq officials informed the staff that Nasdaq would be ready for a decimal pilot by July 3rd. In late February, Nasdaq reaffirmed its readiness in its formal response to the survey, but indicated that it was continuing testing to confirm its readiness. As I understand it, the testing revealed unexpected capacity problems stemming, in part, from unprecedented volume surges. On March 6, 2000, the NASD announced that it would not have sufficient capacity to meet the target dates for implementation.

The NASD also expressed concerns regarding overall industry readiness and requested that the Commission work with the industry and the markets to determine an appropriate time frame that would not impose unnecessary risks on investors. Moreover, the NASD said that it was not able to determine when it would be ready to implement decimal pricing. As a result, on March 10, 2000, the Commission issued an order delaying the March deadlines for approximately one month.[6] In addition to the March 10th order, I sent a letter to each of the markets requesting their opinions regarding issues central to the implementation of decimal pricing. These issues included:

- whether or not it would be feasible or advisable to implement decimal pricing in exchange-listed securities while Nasdaq securities continued to trade in fractions;
- whether or not it would be feasible to trade the same securities in decimals on an exchange and in fractions on Nasdaq; and
- what the impact of trading the same securities in fractions and decimals would be on the options markets.[7]

In response, the exchanges indicated that their individual systems are capable of converting to decimal pricing by July 3, 2000, though many of them expressed concerns about the readiness of the securities industry as a whole. The NASD asserted that Nasdaq has sufficient capacity to implement decimal pricing for market makers trading exchange-listed securities (*i.e.,* the third market) by September 4, 2000, with full implementation of decimal pricing by March 31, 2001. Two electronic communications networks stated that they are prepared for decimals, and that trading exchange-listed securities in decimals should not be delayed because of Nasdaq's inability to meet the July 3rd target date.

The vast majority of the markets and securities firms, however, believed that it would be difficult and confusing to implement widespread trading of exchange-listed securities in decimals while trading of Nasdaq securities remains in fractions. Many responses indicated that bifurcating the implementation of decimal pricing for different markets on other than a pilot basis raised serious concerns. For example, some responses indicated that trading of Nasdaq stocks in fractions and exchange-listed securities in decimals over an extended period of time could prove costly to markets, broker-dealers, and vendors. In addition, the Financial Industry Forum ("FIF") pointed out that systems would have to be adapted to perform price format checking for each and every security traded in a different format. Without this format checking, and considering the investor confusion caused by mixed pricing, the FIF believed that error rates and corresponding order rejection rates could sharply increase. Moreover, the Securities Industry Association's ("SIA") Testing and Implementation Subcommittee warned that piecemeal testing of systems would be inefficient. The SIA's experts found that any testing that was conducted at a point in time that was distant from the implementation date would not provide an accurate determination of readiness.

III. DECIMALS PHASE-IN PLAN

In view of these comments, on April 13, 2000, the Commission stayed the deadlines in the original Decimals Order and solicited public comment on two alternative proposals for decimal implementation.[8] In the first alternative, the Commission requested comment on the advisability of pricing all exchange-listed securities in decimals (in nickel or penny increments) by September 4, 2000 ("Dual Pricing"). In the second alternative, the Commission requested comment on the advisability of phas-

[6] *See* Securities Exchange Act Release No. 42516 (March 10, 2000), 65 FR 14637 (March 17, 2000).

[7] After receiving responses from the markets regarding these questions, the Commission, on April 13, 2000, issued an order suspending the current deadlines for the implementation of decimal pricing. *See* Securities Exchange Act Release 42685 (April 13, 2000), 65 FR 21046 (April 19, 2000) ("April Order").

[8] *Id.*

ing in decimal pricing in certain exchange-listed securities on a pilot basis ("Decimals Pilot").

The Commission received 36 comment letters on these decimal implementation alternatives. Some commenters urged the Commission to delay decimalization until all markets are prepared for decimals. Others supported full decimalization for both exchange-listed and Nasdaq securities either immediately or no later than the July 3, 2000 start-up date proposed in the Commission's Decimals Order. The largest number of commenters, consisting of broker-dealers, exchanges, clearing organizations, the NASD, and the SIA, believed that some form of phased-in dual pricing starting on or about September 5 would be both feasible and advisable.

The commenters who preferred a phased-in approach varied on the optimal method for achieving this approach. Most of these commenters advocated an extended pilot of only a small number of listed securities (along the lines of the Decimals Pilot alternative proposed for comment in the April Order), with most listed securities moving to decimals at the same time as Nasdaq securities. For example, the SIA believed that a pilot was more feasible than Dual Pricing because Dual Pricing would create major difficulties for the securities industry in creating and maintaining separate processes, systems, and programs to trade large number of securities in decimals while many others trade in fractions. The SIA also believed that a pilot would simplify educational efforts designed to inform the investing public of the way in which specific securities would be priced. Other commenters, however, thought it possible to phase-in decimal pricing in all exchange-listed securities more quickly. The New York Stock Exchange, for example, favored commencing decimal pricing in a limited number of NYSE-listed securities, advancing to a full pilot of perhaps 50 NYSE-listed securities during an initial phase-in period of one month or less. The New York Stock Exchange indicated that an expansion to all of its listed securities could prudently occur after approximately 60 days of trading in all pilot stocks. All of the commenters stressed the need for careful planning and systems testing to avoid potential market disruptions and to minimize investor confusion.

The Commission carefully considered the comments, particularly the request of Congressmen Oxley, Bliley, and Markey to implement decimal pricing in all exchange-listed securities by September 4, 2000. In view of the concerns raised by commenters and our own discussions with industry participants, the Commission came to the conclusion that an immediate full-scale introduction of decimalization in listed stocks, without adequate planning and systems testing, had the potential to create widespread operational problems in the markets and the securities industry, which in turn could adversely affect investors.

The Commission therefore ordered the exchanges and Nasdaq to submit a plan that would phase in decimal pricing for listed stocks and certain options starting no later than September 5, 2000, and phase in decimal pricing for Nasdaq securities beginning no later than March 12, 2001.[9] Under the order, all securities must be priced in decimals no later than April 9, 2001—shortly after the end of the quarter.

A phase-in period should give the industry time to finalize testing, to adjust their systems to correct errors as they phase in particular stocks in decimals, to educate investors, and to monitor changes in trading behavior. In particular, trading in decimals, especially in penny increments, may affect the use and display of customer limit orders, the liquidity of certain stocks, and the ability to sell short. A phase-in period, even a short one, will allow the Commission and the markets to monitor the impact of decimalization on trading behavior and to determine if trading rules need to be adjusted.

The Commission did not mandate widespread Dual Pricing ahead of Nasdaq's projected decimal date because of the potentially serious systems and capacity problems raised by market participants. In view of the New York Stock Exchange's position and other comments on a more rapid move to full Dual Pricing, the Commission did not want to foreclose the possibility that the problems could be addressed and broader decimal trading begin in listed stocks before April 9. Therefore, the Commission's order gives industry participants the flexibility to begin broader Dual Pricing between September of this year and April of next year. If operational issues can be addressed and investor confusion can be minimized through educational efforts within a shorter time frame—such as the one suggested by the NYSE—the order allows the industry to move to full decimalization well before April 9, 2001.

As for quoting increments, there was little agreement among the commenters regarding a minimum increment during the phase-in period—suggestions ranged from a dime to a penny. Accordingly, in its order, the Commission allowed the exchanges and NASD to fix the minimum quoting increment during the phase-in period, provided that the minimum increment is no greater than five cents and no less than

[9] *See supra* note 2.

one cent for any equity security, and that at least some equity securities are quoted in one-cent minimum increments. We fully expect that the pilot in listed stocks under consideration will trade in penny increments.

Finally, the Commission directed the exchanges and NASD to submit (either individually or jointly) a study to the Commission on June 9, 2001, that evaluates the impact of decimals on trading patterns and capacity and that makes a recommendation regarding a minimum increment, if any. Further, the order directed the exchanges and NASD to submit rule change proposals to the Commission thirty days after submitting the study that would establish their individual choice of minimum increments by which equities or options are quoted on their respective markets

IV. NASDAQ CAPACITY

Before I conclude, I would like to briefly address Nasdaq's technology and planning. As I indicated above, the unprecedented growth in volume and quote traffic is presenting the Nasdaq market with formidable challenges, and I am committed to ensuring that Nasdaq faces them squarely. Last August and September, my staff reviewed Nasdaq's computer operations and identified to Nasdaq staff concerns about Nasdaq's capacity planning. In January of this year, the staff issued a report to Nasdaq identifying systems capacity as a key concern and recommending that Nasdaq obtain an independent assessment of its infrastructure capacity and its capacity planning process.

In response to Nasdaq's announcement that it would not be decimal ready by July 3rd, we prompted Nasdaq to accelerate its process for hiring an independent consultant to evaluate Nasdaq systems capacity and capacity planning. That review is nearing completion. Since that time, we also have closely monitored Nasdaq's progress with decimal implementation, including weekly conference calls with Nasdaq's Chief Information Officer. Last week, I personally met with Nasdaq management, including its Chief Information Officer, to discuss its readiness for decimals and broader capacity issues. We believe that Nasdaq is taking seriously the challenges presented by the conversion to decimals, as well as other capacity issues. Our goal is to see to it that Nasdaq remains on schedule for decimalization in Spring of next year.

V. CONCLUSION

In conclusion, because of your leadership, decimalization will become a reality this year, and investors will soon reap the benefits of trading in decimal increments. The Commission remains committed to implementing decimal pricing in a safe and orderly manner, with minimal disruptions to the markets. We appreciate your leadership on this issue and hope to work closely with you in the months ahead.

Mr. OXLEY. Thank you, Mr. Chairman. Our next witness is the Chairman and CEO of the New York Stock Exchange, Dick Grasso. Mr. Grasso, welcome.

STATEMENT OF RICHARD A. GRASSO

Mr. GRASSO. Thank you, Mr. Chairman. Good afternoon. Mr. Chairman, Mr. Towns, members of the subcommittee, I am pleased to be here today to discuss the New York Stock Exchange's conversion to a decimal pricing table. The legislation approved by this subcommittee in early 1997 was the single most important catalyst to the decimal conversion process. Chairman Bliley, Chairman Oxley, Representative Markey, and all members of the subcommittee are to be commended and congratulated. I am particularly grateful for the support of the delegation members from New York, Mr. Towns, Mr. Fossella, Mr. Engel, who have supported and indeed encouraged the New York Stock Exchange to take this bold conversion move.

I am pleased, Mr. Chairman, to be able to answer the question posed by the title of today's hearing by saying simply yes, the NYSE will convert. Consistent with the timetables set by the SEC order, the NYSE will begin the conversion to decimal pricing in September. We expect to introduce a pilot for some 50 securities

which will trade both on the New York Stock Exchange and in the Nasdaq third market quoted and traded on a penny-denominated basis. The NYSE was the first market to approve conversion to decimal pricing when our board, with the encouragement of this committee, considered it at its meeting in June 1997.

The NYSE sees conversion to decimals as a win-win-win proposition. That is, it will benefit investors, the companies they invest in, and all those in the industry who serve our consumers. Decimals will ultimately make prices more easily understood by individuals particularly. Spreads and highly liquid stocks should tighten appreciably. This should provide significant cost savings for investors, particularly given the minimum price variation being reduced to one cent. By bringing the United States into conformity with international practices, decimalization should improve the competitiveness of U.S. markets on a truly global scale. Decimal trading will ultimately increase the number of possible trading increments within a single dollar from the current level of 16 to 100.

It is in the interest of all market participants to ensure that the markets can handle the increased message traffic which decimalization will produce.

Today, the NYSE has significant capability to handle 1,000 messages per second. Stated in volume terms, some 5-plus billion shares in a single trading session. By the end of this year, that capacity will double to 2,000 messages per second producing a capability of some 10 billion shares of capacity in a single trading session.

The NYSE takes its commitment to decimalization seriously, and we have built and will continue to buildupon our technology infrastructure. This is a conclusion which we share by the GAO in its report to this committee this past spring.

Later this year, the Exchange will begin the implementation of what we call network NYSE, a platform for customer choice. The new products that we will offer under the umbrella NYSE network include NYSE direct plus, institutional express, and a virtual 3-D trading floor, all of which will support decimal pricing tables as they are brought on-line.

Testing between the exchange and the member firm community began in mid January of this year, industry wide testing in listed securities in April, and we are almost 90 percent complete. The Exchange is taking steps to make sure our member firms are prepared for decimal trading. At its meeting earlier this month, the Exchange's board of directors approved a rule which mandates each member organization must participate in industry testing. This rule will be filed with the commission. We have also sent out a decimalization preparedness survey to our member organizations and expect to complete our evaluation by the mid- to late part of July.

The New York Stock Exchange has committed, Mr. Chairman, significant resources and personnel at the highest levels to implement the wishes of this committee consistent with the timetable embraced by Chairman Levitt and the Securities And Exchange Commission. We remain committed to working with the Congress, the Commission, and the industry, to ensure that decimalization

conversion is done on an expedited timetable without any risk to consumers.

I thank you again, Mr. Chairman, for the opportunity to testify today. I ask permission to submit my written statement for the record and would be pleased to answer any questions after my colleague has testified. Thank you.

[The prepared statement of Richard A. Grasso follows:]

PREPARED STATEMENT OF RICHARD A. GRASSO, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, NEW YORK STOCK EXCHANGE

Mr. Chairman, Mr. Towns, and Members of the Subcommittee: I am pleased to be here today to discuss the New York Stock Exchange's progress in converting to decimal pricing. I know that decimalization of U.S. securities markets has been a high priority for this Subcommittee for several years. The legislation considered and approved by the Subcommittee in early 1997 was the single most important catalyst for the U.S. securities markets to commit to decimal conversion.

For this reason, I am pleased to be able to answer the question posed by today's hearing with an unequivocal "YES." Consistent with the timetable to be set by the SEC order, the NYSE will begin the conversion to decimal pricing in September, with conversion fully completed by next spring. The Exchange has committed significant resources to ensure successful implementation of decimal pricing this year.

Moving to decimal trading has been a major focus at the New York Stock Exchange for the last three years. We first began these efforts as early as 1995 with discussions of trading foreign shares in local currencies.

Our Board approved conversion to decimal pricing on June 5, 1997. We were the first U.S. securities market to take that step. As we stated at that time, decimals will ultimately make prices more easily understood by individual investors. Spreads in highly liquid stocks should tighten appreciably. By bringing the United States into conformity with international practices, decimalization should improve the competitiveness of the U.S. markets on a global basis.

To begin the move toward decimalization, the Exchange created a committee of senior operations executives to assist in the preparation and implementation of industry efforts. This Operations Advisory Committee began meeting in September 1997. Subcommittees dedicated to specific subjects began meeting in November of that year. At the suggestion of the SEC, the Exchange convened a small working group of equity and options markets, which met in February 1998 to propose a plan for the securities industry's conversion to decimal trading. The input from the Operations Advisory Committee served as the basis for discussion among the markets at that meeting. The proposed plan was endorsed by the Securities Industry Association, which also agreed to act as the industry focal point for implementation.

At the NYSE, a Decimalization Project Team was formalized in early 1999. In order to optimize the efficiency of the conversion process, the Team worked in concert with the Year 2000 Project Planning Team. Participants in the Decimalization Project Team included representation from the following NYSE offices: Systems Planning, Trading Services, Market Operations, Market Surveillance, Market Data Vendor Relations, Listing Systems, Research Systems, Communications Systems and Media, Capacity Planning, Contingency Planning and Securities Industry Automation Corporation (SIAC).

Decimal conversion impacts every NYSE system, from trading systems to surveillance and financial systems. Imagine that all of the information travelling to and from the New York Stock Exchange is contained in one large pipeline. Currently that pipeline receives and transmits information, such as orders, quotations, last-sale data and administrative messages from the Exchange to and from, among others, broker-dealers, broadcasters, and financial information vendors. The conversion to decimals implicates: the capacity of that pipeline; the ability of switches within the pipeline to recognize where the data should go; and the interface between the NYSE pipeline and other systems outside of the NYSE.

Decimal trading will ultimately increase the number of possible trading increments within a dollar from 16 to 100. Largely due to this, we believe that decimal conversion is going to increase the volume of information in the pipeline. It is in the interests of all market participants to ensure that this information pipeline can handle the increased volume. Today, the NYSE's "pipeline" has sufficient capacity to handle 1000 messages per second, or, stated otherwise, 5 billion shares per day. By the end of this year, the pipeline will handle 2000 messages per second or 10 billion shares per day.

Typically an order sent to our Trading Floor electronically, through the NYSE's SuperDot system, is executed and confirmed to the originating broker in less than 20 seconds. (When NYSE Direct+ is introduced later this year, this turnaround time will be nine seconds for customers choosing this service.) The processing of an order involves a number of different steps and implicates several systems. The order is recognized, validated, routed to the trading post, appears on the display book, is exposed to the auction, may receive price improvement, and is executed and returned to the originating broker.

The NYSE cannot tolerate system slowdown due to increased message traffic. All of the NYSE's new products, including NYSE Direct+, Institutional Xpress, and the virtual 3D Trading Floor, will support decimal pricing as they are brought online later this year.

Additionally, the Broker Booth Support System (BBSS) must be able to transmit and receive decimal orders. (The BBSS provides electronic support to the NYSE floor broker; it receives orders from member firms, transmits orders to the trading post, researches stock trends and market data, and provides access to other broker support services.) All components of the trading post, including the specialist display book, the overhead display and the auxiliary display monitor, which provides market data and financial news to the Trading Floor, must support a decimal environment, i.e., must be able to recognize and display decimals. The NYSE's regulatory surveillance systems must be able to recognize decimal trading in order to properly alert surveillance personnel to trading irregularities.

The NYSE employs a highly dependable network of systems. During the last 12 years, the NYSE has experienced a total of two hours of system downtime during the trading day. The conversion to decimals is another challenge to ensure that the NYSE's systems operate as efficiently as possible. Currently all NYSE systems—including our switching and order processing systems, market data systems, surveillance systems, listed company and financial systems, common shared services systems, after-hours and comparison systems—are decimal-ready, and we will be ready to implement consistent with the timetable established by the SEC order.

The NYSE is committed to providing its clientele with the fastest, most accurate service possible. Most of the NYSE's decimal conversion costs were incurred simultaneously with our Year 2000 system conversion. This simultaneous systemic conversion upgrade cost approximately $30 million.

With the advent of decimal trading, the Exchange is well-positioned to handle the increased traffic across all of our systems. This, of course, is not enough. If investors are to obtain the benefits of decimalization, market participants, from the regional stock exchanges, to the broker-dealer community, to financial information providers, to clearing organizations, should have the capacity and the ability to transmit and accept data priced in decimals. With this in mind, an industry-wide effort to coordinate the decimalization process was put in place.

In July 1998, a Decimalization Steering Committee was formed, led by SIA and composed of representatives of the equity and options markets and member firms. The Committee engaged SRI Consulting to conduct a study designed to develop capacity planning assumptions for the industry's order execution, market data, and clearing systems. The SRI study, released in early May 1999, forecast increases in quote messages per second for stocks of approximately 50%, using a minimum price variation of a nickel, and well over 200% using a minimum price variation of a penny.

At an industry-wide Decimalization Conference in September 1999, a proposed implementation schedule was announced by the Decimalization Steering Committee. It included three phases:

- Phase One, to be conducted from July 3-August 4, 2000, with a limited number of securities trading in increments of a nickel. This phase was scheduled to last five weeks and would involve 30-40 securities selected by the markets and the Committee.
- Phase Two, to be conducted from August 7-September 29, 2000, when all securities would begin trading in nickel increments. This phase was scheduled to last eight weeks.

- Phase Three, to begin October 2, 2000, when all securities would trade in increments determined by market forces.

On January 28 of this year, the SEC issued a release on decimal pricing, directing the exchanges and NASD to submit a decimalization implementation plan. This action provided the industry with guidelines for conversion and cleared the way for the industry-wide cooperation necessary for the successful conversion to decimal pricing. The SEC specified that the plan should provide that decimal pricing of at least some equities and options on those equities should begin no later than July 3, 2000, and that decimal pricing of all equities and options should be completed within six months of that date. The SEC also stated that the plan may fix a minimum increment no greater than five cents during the phase-in period.

The NYSE moved early to convert our systems to decimal-readiness. A major test conducted in mid-December 1999 found that 99% of our trading systems were ready to operate in decimals. The remaining work was completed and the Exchange was 100% decimal-ready by April 30, 2000. On June 3, we conducted a full-blown decimal production test on the Trading Floor, which revealed no problems, and we have now completed all internal testing.

Testing between the Exchange and some member firms began in mid-January of this year. Industry-wide testing began in April. In order to maintain momentum, industry-wide testing in listed securities has continued and is now 85% complete.

On April 13, the SEC issued an order staying the deadlines for decimal implementation and requesting comment on a revised schedule for implementation of decimal pricing. The SEC solicited public comment on two alternative proposals:

(1) beginning trading in all exchange-listed securities in decimals, in nickel or penny increments, by September 4, 2000; or

(2) phasing in decimal pricing in certain exchange-listed securities on a pilot basis, to begin by September 4, 2000. Trading would be in penny increments. The pilot would expand to all listed stocks on March 31, 2001. Selected Nasdaq stocks would be added if feasible, and the SEC would expect all Nasdaq stocks to be trading in decimals by March 31.

In response to the SEC's latest request for comment on a timetable for implementing decimal pricing, the Exchange has stated that we are prepared to begin decimal pricing this year whenever the Commission deems it appropriate.

Because we are always careful to implement new systems after full testing, we suggest that the first phase of implementation be a pilot program in which decimal trading in pennies would begin in a limited number of NYSE-listed securities. This initial program would ultimately include about 50 NYSE-listed securities, with a range of trading volumes and other trading characteristics, during an initial phase-in period of one month or less. Such a measured approach would provide the opportunity to assess the impact of decimal trading on an inter-systemic basis. Of particular concern is the expected increase in message traffic associated with decimal pricing. We believe that expansion of the pilot program to all NYSE-listed securities could occur after approximately 60 days of trading, subject to evaluation of the pilot program results.

The Exchange is taking steps to enhance the preparedness of our member firms for decimal trading. At its meeting earlier this month, our Board approved a rule mandating that each member organization participate in industry testing. This rule is being filed with the SEC.

We have also developed, and are conducting this month, a decimalization preparedness survey. The survey, which was sent out on June 9, asks whether member organizations:

- are currently ready to handle decimal pricing;
- have tested their systems;
- have implemented the requisite capacity for penny increments;
- have assessed third party vendors' preparedness; and
- have addressed the pending changes with both retail and institutional customers.

We expect to complete evaluation of the responses by the end of July.

The New York Stock Exchange has committed significant resources and personnel at the highest levels to implement decimal pricing. We continue to believe that decimal pricing will enhance our global position. More importantly, decimalization will make stock prices more easily understood by individual investors, and will result in narrower quotation spreads in many stocks. This will provide significant savings to investors, particularly if the minimum price variation is reduced to a penny. We remain committed to working with the SEC, Congress, and the securities industry to achieve decimalization of U.S. securities markets as soon as practicable.

Thank you again for the opportunity to testify today. I would be pleased to answer any questions you may have.

Mr. OXLEY. The Chair would ask unanimous consent that all written statements will be made part of the record including the members' opening statements as well.

We now recognize the Chairman and CEO of Nasdaq, our good friend, Frank Zarb.

STATEMENT OF FRANK G. ZARB

Mr. ZARB. Thank you, Mr. Chairman, members of the committee. Thank you for this hearing and thank you for your leadership.

I am with the opening comments of Chairman Levitt and the following comments by Chairman Grasso. I think they have covered a good part of where we stand, and we certainly associate ourselves with both the spirit and the substance of what has been outlined here this afternoon. So I am going to make my opening statement very, very brief so we can get to your questions.

I did want to say, however, the significance of what we are doing is more meaningful than simply a rearrangement of market structure. It does follow the way the world is turning with respect to Mr. and Mrs. average middle class, participating in the wealth of the securities markets. The world will have within 5 years about 500 million Internet users. That is 500 million Internet users worldwide. A good many of them are going to be able to trade on-line as we see now, even in places like Japan, where 50 brokerages are offering on-line trading.

All of this means that average people, especially here in the United States, are going to want to have an opportunity to share in the wealth of the securities markets. This step toward decimalization moves the country in that direction in a meaningful way. In my opinion, this is the most significant and meaningful aspect of what we are about to do here. It clearly will have advantages in terms of spreads and economics to the investor, but more meaningfully than that, it has both a society and a cultural dimension that we should not overlook.

With respect to commitment, the NASD and Nasdaq are committed to decimals. We will follow the same general outline that has been articulated here earlier. We will be prepared in September to move in unison with my good friend Dick Grasso, and the New York Stock Exchange in order to open a test and we will do it in pennies. By the March date articulated by the chairman, we will be ready to start to move into Nasdaq securities and have it completed on schedule.

There are obviously questions that have been raised with respect to capacity. We have moved to ensure those capacity issues are resolved. I would just remind you that in the first 6 months of last year, we averaged about 900 million shares a day on the Nasdaq stock market. This year to date so far we have averaged 1.7 billion shares per day on the Nasdaq stock market. That is an example of the changes in capacity that we have had to provide for. Having said all of that and given those numbers, we are prepared to move on schedule, and we will hopefully be moving in a parallel way that is a quality-of-market dimension and not one which is a competitive aspect. This is not a structure that should be used as a com-

petitive tool where you run the risk of confusion and worst to investors.

There is a question that still needs to be addressed hopefully during the pilot stage, the impact on options. I have read a lot of studies and they don't always all agree with each other. I am sure you have seen some of the statement studies as to the volume aspect of options trading in decimals. We are going to have to look at those numbers very carefully during the pilot period and make sure we make the appropriate judgments going forward.

Mr. Chairman, members of the committee, we are, at Nasdaq, completely supportive of this goal and we will be there on time with a performance that has been outlined to the benefit of the marketplace.

[The prepared statement of Frank G. Zarb follows:]

PREPARED STATEMENT OF FRANK G. ZARB, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, NATIONAL ASSOCIATION OF SECURITIES DEALERS, INC.

I am Frank Zarb, Chairman and CEO of the National Association of Securities Dealers, Inc. I thank Chairman Oxley and this Committee for this opportunity to testify on the NASD's preparedness for decimalization and our schedule of implementation for conversion to decimal pricing.

By way of summary, the NASD remains a strong proponent of decimalization. We are prepared to implement decimal pricing, as the SEC finds to be in the public interest in maintaining fair and orderly markets and to protect investors. We are thus prepared to implement decimal pricing for listed securities on September 4 of this year on a pilot or full basis, in nickels or pennies. We are also prepared to implement decimal pricing in Nasdaq securities by March 31, 2001, on either a pilot or full basis, in nickels or pennies. Because conversion to decimals requires the efforts of all market participants to be successful, we will continue to work with the SEC, Securities Industry Association, and our membership to ensure that decimalization occurs in a timely and non-disruptive manner.

THE NASD

Let me briefly outline the role of the NASD in the regulation and operation of our securities markets. Established under authority granted by the 1938 Maloney Act Amendments to the Securities Exchange Act of 1934, the NASD is the largest self-regulatory organization (SRO) for the securities industry in the world. Virtually every broker-dealer in the U.S. that conducts a securities business with the public is required by law to be a member of the NASD. The NASD's membership comprises 5,500 securities firms that operate in excess of 80,000 branch offices and employ more than 638,000 registered securities professionals.

The NASD is the parent company of The Nasdaq Stock Market, Inc., the American Stock Exchange, and NASD Regulation, Inc. (NASDR). These wholly owned subsidiaries operate under the authority of the parent, which retains overall responsibility for ensuring that the organization's statutory and self-regulatory functions and obligations are fulfilled.

NASD Regulation is responsible for the registration, education, testing, and examination of member firms and their employees. In addition, it oversees and regulates our members' market-making activities and trading practices in securities, including those that are listed on The Nasdaq Stock Market and those that are not listed on any exchange.

The American Stock Exchange is the nation's second largest floor-based securities exchange, and is the only U.S. securities exchange that is both a primary market for listed equity securities as well as a market for equity options, index options, and equity derivatives.

The Nasdaq Stock Market is the largest electronic, screen-based securities market in the world. Founded in 1971 as the world's first all electronic stock exchange, it is the original on-line market, and the pioneer in e-commerce. Nasdaq today accounts for more than one-half of all equity shares traded in the nation and, since January of last year, is also the largest stock market in the world in terms of dollar value of shares traded. Nasdaq lists the securities of 4,854 domestic and foreign companies, more than all other U.S. stock markets combined. There are over 70 million investors in Nasdaq companies.

Nasdaq ended 1999 with its fifth consecutive year of record gains. That year produced 136 trading days where volume exceeded one billion shares traded on Nasdaq. Annual share volume reached 265.6 billion, up from 201.5 billion in 1998—a 32 percent increase for the year. The market value of the more than 4,800 companies listed on Nasdaq ended the year at $5.2 trillion, up over 100 percent from year-end 1998. It is not hard to see, with such explosive growth, how estimates of 1999 and 2000 market volume made several years ago were too low.

NASDAQ DECIMALIZATION

The NASD welcomes this opportunity to describe our preparedness and implementation schedule for decimals, and applauds Chairman Oxley and the Subcommittee on the leadership they have shown in ensuring that our markets decimalize as soon as possible. This constant attention contributes to the speed with which the markets and the industry are converting to decimal trading.

Like the Subcommittee and the SEC, the NASD remains committed to implementing decimal pricing as expeditiously as possible. However, we too are concerned that decimals be implemented in a way that does not negatively impact order routing, trading, and settlement systems of the markets and the securities industry, and that does not result in investor confusion.

The NASD's commitment to decimals was early and strong. As you are aware, the NASD was the first US market to support decimal pricing, beginning with our testimony before this Subcommittee on April 16, 1997. The NASD Board on August 7, 1997 voted to begin operating Nasdaq systems using decimals. In a May 7, 1998 letter to Congressmen Bliley, Oxley, and Markey we underscored our commitment to decimal pricing, but cautioned that the implementation date should be set for September 2000 to allow time to deal with the Year 2000 problem.

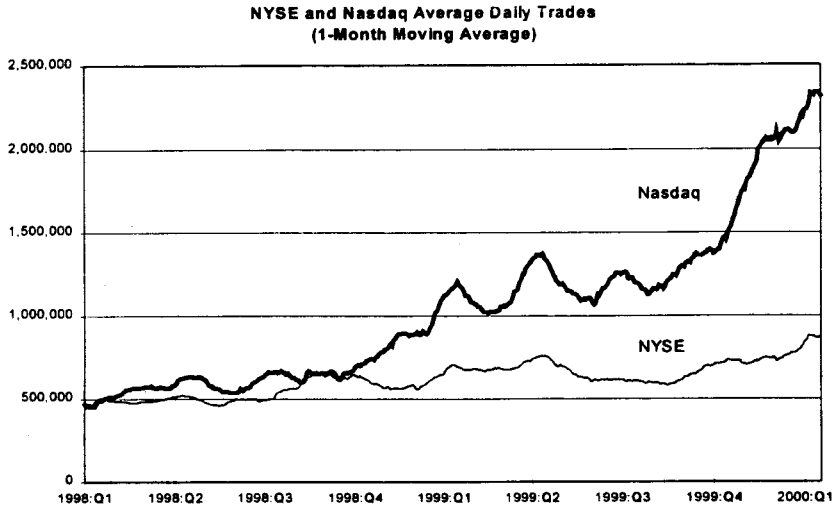
We would also point out that Nasdaq is the first and only US market whose systems support trading of decimals today. While we do not yet provide decimal quotation services, Nasdaq's trade reporting systems support decimals and allow participants to trade and report trades for comparison and clearing in decimals now.

Our position on converting our markets to decimals has not changed. We remain a strong proponent of the shift to decimals because they will make the markets even more accessible to investors and can potentially reduce transaction costs. We want to reemphasize to the Subcommittee that we will commit whatever capital and personal resources are necessary to implement decimalization on a timely basis.

As you are aware, in 1999 and early 2000 Nasdaq experienced a doubling of share volume, accompanied by an even greater increase in quote and trade message traffic. As a result, Nasdaq encountered problems with previous decimalization schedules because of systems capacity problems stemming from the unprecedented, explosive growth of Nasdaq trading since the last quarter of last year. We have addressed those problems and are confident that we will fully comply with the revised schedules.

Nasdaq will not be an impediment to decimalization of the exchange-listed market, on either a full or pilot basis in September 2000. From a technical standpoint, it appears possible for exchange-listed securities to be traded in decimals while Nasdaq trades in fractions. This transition will not pose the system problems that full Nasdaq implementation of decimals would entail, because the exchange listed securities are a small fraction of Nasdaq volume and exchange volume is growing much slower than Nasdaq. For example, NASD exchange listed trade volumes in the Consolidated Quotation System are only 6% of Nasdaq's 2.2 million trades per day. Moreover, listed market average daily trade volume, although roughly equal to Nasdaq at the end of 1998, is now substantially lower than Nasdaq volume, as shown in the following chart.

US Equities Average Daily Trade Volume



We are prepared to implement either of the alternatives suggested in the SEC's recent release seeking comment on revised decimal implementation schedules. We are thus prepared to implement either full dual pricing or a pilot of dual pricing, in listed stocks in nickels or pennies, by September 4, 2000, as the SEC finds to be in the public interest in maintaining fair and orderly markets and to protect investors. We will also be ready to initiate decimal pricing in Nasdaq securities on March 31, 2001, in nickels or pennies, on a pilot or full market basis. In this connection, we note that Nasdaq has never had and does not support a government mandated minimum trade price variation for equities.

OPTIONS DECIMALIZATION

The largest challenge of decimalization relates to options trading. Because each option trades both puts and calls in multiple series, a single quotation change in its underlying equity can trigger a large amount of quote activity for that option. The demands currently placed on the systems that disseminate options quote and trade data are already substantial due to highly volatile equity markets and a rapidly changing competitive landscape. In addition, a recent industry study projected that the transition to decimal pricing will increase the demands placed on these systems to levels well beyond their anticipated capacities. The exchanges continue to work with each other and the SEC on a solution to this complicated and challenging problem.

CONCLUSION

We applaud the work that the SEC, the Securities Industry Association's Decimalization Steering Committee, and the Decimal Exchange Committee are doing to ensure that the industry will be prepared for decimals as soon as possible. We recommend that you consult with them on their plans and schedules, which are a major component of the decimalization process, to gain a more complete view of how all market participants will convert to decimal pricing. Because conversion to decimals requires the efforts of all market participants to be successful, we will continue to work with the SEC, the industry, and our membership to ensure that decimalization occurs in a timely and non-disruptive manner.

Thank you for the opportunity to testify on this important issue. We look forward to working with the Subcommittee, the SEC, and all market participants to implement decimals as soon and as safely as possible. I will be happy to answer any questions that you may have.

Mr. OXLEY. Thank you, Mr. Zarb. Thanks to all of you. Let me begin the round of questioning with a general question. It seems

the first issue that comes up when we are talking about this conversion, which will begin in September, is what factors will be considered in the number of stocks in the pilot program initially, and what will be the minimum increment? In other words, the order, as I understand it, Chairman Levitt, does not specify these issues. Could you give us some kind of an idea, and I would like to ask the other two CEOs exactly what they have in mind. Under your orders, I understand you can have as few as one stock or as many as several thousands. Where are we in terms of that number?

Mr. LEVITT. We don't require nickel increments, and we allow the markets to determine, subject to Commission approval, the scope and the pace of the phase-in. We do set a minimum increment of a penny during the phase-in period, which lasts until April 9, 2001. After that period of time, market forces will prevail and any increment can be implemented at that point, subject to Commission approval.

Mr. OXLEY. Now, when you testified in 1997, that seemed to be the implication in that regard. Is it also true you will have a market study that will track that in terms of trying to come up with a minimum increment or not coming up with a minimum increment?

Mr. LEVITT. In 1997, the question was pennies, nickels, or dimes? Today, the question really is whether the system is capable of handling hundredths, and we are going to watch very closely what happens during this pilot period, but, certainly, our inclination in terms of formulating this program is to allow market forces to determine the scope of the program, the number of securities that are phased in, and eventually after April 2001, the level of what the increment will be. Obviously, if during this pilot period we see systemic risks, we are going to work very closely with the exchanges and with the committee to address that, but we will work very, very closely and watch it closely.

Mr. OXLEY. Mr. Chairman, would you envision or would you indicate to the committee that perhaps as much as a minimum of 50 stocks would be a rather valid and effective number of stocks in the initial pilot program of listed stocks?

Mr. LEVITT. I think that 50 would certainly be a minimum expectation, and Chairman Grasso has indicated already that that is his intention, to select 50 stocks to be part of the pilot.

Mr. OXLEY. Is that the magic number, Mr. Grasso, or is that just an example?

Mr. GRASSO. It is, Mr. Chairman. What we seek to do in the pilot is create a representative sample of the most active, the least active, the mid caps, and more importantly, from a capacity standpoint, to recognize that there can be securities that don't necessarily appear in the most actively traded tables each day that have an enormous velocity of consumer activity built into them. So what we are going to do, Mr. Chairman, is build a sample of 50 securities that really cover the landscape NYSE.

It would be our intent to both quote and trade those securities with penny increments, and this is going to be very important that I underscore that, Mr. Chairman, because we are going to coordinate a pilot with the NASD's third market, the Nasdaq intermarket. We would have to be on the same pricing platform, and we

would have to both quote and trade in the same minimum variations. I think the simplest approach is to do that in pennies from day one. There are some, Mr. Chairman, who would say quote in nickels and trade in pennies. I think that would be a terrible mistake for consumers because four price points would be missed for the public to see. I believe, as Chairman Levitt has said and Chairman Zarb agrees, that there is enormous benefit to consumers in conversion to decimal pricing.

I think that ultimately the marketplace will decide the minimum price variation, but we should engineer to permit the penny to be the platform of both quotation and, if you will, minimum price variation. It would be our goal, Mr. Chairman, to open up on 5 September with just a few number of stocks. By the mid part of September, we would have our 50 pilot in place. We would run that pilot for 2 months in partnership with the NASD, and then in close coordination with the Commission, evaluate the results, and following, I would have to believe, Mr. Chairman, the first of the year we would be in a position to expand it to all listed securities.

Mr. OXLEY. Mr. Zarb, I would like to have you comment on the two issues that were addressed by the gentleman on your left, and also ask you specifically if Nasdaq will quote in pennies. Will you also execute in pennies?

Mr. ZARB. We will on the intermarket during the September period for listed securities and, yes, the answer to your question is yes. The pilot should really be a learning process and a measuring process, so we should make sure that we work closely with the New York Stock Exchange and with the Commission to make sure the basket of securities are the right ones selected, and that the measurements, every step of the way, are the right measurements so we can learn.

As we learn, that will speed up the process of the entire rollout. So we certainly support the notion of 50 in the September period.

Mr. OXLEY. This will be my last question. It occurred to me that, and I would be interested in all of our answers, the Island ECN has already announced that they will be quoting and trading in decimals on July 3. What effect, if any, would you see that having in terms of the pilot program and in terms of long-term conversion to decimals? Not only from a competitive standpoint for you two gentleman, but also for Mr. Levitt, how is that going to affect the overall markets? I know it is a little bit of a crystal ball, but I am curious as to what reaction you might have with that.

Mr. Levitt?

Mr. LEVITT. I think the ECN's use of lower than pennies represents a very small portion of the market, and I am not concerned with that. As I suggested, I think the pilot period will give us an opportunity to phase in the use of decimals without running any kind of systemic risk and making sure we are protecting investors. I think once we pass the phase-in period in April of next year, obviously, the ECNs and any other competitors at that point will be out there; and if the markets say that we should go to hundredths or thousandths or whatever, that is where the markets will take us; but I am not motivated to do otherwise, to run the risk of a systemic disruption by virtue of the fact that one relatively small part of our overall market will be trading at less than pennies.

Mr. OXLEY. Mr. Grasso?

Mr. GRASSO. Historically, Mr. Chairman, the ECN's business has primarily been confined to Nasdaq securities, so I am not certain that there is going to be profound impact. I commend Island for initiating their pilot on the 3rd of July. In reality, I think it will not be until we see unlisted securities in a decimal format that we can make any conclusions as to the effectiveness of splitting the penny. You will recall, Mr. Chairman, when we were discussing the legislation back 3 years ago, that we shared with this committee, the fact that our engineering has the capacity to handle fractions of 1/4,096, if anything can create a massive strain upon the investor eyesight community of this world, it would be to split the penny into 4,096 increments.

To Chairman Levitt's observation, I believe competition will drive the pricing table. We are prepared to split the penny if that is what the consumer wants. We are prepared to split the fraction. We have got the ability to do that today. I think in the final analysis, though, the market is going to be the judge, and certainly, at least historically, ECNs have not had significant market shares in listed securities, although I would encourage the Island and those who will pilot in decimals beginning in July to consider not only the traditional bridge through the system of the NASD, but through the opportunity to become electronic access members at the New York Stock Exchange for a very modest fee.

Mr. ZARB. I thought advertising wasn't allowed, Mr. Chairman.

Mr. OXLEY. Mr. Zarb, you can do some advertising of your own if you would like.

Mr. ZARB. Whatever Island wants to do, Island moves its trading through the Nasdaq system as do the other ECNs. Whatever they do, we can handle. We will just convert it as it moves to the Nasdaq system until we are on a full decimalized platform. I think it is good to have pieces of the industry leading in various areas. I am a little concerned with too many moving in different directions at different denominations. In order to think in terms of a competitive leg up, I don't think that is correct at all, and I would hope that the markets will move, generally speaking, with us in September, and then by the early part of next year.

Mr. OXLEY. Thank you. My time has long expired. Let me now recognize my good friend from New York, Mr. Towns.

Mr. TOWNS. Thank you very much, Mr. Chairman.

Let me begin with you, Mr. Levitt, Chairman Levitt. Given the Nasdaq proposed timetable, which I understand to be 2 weeks of self-testing from February 26, 2001, to March 12, 2001, are you satisfied that the industry will have sufficient time to test the system in conjunction with the Nasdaq's new computer system and all the other things, and be ready for full conversion by March 31, 2001?

Mr. LEVITT. I am. I believe that, the way this phase-in has been devised, the markets themselves will determine the level of acceptance of trading in decimals and the level of phase-in. I think by the time we reach 2001, I am satisfied, on the basis of our analysis of Nasdaq's capabilities, on the basis of our weekly discussions with the technical people at Nasdaq, on the basis of the assurances that Nasdaq executives have given to us and to the markets, and on the

basis of the kinds of competitive pressures which will develop during this period to prove the excellence of the system, that Nasdaq will be well equipped to meet the timetable they have committed to.

Mr. TOWNS. Why would 3 months be allowed for industry testing on the conversion for listed securities and less than 2 weeks for testing for Nasdaq securities?

Mr. LEVITT. I am not sure that I understand that question. Nasdaq will have the ability to test their systems all during the rest of this year. They just are unable to have their systems online in sufficient time period to be able to begin the phase-in of Nasdaq securities in September.

Mr. TOWNS. The industry, I am sorry. I misled you, I think.

Mr. LEVITT. The firms actually will have been trading in decimals for at least 6 months before the Nasdaq phase-in.

Mr. TOWNS. Thank you.

Mr. Zarb, by what date will the Nasdaq be prepared to have the industry begin testing on your new computer system?

Mr. ZARB. We will be testing almost right away. We are running tests now. We will be running, in answer to your former question, we will be testing with the industry months and months before the actual startup next year so that there will be live testing with the industry going on throughout this period, and we will be ready to follow the listed security pilot and to be up and running on our system in September, by September 5, along with the New York Stock Exchange, and then by the early part of next year in March on Nasdaq securities.

Mr. TOWNS. Thank you. Let me say this, Mr. Chairman. We don't get a hearing like this too often where we get an agreement across the board. I want you to know that this is a historic hearing that you put together here. I want you to know that I am delighted to be part of it. Thank you. I yield back.

Mr. OXLEY. Thank you for your help in this matter as well. I know the gentleman from New York, the other gentleman from New York, and the other gentleman from New York have unique constituencies with regard to the securities markets, the financial markets in New York, and we have always respected that and appreciated their input.

The gentleman from Illinois, Mr. Shimkus.

Mr. SHIMKUS. Thank you, Mr. Chairman. It is great to be here and also applaud the work that you have all done, Mr. Levitt and the Exchanges and Chairman Oxley. I know this is something that has been near and dear to his heart and the ranking member for a long time, and I see the benefits of simplification from my constituents to have a better understanding of perhaps what many folks feel is a very complicated issue. I am very excited about it, and I think it is a win-win for everybody.

Projections of the increase in transactions, have you run any analysis of how the simplification might sell to the consumers and the possibility of increased traffic and use? And could you give us a positive, or based upon your analysis which all businesses do, what do you project the benefits to be of moving to a decimal system?

Mr. GRASSO. If I might, Congressman, it is certainly from an investor's standpoint make pricing far easier understood. From a volume standpoint, I have seen estimates that range from a 50 percent increment to over a 300 percent increment in the core equity business, and that, I think, is in large part based on a simulation of experience from the conversion from 8ths to 16ths, which occurred some 3 years ago. I think it is important to recognize that the reason we are going to coordinate a phase-in is that a lot of the analytical work done is purely that, theoretical analytical work.

I think as both Chairman Levitt and Chairman Zarb pointed out, it is not just a matter for the equity markets to be concerned about. The equity markets are woven into the derivative markets and the vendors of financial information who must push the data into the consumer world. It is fair to say that the traffic on systems is going to increase geometrically to the level of usage today, just simple mathematics.

In the core equity product, you are moving from 16 price changes to 100 price changes per dollar. When you multiply that or, if you will, magnify it in almost a fast breeder effect into the options and futures markets, it causes all of us to want to actually have hands-on experience as we will from September 5 through the balance of this year in evaluating, not just the impact from an equity market standpoint, but from an options market, a futures market, a vendor community, and all of those interrelated systems in the comparison clearance and settlement process, which is why we believe with the leadership of this committee, and certainly the leadership of the Commission, that we are approaching it with the proper amount of speed and the proper amount of care to make certain consumers benefit, and there is no unforeseen harm out there in this conversion activity.

Mr. SHIMKUS. If I may follow up, Mr. Grasso, with the pilot program and this transition, how have you gone about deciding which stocks to initially include?

Mr. GRASSO. What we will attempt to do, we are in the process of segmenting our list right now. If you were to look at our business today, of the 3,100 issuers whom we are privileged to trade, the first 500 produce almost 80 percent of our daily activity, daily activity being an average daily volume of just slightly in excess of a billion shares. My colleague to my right likes to probably point out that his good friend, Dick Grasso, runs the second most active exchange in the world.

Mr. ZARB. I don't usually say "good friend," though.

Mr. GRASSO. Close friend, except during market hours. If you were to look at our daily activity, 80 percent is concentrated in the first 500 issues. We would select a sampling from the most active, from the least active from the high priced, from the low priced and then a bit more esoteric to the credibility of the experiment, we will look at those securities that aren't necessarily the most actively traded from a volume standpoint but are the most, if you will, populated by large numbers of small orders.

So we have a truly representative sampling of the experience we can expect when we flip the switch and thus can have an absolute total confidence that we are not going to flip the switch and disappoint investors.

Mr. ZARB. Let me just add to the answer to your first question briefly. There are two forces working here, one is truly the democratization of the marketplace. We have enormous additions of retail transactions on our system this year over last year, a very substantial measurable number of individual people that are entering the securities markets. It is not only true here; it is true worldwide. That is going to happen with or without decimals. Decimals then come along, make it easier for that to happen, make it a more friendly market. That will have an increasing propelling effect on the expansion of volumes.

Mr. LEVITT. I might also add to that, amidst the euphoria about this action which all of us share, this testing period is absolutely essential. We have talked thus far about the possibility of systemic risk, and I believe that the plans that have been formulated obviate the likelihood of that. But we don't know yet what kinds of rule changes will have to be implemented to account for a very different world that we are about to enter. We don't really know what impact decimalization is going to have upon liquidity. These are very, very important considerations, and I think the coming months will be critical in terms of making judgments and decisions and reactions to all three of these elements.

Mr. SHIMKUS. Thank you very much, Mr. Chairman. I yield back.

Mr. OXLEY. The gentleman yields back. Before I recognize the other gentleman from New York, the chairman hit on a very important point. There is so much we can learn beginning September 5 through the rest of this year and into the next quarter next year, that frankly I hadn't considered. Until you mentioned that in terms of volume, in terms of the capacity, all of the different issues that are there, which obviously makes your decision very critical in terms of setting up this pilot program to the point where it can really reflect what we can expect from the full blown conversion to decimals in the next year. So that is something worthy of thinking about. Maybe even at some point, worthy of another hearing so we can sort that out and have the major players here, as you are today, telling us where we are, and perhaps what we might need to do, or what the SEC might need to do to facilitate that change.

This committee, as you know, is dominated by New Yorkers, and I now recognize another gentleman from New York, Mr. Engel.

Mr. ENGEL. Thank you, Mr. Chairman. You should consider yourself blessed that there are so many New Yorkers here. You know Ohio is just a little bit away.

Mr. OXLEY. We are growing, though.

Mr. ENGEL. Let me welcome all three gentlemen. As Mr. Towns said, it is very rare that everyone agrees. It is almost difficult to ask questions. I remember back in 1997 when we were talking about decimalization, and one of the questions I asked during one of the hearings was well, why should government impose decimalization, why don't we just let the market kind of naturally change, and I decided I sounded too much like a Republican, and I decided to pull the question.

Let me ask Mr. Zarb first. I read in your testimony, you talk about options trading in your submitted testimony, and you say because each option trades both puts and calls in multiple series, a single quotation change in its underlying equity can trigger a large

amount of quote activity for that option. And then you add, a recent industry study projected that the transition to decimal pricing will increase the demands placed on these systems to levels well beyond their anticipated capacities. And you say the exchanges continue to work with each other and the SEC on a solution to this complicated and challenging problem. I wonder if you can elaborate.

Mr. ZARB. Obviously, the options market is different from the underlying securities market in that you do have—especially in a volatile period, you have both puts and calls being written against the same security at different levels of pricing. So both the quote traffic and the execution traffic is a geometric dimension of what it is for the underlying securities and what it is today. We are going to get our first good look at that in the September pilot, and as we begin the process of testing with our own members.

To the extent that that volume is what has been predicted, frankly I have got to be convinced that the projections that have been raised are correct. I have seen a good many of them. They have come from all over the lot. Some of them are scare stories. I know that the SEC is working with the major options markets and are going to be watching this very, very carefully.

Mr. ENGEL. When you say the Exchanges are working with each other and the SEC on a solution, how——

Mr. ZARB. To be able to determine what the volume increases are going to be, and what capacity is going to be required to accommodate it. This is not a question of "if," it is a question of "when," and making sure that there are no hiccups along the way. We just don't know enough of how the options market is going to react here. The projections are that they are going to have a substantial increase in volume. They will, and it has to be managed.

Mr. LEVITT. They are increasing their capacity, but they may have to reduce their quotation volume to handle the increases caused by decimals.

Mr. ENGEL. Mr. Zarb, I am told—please correct me if I am wrong—that the NASD's new computers won't be on-line until end of February in 2001, and that you won't test your own system until March 12. Isn't that a problem?

Mr. ZARB. If that were correct, it would really be a problem because we already committed to go live, the capacity is being added all the time and the necessary programming is being built, and we are fairly confident of that. We will be testing with the industry with our members and our market makers months before we go live in March.

Mr. ENGEL. With regard to the third market, are you also going to quote your prices in pennies and execute orders in pennies?

Mr. ZARB. We dutifully follow our senior exchange on the listed side of the House, and whatever they do, we do, yes, sir.

Mr. ENGEL. Mr. Grasso, that leads me right to you.

Mr. GRASSO. Does that put me back in the category of good friend?

Mr. ZARB. My good friend, Mr. Grasso.

Mr. ENGEL. He is my good friend too. That is what counts.

I guess that is all the questions I have. I just wanted to ask Mr. Grasso, first of all, I wanted to compliment him because the dec-

imal trading, those of us in New York have really been focusing on this issue a great deal, and at the beginning there seemed to be some resistance in some corners, and I think the New York Stock Exchange has really took the resistance and really grabbed the bull by the horns and decided not only to go with the flow, but really to implement it and really be a leader in it. I think it is something that we need to take notice and mention, because I think it really was due to your leadership. As you mentioned, this committee had been prodding for a long time, and it was really good to work together to do that. I want to thank all of you.

Mr. OXLEY. Thank you. And I understand the gentlelady from New Mexico has no questions; is that correct?

Thank you for being here. There is a very historic hearing and one that I think all of us will look back on with a great deal of pride and satisfaction of where we have come and where we are going, and we couldn't have done it literally without all three of your gentlemen's leadership and friendship. We thank you so much, and the subcommittee stands adjourned.

[Whereupon, at 3:30 p.m., the subcommittee was adjourned.]

[Additional material submitted for the record follows:]

11 Wall Street
New York, NY 10005

Richard A. Grasso
Chairman and
Chief Executive Officer

NYSE
New York
Stock Exchange, Inc.

July 17, 2000

The Honorable Thomas Bliley
Chairman
Committee on Commerce
Room 2125 Rayburn House Office Building
Washington, D.C. 20515-6115

Dear Chairman Bliley:

It was a pleasure to appear recently before the Subcommittee on Finance and Hazardous Materials to discuss the Exchange's progress in implementing decimal pricing. I appreciate the opportunity to respond to your follow-up questions in the attached document.

I would be pleased to discuss these issues with you if I can be of further assistance.

Sincerely,

Dick

Attachment

Before the
Subcommittee on Finance and Hazardous Materials
House Committee on Commerce
Decimals 2000 – Will the Exchanges Convert?

Questions for the Record
Responses of Richard A. Grasso

1. **Given that investors pay the cost of mandated minimum increments, should they be compensated if decimals is delayed further?**

   Investors should reap significant benefits from the implementation of decimals. As the minimum pricing increments tighten, the spreads between the "bid" and "asked" prices for securities should also tighten. Decimal pricing is more likely to produce savings in dealer markets, since in agency-auction (exchange) markets, customer orders meet customer orders more than 80% of the time.

   Despite the efforts of the General Accounting Office and others, at this point in time it is virtually impossible to say with certainty what the savings will be. For one thing, no one can say what effect decimalization will have on trading volume; therefore we can only estimate the savings that will be achieved. Since only trading experience will provide the actual savings, it is impossible to say what the lost savings to investors would have been. Ascertaining the degree of culpability for the delay amongst industry participants would be very difficult to do fairly and accurately. Such an effort would certainly act as a catalyst for litigation to affix responsibility. In light of the difficulties inherent in calculating investor savings, and allocating responsibility for delays, I would not support compensation for investors, despite the equitable appeal of such an approach.

2. **Has the industry initiated testing to ensure readiness for decimal conversion? If not, what are each of you doing to ensure conversion takes place with little trade disruption?**

   The Exchange began testing with some of our member firms in mid-January this year. Industry-wide testing in listed securities began in April and is now 85% complete. The Exchange is also taking steps to ensure that our member firms are fully prepared for decimal trading. On June 12, we filed with the SEC a rule (NYSE-00-26) mandating that member organizations participate in industry testing and maintain documentation of tests. A copy of the SEC order approving this rule filing is attached (SEC Release No. 34-42960).

   The Exchange sent out a decimalization preparedness survey to all member organizations on June 9. The survey will permit us to determine whether member organization are currently ready to handle decimal pricing, have tested their systems, have implemented the requisite capacity for penny increments, have assessed third party vendors' preparedness, and have addressed the pending changes with both retail and institutional customers. We expect to complete evaluation of responses by the end of July.

3. **If the NASDAQ is ready to trade all listed stocks in decimals why not move the entire listed market in September?**

   The decimal conversion process has tremendous capacity implications for industry systems. Not only must individual institutions migrate, but also they must be able to interface with institutions. Because of the challenges of decimal conversion, the Exchange believes that new systems should be fully implemented in a prudent fashion.

   We plan to begin decimal pricing with a pilot program, and on July 5, we announced the seven stocks that will initiate our pilot:
   - Anadarko Petroleum Corp. (trading symbol APC);
   - Forest City Enterprises Inc. Class A (FCE A);

- Forest City Enterprises Inc. Class B (FCE B);
- FedEx Corp. (FDX);
- Gateway Inc. (GTW);
- Hughes Supply Inc. (HUG);
- MSC.Software Corp. (MNS).

The NYSE chose these stocks based on several criteria that the Exchange developed with a securities industry committee, of which the NYSE is a member. These criteria included choosing stocks that have varying levels of daily trading activity, at least one stock that is traded on multiple exchanges, at least one that is part of an index, at least one that is an underlying issue for multiple listed options; and at least one that has a possible corporate action pending.

We expect that the pilot program will eventually include approximately 50 NYSE-listed securities. We anticipate that expansion of the pilot program to all NYSE-listed securities will occur after approximately 60 days of trading, subject to evaluation of the pilot program results.

The Exchange's timing has followed the direction of the SEC, which has supported such a pilot approach. In its order directing the implementation of decimal pricing (SEC Release No. 34-42914), the SEC has stated that "careful phasing in of decimal pricing is necessary to ensure the continued orderly operation of the markets and clearing organizations." The Exchange is prepared to comply with the SEC's order and submit plans for phasing in decimal pricing on or before September 5, 2000. The Exchange was prepared to begin decimal conversion in July 2000. Even if this schedule had been followed, a two-month pilot would have been prudent and consistent with the introduction of all of our significant systems changes over the years, in order to address unintended consequences, especially at the member firm and vendor interface.

4. **See response to question 1.**

5. **What steps are each of you taking to ensure the industry implements decimal trading in accordance with the schedule?**

   The Exchange is in the process of preparing an implementation plan for submission to the SEC. As stated above, testing with our member firms is nearly complete.

6. **What trading behavioral changes are you anticipating and what are you doing to address any potential problems associated with the behavioral changes?**

   Based on our experience in moving from trading in eighths to sixteenths, as well as research prepared by SRI, we believe that decimal conversion will increase message traffic in orders, quotations, and last-sale data. We have ensured that the Exchange's systems will be able to handle increased message traffic volume resulting from decimal pricing. We have in place the capacity to handle the forecasted increases resulting from decimals and expect to double this capacity by year-end.

   The Exchange's Market Performance Committee established a special multi-constituent subcommittee to examine whether any market rules needed to be changed to accommodate behavioral changes associated with decimal conversion. Based on input from that subcommittee, both the Market Performance Committee and the Quality of Markets Committee reached the consensus that it would be more appropriate to monitor the effects on trading after the conversion takes place, in order to have a better foundation upon which to recommend any regulatory changes, if any appear to be needed.

7. What steps are you taking to ensure your members are ready to trade in decimals?

As stated in response to question 2, above, the Exchange has sent out a decimalization preparedness survey to all member organizations, and we expect to complete evaluation of responses by the end of July.

8. Are you supportive of fully converting the listed market before the April deadline?

The SEC order notes that securities markets may set a more aggressive implementation schedule if they determine that decimal pricing can be safely implemented before the April 9, 2001 deadline. Whether earlier implementation is feasible depends on the experience in migrating to decimals during the pilot. Any unnecessary delay is clearly unacceptable. The NYSE is fully decimal compliant, but there is no way to be certain about the operational challenges that the industry may need to surmount. Before adopting a more aggressive implementation plan, we must be certain that we have compliance on an industry-wide basis. Decimal conversion must be completed with all due speed, but in a manner that will not cause operational problems that could disrupt trading.

SECURITIES AND EXCHANGE COMMISSION
(Release No. 34-42960; File No. SR-NYSE-00-26)

June 20, 2000

Self-Regulatory Organizations; Notice of Filing and Immediate Effectiveness of Proposed Rule Change by the New York Stock Exchange, Inc., Creating New Rule 438 Mandating Decimal Pricing Testing and Rescinding Rule 437 Relating to Year 2000 Testing

Pursuant to Section 19(b)(1) of the Securities Exchange Act of 1934 ("Act"),[1] and Rule 19b-4 thereunder,[2] notice is hereby given that on June 14, 2000, the New York Stock Exchange, Inc. ("NYSE" or "Exchange") filed with the Securities and Exchange Commission ("Commission") the proposed rule change as described in Items I, II, and III below, which Items have been prepared by the NYSE. The NYSE has designated this proposal as one concerned solely with the administration of the NYSE under Section 19(b)(3)(A)(iii) of the Act,[3] which renders the proposal effective upon filing with the Commission. The Commission is publishing this notice to solicit comments on the proposed rule change from interested persons.

I. Self-Regulatory Organization's Statement of the Terms of Substance of the Proposed Rule Change

The proposal consists of the adoption of new NYSE Rule 438 ("Participation In Decimal Conversion Testing") and the rescission of NYSE Rule 437 ("Participation in Year 2000 Testing"). The text of the proposed rule change is available upon request from the NYSE or the Commission.

II. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

In its filing with the Commission, the Exchange included statements concerning the purpose of and basis for the proposed rule change and discussed any comments it received regarding the proposed rule change. The text of these statements may be examined at the places specified in Item IV below. The Exchange has prepared summaries, set forth in Sections A, B, and C below, of the most significant aspects of such statements.

A. Self-Regulatory Organization's Statement of the Purpose of, and Statutory Basis for, the Proposed Rule Change

1. Purpose

On January 28, 2000, the Commission issued an order ("January 28 Order")[4] requiring the NYSE, the other national securities exchanges, and the National Association of Securities Dealers, Inc. (the "Participants") to take certain steps necessary to facilitate a safe and orderly transition to decimal pricing in the United States securities markets. The initial phase-in date of this process was originally scheduled for July 3, 2000.

In order to prepare for the implementation of decimal pricing industry-wide, the Commission's January 28 Order required, among other things, that the Participants jointly submit a "Decimals Implementation Plan" by April 14, 2000. The Commission additionally required each Participant to submit by April 28, 2000, such proposed rule changes as would be necessary to administer the Decimals Implementation Plan.

On April 13, 2000, the Commission suspended by order[5] the deadlines prescribed by the January 28 Order and solicited public comment on the feasibility of several alternatives for implementing decimal trading (including the possibility of trading exchange-listed securities in penny or nickel increments by September 4, 2000). On June 8, 2000, the Commission subsequently issued an order[6] directing the securities markets to begin phasing in decimal pricing no later than September 5, 2000.

In order to assist and coordinate the efforts of the NYSE's membership to ensure a smooth transition to decimalization, new NYSE Rule 438 authorizes the Exchange to require members and member organizations, in a manner and frequency to be prescribed by the Exchange, to participate in decimal pricing testing. The Exchange is prepared to adjust its testing

and implementation dates in accordance with Commission directives.

NYSE Rule 438.10 provides the Exchange authority to exempt either individual or categories of members and member organizations from some or all of the testing requirements. Furthermore, NYSE Rule 438.20 requires members and member organizations to maintain adequate documentation of such tests as may be required, including results of those tests, which must be made available to the Exchange for examination. NYSE Rule 438.30 provides that the rule shall expire automatically upon the full implementation of decimal pricing.

In addition to creating the foregoing new rule, the Exchange proposes to delete NYSE Rule 437, authorizing the Exchange to require the membership's participation in testing related to potential computer problems associated with the year 2000 date change. Further testing in this regard is no longer necessary.

2. Statutory Basis

The NYSE believes proposed NYSE Rule 438, which is designed to authorize the Exchange to require its members and member organizations, in a manner and frequency prescribed by the Exchange, to participate in testing of computer systems in preparation for the implementation of decimal pricing, is consistent with Section 6(b) of the Act[7] in general and furthers the objectives of Section 6(b)(5)[8] in particular in that it is designed to promote just and equitable principles of trade, to remove impediments to and to perfect the mechanism of a free and open market and a national market system and, in general, to protect investors and the public interest.

B. Self-Regulatory Organization's Statement on Burden on Competition

The Exchange does not believe that the proposed rule change will impose any burden on competition that is not necessary or appropriate in furtherance of the purposes of the Act.

C. Self-Regulatory Organization's Statement on Comments on the Proposed Rule Change Received from Members, Participants, or Others

The Exchange has neither solicited nor received written comments on the proposed rule change.

III. Date of Effectiveness of the Proposed Rule Change and Timing for Commission Action

Because the foregoing rule change is concerned solely with the administration of the Exchange, it has become effective pursuant to Section 19(b)(3)(A)(iii) of the Act[9] and subparagraph (f)(3) of Rule 19b-4 thereunder.[10] At any time within 60 days of the filing of such proposed rule change, the Commission may summarily abrogate such rule change if it appears to the Commission that such action is necessary or appropriate in the public interest, for the protection of investors, or otherwise in furtherance of the purposes of the Act.

IV. Solicitation of Comments

Interested persons are invited to submit written data, views and arguments concerning the foregoing, including whether the proposed rule change is consistent with the Act. Persons making written submissions should file six copies thereof with the Secretary, Securities and Exchange Commission, 450 Fifth Street, N.W., Washington, D.C. 20549-0609. Copies of the submission, all subsequent amendments, all written statements with respect to the proposed rule change that are filed with the Commission, and all written communications relating to the proposed rule change between the Commission and any person, other than those that may be withheld from the public in accordance with the provisions of 5 U.S.C. 552, will be available for inspection and copying in the Commission's Public Reference Room, 450 Fifth Street, N.W., Washington, D.C. Copies of such filing will also be available for inspection and copying at the principal office of the Exchange. All submissions should refer to File No. SR-NYSE-00-26 and should be submitted by [insert date 21 days from date of publication].

For the Commission, by the Division of Market Regulation, pursuant to delegated authority.[11]

Jonathan G. Katz
Secretary

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1 15 U.S.C. 78s(b)(1).

2 17 CFR 240.19b-4.

3 15 U.S.C. 78s(b)(3)(A)(iii).

4 Securities Exchange Act Release No. 42360 (Jan. 28, 2000), 65 FR 5003 (Feb. 2, 2000).

5 Securities Exchange Act Release No. 42685 (Apr. 13, 2000), 65 FR 21046 (Apr. 19, 2000).

6 Securities Exchange Act Release No. 42914 (June 8, 2000), 65 FR 38010 (June 19, 2000).

7 15 U.S.C. 78f(b).

8 15 U.S.C. 78f(b)(5).

9 15 U.S.C. 78s(b)(3)(A)(iii).

10 17 CFR 240.19b-4(f)(3).

11 17 CFR 200.30-3(a)(12).

Frank G. Zarb
Chairman and Chief Executive Officer

July 14, 2000

The Honorable. Tom Bliley
Chairman
Committee on Commerce
U.S. House of Representatives
Room 2125, Rayburn House Office Building
Washington, DC 20515-6115

Dear Chairman Bliley:

Attached are our responses to your June 20, 2000 follow-up questions from the June 13 Finance and Hazardous Materials Subcommittee hearing on "Decimals 2000 - Will the Exchanges Convert?"

Please feel free to contact me if you have further questions or concerns.

Sincerely,

Frank G. Zarb

Enclosure

NASD Responses to June 20, 2000 Follow Up Questions
From Chairman Bliley for Frank Zarb
Hearing on Decimals 2000

1. Given that investors pay the cost of mandated minimum increments, should they be compensated if decimals is delayed further?

No. The monetary benefits of decimalization are difficult to identify and quantify with precision. It requires an analysis of not only the impact on quotation spreads but also market depth and liquidity, and certainly requires actual experience to reach any final conclusions. We do not believe that investors should be compensated if decimals are delayed further, any more than they should be compensated for other possible savings when any major market changes are delayed to ensure safe implementation.

2. Has the industry initiated testing to ensure readiness for decimal conversion? If not, what are each of you doing to ensure conversion takes place with little trade disruption?

Yes. To ensure the industry readiness for decimal conversion, the Securities Industry Association (SIA) has been working with the equity and options markets and its member firms to project-manage the conversion to decimals. A Decimalization Committee has been formed, chaired by Scott Abbey, Chief Information Officer of PaineWebber Incorporated, and made up of representatives of the markets and SIA member firms. In addition, several subcommittees have been formed, including the Testing Subcommittee.

To ensure a successful conversion to decimalized trading, the SIA has developed a Decimalization Testing and Implementation Guide and defined testing procedures and identified conditions required for testing among various market constituents (i.e. Exchanges, Markets, Member Firms/Service Bureaus, Clearing Corporations, and Market Data Vendors). Decimalization testing includes Point-to-Point and Extended Point-to-Point testing. Point-to-Point testing, which began in April, is ongoing testing that verifies firms can transmit using decimal file formats to a particular exchange or utility and tests the processing of that data. Extended Point-to-Point testing is integrated testing consisting of a single trade day cycle with information passing between the multiple market constituents simultaneously. The Extended Point-to-Point tests have occurred on April 8th, May 13th, and June 10th, with another test scheduled for August 12th.

3. If the NASDAQ is ready to trade all listed stocks in decimals why not move the entire listed market in September?

We stated in our May 10, 2000 comment letter to the SEC's release on revising the decimal implementation schedule that the NASD will be ready to implement either of the alternatives suggested in the SEC's release for the exchange-listed market, full dual pricing or a pilot of dual pricing by September 4, 2000, as the SEC finds to be in the public interest in maintaining fair and orderly markets and to protect investors. Regarding the advisability of moving the entire listed market to decimals in September, we refer you to the SEC's Release 34-42914 (June 8, 2000), which stated that:

> In view of the variety of concerns over immediate, full-scale decimalization in exchange-listed securities raised by commenters such as the SIA, [footnote omitted] the Commission believes that careful phasing in of decimal pricing is necessary to ensure the continued orderly operation of the markets and clearing organizations.
>
> The Commission recognizes the concerns expressed by members of Congress and several small investors that decimal pricing in equity securities should be implemented as expeditiously as possible. We continue to believe that the conversion to decimal pricing will benefit investors by enhancing investor comprehension, facilitating globalization of our markets, and potentially reducing transaction costs. Nevertheless, the Commission must ensure that the conversion to decimal pricing is accomplished in

an orderly and safe manner. In view of the concerns raised by commenters such as the SIA, [footnote omitted] the Commission believes that an immediate full-scale introduction of decimalization, without adequate planning and systems testing, has the potential to create widespread operational problems in the markets and the securities industry, which in turn could adversely affect investors.

4. Given that investors pay the cost of mandated minimum increments, should they be compensated if decimals is delayed further?

See response to identical Question 1 above.

5. What steps are each of you taking to ensure the industry implements decimal trading in accordance with the schedule?

In response to the SEC Order of June 13, 2000, the Exchange Committee, under the auspices of the SIA Decimals Steering Committee, has begun working on a revised implementation plan for the industry. Per the SEC Order, this revised plan is due no later than July 24, 2000. We would be pleased to provide you a copy of the revised plan once it is completed.

6. What trading behavioral changes are you anticipating and what are you doing to address any potential problems associated with the behavioral changes?

Predicting investor behavior is always difficult. This is especially true when introducing market-wide changes such as decimal pricing. The Commission's pilot approach allowing a phased implementation should provide valuable insights into investor behavior in a decimal environment. NASD staff will closely monitor trading activity during the pilot period and be prepared to propose appropriate rule changes to respond to any activity that materially disadvantages the investing public.

7. Why is the NASDAQ unable to convert OTC markets to decimals now?

My testimony at the June 13hearing stated that Nasdaq experienced problems with previous decimalization schedules because of systems capacity constraints stemming from the unprecedented, explosive growth of Nasdaq trading since the last quarter of last year.

Since 1998, Nasdaq's daily average volume has more than doubled, rising from 791 million shares per day in 1998 to 1.79 billion shares per day for the first quarter of this year. Nasdaq recorded a daily peak of 2.88 billion shares per day on April 4th of this year. Nasdaq's daily average quote traffic has tripled, rising from 1.03 million quote updates per day in 1998 to 4.30 million quote updates per day in the first quarter of 2000. Nasdaq reached a daily record of 6.60 million quote updates per day, also on April 4th of this year. Given this unprecedented growth it became clear that we are facing capacity increases that could cause system and operational problems with the potential to compromise investor confidence. As a result, Nasdaq reassessed the technology and infrastructure requirements to ensure the capacity demands of decimalization will be fully supported. We have addressed the capacity problems and Nasdaq will initiate decimal pricing in all Nasdaq securities by April 9, 2001 in accordance with the SEC revised decimal implementation schedules.

8. What are you doing to ensure you are ready to convert by April 9, 2001?

Over the past several months, Nasdaq has ensured that its readiness for volume and capacity related market activity is sufficient not only for the current volumes of up to 2.8 or 3 billion shares per day but in fact beyond that, up to 3.5 to 4 billion shares per day, inclusive of decimal penny trading. The work is well on schedule on the software for the decimalization of our applications to support decimal trading. We are also significantly upgrading our network capacity, systems, and customer hardware.

Regarding network capacity, we are upgrading our Enterprise Wide Network (our primary trader network) from 128 to 192 kilobits per second. We are upgrading the communication line speed used for our clearing data to five times the current capacity. We are upgrading our Computer-to-Computer network, used by our more active firms to connect their computer systems directly to ours for trade reporting purposes, from 19.2 to 56 kilobits per second. We are also expanding our telecommunication infrastructure by replacing our front-end processors with faster, more reliable machines.

Regarding our systems, our current Unisys host computers, on which the quotes are processed, have sufficient capacity to handle the projected quotation traffic under decimal pricing. To increase our capacity headroom even further, we will be upgrading our processor to will give us an additional 13% capacity. The order execution and trade reporting systems run on our extensive Tandem computer complex. Although we estimate that moving to decimal pricing will have only a minor impact on trade and trade reporting traffic, we upgraded the existing Tandem S72,000 computers with S74,000 computers, for a 30% increase in capacity. To further increase the message capacity of these systems, in January we implemented a second Tandem Message Switch, which logs and passes order and trade reporting messages between our network and the Tandem computers, and have a third planned shortly.

Regarding our customer hardware, we recently began a hardware upgrade program to replace our entire complement of 2,400 customer premise file servers to the fastest current hardware available. This new configuration will provide sufficient headroom to handle all projected decimal traffic increases.

We are confident that the above system enhancement efforts will provide us with sufficient capacity to handle the expected traffic resulting from decimal pricing, and that Nasdaq will be ready as committed.

9. What steps are you taking to ensure your members are ready to trade in decimals? By what date will the NASD be prepared to have the industry testing on its new computer?

NASD continues to work closely with the SEC and the SIA to ensure member firms will be ready to trade in decimals. Nasdaq participated in a joint meeting on May 26, 2000 with SEC/NYSE/CBOE to finalize the approach for ensuring member firm readiness. As a result, the SEC has requested the exchanges draft rules requiring mandatory testing. Nasdaq submitted to the SEC Rule 3420 requiring mandatory testing for specified member firms. In addition, the Nasdaq will participate in implementing member readiness surveys and decimalization examinations.

Nasdaq began offering member firms point-to-point testing for all listed decimalization functionality on May 15, 2000. On June 10, 2000 Nasdaq and a number of member firms successfully participated in the second industry extended-point-to-point test to simulate a full day trading cycle. Nasdaq offered external production testing opportunities to member firms on July 8 and will again on July 15, 2000 and will participate in the industry extended-point-to-point test on August 12, 2000. For Nasdaq securities, member firm testing is expected to begin January 2001 and proceed to implementation on April 9, 2001.

10. As an interim measure before converting to decimals, do you plan to introduce a rounding indicator so that investors will know of better prices listed by ECNs which trade in decimal increments between the 1/16th spread?

Today, no rounding indicator is supported in the Nasdaq production software. If such an indicator were to be required, it would create technical implications for our downstream systems as well as vendors. Adding this requirement could jeopardize the planned implementation dates for decimals. This question has arisen previously, specifically during the implementation of the SEC Order Handling Rules. At that time, the SEC did not require special rounding indicators.

Once the Nasdaq software that supports quoting and trading in decimals is implemented, firms will be allowed to enter prices up to four decimal places. The system will round, according to pre-defined logic, to the minimum price variation for the security (pennies or nickels). Screens will display the rounded price. It should be noted that our systems currently accept quote entries in 64ths and round to 16th or 32nds, as required.

11. The technology for trading in decimals clearly exists and most or all of the rest of the industry is decimal ready. Is the NASDAQ's failure to be decimal ready by July, and now September, a result of failure to provide adequate resources to decimal implementation?

Nasdaq's request for an extension of time to decimalize resulted from systems capacity problems stemming from its unprecedented growth since the last quarter of last year. The importance we accord decimalization is underscored by the $100 million that we have spent, capitalized, or committed to our decimalization effort. Nasdaq has not and will not divert technology resources from readying Nasdaq systems for decimal pricing, and there are no activities of the NASD that compete for resources with decimalization:

- All of the NASD's international development efforts have been out-sourced to separate teams.
- All systems development for the international markets is being performed by a joint venture company and has no impact on domestic Nasdaq development or resources.
- All NASD and NASD Regulation technology activities have been out-sourced to Electronic Data Systems, which relieves the Nasdaq team of any billing or administrative technology burdens.
- Systems development for the American Stock Exchange is managed by a fully independent team that is now out-sourced to SIAC.

12. If the Congress passed legislation or the SEC issued a rule making decimal trading the prerequisite of participating in the market, would the NASD meet the conversion deadline or would it cease to be a market player?

If the SEC or Congress had ignored Nasdaq's request and mandated a July 2000 commencement for decimalization, we would have had no choice but to implement our initial decimalization system, notwithstanding its inability to meet the dramatic increase in trading volume. The result would have been substantial order queues, delayed display of quotations, and the resulting inability of market makers to efficiently operate their order execution systems. As a result, investors would have experienced delayed executions, often at the wrong price. We are pleased that the SEC responded to our request in a responsible manner.

THE CHAIRMAN

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION
WASHINGTON D.C. 20549

July 25, 2000

The Honorable Tom Bliley
Chairman
Committee on Commerce
U.S. House of Representatives
2125 Rayburn House Office Building
Washington, D.C. 20515-6115

Dear Chairman Bliley:

Thank you for your June 20 letter requesting responses to a number of decimalization-related questions in connection with the June 13, 2000 hearing before the Finance and Hazardous Materials Subcommittee. I believe that the enclosed staff memorandum is fully responsive to these questions.

I have also enclosed a copy of the decimal implementation plan, which was submitted by the self-regulatory organizations on Monday. I believe that this plan appears to be consistent with the Commission's June 8th Order.

I want to assure you that the Commission remains committed to implementing decimal pricing as soon as possible in a safe and orderly manner, with minimal disruptions to the markets. I appreciate the leadership that you, Chairman Oxley and other Members of Congress have demonstrated on this issue and, as always, I look forward to working closely with you in the months ahead.

Sincerely,

Arthur Levitt

Enclosures

MEMORANDUM

To: Chairman Levitt

From: Annette L. Nazareth, Director
Division of Market Regulation

Re: Decimalization Questions from Chairman Bliley

Date: July 14, 2000

The following responds to questions posed in a letter to you, dated June 20, 2000, from Congressman Tom Bliley, Chairman of the House Committee on Commerce.

Q#1: What are you going to do to ensure NASDAQ is ready to convert NASDAQ securities by April 9, 2001? What will you do at that time if NASDAQ is not ready to convert?

Response:

The Division of Market Regulation ("Division") has undertaken a number of measures to ensure that the Nasdaq Stock Market ("Nasdaq") is ready to convert its securities to decimal pricing on or before April 9, 2001. For example, in response to Nasdaq's announcement that it would not be decimal ready by July 3rd, the Division prompted Nasdaq to accelerate its process for hiring an independent consultant to evaluate Nasdaq systems capacity and capacity planning. Nasdaq hired a consultant, SRI-Atomic Tangerine ("SRI"). SRI's review is nearing completion, and Nasdaq expects to send us the SRI report by the end of July. Once we receive SRI's report, we will closely track Nasdaq's implementation of the report's recommendations.

Since March, we have also closely monitored Nasdaq's progress with decimal implementation, including weekly conference calls with Nasdaq's Chief Information Officer. According to Nasdaq's work plan and progress to date, they are on target to meet the April 9, 2001 deadline. Nasdaq senior management appears to be directly involved in ensuring that sufficient resources are devoted to this effort. In early June, the NASD's President and Nasdaq senior management, including its Chief Information Officer, met with you to discuss their readiness for decimals and broader capacity issues. We believe that Nasdaq is taking seriously the challenges presented by the conversion to decimals, as well as other capacity issues. Moreover, we have made clear that, even if Nasdaq unexpectedly developed last-minute problems with decimal pricing in its securities, the Commission would not hold up decimal conversion of all remaining exchange-listed stocks by April 9, 2001.

Q#2: If the NASDAQ is ready to trade all listed stocks in decimals, why not move the entire listed market in September?

Response:

The Commission's June 8 Order allows all listed stocks to be priced in decimals before April 2001 if market participants can resolve the potential systems and other problems of trading several thousand stocks in decimals while several thousand more trade in fractions. The markets have been directed to submit an implementation plan for decimalization to us by July 24 that will describe how this process will be accomplished in an orderly manner.

Q#3: Has the industry initiated testing to ensure readiness for decimal conversion? If not, what are each of you doing to ensure conversion takes place with little trade disruption?

Response:

Yes, the Securities Industry Association ("SIA") has taken a leading role in decimals conversion, much as it did for the industry's successful Year 2000 efforts, by sponsoring Extended Point-to-Point tests for the industry. The tests that were performed on April 8, May 13, and June 10 indicated no major problems at the markets, clearing organizations, and broker-dealers, and a further test is scheduled for August 12. At the Division's request, the Self-Regulatory Organizations ("SROs"), such as the NYSE and NASD, have adopted rules mandating testing by their member firms. Again, this is consistent with the industry's Year 2000 efforts, which proved to be very successful in ensuring that members would be ready for the conversion.

Q#4: Given that investors pay the cost of mandated minimum increments, should they be compensated if decimals is delayed further?

Response:

Investors should certainly benefit from decimals. Investors also benefit, however, from the seamless operation of the markets. They expect, for example, that their orders will be filled promptly and that the market systems will not be disrupted. That is why the Commission must ensure that the markets phase-in decimal pricing in an expeditious, yet prudent, manner. The markets' implementation plan, which must be submitted to the Commission by July 24, will outline how this will be accomplished in the coming months.

Q#5: What steps are each of you taking to ensure the industry implements decimal trading in accordance with the schedule?

Response:

The Division is carefully monitoring the readiness of the securities industry for the orderly implementation of the decimal conversion process. For example, the Division has been consulting with market officials and SIA representatives over the past few weeks regarding their progress in devising a timely, yet orderly, implementation schedule for decimalization that is consistent with the Commission's June 8 Order.

In addition, the Division has taken the same approach to achieve a safe implementation of decimal pricing that was taken for a smooth transition in the securities industry to the Year 2000 conversion. Specifically, we requested the SROs to adopt rules mandating that their member firms participate in required testing for decimal conversion. Moreover, the Division has been carefully monitoring the results of testing already performed by the markets and member firms to assess their systems readiness for the orderly implementation of decimal pricing. The Commission's Office of Compliance Inspections and Examinations ("OCIE") has been working with the exchanges and the NASD on an examination program for member firms and has conducted several readiness reviews of major broker-dealers. In the next few weeks, OCIE staff and the SROs will jointly examine key broker-dealers for their readiness for decimalization. In addition, OCIE and the Division have worked with the SROs to develop a survey to assess member firms' progress in remediation and testing of computer systems and networks. The SROs issued this survey in June.

In addition to monitoring the readiness of member firms, the Division is using surveys and inspections to assess the decimal implementation efforts of the SROs. Earlier this year, the Division surveyed the SROs on their progress on decimalization; another survey is in progress. The Division has performed six SRO reviews that addressed capacity and decimal-readiness. We plan on conducting additional inspections of the remaining SROs before year-end. If we identify any problems or delays in the decimals conversion process, we intend to escalate our monitoring efforts, similar to our approach with Nasdaq.

Q#6: What trading behavioral changes are you anticipating and what are you doing to address any potential problems associated with the behavioral changes?

Response:

The decimal conversion is an unprecedented event in the U.S. markets, and so the behavioral effects cannot be predicted with certainty. However, the phase-in process that will be set forth in the markets' implementation plan will provide the Commission and the SROs with some actual experience with decimal pricing that should indicate any significant changes in trading behavior by professional traders and institutional and

individual investors. This process will provide us with valuable insights into whether changes in trading practices require modifications to key investor protection or market integrity provisions, such as limit order protections and short sale rules. We also are considering possible rule changes that may be needed to preserve the price-setting role of limit orders. We are considering whether to require market makers that wish to step ahead of customer limit orders without quoting a better price to step ahead by a specified amount (but more than a penny).

Q#7: Do you plan to evaluate and work with ECN exchange applicants to ensure an alternative OTC trading venue in the event the NASD is not ready by April 9, 2001?

Response:

The Division is currently evaluating the ECN exchange applications to determine whether they meet the standards of the Securities Exchange Act of 1934 ("Exchange Act"). We must ensure that the statutory standards for a registered exchange are satisfied, such as the capacity to enforce compliance by its members or associated persons with the federal securities laws and regulations and the exchange's own rules. Even if Nasdaq is not ready by April 9th, ECNs (that are not exchanges) will be able to trade Nasdaq stocks in decimals as of that date.

Q#8: If the NYSE were the only market participant not ready for decimal conversion, would you delay conversion considering alternative exchanges exist for listed securities?

Response:

We have every reason to believe that the NYSE will be prepared to price its securities in decimals well before the deadlines set forth in the Commission's June 8 Order. NYSE officials have repeatedly indicated that they favor an aggressive schedule for full decimalization in exchange-listed securities.

Q#9: As an interim measure before converting to decimals, will you require the NASDAQ to introduce a rounding indicator so that investors will know of better prices listed by ECNs that trade in decimal increments between the 1/16 spread?

Response:

The Division would not want to divert Nasdaq's technological resources away from its decimalization efforts. Instead, Nasdaq must ensure that it successfully expands overall capacity levels to provide for full decimalization of all Nasdaq securities on or before the April 9 deadline set forth in the Commission's June 8 Order.

Q#10: If ECNs match orders in between the 1/16th spreads on NASDAQ, do best execution requirements mandate that brokers execute orders on the ECNs?

Response:

Broker-dealers are required to provide customer orders with the best execution reasonably available under the circumstances. Until decimal pricing begins, broker-dealers cannot easily determine whether ECNs have orders at better prices than the displayed quote or the price and size of these orders. In addition to price, broker-dealers may consider other factors in determining best execution, including any additional ECN fees and the overall quality of order executions.

Q#11: What steps are you taking to ensure the options markets have sufficient capacity to handle the projected increases in quotation message traffic? What assurances do we have that lack of readiness in the options markets will not be the next excuse for delaying decimal pricing?

Response:

The Division has been working very closely with the options markets on capacity issues and will continue to do so. The Option Price Reporting Authority ("OPRA") has made significant upgrades to its computer systems to meet the expected increases in options message traffic. OPRA plans to have its systems capacity upgrades phased in with sufficient lead time to allow OPRA's participants to order, install and test the new equipment.

As an initial step, OPRA has informed its participants to prepare their systems to accept up to 5,000 messages-per-second ("mps") by July 17. OPRA plans the next phase increase to take place in September, when systems will be expected to accept up to 8,000 mps from OPRA. OPRA participants are expected to be ready for 12,000 mps by year-end. To accommodate these increases, each participant must significantly upgrade and test network line speeds and increase host processing. Once fully implemented, this commitment to capacity hardware upgrades for the options industry will increase systems capacity four-fold. Next year, OPRA is planning to escalate capacity beyond 12,000 mps.

The OPRA phase-in plan appears to provide the necessary amount of time for its participants to order, install, and test these upgrades in anticipation of higher message traffic. The phase-in of listed securities over several months, will allow the industry to gain some experience with the effects of decimal pricing on systems capacity and capability, as well as on trading behavior, before full implementation. We will work with the options markets on minimum price increments during the phase-in that will take into account capacity issues. Ultimately, however, the markets must develop new means of procuring capacity or reduce their quote output.

Q#12: Does the Commission usually delay the effectiveness of a rule or order for one market participant? Has the Commission ever done this before?

Response:

Decimalization is a truly revolutionary change in our markets, unlike anything we have experienced before. The magnitude of the changes that will be imposed in the U.S. securities markets over the next year will dwarf those that were faced by much smaller and less complex foreign equity markets in earlier conversions. Moreover, the smooth operation of the equity markets plays a much more critical role in the U.S. economy than is the case in other countries. The Commission takes seriously its responsibility to ensure the orderly implementation of this revolutionary change in our markets.

Q#13: Do you plan to set up industry testing similar to that you orchestrated for Y2K conversion to ensure decimal conversion goes through expeditiously?

Response:

As discussed above, the Division has modeled its oversight of decimalization readiness along the lines of the initiatives that were used successfully for the Year 2000 conversion. The securities industry has already begun extensive systems testing for decimals. The SIA has sponsored industry tests on April 8, May 13, and June 10, and plans a fourth industry-wide test for August 12. Further, at our direction, the SROs have adopted rules that mandate that all critical firms participate in any further tests.

Q#14: Did the Commission have a plan for a situation in which the NASDAQ or the NYSE was not Y2K compliant? If so, why is the same measure inadequate to facilitate decimal trading until NASDAQ is decimal ready?

Response:

The Division's contingency plans for Y2K failures at Nasdaq and the NYSE would not serve as particularly useful models for decimalization. If either Nasdaq or the NYSE had experienced short-term catastrophic problems with particular price-reporting or trading systems during the Year 2000 conversion, the Division was prepared to work with these markets so that trading would continue to the maximum extent feasible. The extreme alternative in the Year 2000 scenario would have been to halt trading, which could have placed undue restrictions on the ability of investors to effect needed changes in their securities positions. Even if an entire market's systems did not successfully convert to decimals, trading would not be halted. Instead, the markets and the industry would temporarily revert to fractional pricing in specific securities. It is our understanding that the decimal implementation plan that is due to be submitted to the Commission by July 24 will set forth specific contingency plans if widespread systems problems necessitate a short-term fall-back to fractional pricing in specific securities during the initial phase-in periods. Careful coordination in this area is necessary because the securities industry has made clear

that firms would face extraordinary systems difficulties if they were forced to price the same security in decimals in one market and in fractions in another.

Q#15: Chairman Levitt, you stated "ITS has not kept pace with the technological change sweeping our markets. Its archaic structure and cumbersome governance provisions are not fit for today's market, let alone the market of the future." Do you agree with Mr. Grasso that the ITS should be replaced? What is the Commission doing to update this archaic and cumbersome system?

Response:

The Commission has sought input from the industry and the public on how to address the deficiencies of the antiquated architecture of the ITS system, as well as the governance structure of the ITS Plan, which currently stifles innovation by requiring unanimity in approving plan changes. On February 23, 2000, the Commission issued a release that, among other things, solicited comments on how market fragmentation issues could be better addressed to take into account recent information technology advances and evolving market structures.[1] This included a request for comment on whether new systems or trading rules should replace the ITS framework. A few commenters, including the NYSE, urged the Commission to dismantle ITS. By and large, though, commenters took a less drastic approach by suggesting revamping ITS rather than eliminating it altogether. Several commenters stressed the need to reduce time frames for quote updates, trade commitments, and trade reports. Other commenters addressed questions regarding to what extent ECNs should be permitted to directly participate in ITS. The Division is currently reviewing these comments and the issues that they raise in order to develop recommendations to the Commission on how best to ensure linkages between markets while encouraging new market entrants.

Q#16: The NASD announced today it is changing the rules regarding linkages to ITS that have worked to keep ECNs out. These rule changes simply rearrange the chairs on the Titanic's deck, do they not? Doesn't this merely give ECNs the opportunity to access the outdated ITS without improving the ITS itself?

Response:

The NASD's enhanced framework for OTC trading in exchange-listed stocks, termed the "Nasdaq InterMarket" system, represents a significant first step in improving access to ECN quotes in exchange-listed securities. The key element in this framework is ECN access to the consolidated quote. The system also provides access to these quotes through ITS, although this is not of major importance to the ECNs who have chosen to participate. Nasdaq's Computer Assisted Execution System ("CAES") links OTC market makers in exchange-listed stocks with each other and ITS to execute trades in all exchange-listed trades. Several

[1] Securities Exchange Act Release No. 42450 (Feb. 23, 2000), 65 FR 10577 (Feb. 28, 2000).

ECNs, such as Bloomberg Tradebook, Strike,[2] and MarketXT, have announced their intention to participate in Nasdaq InterMarket and the NASD is continuing its discussions with other ECNs.

Q#17 While there is extensive quote competition in the NASDAQ market as a result of dramatic innovation in that market in recent years, there is no similar quote competition on the listed side. Do we need to replace ITS with a system that can take advantage of the speed and efficiency offered by ECNs in order to provide for such competition in the listed market?

Response:

As discussed above, the new Nasdaq Intermarket framework will allow ECNs access to the consolidated quote. The Commission is considering whether ITS linkage should be a prerequisite to broader participation in this quote.

Q#18: Mr. Levitt, you have observed SelectNet "continues to be plagued with shortcomings, delays during heavy trading volume, and even outages ..." and that "this is a critical and core flaw that must receive intense scrutiny and committed resources until resolved." What is the Commission doing to address the shortcomings of SelectNet?

Response:

The Division continues to monitor Nasdaq's response to criticisms of SelectNet, including in weekly conference calls with Nasdaq's Chief Information Officer. Nasdaq has made a number of enhancements to its systems to help reduce the number and duration of SelectNet problems. In September 1999, Nasdaq completed the roll-out of an entirely new communications network, which more than doubled its network capacity over the prior network. In addition to the network upgrade, last fall Nasdaq upgraded both its Unisys and Tandem host computer systems. In order to accommodate current and anticipated increases in SelectNet traffic volumes, early this year, Nasdaq put into production a second message switch, reducing the SelectNet execution report delays. This new multi-switch design is able to add additional message switches as required to meet the SelectNet transaction demand. In addition, Nasdaq has announced plans to upgrade all Service Delivery Platforms, which is the server that allows connectivity between members and the Nasdaq market, between May and December 2000. This upgrade is expected to reduce slowdowns at member firm sites during high volume trade days. We also understand that SelectNet delays that are still being experienced at some firms may be the result of the firms' failures to upgrade their SelectNet interface systems in a manner recommended by Nasdaq.

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[2] The Strike ECN recently consolidated with the BRUT ECN. Strike operates on the technology platform previously used by BRUT.

Version 7.2 July 24, 2000

DECIMALS IMPLEMENTATION PLAN

FOR THE EQUITIES AND OPTIONS MARKETS

Exchange Committee on Decimals
Submitted: July 24, 2000

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Section I – Introduction

On January 28, 2000, the Securities and Exchange Commission ("Commission") ordered the American Stock Exchange LLC ("AMEX"), the Boston Stock Exchange, Inc. ("BSE"), the Chicago Board Options Exchange, Inc. ("CBOE"), the Chicago Stock Exchange, Inc. ("CHX"), the Cincinnati Stock Exchange, Inc. ("CSE"), the National Association of Securities Dealers, Inc. ("NASD"), the New York Stock Exchange ("NYSE"), the Pacific Exchange, Inc. ("PCX"), and the Philadelphia Stock Exchange, Inc. ("PHLX") (collectively the "Participants" and individually a "Participant") to act jointly in discussing, developing, and submitting to the Commission a plan to implement decimal pricing in the equities and options markets beginning no later than July 3, 2000 ("Decimals Implementation Plan"), and in implementing the Decimals Implementation Plan.

Subsequently, the Commission ordered that all dates be suspended in the original order and they solicited industry comments on how to proceed with the implementation of decimal pricing. On June 8, 2000 the Commission ordered the Participants (The International Securities Exchange LLC ("ISE") was included in this order, and shall Hereafter be referred to as a Participant) to act jointly in planning, discussing, developing, and submitting to the Commission a plan that will begin phasing in the implementation of decimal pricing in equities securities and options on or before September 5, 2000.

As mandated by the Commission order, this plan has been discussed with interested

market participants, including the Securities Industry Association ("SIA") and its members, the Depository Trust and Clearing Corporation ("DTCC") and its two operating subsidiaries, the National Securities Clearing Corporation and the Depository Trust Company, the Options Clearing Corporation ("OCC"), the Securities Industry Automation Corporation ("SIAC"), the Intermarket Trading System Operating Committee ("ITSOC"), the Options Price Reporting Authority ("OPRA"), the Consolidated Tape Association ("CTA"), and the Consolidated Quote Operating Committee ("CQOC") (collectively the "Interested Parties").

The Participants submit to the Commission this plan for a phased-in implementation of Decimal Pricing.

Section II – Background

In mid-1997, in recognition of the potential benefits to the investing public of pricing securities in decimals, the Commission urged the Participants to begin pricing in decimals. The Securities Industry Association and the equities and options markets formed a Decimalization Steering Committee in July 1998 to develop a decimalization implementation plan and coordinate a smooth transition. In mid-1998, the General Accounting Office ("GAO") recommended, and the Commission agreed, that the Year 2000 effort was too important to the industry to risk implementation of decimal pricing before the Year 2000 effort was completed.

Section III – Implementation Strategy

The Participants recommend a phased-in implementation, consisting of four phases, for the conversion to decimal pricing that reduces the risk to the investing public, issuers, Participants, clearing and depository organizations, and member firms. This implementation period (the "Phase-In Period") will begin on August 28, 2000 and will end with full implementation of decimal pricing for all equities and options on or before April 9, 2001.

The Participants believe a phased-in implementation is the most effective way to ensure that markets continue to operate in an efficient, orderly, and fair manner during the conversion process while mitigating the risk of fallback, and allows the Participants to determine the impact of decimal pricing on trading rules and inter-market systems capacity during historically high-volume times (e.g., Option expirations, triple witching). In order to mitigate the risk to the investing public of trading and quoting message rates that could possibly overwhelm industry capacity thereby producing stale information (see SRI's April 14, 1999 Executive Summary presentation and subsequent Mitigating Options Message Traffic Final Report issued on December 14, 1999), the Participants recommend that during the Phase-in Period, a Minimum Price Variation ("MPV") for quoting should be applied and should be continued through the last day that this plan is in effect.

The recommended MPV schedule for quoting is as follows:

For equity issues	.01 MPV

For option issues quoted under $3 a contract.	.05 MPV
For option issues quoted at $3 a contract and greater.	.10 MPV

The Participants agree to abide by the schedule above while the plan is in effect.

The Participants may work separately, and/or jointly with each other, and may commission a third party or third parties to perform a detailed statistical analysis of quoting and trading activity beginning with Phase I ("Limited Exchange-Listed Issues") and extending through the Phase-In Period. For Phase I ("Limited Exchange-Listed Issues"), Phase IIA ("Additional Exchange-Listed Issues") and Phase III ("Limited Nasdaq Issues"), the Participants will agree on the equity issues (and options on those equities). The result of the study or studies will form the basis for the Participants study or studies on systems capacity, liquidity, and trading behavior due to the Commission no more than 60 days after full implementation (on or before April 9, 2001) of decimal pricing.

Importantly, at the end of the Phase-In Period, the MPV's described above will remain in effect through the last day that this plan is in effect. This plan will remain in effect until the Commission approves rules for each Participant which designate the minimum increment by which equities and options are quoted or until any other date identified by the Commission. The Participants' implementation project schedule and milestones can be found in Appendix A.

Section IV – Testing and Readiness Reporting

The Participants have discussed their readiness at each of the Exchange Committee meetings during the plan preparation. After the plan is submitted to the Commission the Participants, in conjunction with the Interested Parties, will discuss readiness prior to the checkpoints listed in this plan. The schedule for the Participants meetings during plan preparation was as follows:

June 27, 2000

July 5, 2000

July 18, 2000

In addition to the Exchange Committee meetings, the Participants report on their status and on firm testing status at the biweekly SIA Decimal Testing and Implementation Subcommittee meetings and the monthly SIA Decimal Steering Committee meetings. The schedule for these meetings prior to Phase I implementation is as follows:

August 8, 2000

August 15, 2000

The equity issues (and options on those equities) that will quote in decimals for Phase I (Limited Exchange-Listed Issues) have been identified and widely disseminated. The equity issues (and options on those equities) that will quote in decimals for Phase II (Additional Exchange-Listed Issues) and Phase III (Limited Nasdaq Issues) will be identified by the end of July, 2000 and by the beginning of January, 2001, respectively.

These time frames meet the approximate two months notice that the member firms have identified to the SIA that they need in order to inform their customers. The Participants and the SIA will ensure dissemination to their respective membership base through the use of web sites, membership bulletins, and the SIA decimal committees.

Section V – Implementation Phases

A. Phase I – Limited Exchange-Listed Issues

The Participants recommend that the phase-in process consist of an initial phase, to begin on Monday, August 28, 2000 and continue through the last day that this plan is in effect, during which a minimum of 10 to 15 exchange-listed equity issues (and options on those equities) will quote in decimals (per the recommended quote MPV schedule documented earlier) and where the Participants, with the cooperation of the Interested Parties, will evaluate the industry's transition to decimals. Due to the concerns of the industry and the Participants regarding the impacts of decimal pricing on message traffic and trading patterns, an evaluation of decimal pricing by the Participants will commence beginning with this phase.

B. Phase IIA – Additional Exchange-Listed Issues

The Participants recommend that the first phase be followed by a partial conversion (per the recommended quote MPV schedule documented earlier) of approximately 50 to 100 exchange-listed equity issues (and options on those equities) beginning on Monday, September 25, 2000 and continuing through the last day that this plan is in effect. The Participants and the Interested Parties will continue to evaluate the transition to decimal pricing and its impacts on the industry, especially as they relate to capacity, liquidity and trading patterns.

C. Phase IIB – Full Conversion of Exchange-Listed Issues and/or All Options Checkpoint.

At Checkpoint III (Determine Readiness for Full Implementation of Exchange-Listed Issues and/or All Options), the Participants will evaluate the results of the first two phases of decimal quoting. If, after consultation with the Interested Parties and the Commission, the Participants believe that the Participants and Interested Parties are technically prepared for full implementation and this would not cause adverse impacts to the investing public, the Participants may elect to fully convert all exchange-listed issues and/or all option issues (both exchange-listed and Nasdaq-listed) to decimal quoting (per the recommended quote MPV schedule documented earlier). The Participants may also elect to implement a penny pilot in selected option issues. Any decision to fully convert exchange-listed issues and/or all options or to implement a penny pilot on options will be made during the period between November, 2000 and April, 2001, and a notice would be widely disseminated by the Participants and the SIA to the Industry and the investing public at least 30 calendar days before implementation.

D. Phase III – Limited Nasdaq Issues

As with exchange-listed issues, the Participants recommend an initial phase of limited Nasdaq issues to begin on or before March 12, 2001 and continue through the last day that this plan is in effect. Approximately 10 to 15 Nasdaq equity issues (and options on those equities if not already quoting in decimals) will quote in decimals (per the recommended quote MPV schedule documented earlier). The Participants, with the

cooperation of the Interested Parties, will evaluate the industry's transition to decimals in Nasdaq issues. Joint and/or independent studies will continue through this phase.

E. Phase IV – All Markets, Full Implementation

At Checkpoint V (Determine Readiness for All Markets, Full Implementation), the Participants will evaluate the results of all previous phases. If, after consultation with the Interested Parties and the Commission, the Participants believe that the Participants and the Interested Parties are technically prepared for full implementation and this would not cause adverse impacts to the investing public, the Participants recommend that full implementation of decimal quoting for equities and options (per the recommended quote MPV schedule documented earlier) begin on or before April 9, 2001 and continue through the last day that this plan is in effect. The Participants, with the cooperation of the Interested Parties, will evaluate the industry's transition to full decimal pricing in all issues and joint and/or independent studies will continue evaluating the impacts of decimal pricing.

F. Checkpoints

The Participants have identified five checkpoints where the Participants will formally evaluate the results of the phase-in implementation program and determine the industry's ability to function without disruption to the investing public in a decimal pricing environment. Throughout the period during which this plan is effective, however, the Participants will monitor the impact of decimal-based pricing on the industry and will

confer with the Commission on those impacts.

1. Checkpoint I – Pre-implementation Evaluation

The first checkpoint will take place on August 15, 2000 where the Participants will poll the Interested Parties, review industry mandated testing results and confer with the Commission on the industry's preparedness to proceed with Phase I (Limited Exchange -Listed Issues) on August 28, 2000. While the Participants have defined fallback scenarios for themselves during this phase (see Section VI - Fallback/Recovery) and have determined that no single firm failure will cause a fallback to fractional pricing, the Participants will be prepared to confer with the Commission if it appears that multiple failures are placing the investing public at risk or at a disadvantage. The Participants have identified the equity issues (and options on those issues) to be quoted in decimals in the first phase.

2. Checkpoint II – Determine Readiness for Additional Exchange-Listed Issues

The second checkpoint will take place on September 19, 2000 where the Participants, after polling the Interested Parties, will confer with the Commission on the industry's preparedness to proceed with Phase II (Additional Exchange-Listed Issues) of the Phase -In Period on September 25, 2000. While the Participants have defined fallback scenarios for themselves during this phase (see Section VI - Fallback/Recovery) and have determined that no single firm failure will cause a fallback to fractional pricing, the Participants will be prepared to confer with the Commission if it appears that multiple

failures are placing the investing public at risk or at a disadvantage. By the end of July 2000, the Participants will identify the additional equity issues (and options on those equities) to be quoted in decimals in the second phase.

3. Checkpoint III – Determine Readiness for Full Implementation of Exchange -Listed Issues and/or all Options.

The third checkpoint will occur on November 1, 2000. The Participants will evaluate the results of the first two phases of decimal quoting. If, after consultation with the Interested Parties and the Commission, the Participants believe that the Participants and the Interested Parties are technically prepared for full implementation and this would not cause adverse impacts to the investing public, the Participants may elect to fully convert all exchange-listed issues and/or all option issues (both exchange-listed and Nasdaq -listed) to decimal quoting (per the recommended quote MPV schedule documented earlier). The Participants may also elect to implement a penny pilot in selected option issues. Any decision to fully convert exchange-listed issues and/or all options or to implement a penny pilot on options will be made during the period between December, 2000 and April, 2001, and a notice would be widely disseminated by the Participants and the SIA to the industry and the investing public at least 30 calendar days before implementation.

4. Checkpoint IV – Limited Nasdaq Issues

The fourth checkpoint will occur on March 5, 2001 where the Participants will poll the

Interested Parties, review industry testing results and confer with the Commission on the industry's preparedness to proceed with Phase III (Limited Nasdaq Issues) of the Phase -In Period on or before March 12, 2001. In the beginning of January, 2001 the Nasdaq will identify the Nasdaq equity issues (and options on those issues if not already quoting in decimals) to be quoted in decimals.

5. Checkpoint V – Determine Readiness for All Markets, Full Implementation

The fifth checkpoint will occur on April 2, 2001, where the Participants will evaluate the results of the first three phases of decimal quoting. If, after consultation with the Interested Parties and the Commission, the Participants believe that the Participants and Interested Parties are technically prepared for full implementation and this would not cause adverse impacts to the investing public, the Participants will proceed with full implementation of all exchange-listed issues (if not already quoting in decimals), Nasdaq issues and all options on the issues (if not already quoting in decimals) on or before April 9, 2001.

G. Post Phase-in Process

The post phase-in process will begin at the end of the Phase-In Period (on or before April 9, 2001) and will last no more than two months. The Participants will review the Phase-In Period and the impact of decimal pricing on systems capacity, liquidity, and trading behavior. The Participants will submit joint and/or individual studies, that document the impacts of decimal pricing and may contain a recommendation on whether

there should be a uniform minimum increment for equities or options or both.

Absent Commission action on the study and recommendations, each Participant will submit proposed rule changes to establish its choice of minimum increments by which equities or options are quoted on its market no later than thirty calendar days after the filing of the study.

Section VI – Fallback/Recovery

The Participants, after consultation with the Interested Parties have agreed that Phase I (Limited Exchange-Listed Issues) and Phase III (Limited Nasdaq Issues) of the Phase-In Period require specific procedures for Participant fallback. Throughout the period during which this plan is effective however, the Participants will monitor the impact of decimal -based quoting and will confer with the Commission on those impacts.

For options quoting during Phase I (Limited Exchange-Listed Issues) and Phase III (Limited Nasdaq Issues) there will be no intra-day fallback to fractional pricing and issues must quote on every exchange in the same format, either decimal or fraction.

For equity quoting during Phase I (Limited Exchange-Listed Issues) and Phase III (Limited Nasdaq Issues), there may be an intra-day fallback to fractional pricing, as a last resort after all other efforts have been exhausted to remediate the problem. Specific details of the fallback plan will be published prior to the August 28, 2000 start date.

For equity issues, in the event that a regional exchange Participant experiences a problem on day one of Phase I (Limited Exchange-Listed Issues) or Phase III (Limited Nasdaq Issues) that would require a fallback to fractional quoting, the Participant must attempt to fix the problem and may halt trading if the primary exchange for affected issues continues to quote in decimals. A problem at one of the Participants on day one of Phase I (Limited Exchange-Listed Issues) or Phase III (Limited Nasdaq Issues) will not necessitate a trading halt or fallback to fractional quoting by the other Participants.

However, if any of the primary exchanges revert back to fractional quoting on day two, all other equity Participants quoting the issues on the affected primary exchange will also revert back to fractional quoting for those issues. Any issues falling back to fractions must continue to quote in fractions until the Monday following the correction of the problem.

For option issues, a problem at one of the Participants during Phase I (Limited Exchange -Listed Issues) or Phase III (Limited Nasdaq Issues) will not necessitate a trading halt by the other Participants. If an Options Exchange on the following day must fallback to fractional quoting and multiple-listed issues are involved in the fallback, all Options Exchanges will fallback. If the underlying equity reverts back to quoting in fractions, options on that equity may continue to quote in decimals. If a Participant chooses to revert the options back to fractional quoting until such time as the underlying equity issues are ready to convert to decimal quoting, the conversion must occur overnight and for multiple-listed issues, all Option Exchanges quoting the issues must agree to fallback as well. Any option issues falling back to fractions must continue to quote in fractions until the Monday following the correction of the problem.

Any programmatic problems encountered by the Participants after day one of Phase I (Limited Exchange-Listed Issues) or Phase III (Limited Nasdaq Issues) and any capacity issues will be treated like any other production problem by each Participant and will be subject to their normal operating procedures. As noted above, however, the Participants will monitor the impact of decimal-based quoting on the industry throughout

the time that this plan is effective and will confer with the Commission on the impacts. Procedures to deal with problems at a clearing or settlement utility (i.e., NSCC, OCC DTC) are modeled after the Participants' Year 2000 contingency plans. If a clearing or settlement entity cannot process the first day's trading activity, the Participants trading the issues cleared or settled by the entity will open for decimal pricing on the following business day. If the clearing or settlement entity still cannot process trading activity, the Participants may halt trading in the issues until the entity can successfully process the first day's trades.

Each Participant will submit their own procedures on how to deal with open orders on issues quoting in decimal format that will revert back to fractional pricing.

Section VII – Summary

The Participants with the cooperation of the Interested Parties have agreed upon an approach to implement a phased-in implementation program for decimal quoting that provides the maximum safety for the industry and the investing public while satisfying the Commission order on decimal pricing implementation.

The implementation of a limited number of equities (and options on those equities) quoting at pre-described MPV's in the first phase (Phase I – Limited Exchange-Listed Issues) and the third phase (Phase III – Limited Nasdaq Issues) tests the operational readiness of the industry and at the same time minimizes the ill-effects to the investing public of a fallback to fractional quoting.

Following Phase I (Limited Exchange-Listed Issues) is an additional limited phase of decimal quoting of equities and options at pre-described MPV's. The goals of the second phase (Phase II –Additional Exchange-Listed Issues) are to evaluate projected capacity estimates, impacts to liquidity, and new trading patterns in advance of full implementation of decimal pricing.

EXCHANGE COMMITTEE DECIMALIZATION IMPLEMENTATION TIMELINE

Pre Phase In		Phase In Period					Post Phase In	
July 24th	August 7th	I. August 28th	IIA. September 25th	IIB. Early December	III. March 12, 2001	IV. April 9, 2001	June 8, 2001	July 6, 2001

Checkpoint 1	Checkpoint 2	Checkpoint 3	Checkpoint 4	Checkpoint 5
Exchange Committee August 15th Pre-Implementation Evaluation	Exchange Committee September 19th Determine Readiness for Additional Exchange-Listed Issues	Exchange Committee November 1st Determine Readiness for Full Implementation of Exchange-Listed Issues and All Options	Exchange Committee March 5, 2001 Evaluate industry's preparedness to proceed with Listed Nasdaq Issues	Exchange Committee April 2, 2001 Determine Readiness for All Markets, Full Implementation

SEC Order, of June 8, '00					
By July 24th, participants jointly submit a Decimals Implementation Phase-In Plan to the SEC	By August 7th, participants submit the rule changes necessary to support the Decimals Implementation Phase-In plan	By June 8, 2001, participants submit study on impact of decimal pricing on systems capacity, liquidity, and trading behavior two months after full conversion; submit position on need for uniform increment, if any	By July 6, 2001, participants submit proposed rule changes to SEC Rule 19-b of Exchange Act to implement choice of MPV by which equities and options are quoted		

Participant Studies	Identify Impact of Decimalization on Message Traffic and Trading Behavior	Data Collection, Analysis, and Compilation of Study Results for Listed Issues		
			Impact Analysis of Decimalization on Nasdaq Issues	

Equities	I. August 28th Listed Exchange-Listed Issues	IIA. September 25th Additional Exchange-Listed Issues	IIB. Early December Conversion of Exchange-Listed Stocks and All Options	III. March 12, 2001 Nasdaq Issues	IV. April 9, 2001 All Markets, Full Implementation	June 8, 2001	July 6, 2001
MPV	Penny quote MPV for Listed Securities maintained through rule change approval process 2001	Penny quote MPV for Listed Securities maintained through rule change approval process 2001	Penny quote MPV for Listed Securities maintained through rule change approval process 2001	Penny quote MPV on Nasdaq Issues maintained through rule change approval process 2001	Penny quote MPV for all Listed Securities and Nasdaq issues maintained through rule change approval process 2001.	Study may impact the quote MPV	Rule changes may impact the quote MPV
Securities	10-15 Listed Securities Nasdaq will participate with Listed Securities	Approximately 50-100 additional Listed Securities. Nasdaq will participate with Listed Securities	All Listed Securities	10-15 Nasdaq securities, in addition to the Listed Securities already trading in Decimals.	All markets, full implementation		
Options							
MPV	Dime quote MPV for Options $3.00 and above Nickel quote MPV for Options under $3.00	Dime quote MPV for Options $3.00 and above Nickel quote MPV for Options under $3.00	Dime MPV for Options $3.00 and above Nickel MPV for Options under $3.00 Participants may elect to implement a penny pilot in selected option issues.	Dime MPV for Options $3.00 and above. Nickel MPV for Options under $3.00.	Dime MPV for Options $3.00 and above. Nickel MPV for Options under $3.00	Study may impact the quote MPV	Rule changes may impact the quote MPV
Classes	Those associated with the 10-15 underlying Listed equity issues selected	Those associated with the additional Listed equity issues selected	All options classes	All options classes	All options classes		

Exchange Committee on Decimalization - Version 7.0 - July 20, 2000

American Stock Exchange LLC

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Authorized Signature

Boston Stock Exchange, Inc.

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Authorized Signature

Chicago Board Options Exchange, Inc.

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Authorized Signature

Chicago Stock Exchange, Inc.

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Authorized Signature

Cincinnati Stock Exchange, Inc.

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Authorized Signature

International Securities Exchange LLC

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Authorized Signature

National Association of Securities Dealers, Inc.

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Authorized Signature

New York Stock Exchange

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Authorized Signature

Pacific Stock Exchange, Inc.

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Authorized Signature

Philadelphia Stock Exchange, Inc.

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Authorized Signature