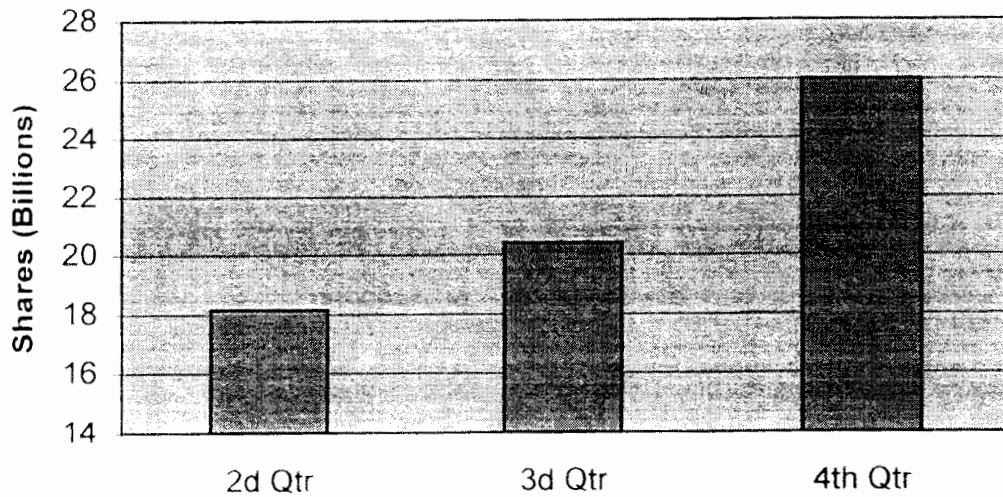
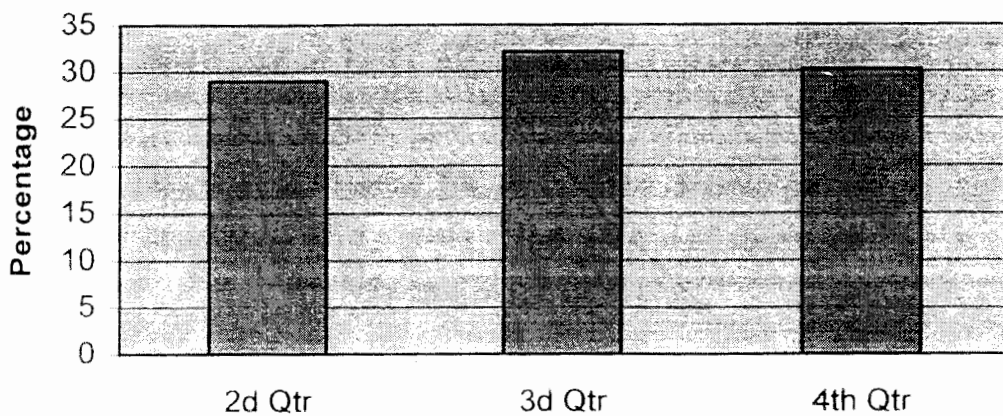


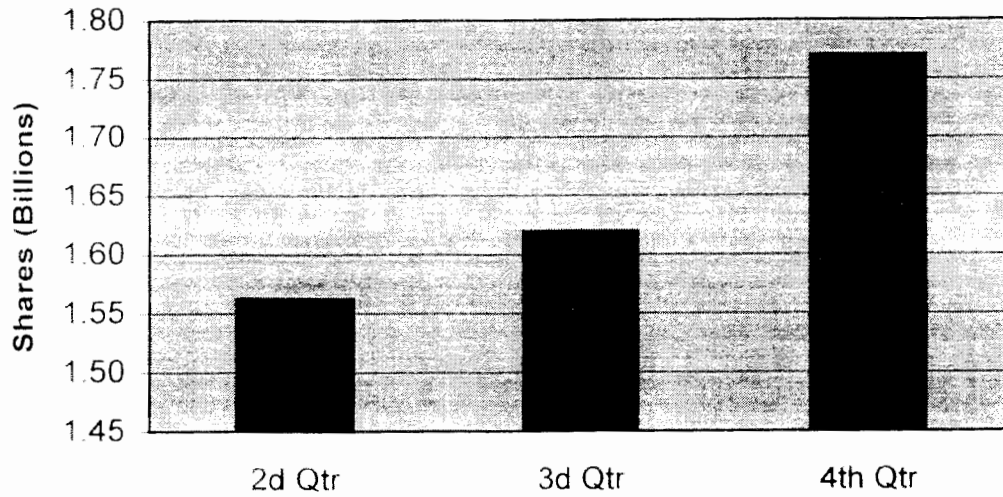
1999 Quarterly ECN Share Volume in Nasdaq Securities



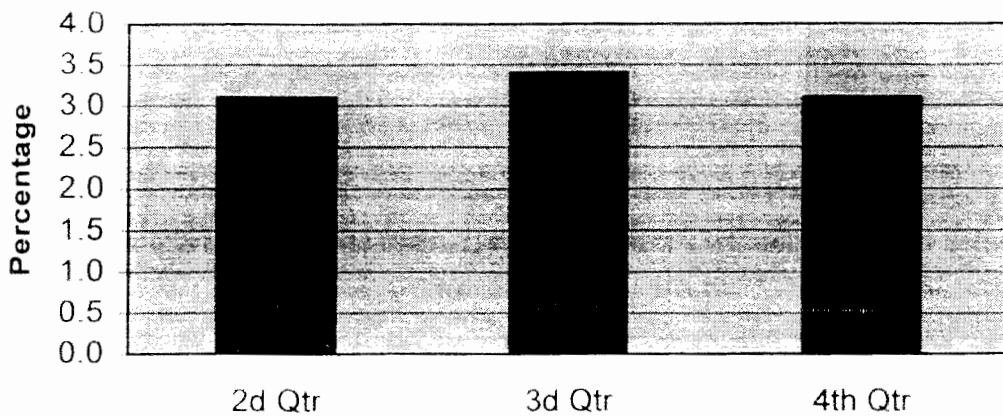
1999 Quarterly ECN Share Volume in Nasdaq Securities as Percentage of Total Market Volume



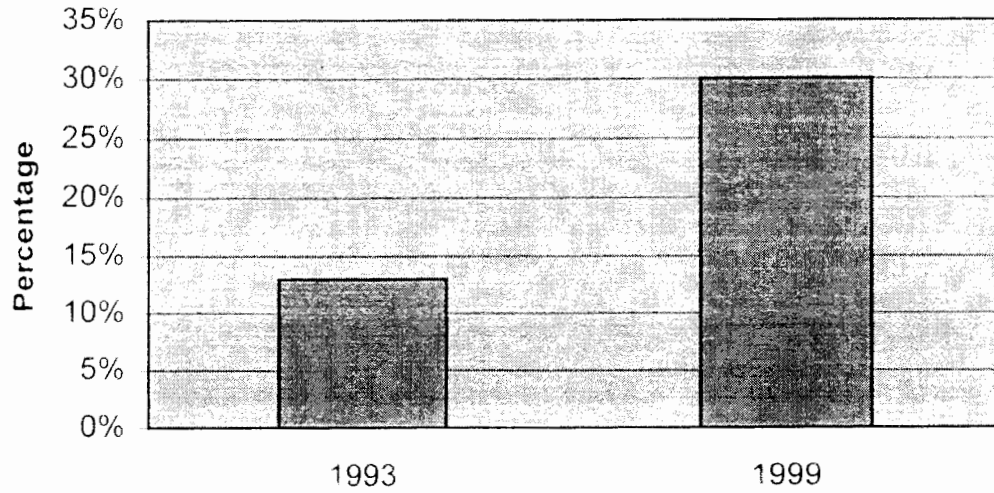
1999 Quarterly ECN Share Volume in NYSE-Listed Securities



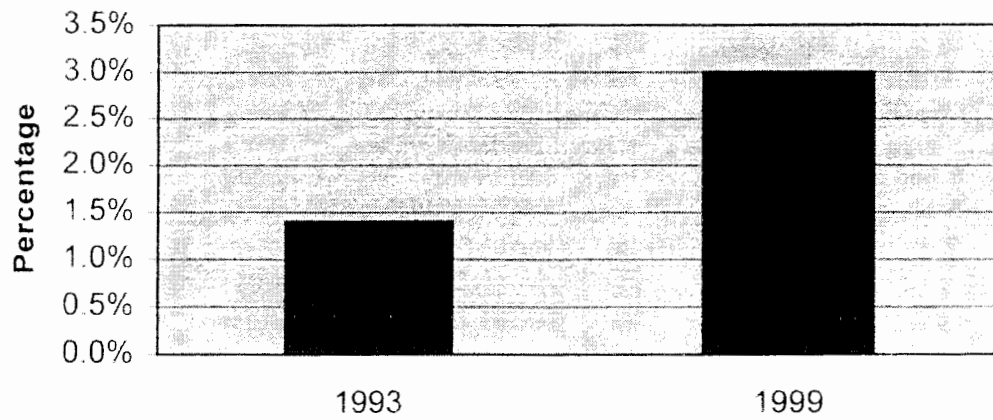
1999 Quarterly ECN Share Volume in NYSE-Listed Securities as Percentage of Total Market Volume



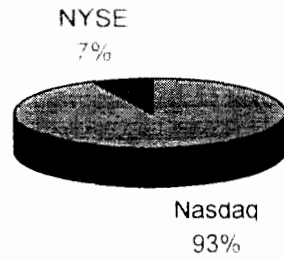
ECN Activity as Percentage of Total Share Volume in Nasdaq Securities



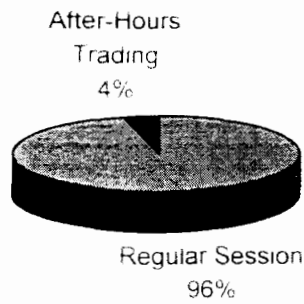
ECN Activity as Percentage of Total Share Volume in NYSE-Listed Securities



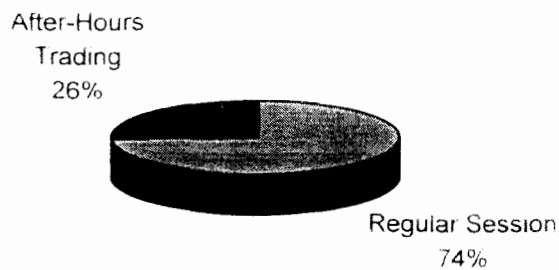
**Distribution of ECN Share Volume Across Markets
(Average for 1999)**



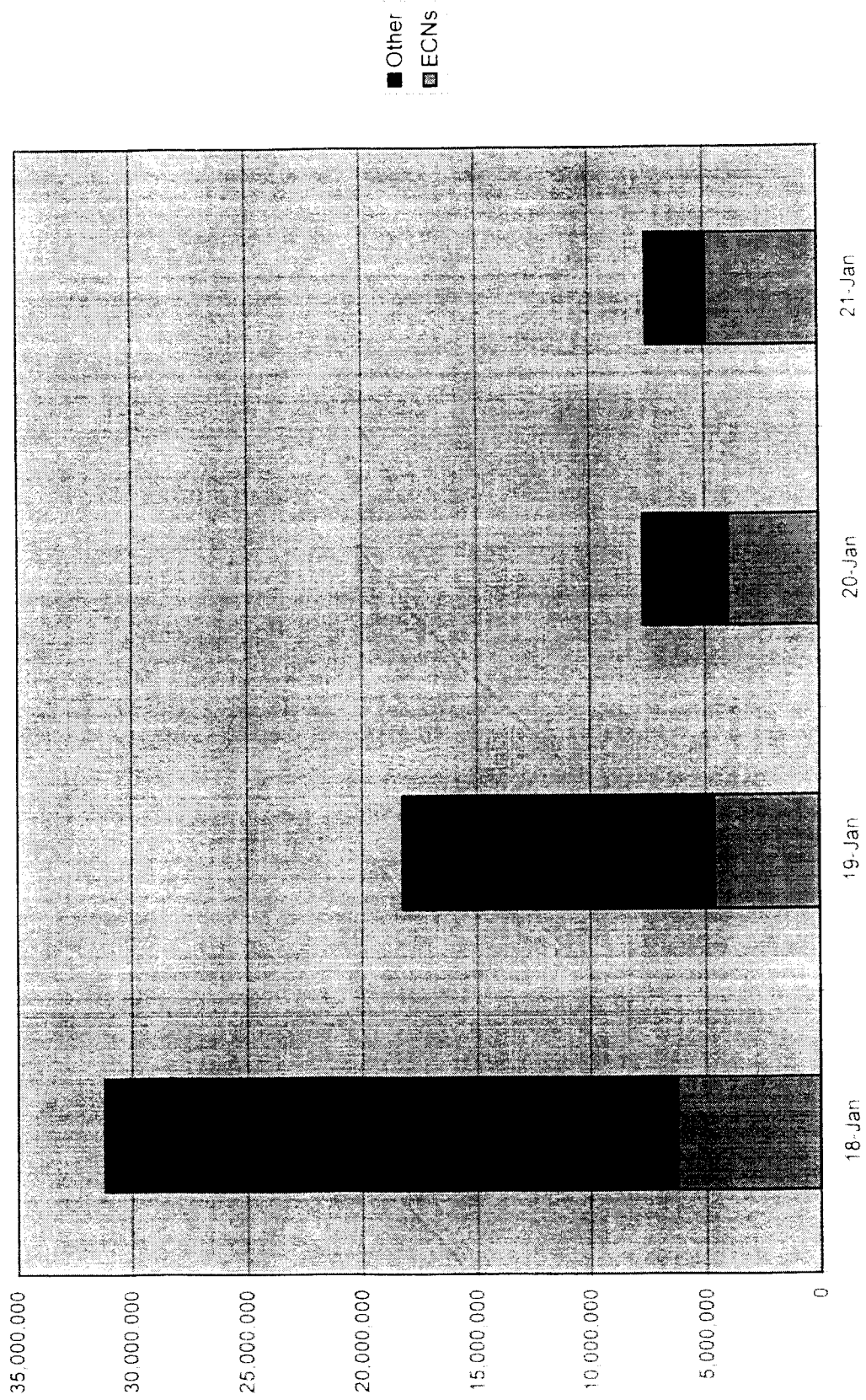
**ECN After-Hours Share Volume as Percentage of Total ECN Volume
in Nasdaq NMS Securities
(Average for 1999)**



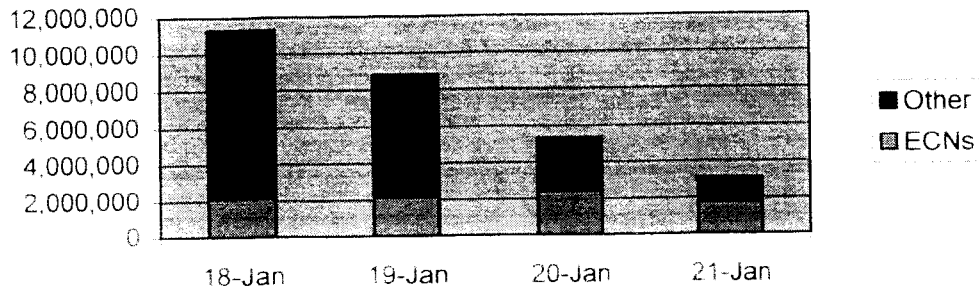
**ECN After-Hours Share Volume as Percentage of Total ECN Volume
in NYSE-Listed Securities
(Average for 1999)**



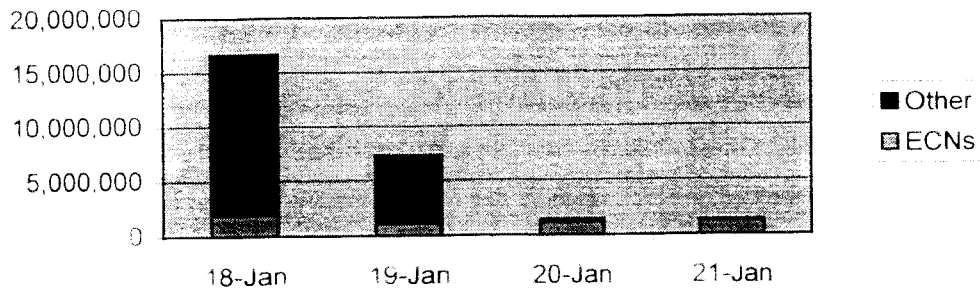
ECN and Other BD Share Volume in Nasdaq Securities
from 4:00 p.m. to 6:30 p.m.



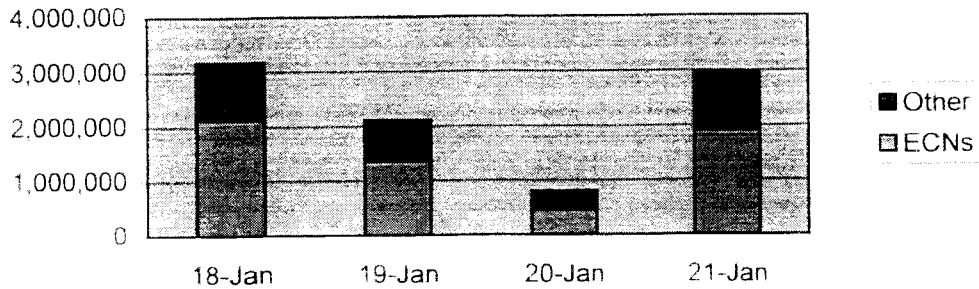
ECN and Other BD Share Volume in Nasdaq Securities from 4:00 p.m. to 4:30 p.m.



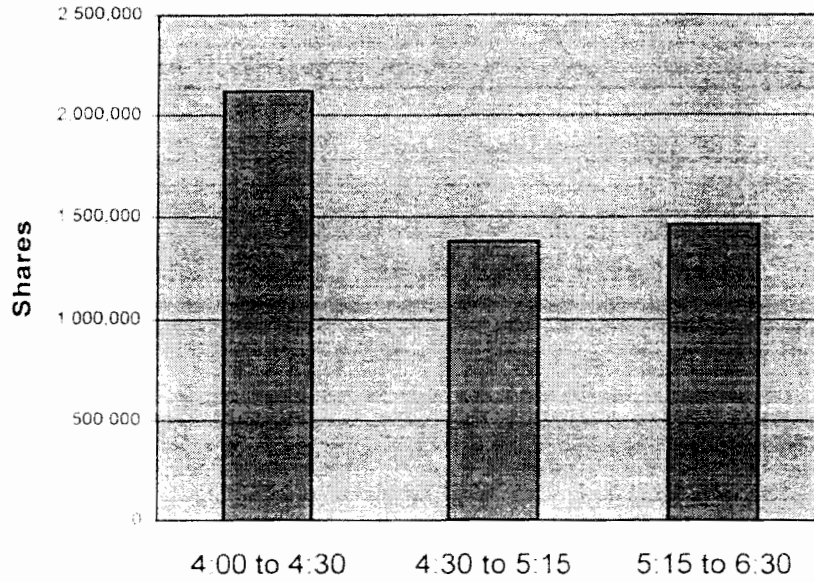
ECN and Other BD Share Volume in Nasdaq Securities from 4:30 p.m. to 5:15 p.m.



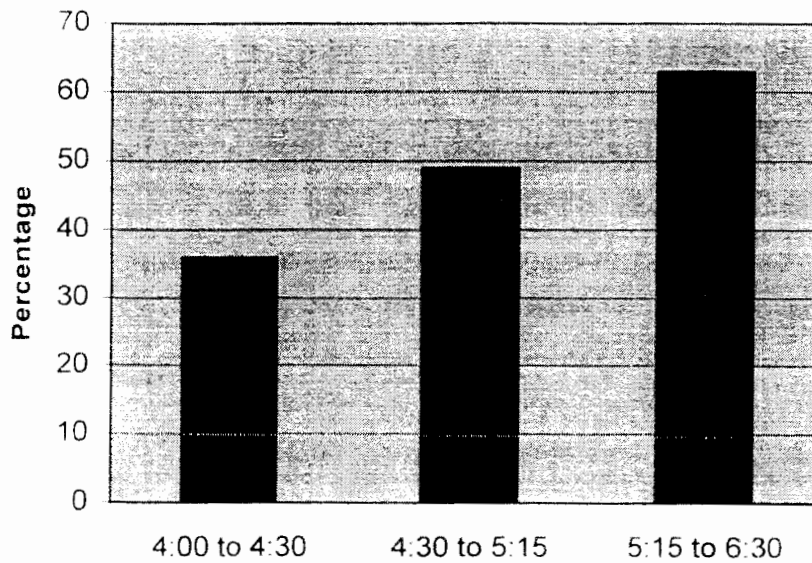
ECN and Other BD Share Volume in Nasdaq Securities from 5:15 p.m. to 6:30 p.m.



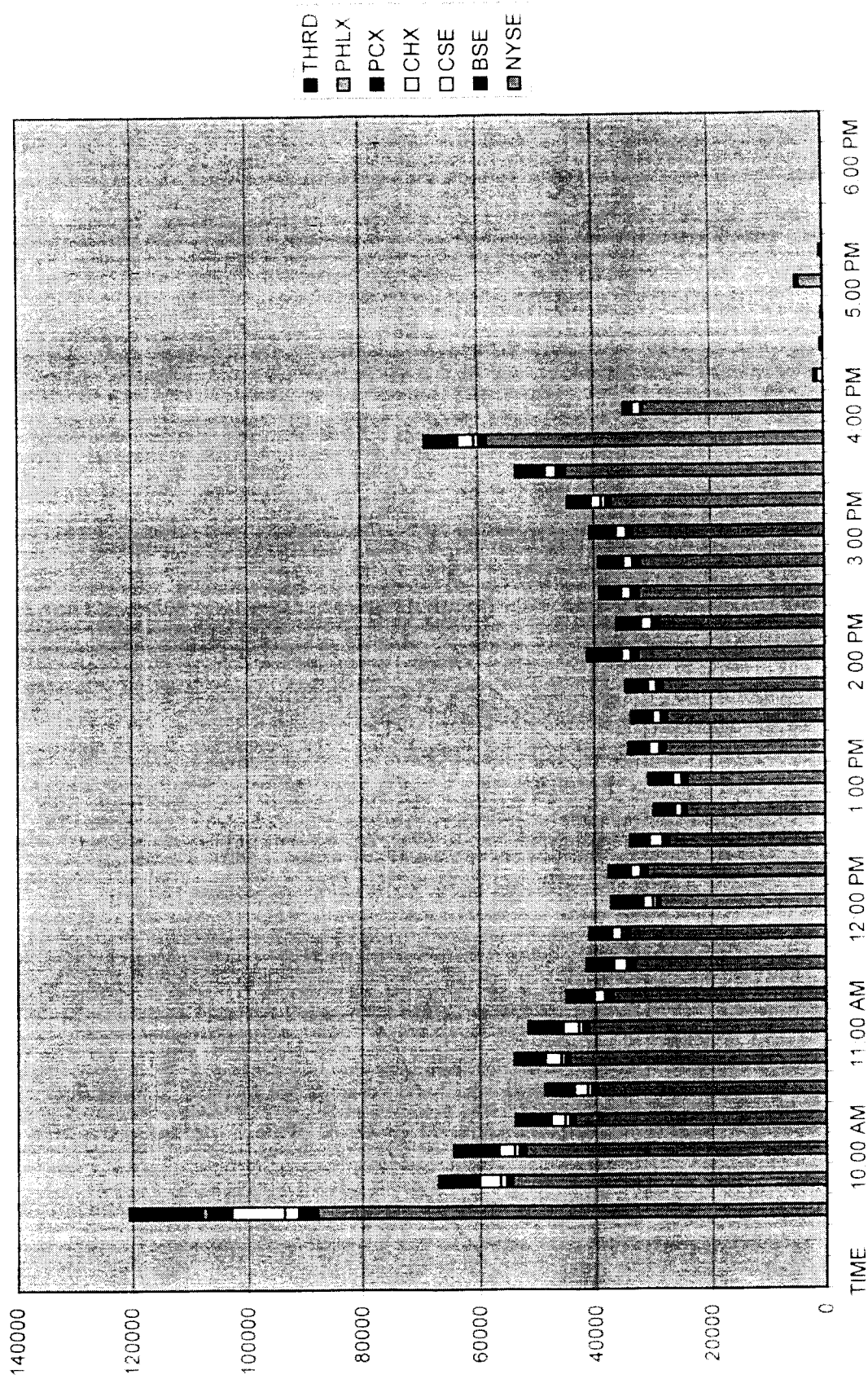
**Average Nasdaq Share Volume by ECNs
for Jan. 18 - 21, 2000**



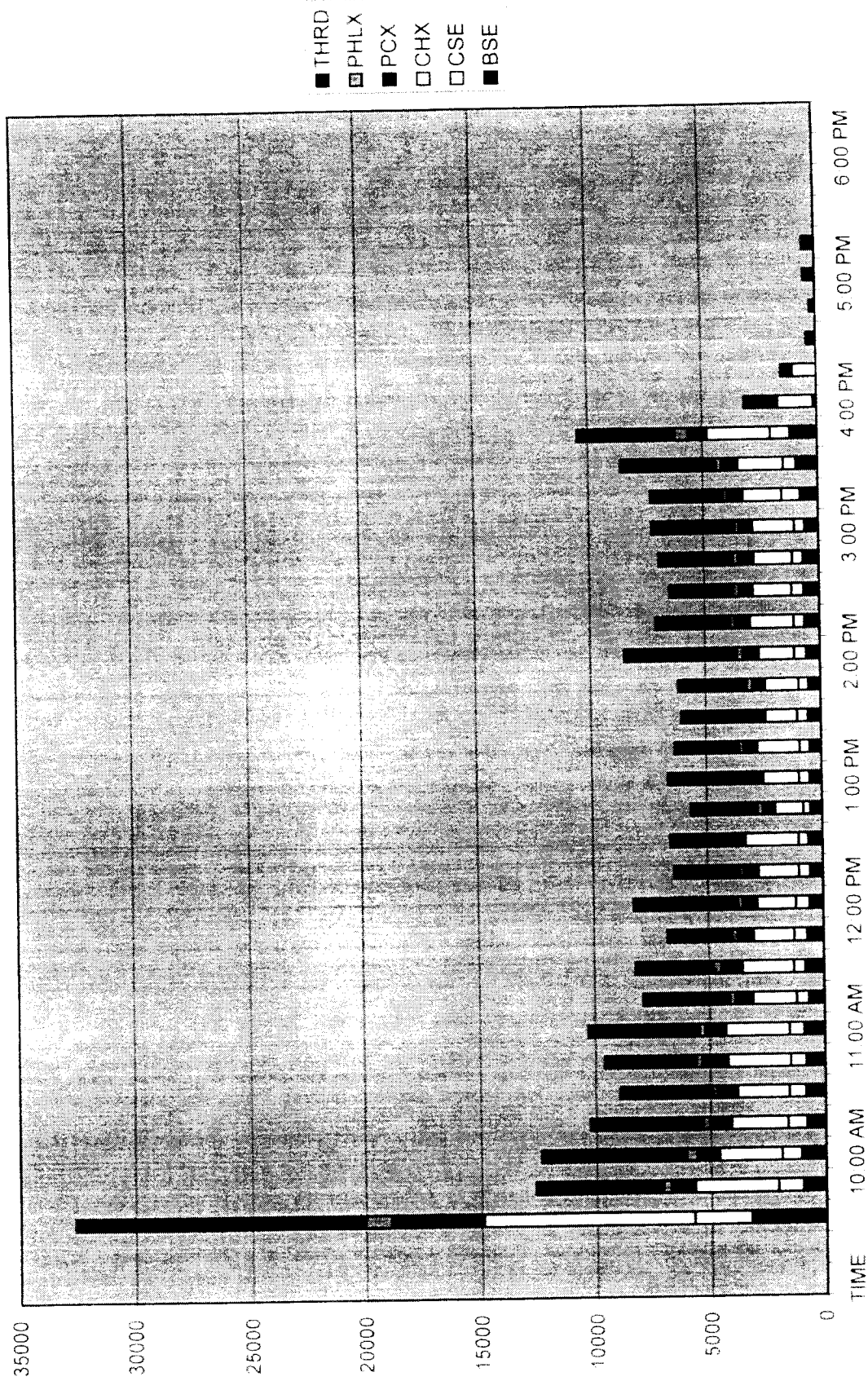
**Average Percent of Nasdaq Share
Volume by ECNs for Jan. 18 - 21, 2000**



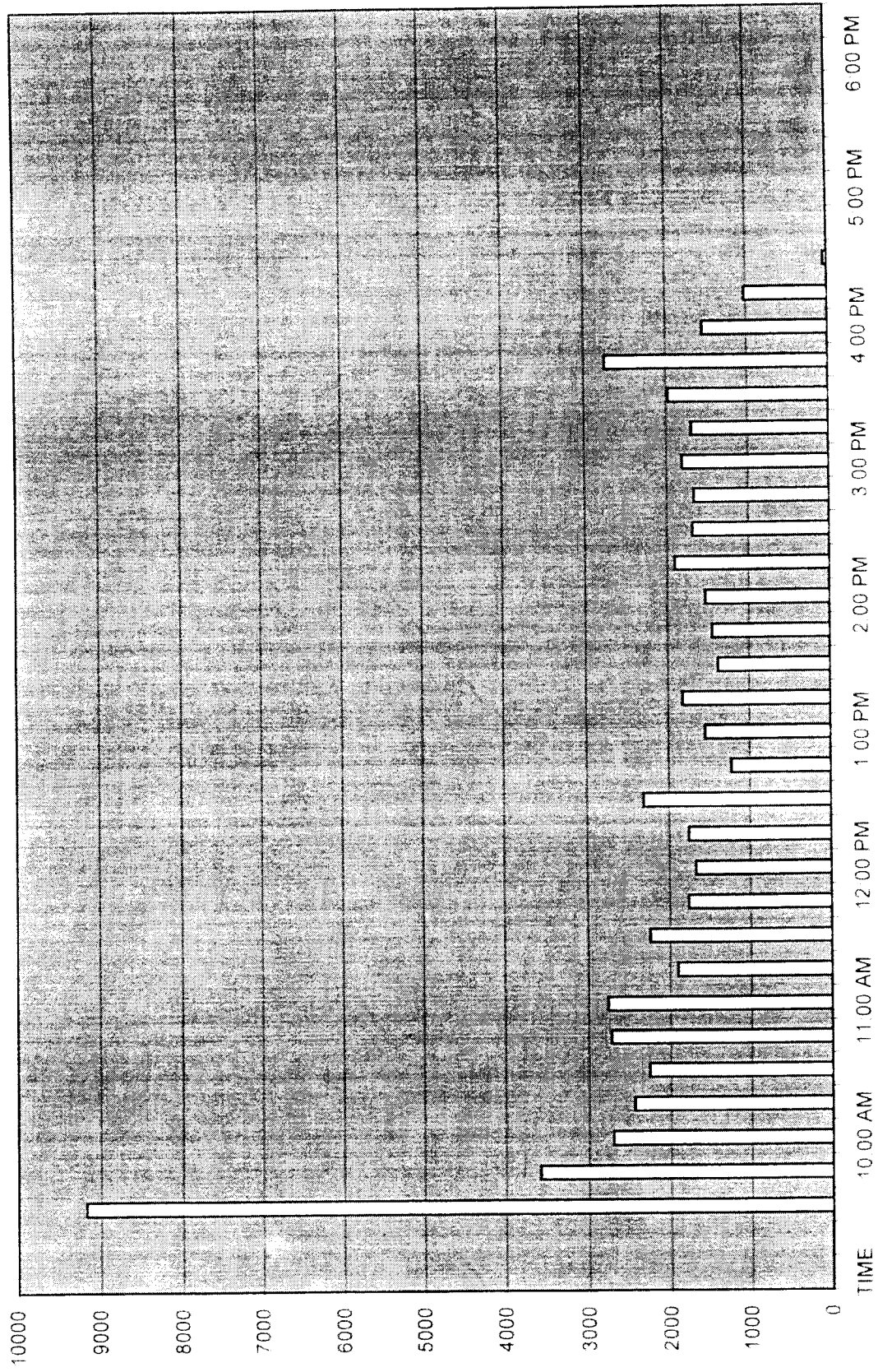
NYSE-Listed Share Volume on Jan. 18, 2000



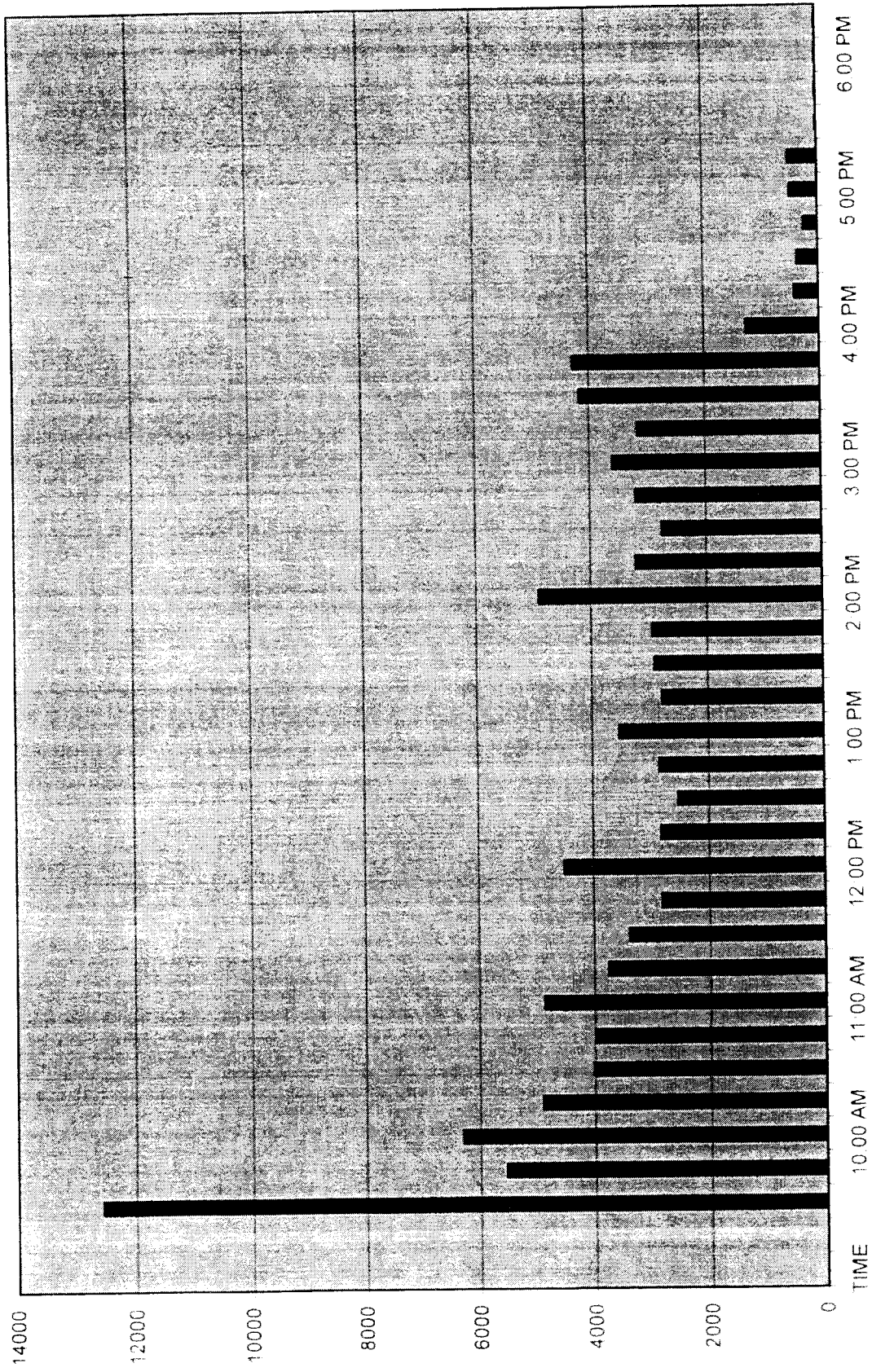
NYSE-Listed Share Volume on Regional Exchanges & Third Market on Jan. 18, 2000



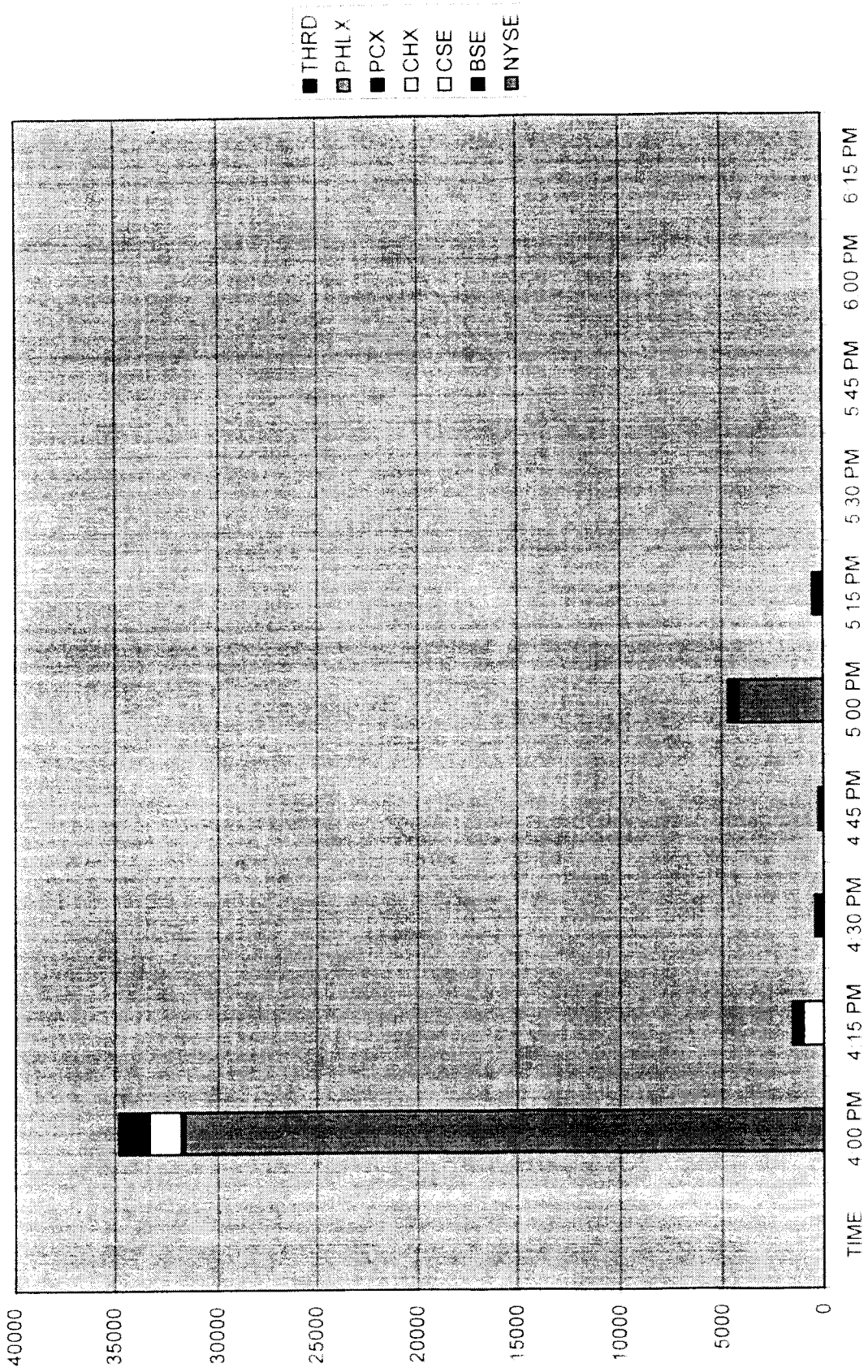
NYSE-Listed Share Volume on CHX on Jan. 18, 2000



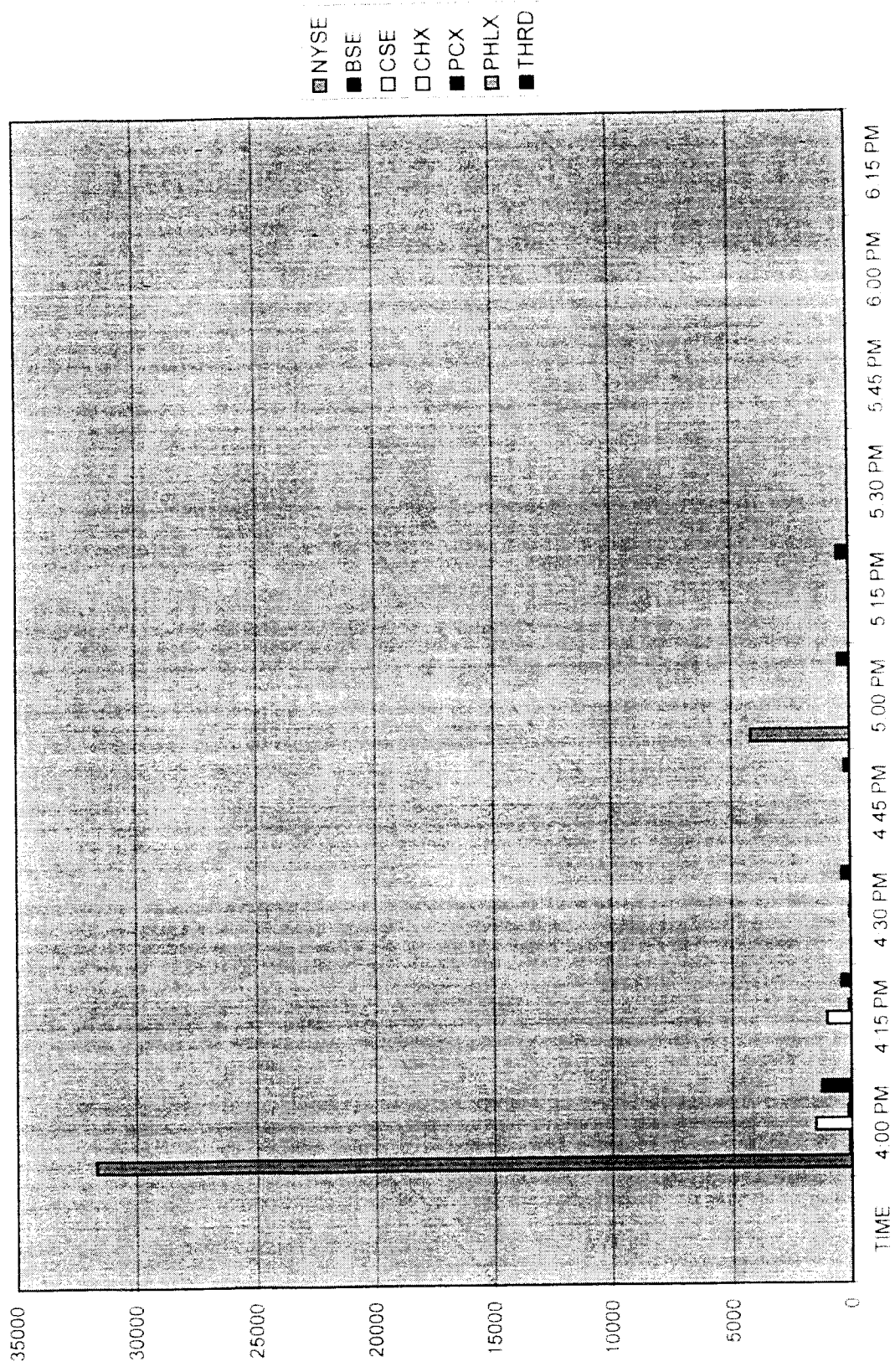
NYSE-Listed Share Volume on Third Market on Jan. 18, 2000



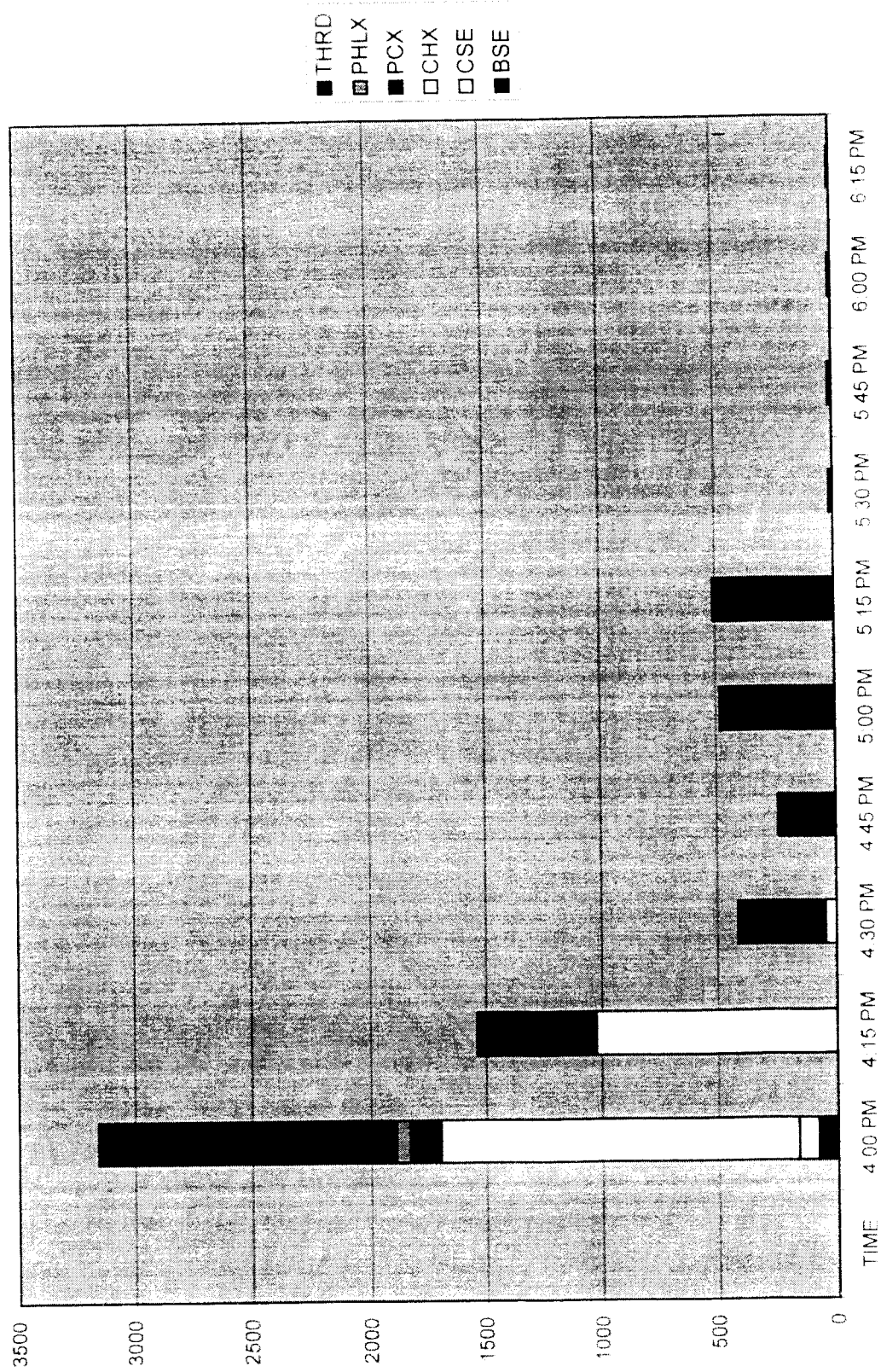
NYSE-Listed Share Volume from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



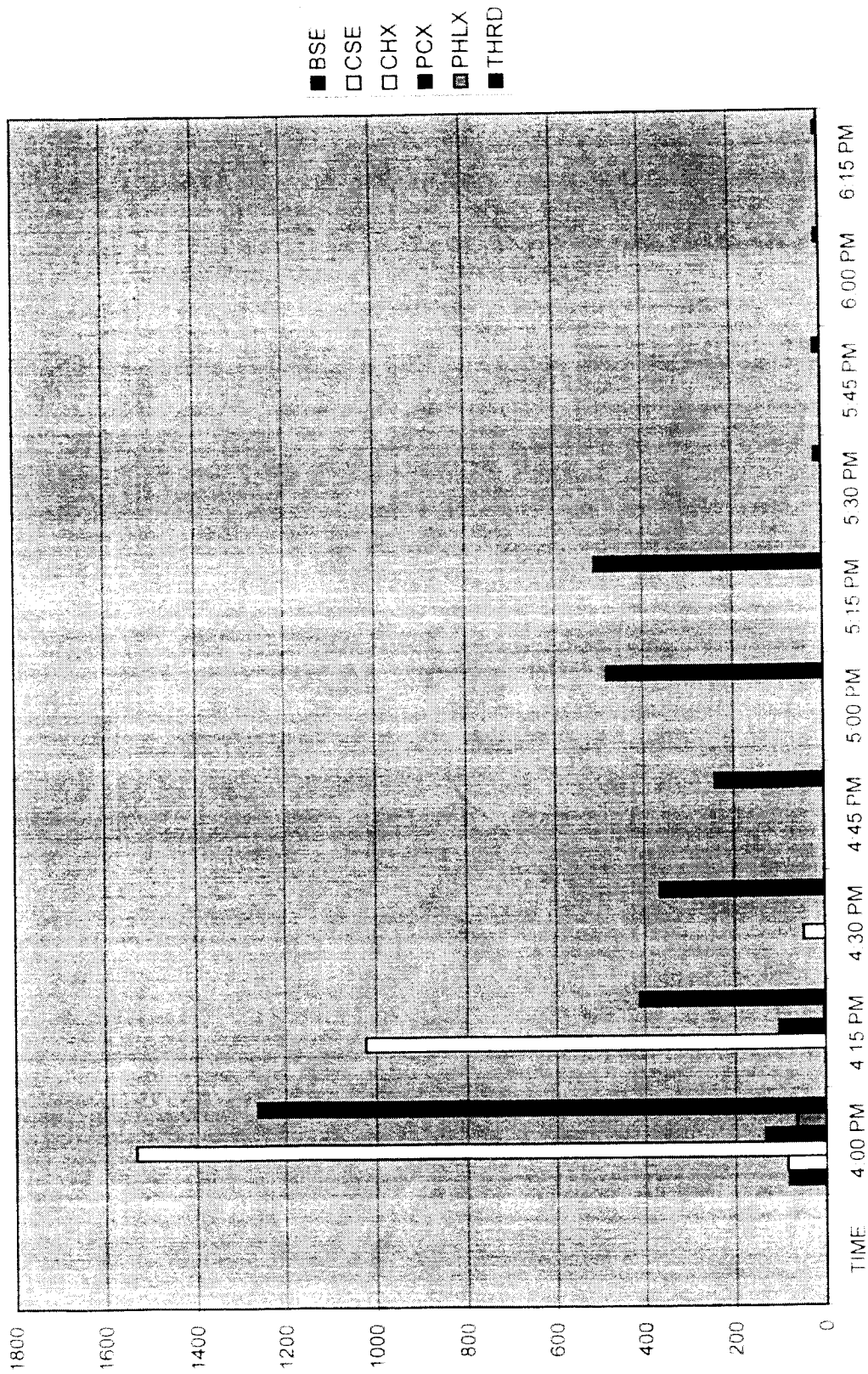
NYSE-Listed Share Volume from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



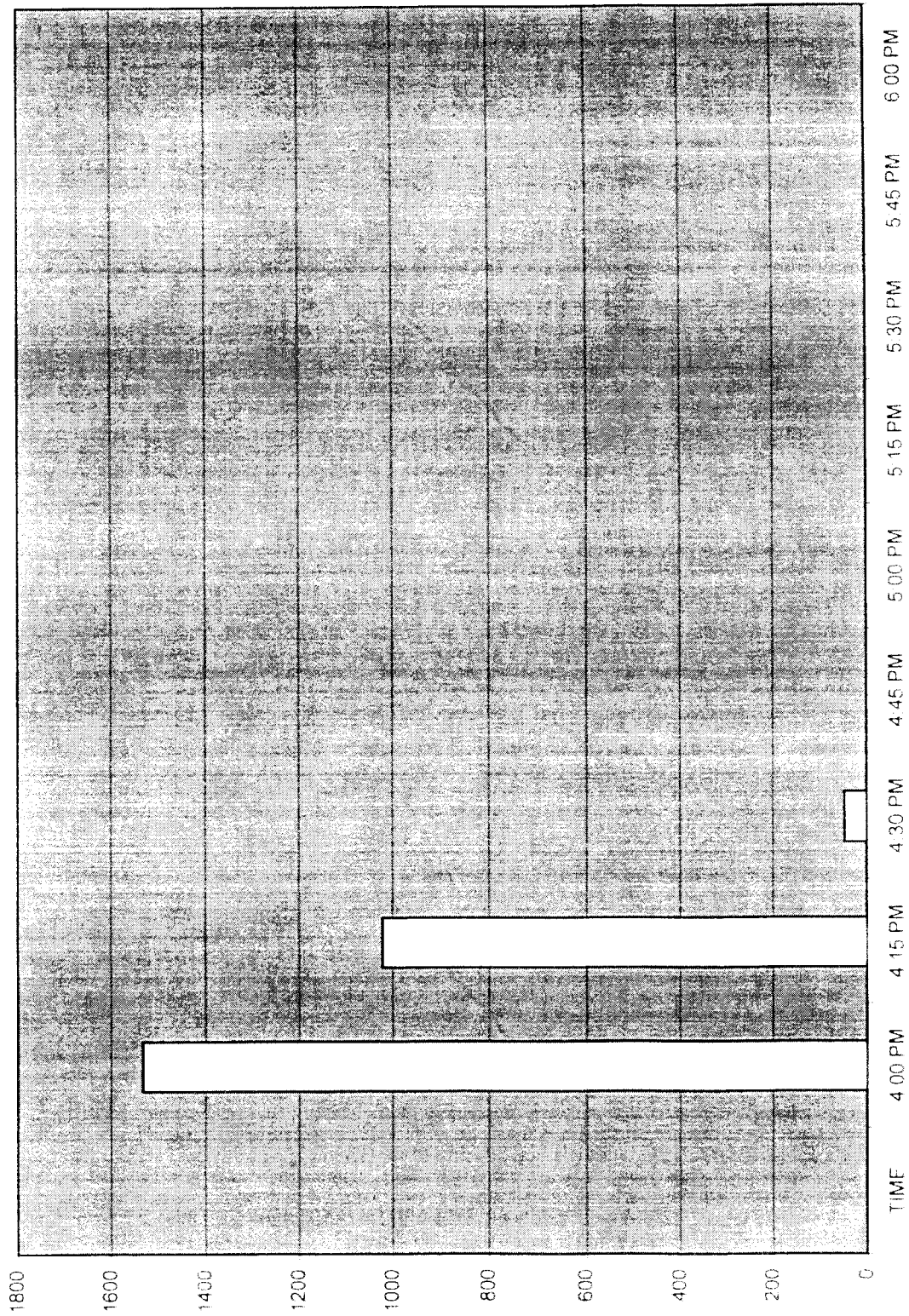
NYSE-Listed Share Volume on Regional Exchanges & Third Market
 from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



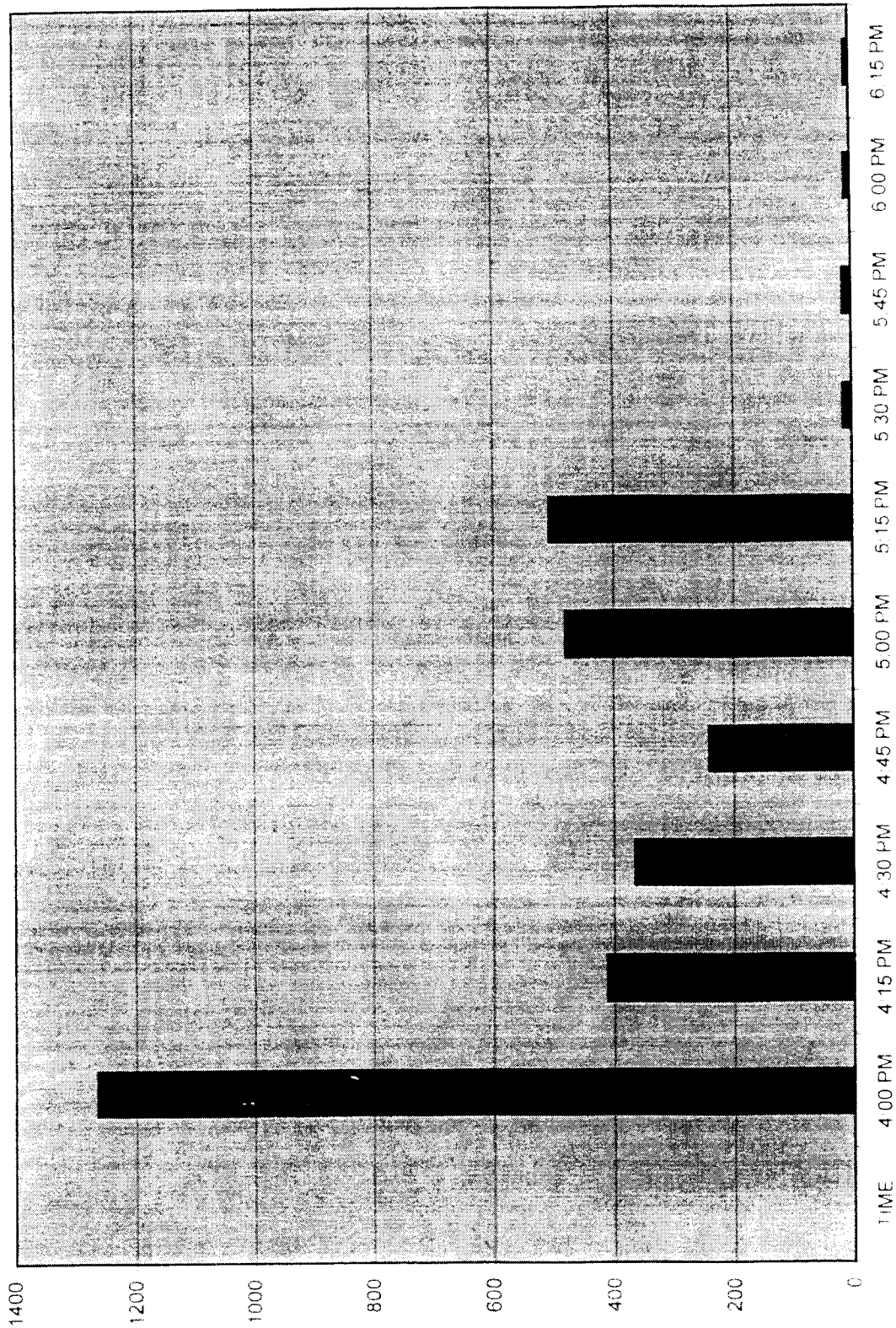
**NYSE-Listed Share Volume on Regional Exchanges & Third Market
from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000**



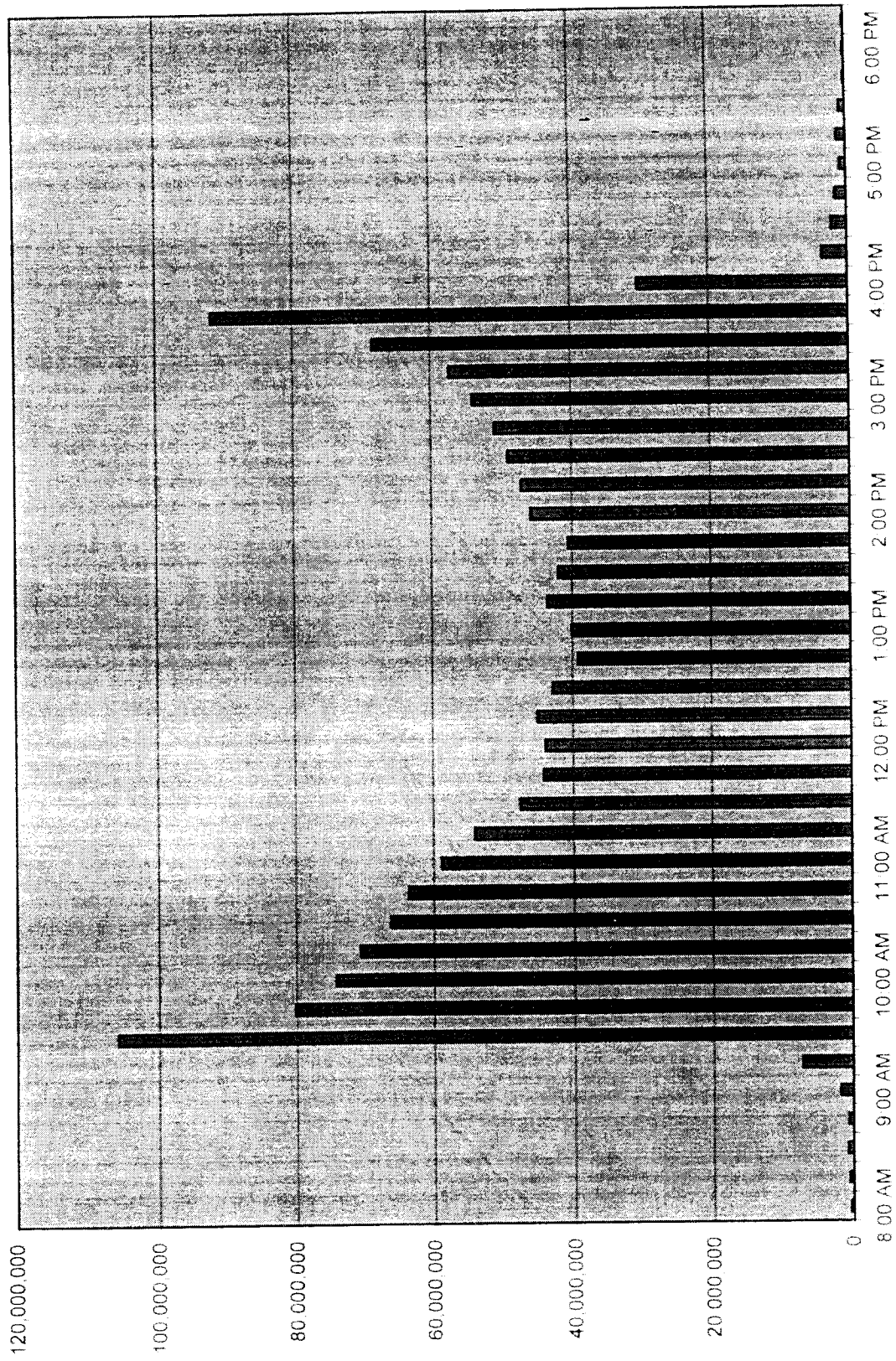
NYSE-Listed Share Volume on CHX from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



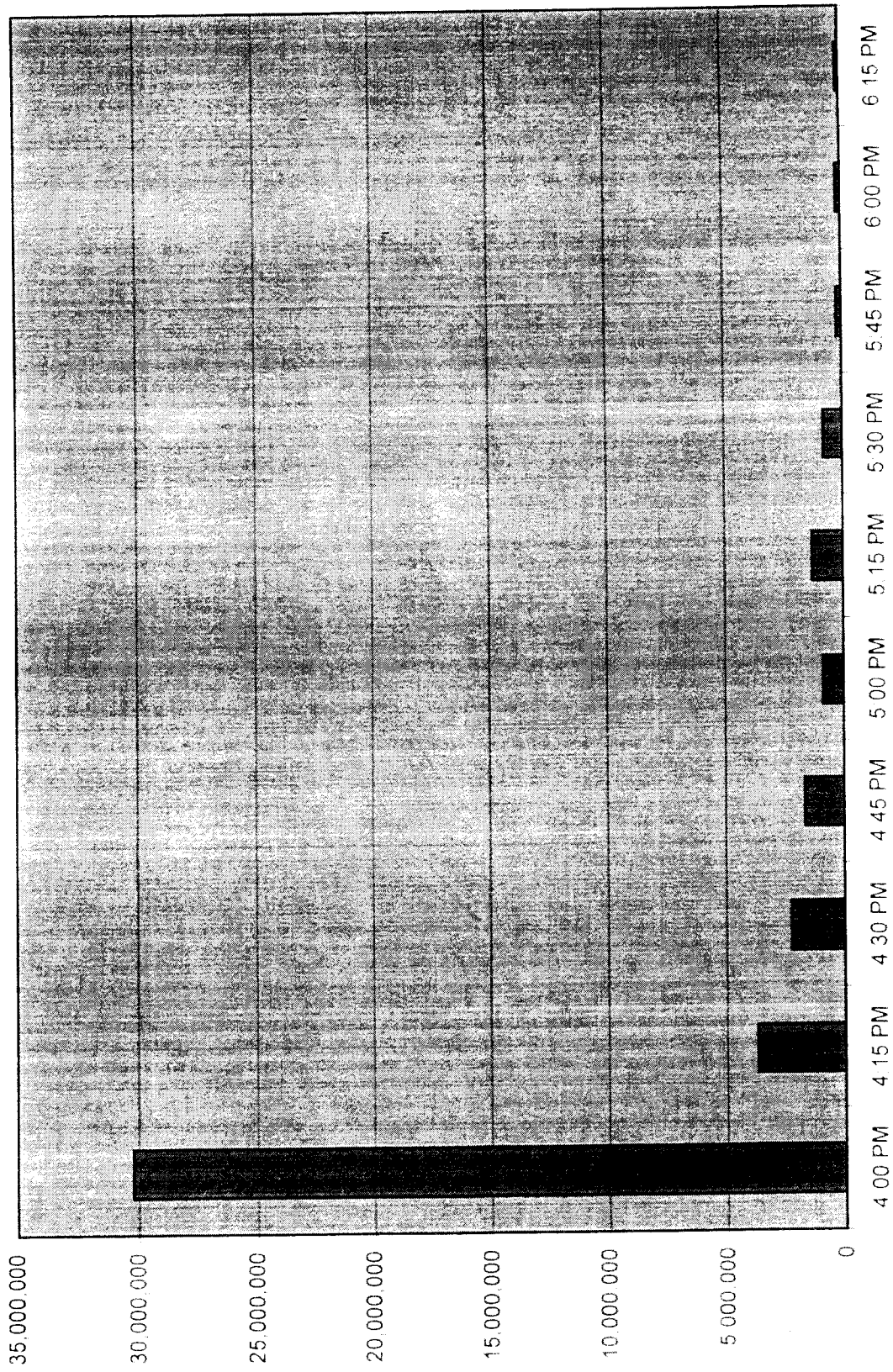
NYSE-Listed Share Volume on Third Market from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



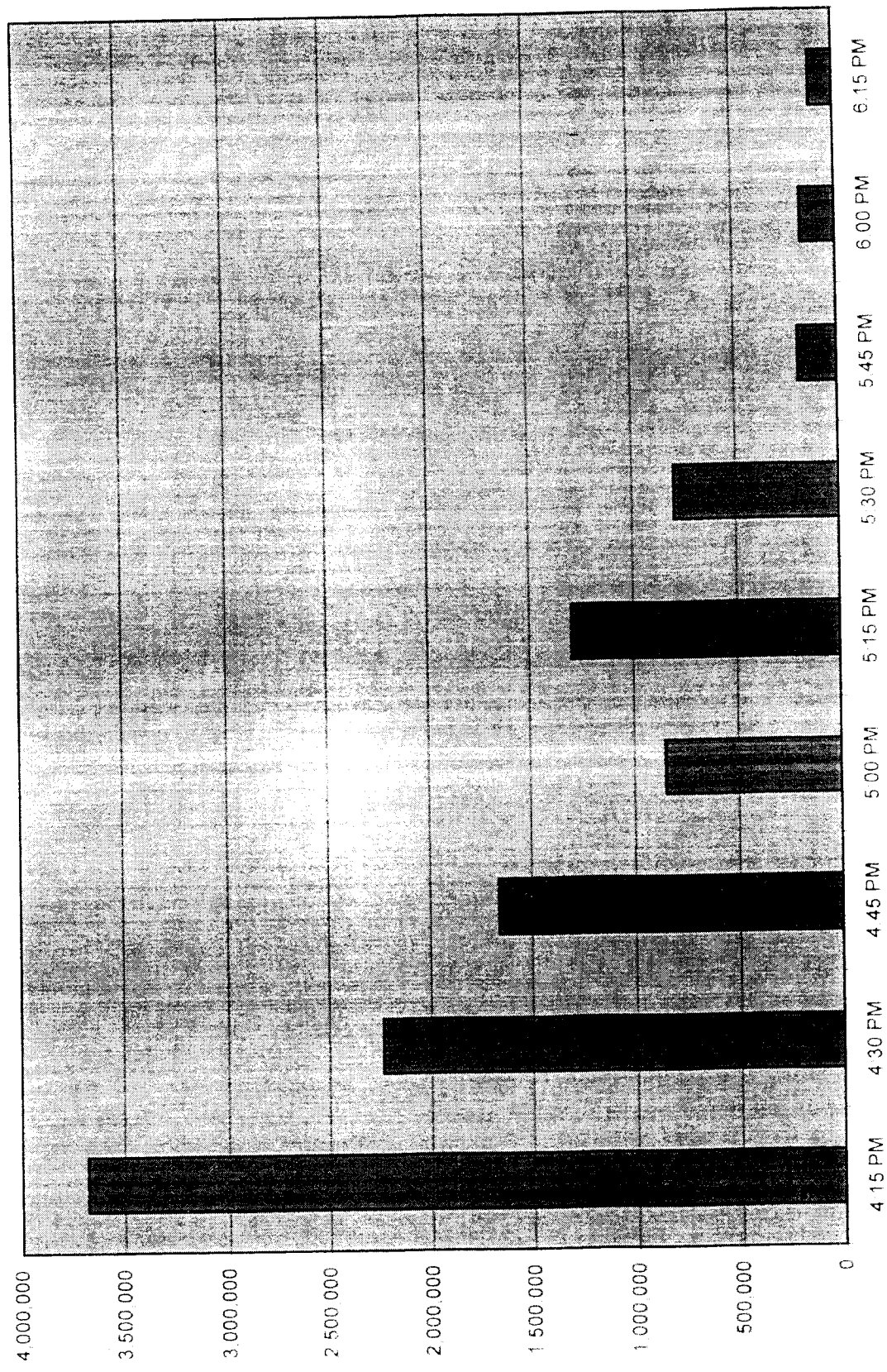
Nasdaq Share Volume on Jan. 18, 2000



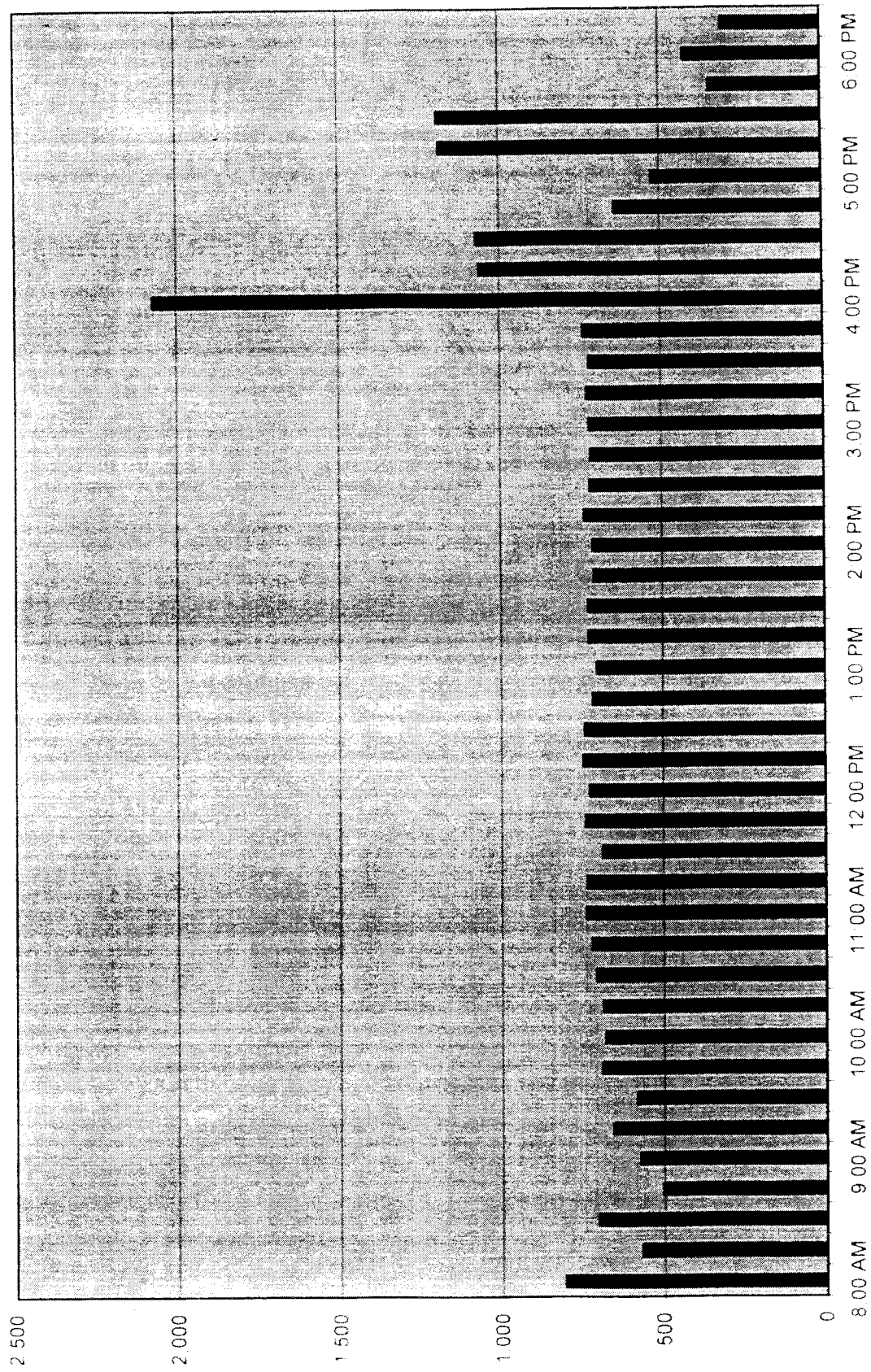
Nasdaq Share Volume from 4:00 p.m. to 6:30 p.m. on Jan. 18, 2000



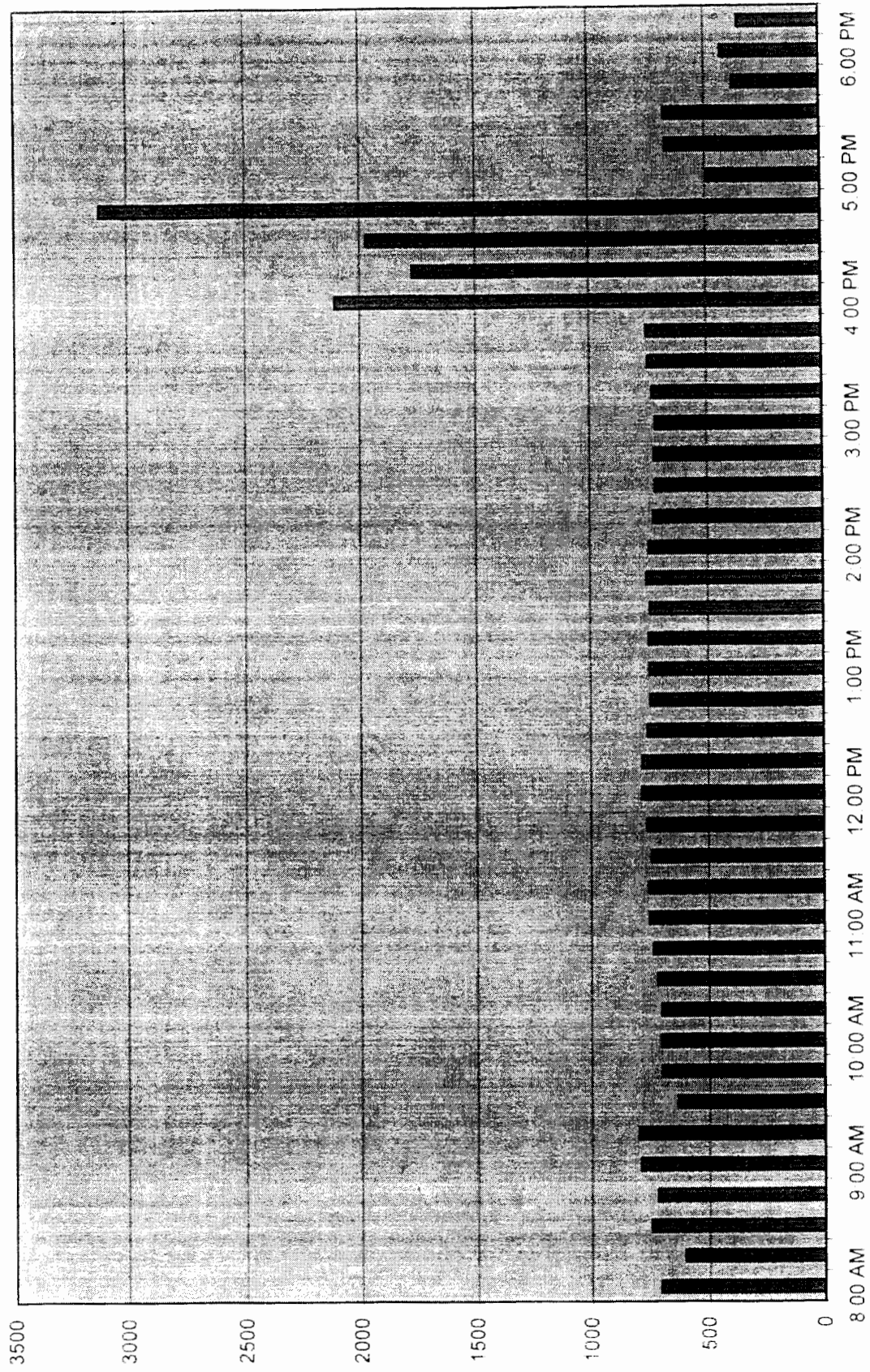
Nasdaq Share Volume from 4:15 p.m. to 6:30 p.m. on Jan. 18, 2000



Average Share Size for Nasdaq Issues on Jan. 18, 2000



Average Share Size for Nasdaq Issues from Jan. 18 to 21, 2000



Equity GIP

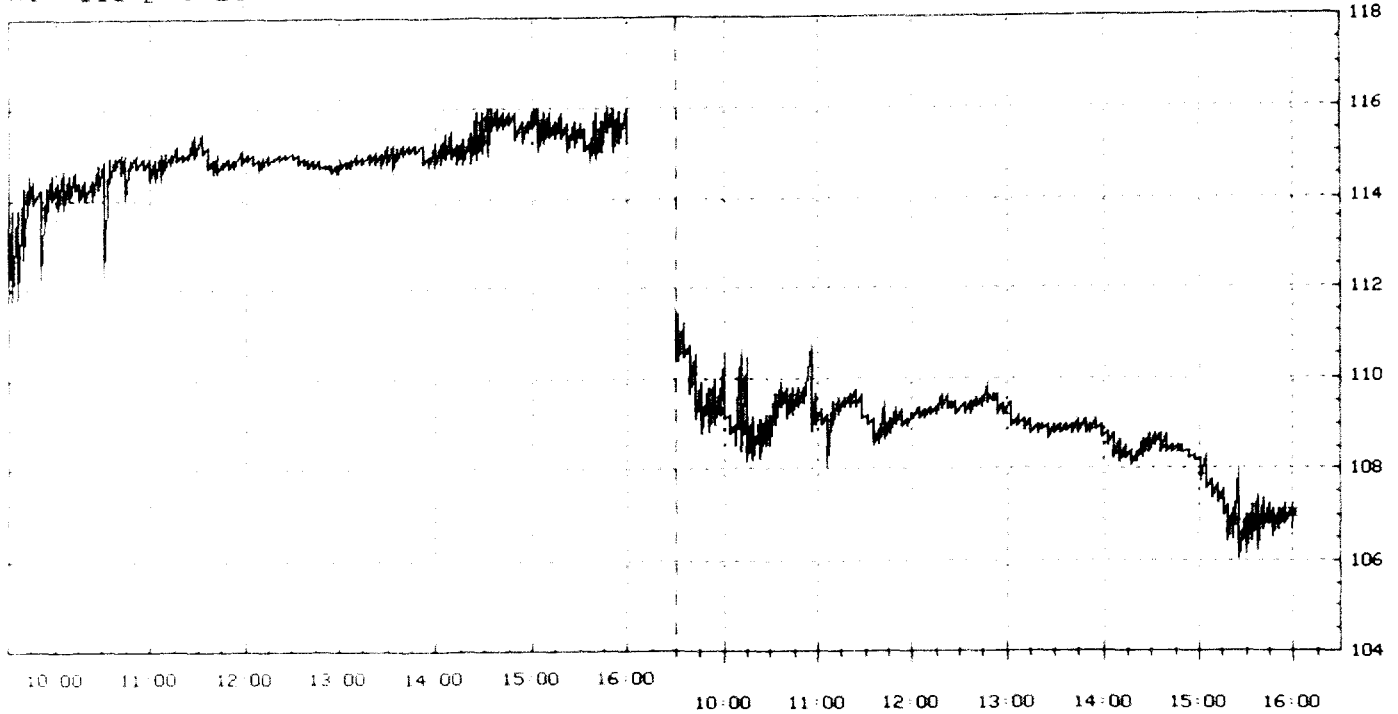
2-DAY CHART MSFT US

USD 9:30-16:00 Trades JAN 19

Hi 111 1/2 Q Lo 106 Q Vol 48783100

16:01 ↓ 107

-8 1/2 Q

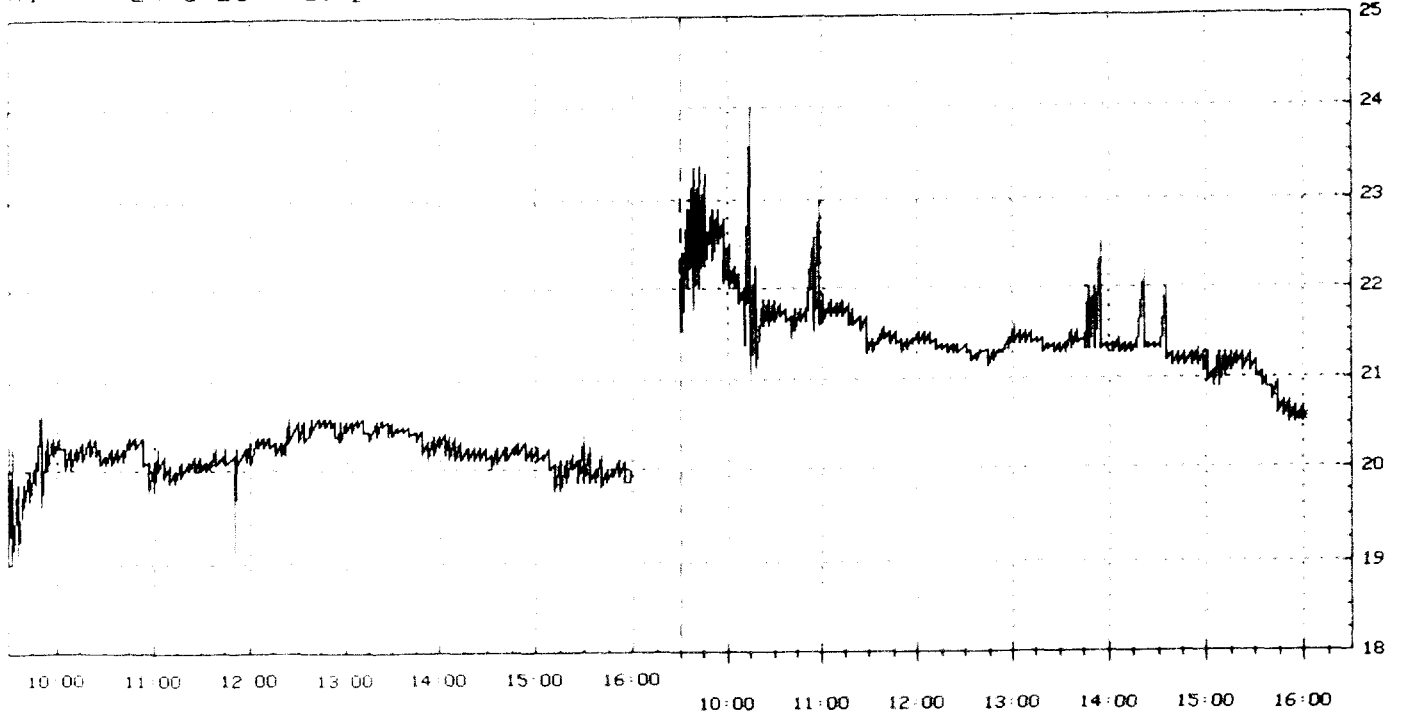


JAN 18 JAN 19
Copyright 2000 BLOOMBERG L.P. Frankfurt: 69-920410 Hong Kong: 2-977-6000 London: 171-330-7500 New York: 212-318-2000
Princeton: 609-279-3000 Singapore: 226-3000 Sydney: 2-9777-8686 Tokyo: 3-3201-8900 Sao Paulo: 11-3048-4500
1689-288-1 14-Feb-00 14:33:52



Equity GIP

2-DAY CHART CORL US USD **9:30-10:30** Trades JAN 19
Hi 24.0 Lo 20.1/2 Q Vol 8480300 16:01 ↓ **20%** +1/2 Q



JAN 18 JAN 19
Copyright 2000 BLOOMBERG L.P. Frankfurt: 69-920410 Hong Kong: 2-977-6000 London: 171-330-7500 New York: 212-318-2000
Princeton: 609-279-3000 Singapore: 226-3000 Sydney: 2-9777-8686 Tokyo: 3-3201-8900 Sao Paulo: 11-3048-4500
1689-288-1 14-Feb-00 14:35:09



Equity GIP

2-DAY CHART WATR US

USD **9:30-16:00** Trades

JAN 19

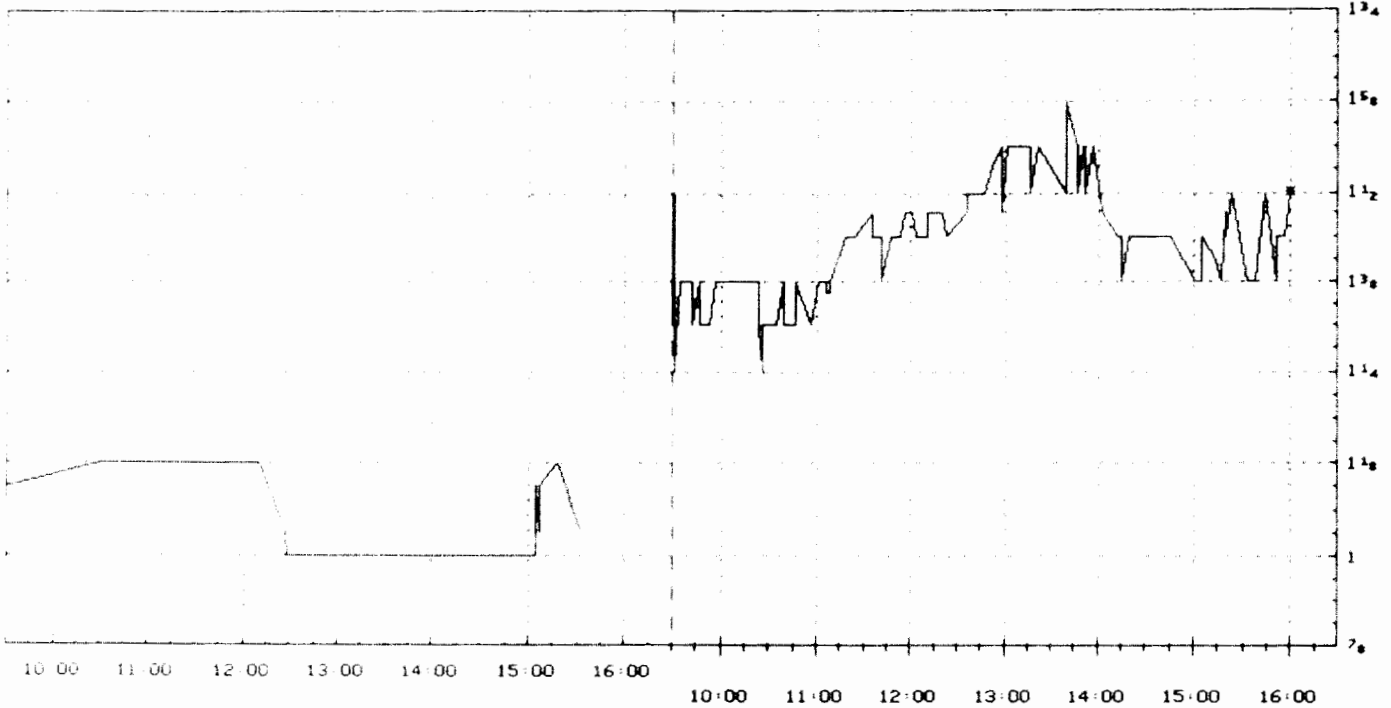
Hi 1⁵/₈ Q Lc 1¹/₄ Q Vol

289300

15:59 ↑

1¹/₂

+3¹/₂ Q

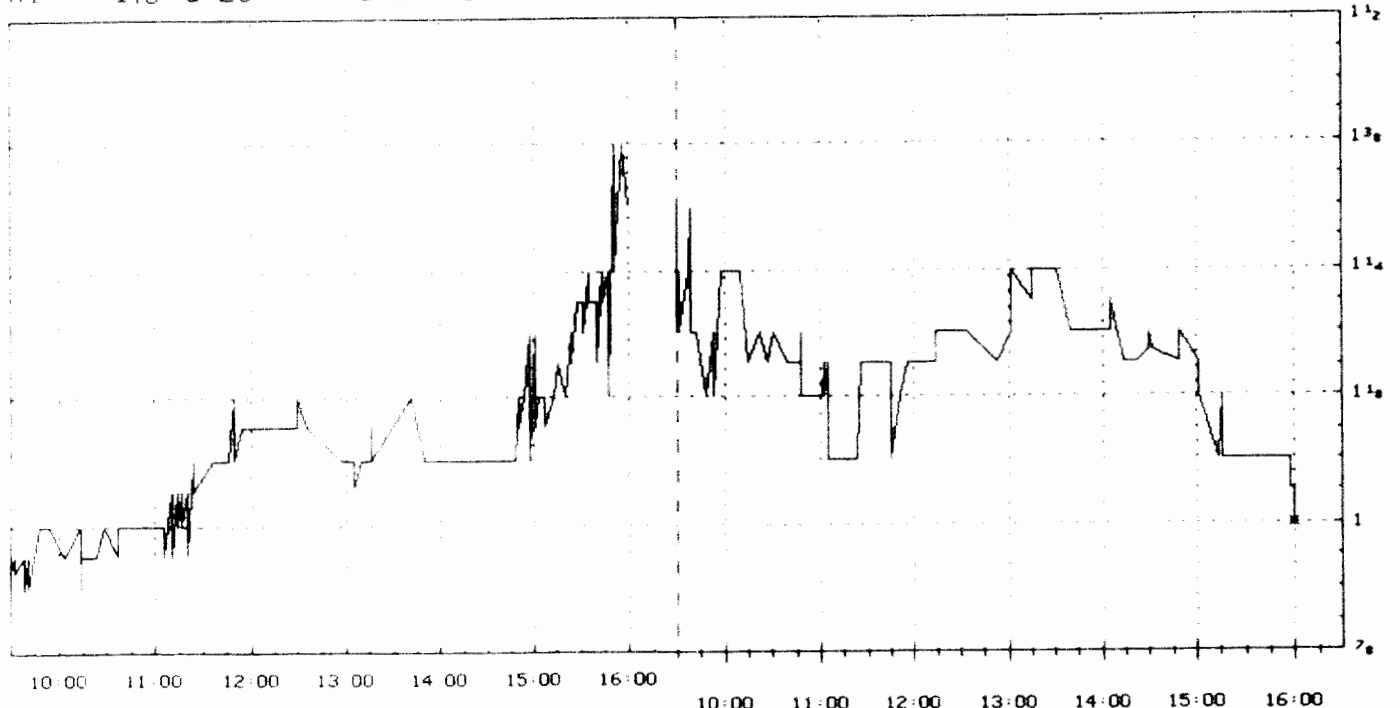


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 Princeton: 609-279-3000 Singapore: 226-3000 Sydney: 2-9777-8686 Tokyo: 3-3201-8900 Sao Paulo: 11-3048-4500
 1689-288-1 14-Feb-00 15:39:39



Equity GIP

2-DAY CHART CVOL US
 Hi 1.5 Q Lo 1 Q Vol 334200 16:00 USD 9:10-16:10 Trades 1 JAN 19
 -5.0 Q



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 Princeton: 609-279-3000 Singapore: 226-3000 Sydney: 2-9777-8686 Tokyo: 3-3201-8900 Sao Paulo: 11-3048-4500
 1689-288-1 14-Feb-00 15:42:38



ATTACHMENT C

OEAS STUDY OF
AFTER-HOURS TRADING
IN 15 NASDAQ STOCKS

Study of After-Hours Trading in 15 Nasdaq Stocks

I. Introduction and Summary

This section compares several statistical measures of market quality in the after-hours session to market quality measures during regular hours. Because Nasdaq issues are more active in the after-hours market, our analysis is confined to a sample of Nasdaq stocks.

We analyzed trade and quote data for the 15 largest Nasdaq-100 Index stocks for the week of February 7-11, 2000. Our results show that quoted spreads, trading costs, and trade price volatility measures all deteriorate in the after-hours market compared to regular trading hours. For our sample of 15 actively traded Nasdaq stocks, we find that trading costs are approximately three times higher in the after-hours market. For example, the average (median) quoted spread was 8 cents per share during regular trading hours and increased to 26 cents per share in after-hours trading. Effective spreads, a measure of trading costs, increased from 13 cents per share to 36 cents in after-hours trading. Trade price volatility, a measure of the average price change between trades, was 5 cents during regular hours and increased to 15 cents in after-hours trading.

These findings are consistent with an academic study by Barclay and Hendershott that examines 250 Nasdaq stocks in the first half of 1999.¹ They report that trading costs and volatility doubled in after-hours trading and increased by an even greater amount for the most active stocks. Our analysis looks at a more recent time period. We also examine inside bid-ask quotations in the after-hours markets, which have only been publicly disseminated since February 7, 2000.

II. Data Description

The study analyzes trade and quote data for the 15 largest Nasdaq-100 stocks measured by market capitalization (on February 24, 2000), using data from the Securities Industry Automation Corporation ("SIAC") for the week of February 7-11, 2000. The data includes inside quotation information and trade executions reported from 8:00 a.m. - 6:30 p.m. by traditional broker-dealers as well as trades executed on ECNs.

¹ Barclay and Hendershott, *Price Discovery and Trading Costs After Hours*, Working Paper, University of Rochester, Simon School of Business, January 24, 2000.

In this analysis, market quality statistics during regular trading hours are compared to after-hours trading statistics. Quote updates and trades executed from 9:30 am. to 4:00 p.m. EST are classified as normal trading hours; trades and quote updates from 4:00 p.m. to 6:30 p.m. are classified as 'after-hours'. After 6:30 p.m. trades are not subject to real time reporting and the consolidated tape does not display quote or trade information.

Table 1 presents statistics on average daily share volume, the distribution of volume during and after regular trading hours, and average trade size for each stock and for the entire sample. Stocks in the sample accounted for 14% of total Nasdaq share volume during regular hours and for about 17% of total Nasdaq volume in the after-hours session. The 15 stock sample accounted for 52% of the Nasdaq-100 Index market capitalization. Thus, the sample includes some of the most active Nasdaq issues and accounts for a sizeable share of total Nasdaq activity.

Approximately 4% of the sample volume was executed after hours (4:00 - 6:30 p.m.). An additional 1% of volume, approximately, was reported from 8:00 - 9:30 a.m., but may include trades that were executed after 6:30 p.m. on the prior day. In total, less than 5% of share volume in the sample stocks was traded outside of normal hours. For all Nasdaq issues the distribution is similar: 4% of volume was traded outside regular hours, and 96% was executed during regular trading hours.

Much of the after-hours trading occurs within the first 15 minutes after the close. Nonetheless, within our sample of 15 active stocks, several stocks remained relatively active as the after-hours session continued. For example, Cisco Systems (CSCO) traded an average of over 1 million shares per day from 4:15-6:30 p.m. during the sample week. And Dell Computers (DELL) and Microsoft (MSFT) each averaged over one-quarter of a million shares per day after 4:15 p.m. Thus, as a percent of a stock's total volume the figures may appear relatively low, but the number of shares traded and their dollar value can be significant.

III. Quotation Measures

Inside quoted spread represents the highest price to buy (inside bid) and the lowest price to sell (inside ask) among all quotes issued in a security. In the Nasdaq market, the best quote can represent a market-maker's proprietary quote, a customer limit

order, or a limit order entered on an ECN. The best quote is known as the "inside quote" and is disseminated to the public from 9:30 a.m. - 4:00 p.m.

On February 7, 2000 the NASD began to calculate and to disseminate inside quotes for the 4:00 - 6:30 p.m. period. Market-makers are not required to post quotes after-hours, but may do so if they choose. Therefore, quotes in the after-hours session are comprised of ECN quotes and those market-makers that elect to post quotes. Market-makers who post quotes must also display their customer limit orders when they better the inside market.² At this time, market-maker participation appears to be limited. Due to limited market-maker participation, less opportunity for customer limit order display, and low volume, it is expected that after-hours quote spreads would be wider than those posted during regular hours.

To examine quotation quality we look at quoted spread, percent spreads, and the frequency of locked and crossed markets.³ Table 2 presents time-weighted quoted spreads for each sample stock in regular trading hours and after-hours trading. We find that quoted spreads increase in the after-hours trading session. The average (median) stock had a quoted spread of 8 cents per share during regular trading hours and 26 cents per share in after-hours trading. The median increase in the quoted spread was 17 cents per share. This means that stocks in the sample typically had a quoted spread close to the minimum tick (6.25 cents) during regular hours. But the average quoted spread was four times the minimum tick in after-hours trading. Although the data show that quoted spreads increased substantially in after-hours trading, there is much variation across stocks. Differences ranged from a three cent increase for Dell Computers to a \$2.84 increase for Immunex (IMNX). Nevertheless, quoted spreads were greater after-hours for each of the 15 stocks examined.

Quoted spread as a percent of price (percent spread) also increased in the after-hours market. Results are presented in Table 2. These data show that percent spread increased from an average (median) of 0.08% during regular hours to 0.25% in after-

² Exchange Act Rule 11Ac1-1(c)(5). Part II of the study discusses the display of limit orders under the Order Handling Rules.

³ Quoted spreads represent the difference between the best bid and ask quoted in the market. Locked markets occur when the best bid is equal to the best ask, and crossed markets occur when the best bid exceeds the best ask.

hours trading. Mean values for both quoted and percent spreads increased by even greater amounts due to particularly large increases for two stocks

Academic studies document that stock spreads vary through the day and exhibit intra-day patterns.⁴ We know that after-hours trading is concentrated immediately after the close, so one might expect after-hours spreads to be smallest immediately following regular hours. Table 3 examines intra-day patterns of quoted and percent spreads in half-hour increments from 9:30 a.m. to 6:30 p.m.. Three of the four measures indicate that after-hours spreads are in fact at their lowest in the half-hour immediately following the 4:00 p.m. close. Percent spread (median) was about 0.08% during regular hours and increased to 0.21% in the first half-hour after the close. After 4:30 percent spreads increase even more, and the median percent spread was 0.28% from 6:00-6:30 p.m.. This pattern suggests that after-hours spreads are narrowest immediately after the close when trading activity is greater.

IV. Trade Based Measures

This section analyzes market quality using trade execution information. We examine effective spreads, percent effective spreads and trade volatility measures. Effective spread measures the cost of trading by comparing the execution price of a trade to the current mid-point of the quoted spread. Since trades sometimes occur at prices that are better than the posted quotes, the effective spread measure captures this 'improved pricing'. In particular, in the after-hours market where quoted spreads are relatively wide, it is possible that actual trading costs are less than those suggested by the quoted spreads. Table 4 presents findings for effective spread.

We find that effective spreads increase in the after-hours market compared to regular trading hours. The median effective spread increased from 13 cents per share during regular hours to 36 cents per share in after-hours trading.⁵ As a percent of price, the median effective spread rose from 0.15% during regular hours to 0.37% in after-hours

⁴ Barclay, Christie, Harris, Kandel, Schultz, *Effects of Market Reform on the Trading Costs and Depths of Nasdaq Stocks*, Journal of Finance, February 1999, Vol. LIV, No. 1. This study shows that spreads in Nasdaq stocks are widest at the open of trading, decline during mid-day trading and are narrowest at day-end

⁵ These effective spread measures are wider than the quoted spread measure, which is an unusual result. It is driven by a large percent of prices that are outside the quote as reflected in our merged quote and trade files. We suspect it reflects rapid quote changes and a subsequent decline in the precision with which trades and their contemporaneous quotes can be assigned.

trading. These findings are consistent with Barclay and Hendershott's estimate of percent bid-ask spreads.⁹ They report that percent bid-ask spreads for their sample of 250 stocks is twice as high in the after-hours session compared to the regular trading day, and that trading costs for the most active stocks increased by an even greater amount.

Next we look at the absolute value of trade-to-trade price change and percentage price change as measures of trade price volatility. Low trade price volatility means that trades occur at prices close to the previous trade price, while high trade price volatility shows that consecutive trade prices are further apart. Smaller changes in trade prices, or lower trade price volatility, are indicative of more liquid or lower cost markets. Trade price volatility (TPV) can be calculated as follows, and provides a percentage measurement of price change.

$$TPV = \text{absolute value} (\log(\text{trade_price}_t) - \log(\text{trade_price}_{t-1}))$$

Where: t-trade in time t, and t-1 is the preceding trade

Table 5 reports the average trade price volatility in regular and after-hours trading for each sample stock, and reports the mean and median values for the entire sample. We find that trade price volatility for the sample stocks ranges from 0.03 % to 0.11% during regular trading hours, with an average (median) trade price volatility of 0.05%. Trade price volatility increases in after-hours trading, and ranges from 0.10% to 0.32% for the sample stocks, with a median volatility of 0.16%. Every stock in the sample shows an increase in the after-hours trade price volatility. Expressed in cents per share, the average price change between trades (absolute value) was 5 cents per share during regular hours and increased to 15 cents in after-hours trading.

Table 6 presents trade price volatility by half-hour increments from 9:30 a.m. to 6:30 p.m. During regular trading hours trade price volatility is highest after the open and before the close of trading, and declines during mid-day. However, even compared to the higher trade price volatility experienced after the open and in late afternoon trading, trade price volatility increases after the close. For the average (median) stock, trade price volatility is 0.082% from 9:30-10:00. It declines in mid-day to 0.035%, and rises in the

⁹ Because Barclay and Hendershott did not have quote information, they used Roll's estimate of bid-ask spread based on the covariance of returns.

half-hour before the close to 0.055%. Following the close of regular trading, our sample has an average trade price volatility of 0.13% from 4:00-4:30. Trade price volatility ranges from 0.22%-0.34% in the remaining time segments. The average trade-to-trade price change shows similar patterns. Thus, we find that for our sample of stocks, trade prices are more volatile in the after-hours market.

Conclusion

Our analysis of a group of 15 Nasdaq stocks finds that market quality deteriorates and trading costs increase in after-hours trading. These results are consistent with those of a previous study by Barclay and Hendershott. Specifically, we find that quoted spreads increase from 8 cents during regular hours to 26 cents in after-hours trading, on average. Effective spreads, a measure of trading costs, averaged 13 cents during regular hours compared to 36 cents in after hours trading, and represent an almost tripling of trading costs in the after-hours market. Percentage effective spreads rose from 0.15% to 0.37% in the after market, a more than doubling of trading costs. Trade price volatility, a measure of trade-to-trade price change also increases in the after-hours market, increasing from an average of 5 cents per share during regular hours to 15 cents per share in after-hours trading.

The reader should understand that although these measures show that trading costs increase in the after-hours market, this does not imply that trading costs are higher than they should be. Trading costs are determined by a number of factors, including the price of the stock, the level of trading activity and the stock's volatility. Since higher volume contributes to narrower spreads, the less liquid after-hours market is expected to exhibit higher trading costs.

One risk investors face trading after-hours, is that trades may execute at prices that differ from the day's closing price. In fact, broker-dealers may accept only limit orders from investors in the after-hours markets to prevent executions at unexpected prices. We examined trade prices after-hours compared to the last trade price during regular hours. The trade-to-close measure represents the absolute value of the percentage difference of the trade price and closing trade price and is presented in Table 5. The results show that trades executed after the close are, on average, 0.24% away from the closing price, or 27 cents per share away from the closing price.

Table 1
Average Daily Share Volume and Distribution Across Day, and Average Trade Size for Sample and All Nasdaq Stocks
February 7-11, 2000

	Average Daily Share Volume				Volume Distribution				Average Trade Size		
	Before 9 30	9 30-4 00	4 00-4 15	4 15-6 30	Before 9 30	9 30-4 00	4 00-4 15	4 15-6 30	Before 9 30	9 30-4 00	4 00-6 30
	(shares in 000's)										
AMAT	25	7,641	150	38	0.3%	97.3%	1.9%	0.5%	429	500	1,350
AMGN	43	8,602	325	42	0.5%	95.5%	3.6%	0.5%	737	724	2,989
CSCO 1/	743	34,344	663	1,114	2.0%	93.2%	1.8%	3.0%	1,044	600	893
DELL	844	39,458	992	317	2.0%	94.8%	2.4%	0.8%	1,862	1,058	1,990
GBLX	31	7,818	195	35	0.4%	96.8%	2.4%	0.4%	620	674	2,181
IMNX	12	2,165	84	11	0.5%	95.3%	3.7%	0.5%	378	407	1,542
INTC	201	19,152	560	162	1.0%	95.4%	2.8%	0.8%	1,044	786	2,681
JDSU	36	6,464	133	42	0.5%	96.8%	2.0%	0.6%	365	338	1,040
MSFT	245	30,623	1,010	263	0.8%	95.3%	3.1%	0.8%	1,293	932	3,034
NXTL	24	3,297	94	32	0.7%	95.7%	2.7%	0.9%	1,850	551	1,759
ORCL	173	24,432	603	186	0.7%	96.2%	2.4%	0.7%	961	822	2,465
QCOM	82	8,601	242	70	0.9%	95.6%	2.7%	0.8%	524	369	1,058
SUNW	106	16,208	443	71	0.6%	96.3%	2.6%	0.4%	752	627	2,158
VRTS	15	2,913	103	12	0.5%	95.7%	3.4%	0.4%	537	469	1,453
YHOO	41	5,392	117	37	0.7%	96.5%	2.1%	0.7%	309	299	632
Total Sample	2,622	217,110	5,716	2,430	1.2%	95.3%	2.5%	1.1%	1,049	670	1,572
All Nasdaq Issues	13,677	1,509,654	33,832	13,333	0.9%	96.1%	2.2%	0.8%	801	726	1,707
Sample Volume as % of Total	19.2%	14.4%	16.9%	18.2%	-	-	-	-	-	-	-

1/ An earnings announcement for Cisco Systems was made on February 7, 2000 after the 4 p.m. close.

Note: Trades executed after 6:30 p.m. are included in the following day trade reports.

Table 2
Time-Weighted Quoted Spread, Percent Spread, and Locked/Crossed Markets for Regular Hours and After
Hours Trading
15 Nasdaq Stocks - February 7-11, 2000

Stocks in Sample	Quoted Spread		Percent Spread		Locked/Crossed Quotes			
	9:30-4:00	4:00-6:30	9:30-4:00	4:00-6:30	9:30-4:00	4:00-6:30		
	Difference		Difference		Difference			
AMAT	\$ 0.09	\$ 0.70	\$ 0.61	0.06%	0.43%	0.37%	2.8%	5.3%
AMGN	\$ 0.07	\$ 0.43	\$ 0.36	0.11%	0.64%	0.53%	1.1%	4.4%
CSCO	\$ 0.06	\$ 0.12	\$ 0.06	0.05%	0.09%	0.04%	3.1%	7.9%
DELL	\$ 0.06	\$ 0.09	\$ 0.03	0.17%	0.24%	0.07%	1.6%	4.9%
GBLX	\$ 0.08	\$ 0.25	\$ 0.17	0.15%	0.46%	0.31%	1.1%	0.5%
IMNX	\$ 0.37	\$ 3.22	\$ 2.84	0.23%	2.00%	1.77%	0.7%	1.1%
INTC	\$ 0.07	\$ 0.19	\$ 0.13	0.06%	0.18%	0.12%	2.1%	1.9%
JDSU	\$ 0.10	\$ 0.59	\$ 0.49	0.05%	0.29%	0.24%	2.2%	3.1%
MSFT	\$ 0.07	\$ 0.15	\$ 0.08	0.06%	0.14%	0.08%	2.1%	3.5%
NXTL	\$ 0.17	\$ 1.28	\$ 1.11	0.14%	1.02%	0.88%	0.7%	0.4%
ORCL	\$ 0.07	\$ 0.15	\$ 0.09	0.11%	0.25%	0.14%	1.8%	2.5%
QCOM	\$ 0.09	\$ 0.26	\$ 0.17	0.07%	0.19%	0.12%	2.7%	4.2%
SUNW	\$ 0.07	\$ 0.14	\$ 0.07	0.08%	0.16%	0.08%	2.5%	10.1%
VRTS	\$ 0.17	\$ 1.98	\$ 1.81	0.10%	1.17%	1.06%	1.7%	0.6%
YHOO	\$ 0.19	\$ 0.62	\$ 0.43	0.05%	0.17%	0.12%	4.0%	2.2%
Mean	\$ 0.12	\$ 0.68	\$ 0.56	0.10%	0.50%	0.40%	2.02%	3.51%
Median	\$ 0.08	\$ 0.26	\$ 0.17	0.08%	0.25%	0.14%	2.12%	3.10%

Quoted spreads represent the difference between the best bid and the best ask quoted in the market. Percent spread is equal to the quoted spread as a percent of the quote mid-point. Locked markets occur when the best bid is equal to the best ask. Crossed markets occur when the best bid is greater than the best ask.

Table 3
Quoted and Percent Spread by Half-Hour Increment
from 9:30 a.m. - 6:30 p.m.
15 Ndaq Stocks, February 7-11, 2000

<u>Time</u>	<u>Quoted Spread</u>		<u>Percent Quoted Spread</u>	
	Median	Mean	Median	Mean
<u>Regular Hours</u>				
9:30-10:00	\$ 0.08	\$ 0.11	0.07%	0.09%
10:00-10:30	\$ 0.08	\$ 0.12	0.08%	0.10%
10:30-11:00	\$ 0.09	\$ 0.12	0.08%	0.10%
11:00-11:30	\$ 0.08	\$ 0.12	0.08%	0.10%
11:30-12:00	\$ 0.08	\$ 0.11	0.08%	0.10%
12:00-12:30	\$ 0.08	\$ 0.11	0.08%	0.10%
12:30-1:00	\$ 0.08	\$ 0.11	0.08%	0.10%
1:00-1:30	\$ 0.08	\$ 0.12	0.08%	0.10%
1:30-2:00	\$ 0.08	\$ 0.13	0.08%	0.11%
2:00-2:30	\$ 0.08	\$ 0.13	0.08%	0.11%
2:30-3:00	\$ 0.08	\$ 0.12	0.08%	0.10%
3:00-3:30	\$ 0.08	\$ 0.12	0.08%	0.10%
3:30-4:00	\$ 0.08	\$ 0.11	0.07%	0.09%
<u>After Hours</u>				
4:00-4:30	\$ 0.27	\$ 0.49	0.21%	0.38%
4:30-5:00	\$ 0.30	\$ 0.72	0.27%	0.54%
5:00-5:30	\$ 0.23	\$ 0.77	0.25%	0.55%
5:30-6:00	\$ 0.22	\$ 0.50	0.28%	0.35%
6:00-6:30	\$ 0.31	\$ 0.81	0.28%	0.57%

Spread measures are time weighted and calculated for each stock for each half-hour interval. Mean values are equal weighted by stock. Percent spread is equal to the bid-ask spread as a percent of the quote midpoint.

Table 4
Effective Spreads and Percent Effective Spreads for Regular Hours and After
Hours Trading by Half-Hour Increment from 9:30 a.m. - 6:30 p.m.
15 Ndaq Stocks, February 7-11, 2000

Summary

<u>Time</u>	<u>Effective Spread</u>		<u>Percent Effective Spread</u>	
	Mean	Median	Mean	Median
9:30-4:00	\$ 0.19	\$ 0.13	0.15%	0.15%
4:00-6:30	\$ 0.56	\$ 0.36	0.43%	0.37%

Half-hour Intervals

<u>Time</u>	<u>Effective Spread</u>		<u>% Effective Spread</u>	
	Median	Mean	Median	Mean
<u>Regular Hours</u>				
9:30-10:00	\$ 0.26	\$ 0.37	0.27%	0.29%
10:00-10:30	\$ 0.15	\$ 0.22	0.18%	0.18%
10:30-11:00	\$ 0.12	\$ 0.18	0.13%	0.14%
11:00-11:30	\$ 0.10	\$ 0.13	0.10%	0.05%
11:30-12:00	\$ 0.08	\$ 0.13	0.09%	0.11%
12:00-12:30	\$ 0.08	\$ 0.13	0.09%	0.11%
12:30-1:00	\$ 0.08	\$ 0.12	0.08%	0.10%
1:00-1:30	\$ 0.09	\$ 0.13	0.08%	0.11%
1:30-2:00	\$ 0.08	\$ 0.14	0.09%	0.11%
2:00-2:30	\$ 0.09	\$ 0.14	0.09%	0.12%
2:30-3:00	\$ 0.10	\$ 0.14	0.10%	0.11%
3:00-3:30	\$ 0.09	\$ 0.15	0.10%	0.12%
3:30-4:00	\$ 0.10	\$ 0.15	0.11%	0.12%
<u>After Hours</u>				
4:00-4:30	\$ 0.29	\$ 0.45	0.29%	0.35%
4:30-5:00	\$ 0.46	\$ 1.00	0.61%	0.76%
5:00-5:30	\$ 0.95	\$ 1.19	0.48%	0.92%
5:30-6:00	\$ 0.76	\$ 1.32	0.74%	0.94%
6:00-6:30	\$ 0.42	\$ 0.66	0.47%	0.48%

Effective spread equals the absolute value of the twice the difference of the trade price and the quote midpoint. Percent spread is effective spread as a percent of the quote midpoint. The measures are calculated for each stock for each time interval and the mean or median value of the stocks presented

Table 5
Trade Price Volatility and Average Trade Price Change in Regular Hours and After Hours
Trading
15 Nasdaq Stocks February 7-11, 2000

	Trade Price Volatility			Average Price Change		
	Trade-to-Trade		Trade-to-Close	Trade-to-Trade		Trade-to-Close
	9:30-4:00	4:00-6:30	4:00-6:30	9:30-4:00	4:00-6:30	4:00-6:30
AMAT	0.04%	0.26%	0.24%	\$ 0.06	\$ 0.42	\$ 0.40
AMGN	0.06%	0.18%	0.19%	\$ 0.04	\$ 0.12	\$ 0.13
CSCO	0.04%	0.11%	0.81%	\$ 0.05	\$ 0.15	\$ 1.05
DELL	0.07%	0.16%	0.39%	\$ 0.03	\$ 0.06	\$ 0.15
GBLX	0.07%	0.24%	0.27%	\$ 0.04	\$ 0.13	\$ 0.14
IMNX	0.11%	0.32%	0.46%	\$ 0.18	\$ 0.56	\$ 0.81
INTC	0.03%	0.10%	0.13%	\$ 0.04	\$ 0.11	\$ 0.14
JDSU	0.04%	0.13%	0.24%	\$ 0.08	\$ 0.27	\$ 0.49
MSFT	0.03%	0.10%	0.26%	\$ 0.04	\$ 0.11	\$ 0.27
NXTL	0.08%	0.15%	0.20%	\$ 0.09	\$ 0.19	\$ 0.25
ORCL	0.06%	0.20%	0.26%	\$ 0.04	\$ 0.12	\$ 0.16
QCOM	0.05%	0.16%	0.26%	\$ 0.07	\$ 0.21	\$ 0.35
SUNW	0.04%	0.15%	0.18%	\$ 0.04	\$ 0.14	\$ 0.16
VRTS	0.06%	0.22%	0.22%	\$ 0.10	\$ 0.38	\$ 0.37
YHOO	0.04%	0.12%	0.18%	\$ 0.15	\$ 0.43	\$ 0.64
Sample Mean	0.06%	0.17%	0.29%	\$ 0.07	\$ 0.23	\$ 0.37
Sample Median	0.05%	0.16%	0.24%	\$ 0.05	\$ 0.15	\$ 0.27

Trade-to-trade price volatility measures the percentage price change between consecutive trades. Trade-to-close volatility measures the percentage price change between each after-hours trade and the closing trade price.

Table 6

Trade Price Volatility and Average Trade Price Change in Regular Hours and After Hours Trading by Half-Hour Increment from 9:30 a.m. - 6:30 p.m.
15 Ndaq Stocks, February 7-11, 2000

<u>Regular Hours</u>	<u>Trade Price Volatility</u>		<u>Average Price Change</u>	
	Median	Mean	Median	Mean
9:30-10:00	0.082%	0.084%	\$ 0.086	\$ 0.109
10:00-10:30	0.057%	0.061%	\$ 0.048	\$ 0.076
10:30-11:00	0.042%	0.051%	\$ 0.040	\$ 0.064
11:00-11:30	0.043%	0.048%	\$ 0.039	\$ 0.059
11:30-12:00	0.041%	0.048%	\$ 0.038	\$ 0.059
12:00-12:30	0.037%	0.047%	\$ 0.036	\$ 0.058
12:30-1:00	0.036%	0.044%	\$ 0.032	\$ 0.055
1:00-1:30	0.035%	0.046%	\$ 0.039	\$ 0.056
1:30-2:00	0.038%	0.048%	\$ 0.036	\$ 0.059
2:00-2:30	0.039%	0.047%	\$ 0.033	\$ 0.059
2:30-3:00	0.038%	0.047%	\$ 0.035	\$ 0.059
3:00-3:30	0.045%	0.054%	\$ 0.041	\$ 0.070
3:30-4:00	0.055%	0.058%	\$ 0.047	\$ 0.074
<u>After Hours</u>				
4:00-4:30	0.130%	0.161%	\$ 0.148	\$ 0.207
4:30-5:00	0.270%	0.337%	\$ 0.264	\$ 0.455
5:00-5:30	0.223%	0.481%	\$ 0.325	\$ 0.672
5:30-6:00	0.340%	0.365%	\$ 0.395	\$ 0.540
6:00-6:30	0.246%	0.272%	\$ 0.240	\$ 0.380

Trade price volatility measures the percentage price change between consecutive trades
Average price change is the absolute value of the price change between consecutive trades
Measures are calculated for each stock for each half-hour increment and mean and median values for the 15 stock sample presented

ATTACHMENT D

REPORTS OF THE
AFTER-HOURS
WORKING GROUPS

**EXTENDED HOURS WORKING GROUP
Committee on Investor Protection and Education**

Co-Chairmen
John Markese
American Association of Individual Investors

Kurt Stocker
Northwestern University, School of Law

October 6, 1999

Mr. Richard A. Grasso
Chairman and Chief Executive Officer
New York Stock Exchange, Inc.
11 Wall Street
New York, NY 10005

Mr. Frank Zarb
Chairman and Chief Executive Officer
National Association of Securities Dealers, Inc.
1735 K Street, NW
Washington, DC 20006

Gentlemen:

On behalf of all the members of the Committee, we are pleased to submit for your consideration the enclosed report containing our recommendations on investor protection and education with respect to trading during extended hours.

We appreciate your concern for investor protection and orderly market operation in this developing area, as well as your desire to draw upon the experience of a broad cross section of industry participants. It has been our pleasure to serve on the Committee, and we trust our recommendations will prove useful.

Sincerely,

John D. Markese, Ph.D.
Committee Co-Chairman

enc: Committee Report
cc: Arthur Levitt
Chairman, Securities and Exchange Commission

Report

**Extended Hours Working Group
Committee on Investor Protection and Education**

John Markese and Kurt Stocker, Co-Chairmen

Jeff Brown	Dave Doherty	Mike Satow
Henry Carter	Lloyd Feller	Ken Spier
Hardy Calcott	Glenn Oxner	Bill Summers
Jay Cummings	Sal Pallante	Lou Thompson
Matt DeSalvo	Donna Peterman	

Report of the Working Group on Investor Protection and Education

The following are the Committee recommendations on investor protection and education in extended hours trading, and proposed best practices relating to extended hours trading

Disclosure of Nature of Extended Hours Trading

Recommendation:

That complete and full disclosure of the nature and risks of extended hours trading for investors be required, and that best practices be adopted industry wide. See attached Best Practices Relating to Extended Hours Trading

Discussion:

The risks of extended hours trading include but are not limited to liquidity, volatility, fragmentation of the market, impact of news announcements, and the lack of depth and breadth in the extended hours markets expected initially. Emphasis overall should also be placed on disclosing how extended hours trading will likely differ from regular hours trading. A best practices approach for disclosure initially would provide effective communication to investors industry wide. Self-regulatory organizations should monitor the effectiveness of the best practices approach and consider new rules, if necessary, to insure investor protection.

Should Investors Be Required to "Opt-In" to Extended Hours Trading?

Recommendation:

That investors be required to place orders for extended hours trading or place orders that can be carried over to extended hours trading, only by giving special instructions to do so.

Discussion:

Investors should actively "opt-in" to extended hours trading. Standardized order nomenclature should be implemented for orders opting-in to extended hours trading.

III. Suitability

Recommendation:

That extended hours trading not be considered a separate and unique suitability issue.

Discussion:

That effective disclosure of the risks of extended hours trading should be emphasized rather than imposing new standards of investor suitability for extended hours trading.

Limit Orders Versus Market Orders in Extended Hours Trading

Recommendation:

That limit orders be used by investors in extended hours trading.

Discussion:

Until this market trading segment matures and becomes liquid, limit orders are the most practical method of controlling risk for investors.

Investor Education On Extended Hours Trading

Recommendation:

That the industry coordinate an education campaign on extended hours trading to reach investors through printed materials, Web sites, and public service announcements

Discussion:

In addition to educating investors, some form of continuing broker education should be formalized industry wide along with efforts to educate the press on the nature of extended hours trading. Suggestions made to reach investors included pointing to sources of information and education, such as a Web site, whenever firms advertise / market extended hours trading availability. Educational topics would include, but not be limited to, explanations of orders, order processing, order exposure, spreads, risks, a glossary of terms and sources for additional information

Advertising

Recommendation:

That no new advertising rules be promulgated, that the current rules are sufficient at this point.

Discussion:

As industry practices evolve and experience on extended hours trading is accumulated, this issue should be revisited

JDM/trh

Best Practices Relating to Extended Hours Trading

The best practices and disclosures outlined in this document are being provided to broker-dealers so that customers, prior to their participation in extended hours trading, are provided information about the nature of the market, how their firm operates in that market, and that they are fully informed of the risks and opportunities associated with such trading. In addition to these best practices, the Committee recommends that the National Association of Securities Dealers, the New York Stock Exchange and other self-regulatory organizations consider whether new rules are necessary to reinforce these best practices to further protect investors.

Customer Education and Choice

Before investors are in the position to determine whether or not they desire to opt into extended hours trading, they should be provided information as to the characteristics, risks and opportunities provided by that option. The process of educating customers about the characteristics of the market and the associated risks should precede their affirmative election to participate. For example, before permitting a customer to trade during extended trading hours, a firm may require not only that a customer receive information and disclosures about extended hours trading, but also acknowledge electronically, or in writing, that the customer has read the material and after doing so chooses to participate in the trading session.

In addition to the "opt in" procedures noted above, when customers place orders during extended trading hours sessions, firms should develop procedures to advise them, either through "splash" screens or otherwise, that they are placing an order in the after hours session, that the attributes of the after hours session are most likely different from the regular trading session, and that education concerning after hours trading sessions is available from the firm

Establish Procedures to Avoid Customer Confusion as to Whether Orders Will Be Executed During Extended Hours Trading

Firms should establish procedures to determine whether orders placed by a customer are to be executed only during regular trading sessions, after hours sessions, or both. Similarly, firms who permit extended hours trading should develop procedures to alert customers when they have placed an order in a security for which the firm does not offer after hours trading services.

Use of Limit Orders

At least initially, until there is more experience with after hours trading, it is strongly recommended that firms permit their customers to enter only limit orders during extended hours trading sessions. This practice will serve to protect customers should wide price fluctuations occur due to the nature of the market or other factors that could impact market activity.

Make Available Additional Educational Information

In an effort to make available to customers as much educational material as possible, firms should provide links from their Web Sites to related educational material that may be found on sites maintained by securities regulators and industry groups, or provide such material in written form upon request.

Promotional Material

When firms produce promotional materials relating to services offered during extended trading hours, such material should be consistent with the disclosures outlined herein and must be consistent with regulatory rules regarding communications with the public. In this connection, NASD Conduct Rule 2210(d)(1) currently provides that "(a) all member communications with the public . . . should provide a sound basis for evaluating the facts in regard to any . . . service offered. No material fact or qualification may be omitted if the omission, in light of the context of the material presented, would cause the communication to be misleading." NYSE Rule 472 and the interpretations thereto also require promotional material to be prepared in a similar manner. Accordingly, promotional material must provide a sound basis for investors to evaluate the risks associated with after hours trading.

Information and Materials

Information and materials, whether educational or promotional, should include each of the following disclosure items:

Disclosures Relating to the Risks and Characteristics of Extended Hours Trading

Firms should provide disclosure to customers relating, at a minimum, to the following risk factors and market characteristics:

Firms should provide customers with an explanation of how the extended hours market operates in general, highlighting the differences between regular market hours and extended hours including the availability of real-time quotes.

Firms should clearly describe what specific stocks, or groups of stocks, and other securities will be available for trading, as not all stocks may be traded during extended hours sessions.

The prices of securities traded during after hours sessions may not reflect the prices of the securities on their primary market, either at the end of the regular trading session, or the opening of the primary market on the next morning. In addition, there may be multiple, unlinked after hours trading facilities trading the same security that operate independently of each other. Accordingly, investors may pay more or receive less for their securities purchases or sales when trading in a particular after hours trading facility in comparison to the security's primary market or other extended hours trading facility.

Trading volume may be lighter than regular trading sessions, resulting in less liquidity for certain securities. As a result, customers may receive partial executions, or no executions at all.

Prices during extended hours sessions may be more volatile than regular trading sessions, which may result in customer orders being executed away from prices that prevailed during regular market sessions, or not being executed at all.

Lower trading volume and higher volatility, as well as other characteristics of extended hours trading sessions, could result in wider than normal spreads. As a result, customer orders could be executed away from prices that prevailed during regular market sessions, or not be executed at all.

The impact of news announcements immediately preceding or during an extended hours session could cause an exaggerated effect on the market due to fewer market participants, less liquidity, and less trading volume than during regular trading sessions.

Firms should apprise customers of the differences, if any, between the operation of rules during extended trading sessions and regular trading sessions, along with the impacts or implications of such differences. In addition, firms should apprise customers of the rules, if any, that apply only during regular trading sessions and not during extended trading sessions.

Disclosure concerning the impact of options trading, options exercises, stock splits, stock dividends, and other issues in extended hours trading may also be necessary.

Firm Specific Disclosures Related to Extended Hours Trading

Every firm should also provide specific information about how it operates during extended hours trading. These disclosures should include, but are not limited to

The hours of operation.

The accessible markets and systems as well as the scope of securities traded in the after hours session by the firm.

The costs associated with extended hours activity.

The existence of any margin or clearance and settlement implications for extended hours sessions. Firms should disclose any changes in account handling, including what impact, if any, extended hours trading will have on margin levels during periods of high volatility.

The availability of customer support staff and other particulars relating to policies and operations during extended hours, including access to account information and account representatives, especially in the event of heavy Internet traffic, phone usage, or system capacity problems. Firms should also disclose any conditions that may effect the ability of customers to enter new orders or cancel existing orders during after hours sessions.

[[Extended Trading Hours](#) | [NASD](#)]

EXTENDED HOURS WORKING GROUP
Committee on Clearance, Settlement & Operations

Chairman
Melvin B. Taub
Salomon Smith Barney

October 8, 1999

Mr. Richard Grasso
Chairman and Chief Executive Officer
New York Stock Exchange, Inc.
11 Wall Street
New York, N.Y. 10005

Mr. Frank Zarb
Chairman and Chief Executive Officer
National Association of Securities Dealers, Inc.
1735 K Street N.W.
Washington, DC 20006

Gentlemen:

On behalf of all members of the Committee, I am pleased to submit for your consideration the enclosed report containing our recommendations with respect to clearance and settlement of trades and operation of the market during extended hours.

We appreciate your concern for orderly market operation and investor protection in this developing area, as well as your desire to draw upon the experience of a broad cross section of industry participants. It has been our pleasure to serve on the Committee, and we trust our recommendations will prove useful.

Very truly yours,

Cc: Arthur Levitt
Chairman
Securities and Exchange Commission

Report

After Hours Trading:
Working Group on Clearance and Settlement and Operations Issues

COMMITTEE MEMBERS:

Chair: M. Taub – SalomonSmithBarney

L. Bakerink – Pacific American Securities	H. Friedman – Pershing
J. Beyman – Lehman Brothers	E. Goldberg – Merrill Lynch
D. Cavelli – NYSE	R. Hennessey – NYSE
J. Crofwell – Boston Stock Exchange	D. Kelly – NSCC
M. DeNat – NASD	M. Malarka/I. Weiser – Dain Rauscher
D. Dirks/N.Brander – DTC	L. McBlain – ADP
N. Eaker – Edward Jones	B. Silver – Paine Webber

OBJECTIVE: Identify and prioritize key issues. Reach consensus or present alternative recommendations for each issue

GENERAL RULE: There must be uniformity among all exchanges/markets, including ECNs.

ISSUE

Definition of the trading sessions

RECOMMENDATIONS

The daytime trading session should stop at 4:00 p.m. EST, and the after-hours session should start one hour later. A break between the day and evening sessions is desirable to:

- Allow time for the 4:00 p.m. closing price to be captured (see "Pricing," below).
- Provide a window for corporate announcements (see "Corporate Actions," below)
- Give specialists and market makers time to adjust their order books.
- Give member firms and processors time to close and re-open their systems.
- Reinforce the message that the after-hours session is a fundamentally different type of market.

Ending the session at 8:00 p.m. will present no major processing problems for member firms or in the clearance and settlement areas of the business. For many firms, 8:00 p.m. is the latest end time that will allow all trades to be booked the same day (i.e., avoiding "as-of" processing). Evolution to later ending times should accompany the systems re-engineering that will be required for T+1.

In the immediate term, should any of the exchanges or ECNs decide to remain open past 8:00 p.m., any trades executed will still have the current day's trade date. Firms may book trades the next day on an "as-of" basis, if their processing environments do not support same-day booking past 8:00 p.m. Firms may decide to staff a service desk to accept after-hours orders, if business conditions warrant it.

There are generally no operational problems with having an after-hours session Monday – Friday, but some firms may have staffing problems on Friday evenings. There should not be an after-hours session on Options Expiration Fridays, due to the added market volatility on those days.

Starting the daytime session earlier than the present 9:30 a.m., but no earlier than 6:00 a.m., presents no issues other than staffing, but this could be very important for West Coast firms.

Early closings or canceling of after-hours sessions before holidays should be handled as they are now — a decision at the time by the Exchange and/or Markets directors.

ISSUE

Trading and Settlement

RECOMMENDATIONS

Trades should be processed for today's trading day (T), with settlement on T+3 for Equities and T+1 for Options

- Orders should be specific to a session and not carry over from the normal day to after hours or the reverse
- The committee recognizes that there should be new order types. These will include:

- Orders designated for the after hours session;
- Day Orders entered during the day session and designated to extend to the after hours session;
- Good-till-cancelled orders designated to remain active through the day and after hours session.
- Good-till-cancelled orders entered in the after hours session and designated to carry over to the next day.

ISSUE

Products to be traded.

RECOMMENDATIONS

Equities and options should be traded.

ISSUE

Effect of corporate actions and announcements on trading

RECOMMENDATIONS

Given the decision to treat after-hours trades as occurring on the same trade date (T), corporate actions will have no operational impact

The committee recommends that issuers be encouraged to make corporate announcements between the day and evening sessions.

ISSUE

Definition of closing prices

RECOMMENDATIONS

Closing prices for reporting, valuations, etc., should be based on the 4:00 p.m. close.

Firms should use this price for customer margining. The committee recognizes that there may be an investor perception issue (e.g., a margin call is issued based on the prior day's 4:00 p.m. price, but the customer's portfolio value changed considerably during the after-hours session). We recognize that firms may use other prices in certain circumstances, including Risk Management.

ISSUE

Timing and strategy for implementation.

RECOMMENDATIONS

After-hours trading should commence one calendar quarter after decimalization begins. If decimalization is significantly delayed beyond the currently anticipated July 1, 2000, start date, this recommendation should be revisited.

ISSUE

Rule changes.

RECOMMENDATIONS

Buy-ins effected under Rule 282 (Mandatory Buy-In), Rule 284 (Procedure for Closing Defaulted Contract) and ACATS fails should not be required or allowed in the after-hours trading session. This restriction should continue until the liquidity and volatility of after-hours trading sessions are determined to be equivalent to the regular daily trading sessions.

Rule 296 (Liquidation of Securities Loans and Borrowings) should not be changed. Member organizations' rights should continue to remain subject to the agreements with other member organizations providing for the loans and borrowings of securities.

[Extended Trading Hours | NASD]

AFTER-HOURS TRADING RECOMMENDATIONS

Working Group on Trading Conventions

Members: Co-Chair, Joe Della Rosa – Goldman Sachs
Co- Chair, Bob Moore – Salomon Smith Barney
Bill Barclay – Chicago Stock Exchange
Gene Beard – Interpublic
Jeff Boyd – Oxford Health
Bill Broka – NASDAQ
Scott DeSano – Fidelity
Lon Gorman – Schwab
Bill Johnston/Ed Kwaiwasser – NYSE
Tom Joyce – Merrill Lynch
George McNamee – First Albany
Mark Minister – Bridge
Bob Murphy – RPM
Richard Romano – Romano Bros
Cameron Smith – Island
Joel Steinmetz – Instinet

Observers: Connie Kiggins – SEC
Steven Williams – SEC

The Working Group on Trading Conventions offers recommendations on six different issues:

1. Fragmentation and Transparency
2. Volatility and Liquidity
3. Review of Rules and Regulations
4. Valuation Conventions
5. Corporate News Announcements
6. Pricing Primary and Secondary Offerings

INTRODUCTION

The working group tried to reconcile and distinguish between the different after-market hours trading environments which exist at the present and could exist in the future. In light of this, some of our recommendations will apply when/if the primary exchanges extend their trading hours. Other recommendations will apply even if the primary exchanges do not extend hours, but retail trading continues to take place in after-market hours.

The group also recognized, in the case of some industry conventions and regulations discussed, that the magnitude of volume in the after-hours sessions will play an important role in the adoption of new practices.

1. Issue: Fragmentation & Transparency

Discussion:

The Working Group felt that transparency and consolidation of published quotes and transactions as well as linkages between quotes were critical for investor protection (specifically retail investors) in the after-hours sessions.

The Group also agreed unanimously that systems that provide consolidation, transparency and linkages should exist regardless of the hours of the primary exchanges

Discussion focused around the most available and complete system in place today to best serve this purpose.

Systems currently operated by the NASD and SIAC have most of the necessary networks, vendor relationships and exchange and broker-dealer connections. At the present time the majority of their capability is only available until 6:30 p.m. Eastern standard time

Recommendation:

Existing systems operated by SIAC and the NASD¹ currently available until 6:30 p.m. should, regardless of the hours of the primary exchange, be utilized for extended hours trading. The Working Group was very concerned with any trading that takes place by retail investors without these systems in place. In that regard it strongly recommends that these systems extend their hours of operation beyond 6:30 p.m.² Rules and regulations that guide and mandate the usage of these systems and best execution during regular hours should be continued in the extended hours period.

2. Issue: Volatility and Liquidity

Discussion.

With respect to concerns about volatility and liquidity in after-hours trading, the Working Group concluded, first, that if the primary markets are open, their rules should continue to apply to the extent appropriate. Each primary market must determine whether its rules should be adjusted to assure liquidity and the maintenance of an orderly market by its members. When primary markets are not open, certain responsibilities, including but not limited to those listed below, should fall upon the Broker/Dealers and ECNs who participate.

Recommendations:

1. The Working Group recommends the following best practices

- Bids and offers should be displayed with the percentage change from the 4:00 p.m. closing price
- Only limit orders should be accepted
- Brokers who accept orders should clearly disclose the hours during which they will attempt to execute and protect orders (or any other limitations on their ability to do so).

2. Even if the primary exchanges are closed, the NASD should have the ability to halt trading in single stocks in the event of severe market circumstances or corporate events.

3. Issue: Review of Rules and Regulations

Discussion:

The Working Group focused on those rules which it felt should be generally applicable during after-hours trading, regardless of whether the primary markets extended their trading hours or developed an after-hours session. The Working Group noted that certain trading rules in the primary markets should be reviewed to assess whether they should be retained in an after-hours session

Recommendations:

The Working Group recommends that, when the primary markets are not open:

1. Principles of best execution should apply to broker-dealers and ECNs accepting orders in the after-hours market.
2. Broker-dealers and ECNs who choose to accept after-hours orders should be held to the SEC and NASDR order-handling and reporting rules. Those specifically discussed as potentially applicable include the firm quote rule, Rule IM 2110-2 (Manning II), Limit Order Display Rule, 90-second reporting and Regulation ATS.

4. Issue: Valuation Conventions

Discussion:

The Working Group recognizes that the primary markets 4:00 p.m. closing price has become the standard of valuation for many financial instruments and settlements, e.g.,

1. Net Asset Value conventions
2. Indices adds/deletes
3. Index calculations
4. Final pricing for merged/acquired companies
5. Margin calculations
6. Option expirations
7. Net capital requirements
8. Pricing IPOs and secondary offerings

The effect of any quick and dramatic change in the time, market mechanism for deriving, and availability of the 4:00 p.m. closing price would significantly impact the industry and investors. The Working Group recognized that when/if volume significantly expands in the after-hours session it may no longer be satisfactory to investors for the 4:00 p.m. close to be used as a significant daily valuation point.

The Working Group also discussed the need for a break after the 4:00 p.m. closing price. Several reasons for a break were considered, including: allowing time for corporate news announcements (see Issue 5, below), providing time for systems to capture and recapture prices, and to account for the fact that the 4:00 p.m. closing prices are often not available until some time after 4:00 p.m.

Recommendation:

A "closing price" mechanism should be established by the primary exchanges and set at 4:00 p.m. This should be followed by a break (at least 60 minutes³) before re-opening for an after-hours session.⁴

5. Issue: Corporate News Announcements

Discussion:

The Working Group was concerned with the effects of after-hours trading in the primary market for a security on the timing of the announcement of material corporate events.

The current practice is for news which may have an impact on the stock price to be released by an issuer after the close of trading so that the public has time to react. When news announcements must be made during the trading day, trading halts are often called so that the news can be disseminated in the market place. The Working Group believes that trading halts are disruptive to the market and should be minimized wherever possible. If trading is not formally interrupted for some period of time, corporate issuers and SROs will have to halt trading in individual stocks more frequently, possibly even for announcements currently considered routine. Having a halt to trading in the primary market for some period of time after the establishment of a closing price (see our recommendations under Issues 4 and 6 herein) would allow time for news to be released and absorbed by the public.

Recommendation:

Primary markets should remain closed for a period of at least 60 minutes after establishing a 4:00 p.m. closing price

6. Issue: Pricing Primary and Secondary Securities Offerings

Discussion:

The Working Group recognized that meaningful after-hours trading, particularly if an evening session is established by a primary market, will pose challenges to the current practices involving the pricing and initial trading of new securities (both IPOs and registered secondary offerings). These practices are critical to an efficient capital market

Most new issues are priced after the close of trading, which allows time to complete syndicate allocations and verbally confirm purchases with investors before trading starts on the next trading day. This sequence is required to comply with SEC rules. If trading of comparable stocks (in the case of IPOs) or of the issuer's securities (in secondary offerings) continues in the after-hours session, underwriters will have more difficulty deriving the price and investors will face increased risk. Moreover, unless the deal is fully distributed, trading in the aftermarket by the underwriters will be subject to Regulation M.

These factors are likely to create pressure to move pricing (particularly of IPOs) to late evening or early morning (for example, 7:30 a.m. for a 9:30 a.m. opening). The Working Group felt that issuers and underwriters will want, and should have, the flexibility to price secondary offerings either after 4:00 p.m. or before the opening. Whether pricing is done after the 4:00 p.m. close or before the opening, it will be virtually impossible for underwriters to complete the regulatory steps required before trading commences

Recommendations:

1. Primary markets should continue to establish a closing price at 4:00 p.m. Eastern Time (this is consistent with the recommendations of the Working Group on Clearance and Settlement and Operations Issues. See also Issue 4, Valuation Conventions, below)
2. The SEC should examine its rules to assure continuation of the current flexible pricing conventions for primary and secondary securities offerings so that pricing can occur either in the post 4:00 p.m. break or prior to the day's market opening. Specifically, the SEC should consider permitting verbal confirmation (and booking) of purchases subject only to (i) final pricing (say, within a prescribed price range) and (ii) the SEC's declaration of effectiveness of the registration statement. This will allow issuers and underwriters the flexibility to price at 4:00 p.m., following the after-hours session, or before the 9:30 a.m. primary opening.

¹ The Working Group recognizes that competing systems could emerge in the future to provide a similar service currently provided by the NASD and SIAC systems.

² The Working Group decided not to address the issue of who pays for the operations of these systems.

³ This is consistent with the recommendation from the Clearance, Settlement and Operations Working Group.

⁴ The Committee recognized that the primary exchanges could be competitively disadvantaged by following this recommendation. Since the Working Group was responsible for making recommendations to the primary exchanges, a majority of the Group suggested that the SEC may want to consider the applicability of a post-4:00 p.m. break to ECNs, regional exchanges, and broker/dealers.

[Extended Trading Hours | NASD]

ATTACHMENT E

NASD NOTICE TO MEMBERS 00-07
DISCLOSURE TO CUSTOMERS ENGAGED
IN EXTENDED-HOURS TRADING

INFORMATIONAL

**Trading—
Extended Hours**

**Disclosure To Customers
Engaging In Extended
Hours Trading**

SUGGESTED ROUTING

The Suggested Routing function is meant to aid the reader of this document. Each NASD member firm should consider the appropriate distribution in the context of its own organizational structure.

- Legal & Compliance
- Senior Management

KEY TOPICS

- Disclosure
- Trading, Extended Hours

Executive Summary

NASD Regulation, Inc. (NASD RegulationSM) reminds members of their obligation under just and equitable principles of trade and the advertising rule to disclose to customers the material risks of extended hours trading.

A model disclosure statement is included with this *Notice* in Attachment A.

Questions/Further Information

Questions concerning this *Notice* may be directed to Gary L. Goldsholle, Assistant General Counsel, Office of General Counsel, NASD Regulation, at (202) 728-8104

Background And Discussion

A number of member firms recently have started offering their retail customers various opportunities to trade stocks after regular market hours in what is known as "extended hours trading." An even greater number of member firms have announced plans to offer extended hours trading in coming months

The growth of extended hours trading provides retail customers with greater opportunities to trade securities and manage their portfolios, and in so doing, provides access to markets that were previously limited to institutional customers. Participation in extended hours trading may offer certain benefits to retail customers, but entails several material risks. Depending on the particular extended hours trading environment, these risks may include:

- lower liquidity;
- higher volatility;

- changing prices;
- unlinked markets;
- an exaggerated effect from news announcements; and
- wider spreads.

In light of these risks, members have an obligation to their retail customers to disclose the material risks of extended hours trading to customers before permitting them to engage in extended hours trading. NASD Regulation commends the many members that have already provided detailed disclosures about the risks of extended hours trading. This *Notice* is a reminder that these disclosures are not only a laudable business practice, but are a regulatory requirement under just and equitable principles of trade.

To assist members with their disclosure obligation, NASD Regulation has developed a series of model disclosures dealing with the risks of extended hours trading. Members are free to develop their own disclosures or modify these model disclosures to meet their particular disclosure needs. In some cases, members may need to develop additional disclosures to address such issues as options trading, options exercises, the effect of stock splits, dividend payments, as well as any additional risks that may arise in the future

In addition, members are reminded that Rule 2210 requires that all communications with the public shall be based on principles of fair dealing and good faith, and that exaggerated, unwarranted, or misleading statements are prohibited. Members should use caution in communications with the public about their extended hours trading systems to ensure that these requirements are satisfied. Members describing the benefits of

NASD Notice to Members 00-07

extended hours trading must also describe the material risks.

Finally, members are also reminded that in *Notice to Members 99-11*, NASD Regulation described the types of general disclosure that

firms may use to inform their customers about the risks associated with stock volatility. In preparing disclosures regarding extended hours trading, members may wish to review the types of disclosure suggested in that *Notice*.

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Attachment A

MODEL EXTENDED HOURS TRADING RISK DISCLOSURE

- **Risk of Lower Liquidity.** Liquidity refers to the ability of market participants to buy and sell securities. Generally, the more orders that are available in a market, the greater the liquidity. Liquidity is important because with greater liquidity it is easier for investors to buy or sell securities, and as a result, investors are more likely to pay or receive a competitive price for securities purchased or sold. There may be lower liquidity in extended hours trading as compared to regular market hours. As a result, your order may only be partially executed, or not at all.
- **Risk of Higher Volatility.** Volatility refers to the changes in price that securities undergo when trading. Generally, the higher the volatility of a security, the greater its price swings. There may be greater volatility in extended hours trading than in regular market hours. As a result, your order may only be partially executed, or not at all, or you may receive an inferior price in extended hours trading than you would during regular market hours.
- **Risk of Changing Prices.** The prices of securities traded in extended hours trading may not reflect the prices either at the end of regular market hours, or upon the opening the next morning. As a result, you may receive an inferior price in extended hours trading than you would during regular market hours.
- **Risk of Unlinked Markets.** Depending on the extended hours trading system or the time of day, the prices displayed on a particular extended hours trading system may not reflect the prices in other concurrently operating extended hours trading systems dealing in the same securities. Accordingly, you may receive an inferior price in one extended hours trading system than you would in another extended hours trading system.
- **Risk of News Announcements.** Normally, issuers make news announcements that may affect the price of their securities after regular market hours. Similarly, important financial information is frequently announced outside of regular market hours. In extended hours trading, these announcements may occur during trading, and if combined with lower liquidity and higher volatility, may cause an exaggerated and unsustainable effect on the price of a security.
- **Risk of Wider Spreads.** The spread refers to the difference in price between what you can buy a security for and what you can sell it for. Lower liquidity and higher volatility in extended hours trading may result in wider than normal spreads for a particular security.