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# **The Effect of Stock Splits in the Japanese Market**

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The amended Commercial Code that came into effect on 1 October 2001 replaced the previous system of trading lots (where one trading lot had to have either a total par value of ¥50,000 or a total net asset value of at least ¥50,000) with a new system of trading lots (where the shares have no par value and each company can decide how many shares constitute a trading lot, with a maximum number of 1,000 shares or 0.5% of the shares outstanding) and abolished restrictions on stock splits and reductions in the size of trading lots. Since then, a significant number of companies have announced deep stock splits.

Reductions in minimum investment amounts by means of stock splits and reductions in the size of trading lots are generally considered to make it easier for retail investors to invest and thereby to improve liquidity. Many experts are also convinced that such reductions are essential if more retail investors are to be attracted to the stock market and new life is to be breathed into Japan's securities markets. It was with this aim in mind that in September 2001 all the stock exchanges in Japan and the Japan Securities Dealers Association announced an Action Program to Promote a Reduction in the Minimum Amount Required to Invest in Equities. The program calls on public companies to set the amount required to invest in their shares at no more than ¥500,000.

Taking these recent developments as its starting point, this report empirically examines the effect of previous stock splits and reductions in the size of trading lots in the Japanese market on the shareholder structure of the companies concerned and the liquidity of their shares.

## **1. US Research on the Effect of Stock Splits**

In the United States numerous empirical studies have already been published on the effect of stock splits. As in Japan, there is a general expectation in the United States that using stock splits to reduce the minimum amount required to invest in equities will increase the number of shareholders and improve liquidity indicators

such as volume and turnover ratio. However, this is by no means borne out by the findings of the empirical studies that have been carried out.

The study carried out by Copeland (1979)<sup>1</sup> on the effect of stock splits on liquidity focuses on changes in volume and transaction costs. Copeland's study, which deals with companies that carried out stock splits in a ratio of at least 4:5 during the period 1963-1974, analyzes (1) volume and brokerage commission for 25 stocks listed on the New York Stock Exchange for 72 weeks before and after the split and (2) the bid-ask spread for 162 stocks quoted on the NASDAQ for 40 days before and after the split. According to the study, (1) volume declined after the splits took place, (2) the commission paid by retail investors increased and (3) spreads widened. As possible explanations for the decline in liquidity, Copeland suggests that the kind of company that carries out a stock split is likely to be doing well and its shares are likely to be undervalued. As a result, it will probably have attracted investor attention, and volume is likely to have been high before the split.

Since Copeland's study appeared, there have been a number of studies of the effect of stock splits on liquidity (and especially volume). Most of them come to the conclusion that stock splits do not necessarily increase liquidity.

For example, the study by Murray (1985), which uses a larger number of samples and covers a longer period than Copeland's study, found that, although volume tended to decline slightly for a short period after a split was carried out, there was no significant long-term correlation between stock splits and liquidity.<sup>2</sup> Lakonishok and Lev (1987) compared the turnover ratio (volume/shares outstanding) of companies that had carried out a stock split with that of those that had not.<sup>3</sup> They found that, although there was a statistically significant increase in the turnover ratio during the 12 months before a stock split was announced, any observable difference had disappeared by the time the split took place. The authors interpret their findings to mean that it is the large volumes that occur before a stock split is announced that are abnormal rather than the volumes that occur after the split, which they see as a regression to the mean.

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<sup>1</sup> Thomas E. Copeland, "Liquidity Changes Following Stock Splits." *The Journal of Finance*, vol.34 no.1, March 1979, 115-141.

<sup>2</sup> Dennis Murray, "Further Evidence on the Liquidity Effects of Stock Splits and Stock Dividends." *The Journal of Financial Research*, Spring 1985, 59-67.

<sup>3</sup> Josef Lakonishok and Baruch Lev, "Stock Splits and Stock Dividends: Why, Who, and When." *The Journal of Finance*, September 1987, 913-932.

According to a recent study, Dennis and Strickland (1998), the effect of a stock split depends on a company's shareholder structure before the split.<sup>4</sup> Therefore, while it would generally be incorrect to say that stock splits produce an increase in volume, (1) the percentage of shares owned by institutional investors and (2) monthly volume tend to increase in the case of companies where institutional ownership was low to begin with. Similarly, a working paper published by the New York Stock Exchange in 1999 concedes that volume tends to decline after a stock split, but it points out that retail investor activity tends to increase as the average transaction volume (i.e., number of shares traded) declines following a split.<sup>5</sup>

## 2. An Analysis of the Effects of Stock Splits and Reductions in the Size of Trading Lots in the Japanese Market

### 1) Scope of study

This study covers all the companies listed (on either a stock exchange or the OTC market) in Japan that reduced the minimum amount required to invest in their shares between fiscal 1998 and fiscal 2000. During this period 423 companies (see Table 1) carried out a stock split, and 292 (see Table 2) reduced the size of their trading lots.

**Table 1 Stock Splits (fiscal 1998-fiscal 2000)**

| Split ratio   | Fiscal 1998 |     |       | Fiscal 1999 |     |       | Fiscal 2000 |     |       | Fiscal 1998-fiscal 2000 |     |       |
|---------------|-------------|-----|-------|-------------|-----|-------|-------------|-----|-------|-------------------------|-----|-------|
|               | Exchange    | OTC | Total | Exchange    | OTC | Total | Exchange    | OTC | Total | Exchange                | OTC | Total |
| Less than 1.1 | 7           | 0   | 7     | 6           | 2   | 8     | 3           | 2   | 5     | 16                      | 4   | 20    |
| 1.1-1.2       | 18          | 26  | 44    | 20          | 22  | 42    | 40          | 16  | 56    | 78                      | 64  | 142   |
| 1.2-1.5       | 13          | 13  | 26    | 18          | 22  | 40    | 34          | 31  | 65    | 65                      | 66  | 131   |
| 1.5           | 1           | 4   | 5     | 8           | 6   | 14    | 16          | 13  | 29    | 25                      | 23  | 48    |
| 2.0           | 0           | 0   | 0     | 8           | 10  | 18    | 18          | 23  | 41    | 26                      | 33  | 59    |
| 3.0 or more   | 2           | 0   | 2     | 2           | 5   | 7     | 8           | 6   | 14    | 12                      | 11  | 23    |
| Total         | 41          | 43  | 84    | 62          | 67  | 129   | 119         | 91  | 210   | 222                     | 201 | 423   |

Note: The distinction between exchange-traded and OTC-traded stocks is based on the situation at the time of the stock split. The figures are the number of occurrences.

Source: NRI, from data in Tosho Tokei Geppo [TSE Monthly Bulletin of Statistics], Tokyo Stock Exchange; Tokei Geppo [OSE Bulletin of Statistics], Osaka Securities Exchange; Kabushiki Bunkatsu Jokyo [Data on Stock Splits], Japan Securities Dealers Association; Junkan Shoji Homu [Commercial Law Review], Commercial Law Center, No. 1530 and 1564; and Kaisha Shikiho [Japan Company Handbook], Toyo Keizai.

<sup>4</sup> Patrick Dennis and Deon Strickland, "The Effect of Stock Splits on Liquidity: Evidence from Shareholder Ownership Composition." Ohio State University, Fisher College of Business Working Paper Series (April 1998).

<sup>5</sup> Marc L. Lipson. "Stock Splits, Liquidity and Limit Orders." NYSE Working Paper 99-04, November 1999.

**Table 2 Reductions in the Size of Trading Lots (fiscal 1998-fiscal 2000)**

| Reduction ratio | Fiscal 1998 |     |       | Fiscal 1999 |     |       | Fiscal 2000 |     |       | Fiscal 1998-fiscal 2000 |     |       |
|-----------------|-------------|-----|-------|-------------|-----|-------|-------------|-----|-------|-------------------------|-----|-------|
|                 | Exchange    | OTC | Total | Exchange    | OTC | Total | Exchange    | OTC | Total | Exchange                | OTC | Total |
| 1/2             | 6           | 3   | 9     | 11          | 15  | 26    | 15          | 9   | 24    | 32                      | 27  | 59    |
| 1/5             | 1           | 0   | 1     | 2           | 2   | 4     | 10          | 6   | 16    | 13                      | 8   | 21    |
| 1/10            | 15          | 17  | 32    | 25          | 32  | 57    | 56          | 67  | 123   | 96                      | 116 | 212   |
| Total           | 22          | 20  | 42    | 38          | 49  | 87    | 81          | 82  | 163   | 141                     | 151 | 292   |

Note: Companies listed on the Foreign Section of the Tokyo Stock Exchange and International Television Films, which adopted trading lots (of 1,000 shares) for the first time in April 1999, have been excluded. The distinction between exchange-traded and OTC-traded stocks is based on the situation at the time the size of the trading lots was reduced. The figures are the number of occurrences.

Source: NRI, from data in Kukurinaoshi Jisshi Kaisha Ichiran [Companies That Have Reduced the Size of Their Trading Lots], Tokyo Stock Exchange; Junkan Shoji Homu [Commercial Law Review], Commercial Law Center, No. 1530 and 1564; and Kaisha Shikiho [Japan Company Handbook], Toyo Keizai.

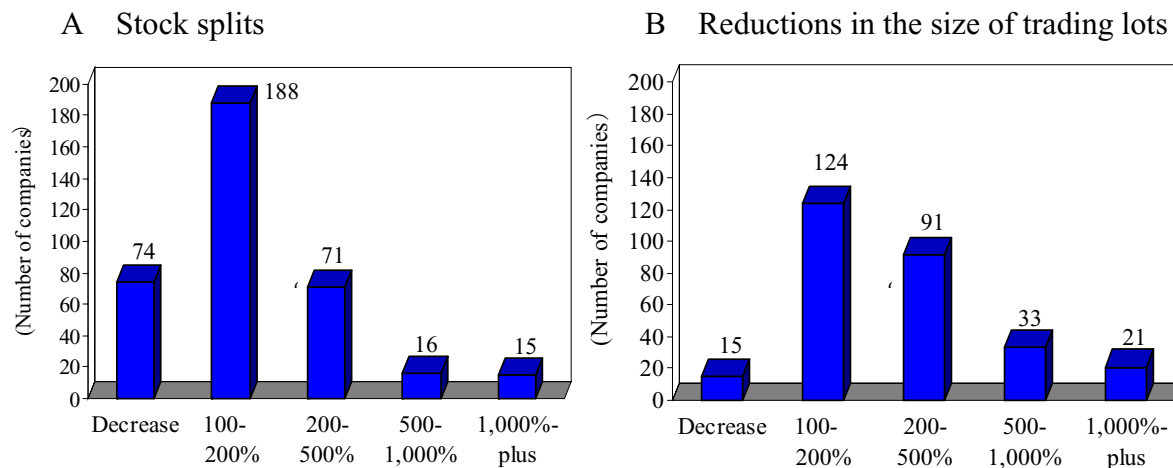
In fiscal 1998 more than half of the stock splits were in a ratio of less than 1:1.2—similar to a bonus offering. Since then, however, the number of deep splits (e.g., 1:2 or 1:3) has gradually increased. In fiscal 2000 31.0% of splits were in a ratio of 1.2-1.5, and 40.0% in a ratio of 1.5 or more. Most of the reductions in the size of trading lots were from 1,000 shares to 100 shares by companies whose shares had a par value of ¥50 (1/10). The number of companies reducing the size of their trading lots nearly doubled between fiscal 1998 and fiscal 2000, and in fiscal 2000 a total of 163 companies took this step.

## 2) Findings

### (1) Increase in number of individual shareholders

The most direct result of reducing the minimum amount required to invest in equities that one would expect would be an increase in the number of shareholders (especially individual shareholders), and an increase in the number of individual shareholders was indeed observed in the case of most of the companies that either carried out stock splits or reduced the size of their trading lots (see Figure 1). Incidentally, those companies for which no data on the number of individual shareholders were available (and which therefore did not allow a comparison to be made) as well as those that reduced their minimum required investment amount more than once during the same fiscal year were excluded.

**Figure 1 Change in the Number of Individual Shareholders**



**Note:** The increase or decrease in the number of shareholders was calculated by comparing the number at the end of the fiscal year preceding the stock split or reduction in the size of trading lots with the number at the end of the following fiscal year. Of the 423 companies that carried out a stock split, 59 were excluded because comparative data on the number of shareholders were not available. Of the 292 companies that reduced the size of their trading lots, 8 were excluded for the same reason.

**Source:** NRI.

There were, of course, also companies where the number of individual shareholders declined at about the same time as they reduced the minimum amount required to invest in their shares. In particular, 20.3% of the companies that carried out stock splits saw the number of their individual shareholders decline. In contrast, only 5.3% of the companies that reduced the size of their trading lots experienced such a decline, while no less than 19.0% of the companies saw the number of their individual shareholders more than quintuple.

The reason for this apparent difference in the effect of carrying out stock splits and reducing the size of a company's trading lots is presumably that the latter generally reduces the minimum amount required to invest in a company's shares more than the former. In other words, whereas all the companies that reduced the size of their trading lots reduced them to at least a half (and 72.5% to as much as a tenth) of their original size, only 17.0% of the companies that carried out a stock split reduced the minimum amount required to invest in their shares to at least half of the original amount (i.e., carried out the split in a ratio of at least 1:2).

Indeed, the changes in the number of individual shareholders caused by differences in the ratios of stock splits or reductions in the size of trading lots show that the bigger the reduction in the minimum investment amount required, the bigger the increase in the number of individual shareholders tended to be (see Table 3). For example, those companies that carried out stock splits in a ratio of at least 1:2 were also the group with the lowest proportion of companies to see the number of their shareholders

decline and the group with the highest proportion of companies to see the number of their shareholders increase by a factor of 10 or more. Similarly, those companies that reduced the size of their trading lots by a factor of 10 rather than 2 saw a significant increase in the number of their individual shareholders.

**Table 3 Change in the Number of Individual Shareholders**

**A Stock splits**

|               | Decrease            |      | 100-200%            |      | 200-500%            |      | 500-1,000%          |     | 1,000%-plus         |     | Total               |     |
|---------------|---------------------|------|---------------------|------|---------------------|------|---------------------|-----|---------------------|-----|---------------------|-----|
| Split ratio   | Number of companies | %    | Number of companies | %    | Number of companies | %    | Number of companies | %   | Number of companies | %   | Number of companies | %   |
| Less than 1.2 | 32                  | 22.2 | 93                  | 64.6 | 13                  | 9.0  | 4                   | 2.8 | 2                   | 1.4 | 144                 | 100 |
| 1.2-1.5       | 33                  | 20.9 | 72                  | 45.6 | 38                  | 24.1 | 8                   | 5.1 | 7                   | 4.4 | 158                 | 100 |
| 2.0 or more   | 9                   | 14.5 | 23                  | 37.1 | 20                  | 32.3 | 4                   | 6.5 | 6                   | 9.7 | 62                  | 100 |
| Total         | 74                  | 20.3 | 188                 | 51.6 | 71                  | 19.5 | 16                  | 4.4 | 15                  | 4.1 | 364                 | 100 |

Note: Of the 423 companies that carried out a stock split between fiscal 1998 and fiscal 2000, 59 were excluded because comparative data on the number of shareholders were not available.

Source: NRI.

**B Reductions in the size of trading lots**

|                 | Decrease            |      | 100-200%            |      | 200-500%            |      | 500-1,000%          |      | 1,000%-plus         |     | Total               |     |
|-----------------|---------------------|------|---------------------|------|---------------------|------|---------------------|------|---------------------|-----|---------------------|-----|
| Reduction ratio | Number of companies | %    | Number of companies | %    | Number of companies | %    | Number of companies | %    | Number of companies | %   | Number of companies | %   |
| 1/2             | 8                   | 13.8 | 37                  | 63.8 | 9                   | 15.5 | 3                   | 5.2  | 1                   | 1.7 | 58                  | 100 |
| 1/5             | 1                   | 5.0  | 9                   | 45.0 | 6                   | 30.0 | 3                   | 15.0 | 1                   | 5.0 | 20                  | 100 |
| 1/10            | 6                   | 2.9  | 78                  | 37.9 | 76                  | 36.9 | 27                  | 13.1 | 19                  | 9.2 | 206                 | 100 |
| Total           | 15                  | 5.3  | 124                 | 43.7 | 91                  | 32.0 | 33                  | 11.6 | 21                  | 7.4 | 284                 | 100 |

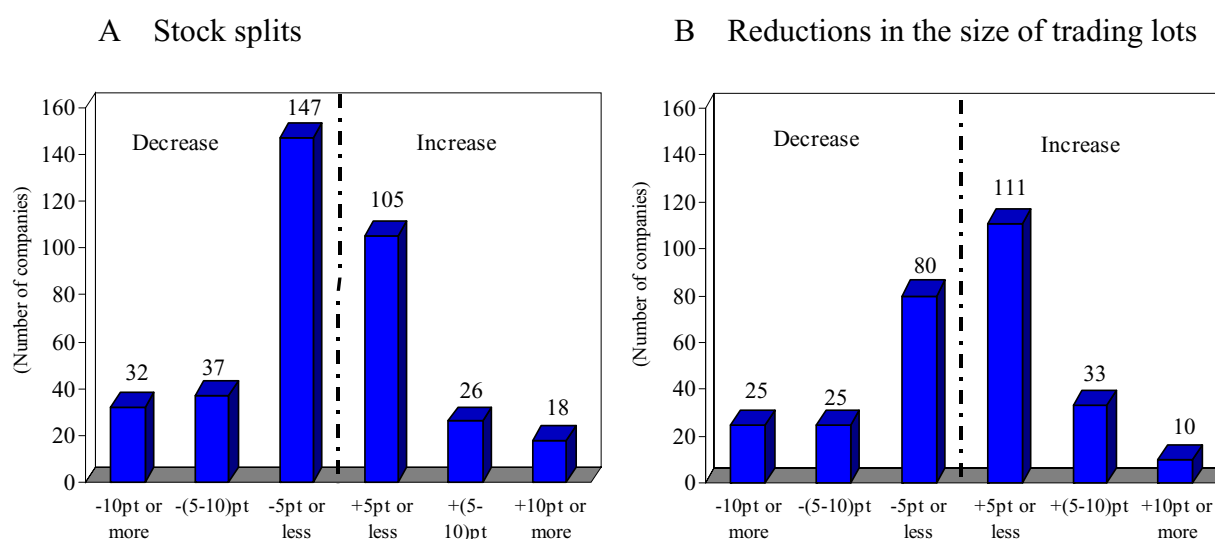
Note: Of the 292 companies that changed the size of their trading lots between fiscal 1998 and fiscal 2000, 8 were excluded because comparative data on the number of shareholders were not available.

Source: NRI.

**(2) Mixed effect on percentage of shares owned by individuals**

In order to establish what effect, if any, an increase in the number of shareholders (produced by reducing the minimum required investment amount) had on the percentage of a company's shares owned by individuals, we divided the number of a company's shares owned by individual shareholders by the total number of its shares outstanding and compared the figure at the end of the fiscal year immediately preceding the stock split or reduction in the size of the company's trading lots with that at the end of the fiscal year immediately following it. As with our analysis of the data for the number of individual shareholders, we excluded those companies for which no data on the number of shares owned by individual shareholders (or the total number of shares) were available and which therefore did not allow a comparison to be made as well as those that reduced their minimum required investment amount more than once during the same fiscal year.

**Figure 2 Change in Percentage of Shares Owned by Individuals**



**Note:** The increase or decrease in the number of shares held by individual shareholders as a percentage of shares outstanding was calculated by comparing the percentage at the end of the fiscal year preceding the stock split or reduction in the size of trading lots with that at the end of the following fiscal year. Of the 423 companies that carried out a stock split, 58 were excluded because comparative data on the percentage of shares owned by individuals were not available. Of the 292 companies that reduced the size of their trading lots, 8 were excluded for the same reason.

**Source:** NRI.

Our findings show that there were quite big differences for stock splits and reductions in the size of trading lots: whereas more than half of the companies that had reduced the size of their trading lots saw the percentage of their shares owned by individuals increase, nearly 60% of the companies that had carried out a stock split saw it decline (see Figure 2). However, the biggest group of companies (147 or 40.3%) was those where the percentage of shares owned by individuals declined by less than 5 percentage points, and only 32 companies (or 8.8%) saw it decline by more than 10 percentage points. Moreover, of the 216 companies that saw the percentage of their shares owned by individuals decline after they carried out a stock split, only 39 (or 18.1%) of them saw the actual number of their shares owned by individuals decline, while 177 (or 81.9%) of them saw the number increase even though the percentage declined.

One of the reasons for this is presumably, as with the change in the number of individual shareholders, that reducing the size of a company's trading lots reduces the minimum required investment amount more than carrying out a stock split does. However, there would not appear to be any indication that the more the minimum required investment amount is reduced, the more likely the percentage of shares owned by individuals is to rise (see Table 4).

**Table 4 Change in Percentage of Shares Owned by Individuals**

**A Stock splits**

|               | Decrease            |      |                     |       |                     |      | Increase            |      |                     |       |                     |      | Total               |     |
|---------------|---------------------|------|---------------------|-------|---------------------|------|---------------------|------|---------------------|-------|---------------------|------|---------------------|-----|
|               | -10pt or more       |      | -(5-10)pt           |       | -5pt or less        |      | +5pt or less        |      | +(5-10)pt           |       | +10pt or more       |      |                     |     |
| Split ratio   | Number of companies | %    | Number of companies | %     | Number of companies | %    | Number of companies | %    | Number of companies | %     | Number of companies | %    | Number of companies | %   |
| Less than 1.2 | 8                   | 5.6  | 15                  | 10.4  | 53                  | 36.8 | 57                  | 39.6 | 10                  | 6.9   | 1                   | 0.7  | 144                 | 100 |
| 1.2-1.5       | 16                  | 10.1 | 16                  | 10.1  | 79                  | 49.7 | 35                  | 22.0 | 6                   | 3.8   | 7                   | 4.4  | 159                 | 100 |
| 2.0 or more   | 8                   | 12.9 | 6                   | 9.7   | 15                  | 24.2 | 13                  | 21.0 | 10                  | 16.1  | 10                  | 16.1 | 62                  | 100 |
| Total         | 32                  | 8.8  | 37                  | 10.1  | 147                 | 40.3 | 105                 | 28.8 | 26                  | 7.1   | 18                  | 4.9  | 365                 | 100 |
|               | 216 companies       |      |                     | 59.2% |                     |      | 149 companies       |      |                     | 40.8% |                     |      |                     |     |

Note: The increase or decrease in the number of shares held by individual shareholders as a percentage of shares outstanding was calculated by comparing the percentage at the end of the fiscal year preceding the stock split with the percentage at the end of the following fiscal year. Of the 423 companies that carried out a stock split between fiscal 1998 and fiscal 2000, 58 were excluded because comparative data on the percentage of shares owned by individuals were not available.

Source: NRI.

**B Reductions in the size of trading lots**

|                 | Decrease            |      |                     |       |                     |      | Increase            |      |                     |       |                     |     | Total               |     |
|-----------------|---------------------|------|---------------------|-------|---------------------|------|---------------------|------|---------------------|-------|---------------------|-----|---------------------|-----|
|                 | -10pt or more       |      | -(5-10)pt           |       | -5pt or less        |      | +5pt or less        |      | +(5-10)pt           |       | +10pt or more       |     |                     |     |
| Reduction ratio | Number of companies | %    | Number of companies | %     | Number of companies | %    | Number of companies | %    | Number of companies | %     | Number of companies | %   | Number of companies | %   |
| 1/2             | 6                   | 10.3 | 4                   | 6.9   | 16                  | 27.6 | 27                  | 46.6 | 5                   | 8.6   | 0                   | 0.0 | 58                  | 100 |
| 1/5             | 5                   | 25.0 | 1                   | 5.0   | 6                   | 30.0 | 5                   | 25.0 | 2                   | 10.0  | 1                   | 5.0 | 20                  | 100 |
| 1/10            | 14                  | 6.8  | 20                  | 9.7   | 58                  | 28.2 | 79                  | 38.3 | 26                  | 12.6  | 9                   | 4.4 | 206                 | 100 |
| Total           | 25                  | 8.8  | 25                  | 8.8   | 80                  | 28.2 | 111                 | 39.1 | 33                  | 11.6  | 10                  | 3.5 | 284                 | 100 |
|                 | 130 companies       |      |                     | 45.8% |                     |      | 154 companies       |      |                     | 54.2% |                     |     |                     |     |

Note: The increase or decrease in the number of shares held by individual shareholders as a percentage of shares outstanding was calculated by comparing the percentage at the end of the fiscal year preceding the stock split with that at the end of the following fiscal year. Of the 292 companies that reduced the size of their trading lots between fiscal 1998 and fiscal 2000, 8 were excluded because comparative data on the percentage of shares owned by individuals were not available.

Source: NRI.

Rather, the reason for the decline in the percentage of shares owned by individuals, as has often been said in the United States, is presumably that stock splits are regarded as a sign of confidence by management in a company's earnings prospects as well as an occasion when institutional investors (as professionals) tend to become more bullish. In contrast, simply making it easier to trade small amounts of a company's shares by reducing the size of its trading lots is presumably not seen as sending a signal about that company's earnings prospects. This conclusion is supported by the fact that in 60% of the companies where the percentage of shares owned by individuals declined after a stock split was carried out the number of shares owned by individuals also declined. It is also possible that in Japan, where many companies try



to maintain a minimum dividend per share, institutional investors appreciate the opportunity stock splits tend to present to increase their dividend income.

### (3) Uncertain liquidity benefits

As far as whether reducing the minimum required investment amount improves the liquidity of individual stocks is concerned, our study—like previous, US studies—was inconclusive.

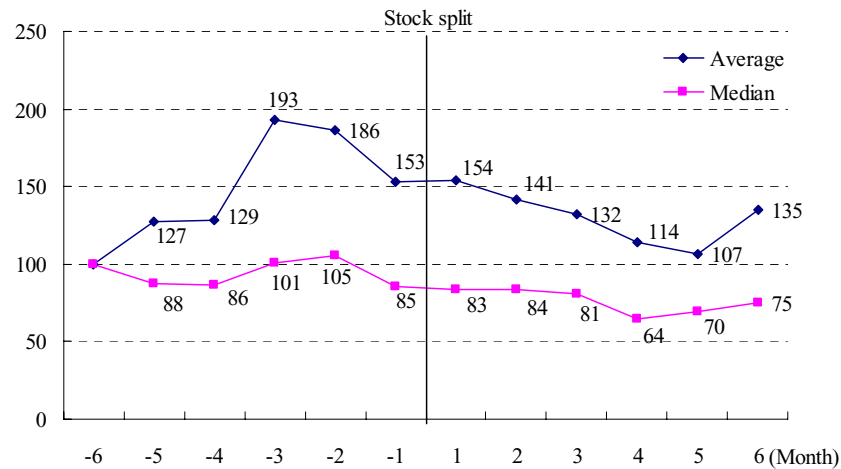
Studies of liquidity have tended to focus on whether reducing the minimum required investment amount produces any changes in volume around the same time. For the following reasons, however, we decided not to do a simple comparison of volume.

First, we adjusted the volume data to allow for external factors such as the market condition. For example, if the volume of trading in the shares of a company that had reduced its minimum required investment amount increased during the same period as overall market volume increased, it would be impossible to say that the increase in the former was the result solely of the reduction in the minimum required investment amount rather than a reflection of the increase in overall market activity. In our study we therefore used a "market-adjusted volume" obtained by dividing the volume of each stock by the total volume of the market (the Tokyo Stock Exchange or the OTC market) on which it was listed. Second, where there was a stock split (and therefore an increase in the number of shares outstanding), we abstracted this effect by adjusting the post-split volume by the split ratio. For example, in the case of a 1:2 split, we adjusted the raw data by dividing it by 2. As elsewhere in our analysis, we excluded those companies for which no volume data were available because of a change in a stock's listing as well as those that reduced their minimum required investment amount more than once during the same fiscal year.

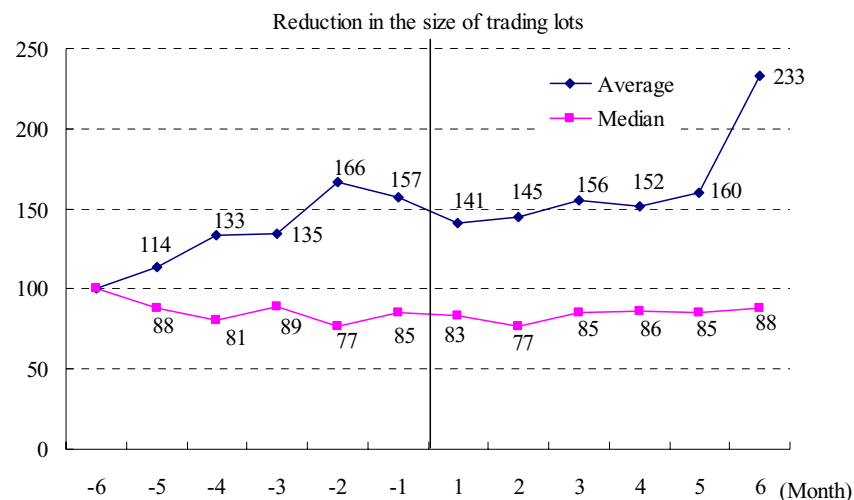
We analyzed liquidity by comparing a stock's monthly volume during the six months preceding and following the split or the reduction in the size of its trading lots. We tracked the changes in a stock's volume by rebasing the volume six months before the split or the reduction in the size of its trading lots at 100, but failed to detect any significant change either immediately before or immediately after the reduction in size of its minimum required investment amount (see Figure 3). Our reason for rebasing the volume at its level six months prior to the reduction was to eliminate any effects produced by the announcement, which is normally made about three months prior to the reduction.

**Figure 3 Change in Volume (TSE and OTC combined)**

**A Stock splits**



**B Reductions in the size of trading lots**



- Notes: 1 The indices show the monthly volume during the six months preceding and following the split or the reduction in the size of a stock's trading lots. The monthly volume six months before the split or the reduction in the size of a stock's trading lots was rebased to 100.
- 2 The monthly volume of each stock has been adjusted to reflect the overall trend of either the Tokyo Stock Exchange or the OTC market, depending on which market the stock was listed on.
- 3 Of the 376 companies that carried out a stock split on the Tokyo Stock Exchange or the OTC market between fiscal 1998 and fiscal 2000, 91 were excluded because comparative volume data were not available (e.g., because of listing changes). Of the 256 companies that reduced the size of their trading lots between fiscal 1998 and fiscal 2000, 34 were excluded for the same reason.

Source: NRI.

The following observations can be made about our findings.

First, in the case of stock splits, there was a tendency for the sample average to rise sharply three months before the split took place, and then to decline. This can be explained by the fact that an announcement of a stock split is price-sensitive information and that the sample average was boosted by a sharp increase in the volume of a minority of stocks. Such an explanation is perfectly plausible given that an announcement of a stock split is generally seen as a sign that the company concerned is confident about its earnings prospects.

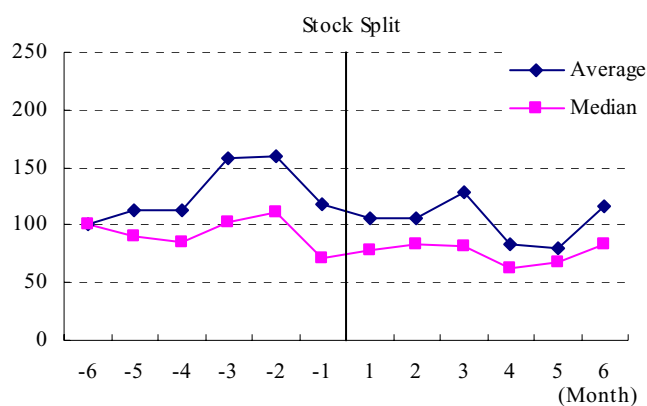
Second, in the case of both stock splits and reductions in the size of trading lots, a big increase in the average volume index could be observed six months afterwards. This increase in liquidity can be interpreted as the result of an increase in the number of the companies' shareholders a few months after the companies' minimum required investment amount was reduced. However, it is impossible to say from our study alone whether this increase in volume was a temporary effect or a permanent one. Similarly, the fact that no significant change in the median volume could be observed during the same period means that the possibility cannot be ruled out that data on stocks whose volume increased sharply for reasons other than a reduction in their minimum required investment amount may have had a significant effect.

Third, a comparison of the effect of stock splits and reducing the size of companies' trading lots on volume indicates from the difference between the median and the average that more stocks listed on the OTC market showed a big increase in volume than those listed on the Tokyo Stock Exchange (see Figure 4). In particular, there was a tendency on the OTC market for volume to increase before the minimum required investment amount was reduced, and this suggests that the announcement of the reduction was seen as price-sensitive information and thereby led to an increase in volume. One reason why this effect was observed may be that the relative illiquidity of the OTC market makes any changes in volume that much more apparent than on the Tokyo Stock Exchange.

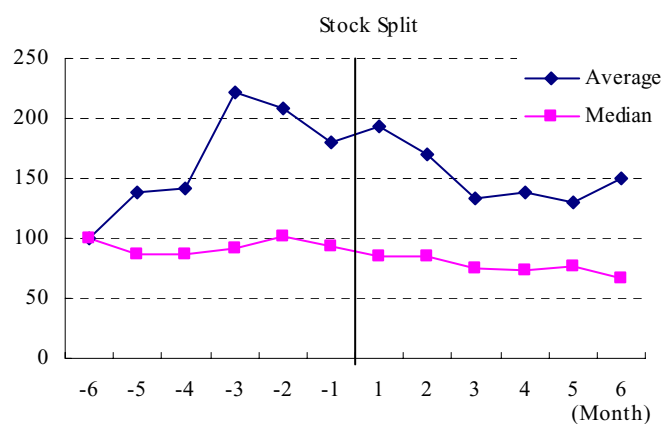
Finally, the study did not produce any clear findings about the effect on liquidity of different reductions in the size of trading lots (see Table 5). For reasons of convenience, the average monthly volume for the 6-4 months preceding the stock split or reduction in the size of trading lots has been rebased at 100, and an index value calculated for the average monthly volume of each of the following three three-monthly periods.

**Figure 4 Change in Volume (TSE and OTC separately)**

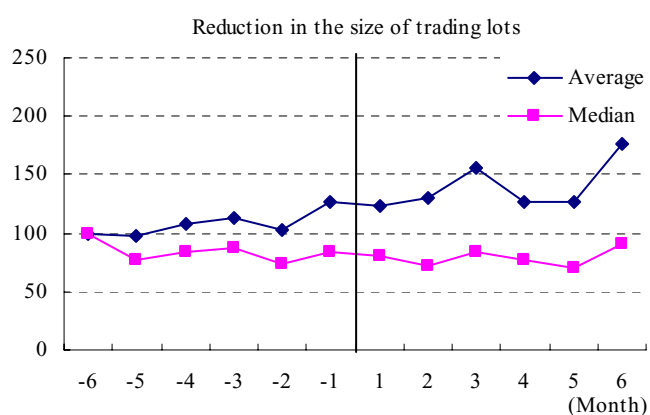
A Stock splits  
TSE



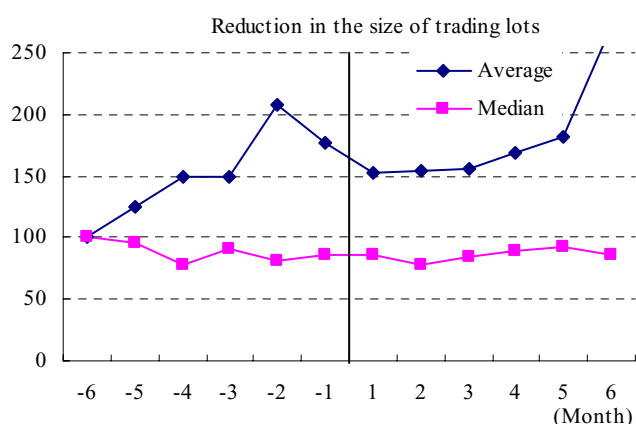
OTC



B Reductions in the size of trading lots  
TSE



OTC



- Notes: 1 The indices show the monthly volume during the six months preceding and following the split or the reduction in the size of a stock's trading lots. The monthly volume six months before the split or the reduction in the size of a stock's trading lots was rebased to 100.
- 2 The monthly volume of each stock has been adjusted to reflect the overall trend of either the Tokyo Stock Exchange or the OTC market, depending on which market the stock was listed on.
- 3 Of the 175 TSE and 201 OTC companies that carried out a stock split between fiscal 1998 and fiscal 2000, those (48 TSE and 43 OTC companies) for which comparative volume data were not available (e.g., because of listing changes) were excluded.
- 4 Of the 105 TSE and 152 OTC companies that reduced the size of their trading lots between fiscal 1998 and fiscal 2000, those (19 TSE and 16 OTC companies) for which comparative volume data were not available (e.g., because of listing changes) were excluded.

Source: NRI.

**Table 5 Change in Volume (TSE and OTC combined)**

### A Stock splits

| Split ratio<br>(no. of companies)                                                                                                                                                                                                        | 1.2 or less (118 companies) |     |                           |     |                           |     | 1.2-1.5 (108 companies)    |     |                           |     |                           |     | 2.0 or more (59 companies) |     |                           |     |                           |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|-----|---------------------------|-----|---------------------------|-----|----------------------------|-----|---------------------------|-----|---------------------------|-----|----------------------------|-----|---------------------------|-----|---------------------------|-----|
| Period                                                                                                                                                                                                                                   | 3-1 months<br>before split  |     | 1-3 months<br>after split |     | 4-6 months<br>after split |     | 3-1 months<br>before split |     | 1-3 months<br>after split |     | 4-6 months<br>after split |     | 3-1 months<br>before split |     | 1-3 months<br>after split |     | 4-6 months<br>after split |     |
| Average monthly volume of each of the three three-monthly periods following the period 6-4 months before the stock split, the average monthly volume of which period has been rebased at 100<br>Top line: average<br>Bottom line: median | 113.48                      |     | 122.47                    |     | 108.47                    |     | 145.01                     |     | 108.58                    |     | 99.21                     |     | 149.77                     |     | 136.01                    |     | 111.20                    |     |
|                                                                                                                                                                                                                                          | 91.68                       |     | 87.53                     |     | 77.46                     |     | 105.25                     |     | 67.78                     |     | 72.15                     |     | 138.97                     |     | 87.54                     |     | 72.22                     |     |
| Distribution                                                                                                                                                                                                                             | (Companies)                 | (%) | (Companies)               | (%) | (Companies)               | (%) | (Companies)                | (%) | (Companies)               | (%) | (Companies)               | (%) | (Companies)                | (%) | (Companies)               | (%) | (Companies)               | (%) |
| Less than 50                                                                                                                                                                                                                             | 19                          | 16% | 30                        | 25% | 32                        | 27% | 16                         | 15% | 37                        | 34% | 39                        | 36% | 7                          | 12% | 13                        | 22% | 18                        | 31% |
| 50-100                                                                                                                                                                                                                                   | 44                          | 37% | 37                        | 31% | 44                        | 37% | 32                         | 30% | 30                        | 28% | 35                        | 32% | 10                         | 17% | 20                        | 34% | 21                        | 36% |
| 100-150                                                                                                                                                                                                                                  | 27                          | 23% | 19                        | 16% | 22                        | 19% | 31                         | 29% | 18                        | 17% | 12                        | 11% | 18                         | 31% | 14                        | 24% | 8                         | 14% |
| 150-200                                                                                                                                                                                                                                  | 17                          | 14% | 10                        | 8%  | 6                         | 5%  | 8                          | 7%  | 10                        | 9%  | 9                         | 8%  | 9                          | 15% | 4                         | 7%  | 4                         | 7%  |
| 200-250                                                                                                                                                                                                                                  | 5                           | 4%  | 12                        | 10% | 5                         | 4%  | 9                          | 8%  | 5                         | 5%  | 5                         | 5%  | 5                          | 8%  | 4                         | 7%  | 2                         | 3%  |
| 250-300                                                                                                                                                                                                                                  | 3                           | 3%  | 2                         | 2%  | 0                         | 0%  | 3                          | 3%  | 2                         | 2%  | 3                         | 3%  | 7                          | 12% | 2                         | 3%  | 1                         | 2%  |
| 300-350                                                                                                                                                                                                                                  | 1                           | 1%  | 2                         | 2%  | 3                         | 3%  | 3                          | 3%  | 2                         | 2%  | 2                         | 2%  | 3                          | 5%  | 0                         | 0%  | 1                         | 2%  |
| 350-400                                                                                                                                                                                                                                  | 1                           | 1%  | 2                         | 2%  | 2                         | 2%  | 2                          | 2%  | 0                         | 0%  | 1                         | 1%  | 0                          | 0%  | 1                         | 2%  | 3                         | 5%  |
| 400-450                                                                                                                                                                                                                                  | 0                           | 0%  | 1                         | 1%  | 2                         | 2%  | 1                          | 1%  | 1                         | 1%  | 0                         | 0%  | 0                          | 0%  | 0                         | 0%  | 0                         | 0%  |
| 450-500                                                                                                                                                                                                                                  | 1                           | 1%  | 1                         | 1%  | 1                         | 1%  | 0                          | 0%  | 1                         | 1%  | 1                         | 1%  | 0                          | 0%  | 0                         | 0%  | 0                         | 0%  |
| 500 or more                                                                                                                                                                                                                              | 0                           | 0%  | 2                         | 2%  | 1                         | 1%  | 3                          | 3%  | 2                         | 2%  | 1                         | 1%  | 0                          | 0%  | 1                         | 2%  | 1                         | 2%  |

### B Reductions in the size of trading lots

| Reduction ratio<br>(no. of companies)                                                                                                                                                                                                                                        | 1/2 (42 companies)             |     |                               |     |                               |     | 1/5 (17 companies)             |     |                               |     |                               |     | 1/10 (163 companies)           |     |                               |     |                               |     |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------|-----|-------------------------------|-----|-------------------------------|-----|--------------------------------|-----|-------------------------------|-----|-------------------------------|-----|--------------------------------|-----|-------------------------------|-----|-------------------------------|-----|
| Period                                                                                                                                                                                                                                                                       | 3-1 months<br>before reduction |     | 1-3 months<br>after reduction |     | 4-6 months<br>after reduction |     | 3-1 months<br>before reduction |     | 1-3 months<br>after reduction |     | 4-6 months<br>after reduction |     | 3-1 months<br>before reduction |     | 1-3 months<br>after reduction |     | 4-6 months<br>after reduction |     |
| Average monthly volume of each of the three three-monthly periods following the period 6-4 months before the reduction in the size of a stock's trading lots, the average monthly volume of which period has been rebased at 100<br>Top line: average<br>Bottom line: median | 136.48                         |     | 125.95                        |     | 154.37                        |     | 179.67                         |     | 159.66                        |     | 157.78                        |     | 120.21                         |     | 112.24                        |     | 138.88                        |     |
|                                                                                                                                                                                                                                                                              | 107.69                         |     | 101.99                        |     | 106.85                        |     | 98.81                          |     | 82.70                         |     | 93.17                         |     | 88.49                          |     | 80.64                         |     | 86.02                         |     |
| Distribution                                                                                                                                                                                                                                                                 | (Companies)                    | (%) | (Companies)                   | (%) | (Companies)                   | (%) | (Companies)                    | (%) | (Companies)                   | (%) | (Companies)                   | (%) | (Companies)                    | (%) | (Companies)                   | (%) | (Companies)                   | (%) |
| Less than 50                                                                                                                                                                                                                                                                 | 5                              | 12% | 3                             | 7%  | 7                             | 17% | 3                              | 18% | 6                             | 35% | 2                             | 12% | 28                             | 17% | 31                            | 19% | 37                            | 23% |
| 50-100                                                                                                                                                                                                                                                                       | 14                             | 33% | 16                            | 38% | 12                            | 29% | 6                              | 35% | 6                             | 35% | 7                             | 41% | 70                             | 43% | 71                            | 44% | 59                            | 36% |
| 100-150                                                                                                                                                                                                                                                                      | 8                              | 19% | 13                            | 31% | 10                            | 24% | 5                              | 29% | 1                             | 6%  | 3                             | 18% | 34                             | 21% | 33                            | 20% | 28                            | 17% |
| 150-200                                                                                                                                                                                                                                                                      | 5                              | 12% | 4                             | 10% | 4                             | 10% | 0                              | 0%  | 1                             | 6%  | 2                             | 12% | 10                             | 6%  | 6                             | 4%  | 11                            | 7%  |
| 200-250                                                                                                                                                                                                                                                                      | 4                              | 10% | 3                             | 7%  | 2                             | 5%  | 1                              | 6%  | 2                             | 12% | 0                             | 0%  | 12                             | 7%  | 9                             | 6%  | 9                             | 6%  |
| 250-300                                                                                                                                                                                                                                                                      | 5                              | 12% | 1                             | 2%  | 1                             | 2%  | 0                              | 0%  | 0                             | 0%  | 0                             | 0%  | 2                              | 1%  | 6                             | 4%  | 5                             | 3%  |
| 300-350                                                                                                                                                                                                                                                                      | 0                              | 0%  | 1                             | 2%  | 2                             | 5%  | 0                              | 0%  | 0                             | 0%  | 0                             | 0%  | 2                              | 1%  | 1                             | 1%  | 2                             | 1%  |
| 350-400                                                                                                                                                                                                                                                                      | 1                              | 2%  | 0                             | 0%  | 0                             | 0%  | 0                              | 0%  | 0                             | 0%  | 1                             | 6%  | 1                              | 1%  | 2                             | 1%  | 2                             | 1%  |
| 400-450                                                                                                                                                                                                                                                                      | 0                              | 0%  | 0                             | 0%  | 0                             | 0%  | 0                              | 0%  | 0                             | 0%  | 0                             | 0%  | 0                              | 0%  | 1                             | 1%  | 4                             | 2%  |
| 450-500                                                                                                                                                                                                                                                                      | 0                              | 0%  | 0                             | 0%  | 2                             | 5%  | 0                              | 0%  | 0                             | 0%  | 1                             | 6%  | 1                              | 1%  | 1                             | 1%  | 0                             | 0%  |
| 500 or more                                                                                                                                                                                                                                                                  | 0                              | 0%  | 1                             | 2%  | 2                             | 5%  | 2                              | 12% | 1                             | 6%  | 1                             | 6%  | 3                              | 2%  | 2                             | 1%  | 6                             | 4%  |

Note: Same universe as for Figure 4.  
Source: NRI.

### 3) Summary of findings

The following conclusions can be drawn from the above findings:

- (1) Reducing a company's minimum required investment amount by means of either a stock split or a reduction in the size of its trading lots can help to

- increase the number of individual shareholders in that company by reducing the amount of money needed to invest in its shares.
- (2) There was a tendency for the increase in the number of individual shareholders in a company to be proportional to the reduction in its minimum required investment amount.
  - (3) An increase in the number of individual shareholders as a result of a reduction in a company's minimum required investment amount does not produce an immediate increase in the percentage of shares owned by individuals. In most cases where there is a stock split, the number of shares owned by corporate shareholders increases more quickly than the number of those owned by individual shareholders, and the percentage of shares owned by individuals declines. This would appear to be connected with the fact that stock splits are regarded as a sign of confidence by management in a company's earnings prospects.
  - (4) There is no conclusive evidence that reducing a company's minimum required investment amount increases the liquidity of its shares. Although there is no denying the fact that an announcement by a company that it is going to reduce its minimum required investment amount is price-sensitive and often results in a temporary increase in volume, there is no evidence that the actual reduction produces any long-term increase in liquidity.

### **3. Current Issues**

A heated debate is currently going on in Japan about the need to revitalize the country's securities markets in order to transform the financial system from one that is overdependent on indirect finance (provided by financial intermediaries such as banks) to one where direct finance plays a greater role. One policy initiative along these lines was the Program for Structural Reform of the Securities Markets announced by the Financial Services Agency in August 2001.

Reducing the minimum amount required to invest in a company's shares has been held up as one of the most important ways of encouraging more individuals to invest in the stock market. This is also why all the stock exchanges in Japan and the Japan Securities Dealers Association announced a campaign calling for the reduction in the minimum amount required to invest in a company's shares to below ¥500,000. Indeed, the present study has confirmed the fact that such reductions tend to increase the number of individual investors.

However, the fact that reducing the minimum amount required to invest in a company's shares tends to increase the number of its individual shareholders is unlikely to be enough in itself to persuade many listed companies to take such action. Although there have been cases of venture companies that offer services to consumers (e.g., Monex and Starbucks Coffee Japan) going to great lengths to reduce the minimum amount required to invest in their shares (e.g., by carrying out ¥1 capital

increases in the days before the Commercial Code was revised to allow companies to reduce their minimum required investment amount), such companies have had a specific goal: to encourage potential retail customers to become shareholders as a means of ensuring the success of their initial public offerings. Given the nature of their business and their present shareholder structures, however, many companies have little interest in significantly increasing the number of their individual shareholders.

If the number of their outstanding shares and the number of their shareholders increased, listed companies would face higher shareholder administration costs (e.g., for printing share certificates, maintaining shareholder registers and notifying shareholders of general meetings). In the absence of clear benefits such as greater liquidity and more efficient share price formation, it would hardly be surprising if such cost increases were enough to dissuade companies from trying to increase the number of their shareholders. Unfortunately, our own study could find no conclusive evidence that reducing the minimum amount required to invest in a company's shares improves liquidity.

The main reason for amending the Commercial Code and abolishing the restrictions on stock splits was to accommodate the needs of high-growth venture companies that found themselves unable to fix the size of one share at a suitable level. Since the Code was amended, a significant number of companies have indicated their desire to reduce their minimum required investment amount by means of stock splits or reducing the size of their trading lots. However, many of these companies are listed on either the JASDAQ or Nasdaq Japan—markets that cater for venture businesses (see Table 6). Furthermore, most of the companies that have carried out deep splits (that will have a significant impact on the number of their shares outstanding) are listed on these two markets. It is therefore apparent that venture businesses are more likely to feel the need to reduce the minimum amount required to invest in their shares.

However, all the stock exchanges in Japan and the Japan Securities Dealers Association, which operates the JASDAQ, have been actively campaigning for companies (including those that have not indicated any interest in doing so) to reduce the size of their minimum required investment amount to below ¥500,000—partly on the grounds that a survey they commissioned indicated that retail investors feel that ¥500,000 is a suitable investment amount.

**Table 6-1 Number of Companies Planning Stock Splits after October 2001**

|                | TSE (1st & 2nd Sect.) | Mothers | Nasdaq Japan | JASDAQ | Total |
|----------------|-----------------------|---------|--------------|--------|-------|
| Less than 1:2  | 4                     | 0       | 0            | 3      | 7     |
| 1:2            | 6                     | 3       | 5            | 6      | 20    |
| 1:3            | 1                     | 0       | 3            | 7      | 11    |
| 1:4            | 0                     | 0       | 1            | 1      | 2     |
| 1:5            | 2                     | 0       | 0            | 3      | 5     |
| 1:10           | 0                     | 1       | 0            | 7      | 8     |
| More than 1:10 | 0                     | 0       | 0            | 1      | 1     |
| Total          | 13                    | 4       | 9            | 28     | 54    |

- Notes:1 Data cover those companies that had announced a stock split by 9 January 2002 (to take effect on or after 1 October 2001).
- 2 The only case of more than 1:10 is that of Konami Computer Entertainment Osaka (4729) (1:100). However, the company increased the size of its trading lots from 1 share to 50 shares at the same time as the split.

Source: NRI, from various sources.

**Table 6-2 Number of Companies Planning to Reduce the Size of Their Trading Lots after October 2001**

|       | TSE (1st & 2nd Sect.),<br>OSE (1st & 2nd Sect.)<br>and NSE | Mothers | Nasdaq Japan | JASDAQ | Total |
|-------|------------------------------------------------------------|---------|--------------|--------|-------|
| 1/2   | 1                                                          | 0       | 0            | 2      | 3     |
| 1/5   | 5                                                          | 0       | 0            | 2      | 7     |
| 1/10  | 25                                                         | 0       | 3            | 18     | 46    |
| Total | 31                                                         | 0       | 3            | 22     | 56    |

Note: Data cover those companies that had announced a reduction in the size of their trading lots by 9 January 2002 (to take effect on or after 1 October 2001).

Source: NRI, from various sources.

Basically, however, it is up to companies themselves to decide (taking into account a variety of factors) what the right size of share for them should be. Also, even if it is desirable to encourage more retail investors to participate in the stock market, it is questionable whether this requires companies to reduce their minimum required investment amount below a certain size. Even if a company has a relatively large minimum required investment amount, there are various ways by which it can project itself as an "investor-friendly company" (e.g., by cultivating relations with retail investors). It is certainly highly questionable whether companies that are happy with their current minimum required investment amount should all be compelled to reduce it.