Listing of Stocks of both Parent Company and its Subsidiaries' Stocks on the Same Exchange , and Some Thought on the Benchmark of Japanese Stocks.

- Toward the Benchmark Properly Assessing Floating Stocks -

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Contents

1. Currently, there are many cases in Japanese stock market where the shares of parent companies and their several subsidiaries are listed on the same exchange, such as Ito-Yokado Co., Ltd. and its subsidiary, Seven-Eleven Japan Co. Ltd., and such listings seem to be on the increase. In addition to those equity shares held by parent companies, there are several kinds of shares steadily held by stable stockholders such as those held by the government, those held as equity portion by owners, those related to cross-holding for business reasons, etc. While assets are managed efficiently, it is observed that there is an increasing tendency of passive management in the public funds or huge pension related funds.

2. The standard index used as the benchmark in the field of asset management in Japan is TOPIX, where the method of its calculation is based on the number of listed stocks, mechanically incorporated into the index.

3. It has been much discussed since last year that some distortion is brought about in the Japanese stock market by these factors. For instance, those shares largely held by stable stockholders are circulating less in the market than the amount envisaged in the formation of TOPIX, and therefore, if there are excessive demands for those shares from active managers, it is possible that their price will somehow be distorted.

4. Our quantitative model shows a large deviation between the current investable market and the benchmark. Also, this deviation will further be enlarged in the future if passive management ratio goes up with a high level of stable stockholding remaining at its current level. When we look at the figures of this deviation in the individual stocks, a supply and demand deviation in the excessive demand issues and excessive supply issues is quite large. In the last 20 years such effects are increasing, particularly in recent years. We can also see a tendency that whenever the ratio of stable holding of shares is high, traded volume decreases and volatility goes up.

5. The deviation between the benchmark and the investable market will greatly affect the assessment of managers, causing many problems including the distortion of supply and demand. As we foresee more cases of listing of a parent company and its subsidiaries in the same market, or listing of privately owned companies, it is becoming increasingly important to have a benchmark which takes into consideration the stable holding of listed shares.

1. Listings of Stocks of Parent Company and its Subsidiaries at the same market and actual condition of Stable Stockholding.

In the current Japanese stock market, there are many cases where parent companies and their subsidiaries are listed, such as Ito-Yokado Co., Ltd. and Seven-Eleven Japan Co., Ltd., and Matsushita Electric Industrial Co., Ltd. and Matsushita Communication Industrial Co., Ltd. As those shares of the subsidiaries which the parent companies are holding are not held for purely investment purposes, they are not going to be bought or sold based on investment decision in the short term. Those shares held by stable shareholders under their policy to

maintain the relationship between the corporations are, to distinguish them from shares traded for purely investment purposes, called "Stable Stockholding." Commonly seen Stable Stockholding is the government holding shares of a privatized corporation which previously was a public corporation, "cross holding shares" so to say, for the purpose of strengthening ties among the group companies, and owners' equity portion of owner corporations in Internet related business.

   Financial Research Institute of Nomura Securities Co., Ltd. has added up this Stable Stockholding as accurately as possible from the viewpoint of information disclosure, and calculated all of Japanese stock issues including those on OTC (Refer to the attachment). Table 1-1 shows the changes of such ratio of Stable Stockholding for the past 12 years, together with "one-side holding ratio" and "mutual cross-holding ratio."

**Table I-1   The change of ratio in Stable Stockholding (1987-1999)**

	1987	1999	Change
Ratio of Stable Stockholding (%)	53.5	45.4	-8.1
Ratio of one-side holding (%)	30.7	27.8	-2.9
Ratio of cross-holding (%)	19.5	15.7	-3.8

Note: "The Stable Stockholding Ratio" is the ratio in relation to the total market versus all stocks that have added up to the portions admitted as Stable Stockholding based on the data of shares held by large shareholders and those disclosed securities holdings (refer to the attachment). "One-side stockholding" is obtained by deducting those shares held by life insurance companies, individuals, and unlisted companies from "Stable Stockholding," where the portion of shares that the corporations are holding stably the other corporations' shares are taken into account. "Cross stockholding" is calculated by taking into account those shares that the corporations are mutually holding of other corporations' shares.
Source: Nomura Securities Co., Ltd. Financial Research Institute.

   Stable shareholding is generally observed in many Japanese corporations, and now amounts to the level of about 45% of the average of market. It is also commonly seen, as is shown in the Table 1-2 below, in every kind of industry, where it is highly practiced in the communications and banking industries, but less practiced in electric power, gas supply and securities businesses. In the first and second sections of the Tokyo Stock Exchange, such figures are almost at the level of the average, but with regard to OTC, the relative figure is nearly 70%. The ratio of stockholding varies according to the issues of shares. For instance, Ito-Yokado holds almost 70% of Seven-Eleven's issued shares, and Sony Co., Ltd. and Hitachi, Ltd. usually hold only up to 20% of subsidiaries' shares.

Table I-2   Ratio of Stable Stockholding by Industry (1999)
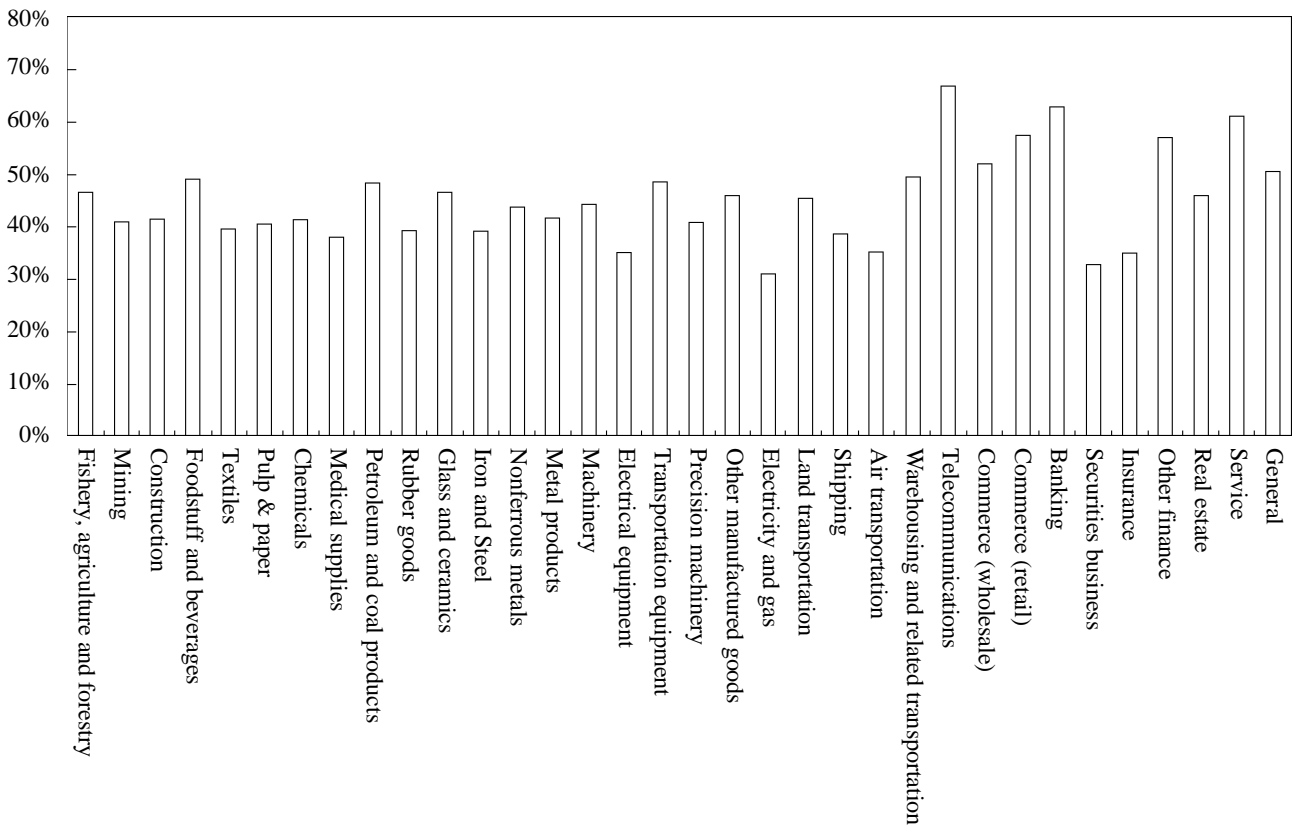
Source: Nomura Securities Co., Ltd. Financial Research Institute.

Table II-2   Ratio of passive management of stocks in U.S. pension management (1999).

Pension funds total

Large sized pension funds

Passive management 18%

Passive management 39%

Active management 82%

Active management 61 %

Total funds of SP 500 benchmark
(2,400 billion dollars in total)

Top 200 Defined Benefit Pension Plan Funds
(10 billion dollars of assets on average)
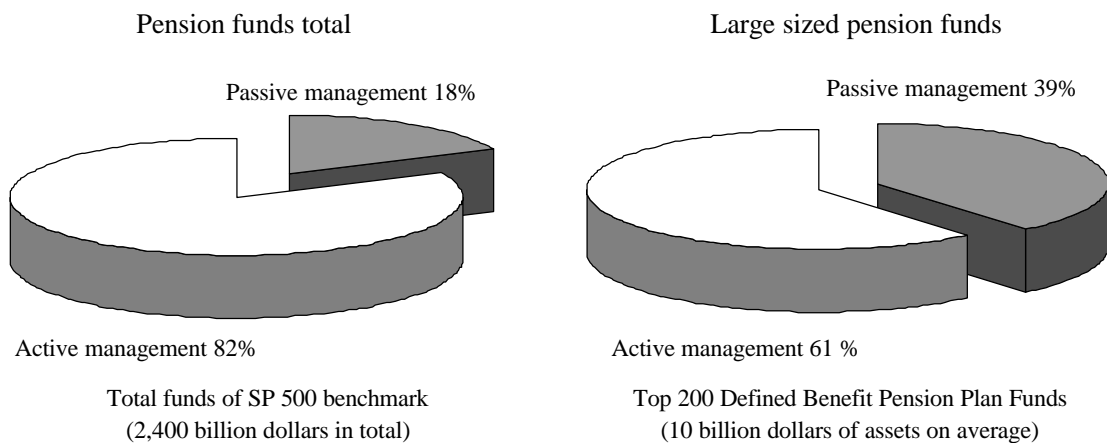
Source: Compiled by Nomura Securities Co., Ltd. based
     on the data of Nelson's Investment Managers.

Source: P & I

2. Passive management in Japanese market.

Though it may sound strange, in order to see the relationship between Stable Stockholding and the distortion of supply and demand of relative shares, it is important to know to what degree passive management is practiced in the market. In this section, we look at passive management in the Japanese market.

Passive management, as opposed to active management, is the fund management method which does not take any risk at all, and at the same time does not aim at any excess profit over the benchmark. In this way, this method will realize the benchmark based profit with low cost factors, and is said to fit the management of large funds. As of 1999 (see Table II-2), 20% of domestic stocks are invested in passive management in the United States, and 40% in the case of large size pension funds (top 200 funds of defined benefit pension plan). Indexed management of stocks is also very common in Japan, and around 30% of collective funds managed by trust banks in the last 5 years has been steadily managed based on the indexed management method. If we look at the details of management, index management in Japan has not been differentiated from active management as in the United States, resulting in a large tracking error with low ratio of real passive management. However, in the last 1-2 years (Table II-1), tracking error and cost involved in the passively managed fund are conspicuously decreasing. As the efficiency of fund management by the pension sponsors is expected to improve in the future, the ratio of real passive management of stocks is also expected to increase in Japan (Ohba, [1999]).

Table II-1 Tracking errors (   ) in collective funds managed by trust banks in 8 years from March, 1991 to 1999.

	1991-1994		1995-1999		Average
	(%)	Nos. of fund	(%)	Nos. of fund	(%)
Passive	2.14	15	1.00	18	1.57
Active management – Growth	6.86	3	4.96	6	5.91
– Value	5.04	16	3.16	21	4.10
– Small	9.41	7	8.06	8	8.73

Note: Tracking error (   ) is an annualized ratio of standard deviation of the difference of monthly earning rate and the benchmark. Therefore, the larger the figure of (   ), the higher the active risk of the fund.

Source: Compiled by Nomura Securities Co., Ltd. Financial Research Institute, based on the pension information data.

It is generally believed that a higher ratio of passive management in the market as a whole will bring about improved efficiency in the management of funds, and, therefore, passive management seems to have been welcome, at least by Western users. where a high ratio of stable stockholding continues may cause a great problem in the asset management bu However, as is explained in detail later, according to our Japanese model, increased passive management in a situation siness as a whole.

3. Three hypotheses regarding stable stockholding and the distortion of liquidity/supply and demand.

TOPIX may be the most commonly used benchmark of investment in domestic stocks for the Japanese stock investors. The number of shares recognized in the calculation of this index is the total shares listed in the First Section of the Tokyo Stock Exchange, and not the volume of stock actually floating in the market, less the stable holding stocks. I have established three hypotheses regarding the distortion created directly from the above fact in supply and demand, and the influence of the volume of stable stockholding to the volatility or liquidity of shares.

Distortion in supply and demand.

When there is a difference between actual investment-worthy weight and benchmark weight, it will produce excess or shortage of demand or supply. As a direct result of this effect, those stocks oversupplied will be negatively affected, and of those stocks in short supply will be positively affected.

Volatility

There are many articles discussing about the relationship between the volume of trading and the volatility. Though different conclusions have been drawn depending on the article, according to a survey conducted by Karpoff [1987], most of the positive studies proved the existence of the trend that as trading heats up the volatility also goes up. Wang [1994] and others have proposed several theoretical models to back up this trend.

If there exists for each stock "a level of reasonable trading volume which can be traded without influencing the volatility (=Vo)," it is more probable that the volatility will go up when stable stockholding ratio is high, because the demand beyond such a level will arise under such circumstance.

Liquidity

The trading volume of large companies' shares is usually large. This is because, if the other conditions remain the same, the trading volume of a certain stock will be in the same proportion to the number of shares prevailing in the market. When we take stable holding stocks into account, the higher the ratio of stable holding stocks, the smaller the turnover ratio of trading of such shares.

With these hypotheses in mind, in the following Chapter 4, a formula to check the above hypothesis will be created to calculate the distortion, and in Chapter 5 below, these three hypotheses will be positively analyzed using data over the past 20 years.

4. A model of supply and demand distortion

When there is a difference between investment-worthy weight and benchmark weight in the market, it will create excess or shortage in demand or supply of relative shares. There is the possibility that the price of shares in abundance in the market will be negatively affected, and the price of shares in short supply will be positively

affected. For instance, as stable holding shares are not excluded in the calculation of TOPIX, the price of shares of which stable holding shares are larger than the average of the market could be distorted because of the excessive demand from active managers, and because the portion of such shares are less than the weight in TOPIX, as in the case of subsidiary companies' shares where the parent's shares and the subsidiaries' shares are listed on the same exchange. On the contrary, if the stable holding shares are less than the average of the market, it is possible that there is a distortion due to the oversupply of such shares.

In this Chapter, a formula is created to calculate how different the average active manager's portfolio is from the average of the market, utilizing passive ratio and stable stockholding ratio, etc. The following are the preconditions to draw the formula.

Total of the market = investment-worthy market + stable holding stocks

The benchmark is proportional relation to the total market.

Investment-worthy market and the total market are not equal.

Investment-worthy market = Actively managed portion + Passively managed portion

Stable holding shares are not traded, and passively managed portion is invested and managed according to the benchmark.

Under these preconditions, those prices of shares left out as the actively managed portion will deviate from the benchmark. Let's make this deviation formula which will show how large this deviation could be.

Variables are defined as follows.

Vector of aggregate market value of corporate stocks $\qquad$ $V_M = (v_1, v_2, v_3, \quad v_N)$

Vector of aggregate market value of stable holding stocks $\qquad$ V_N

Vector of total of passively managed portion $\qquad$ V_P

Vector of total of actively managed portion $\qquad$ V_A

Size of vector: $|x|$ = Total of elements of vector x

Weight of vector: $_* = V_*/|V\ |$

As,

aggregate market value of corporate stocks = Passively managed portion + Actively managed portion +Stable holding portion,

the following equation can be established.

$$V_M = V_P + V_A + V_N \qquad\qquad\qquad\text{(IV-1)}$$

From the hypothesis that the benchmark is in proportional relation with the total market,

$$V_P = R_P\ V_M \qquad\qquad\qquad\text{(IV-2)}$$

can be established. (where, $R_P = |V_P| / |V_M|$).

Therefore, from equation (IV -1) and equation (IV-2),

$$V_A = (1-R_P)\ V_M - V_N \qquad\qquad\qquad\text{(IV-3)}$$

Using the above equations, the following is the calculation of the difference between the average of active management portion and the weight of the benchmark.

$$_A - {}_M = V_A/|V_A| - V_M/|V_M|$$
$$= \{(1-R_P)V_M - V_N \}/ |V_A| - V_M/|V_M|$$
$$= K(\ _M - {}_N) \qquad\qquad\text{(IV-4)}$$

where $K = K(R_N, R_P)$ $R_N/(1-R_N-R_P)$

R_N is the ratio of stable-stock holding (= ratio of stable holding stocks in the total market), and R_P is the ratio of passive management (= ratio of passively managed assets in the total market).

Therefore, w_M, which is the weight of the average active manager, will become larger by $K(w_M-w_N)$ if compared with w_M.

It is easy to extend the above formula, not only to exclude the stable holding stocks, but also to exclude shares of certain segments of the market in the calculation of the benchmark. In such a case, a supply and demand distortion will arise between the shares of segments included in the benchmark and those not included. Such an effect can not be neglected if the total market value of shares not included in the benchmark calculation is very large.

The equation (IV-4) indicates that the degree of each stock's distortion can be obtained by (weight of market - weight of stable stockholding) multiplied by K (distortion coefficient) which shows the distortion of the market. The distortion coefficient is the magnification which amplifies the distortion of each share, and is the incremental function both to passive management ratio and stable stockholding ratio. (Table IV-1, IV-2)

For example, when stable stockholding ratio is zero, regardless of passive management ratio level, a distortion does not exist. On the other hand, if passively managed assets increase under a situation of a high level of stable stockholding, the deviation will be enlarged, and if such assets decrease, the deviation will become smaller. Even if the passively managed ratio is zero, as long as the stable stockholding ratio is not zero, the distortion coefficient will not be zero.

Table IV-1 Relationship between stable stockholding ratio and distortion coefficient in a certain market with various passive management ratio.
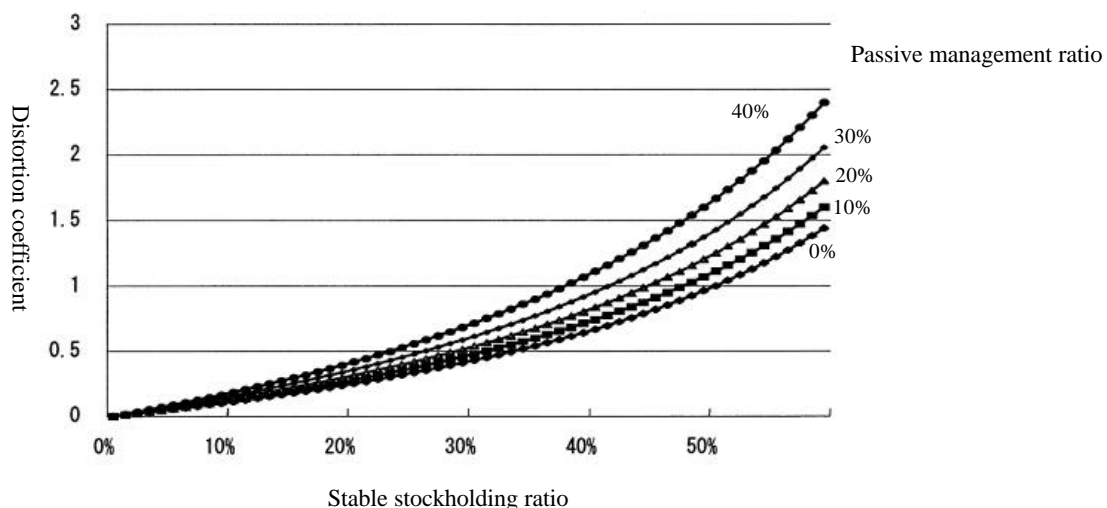
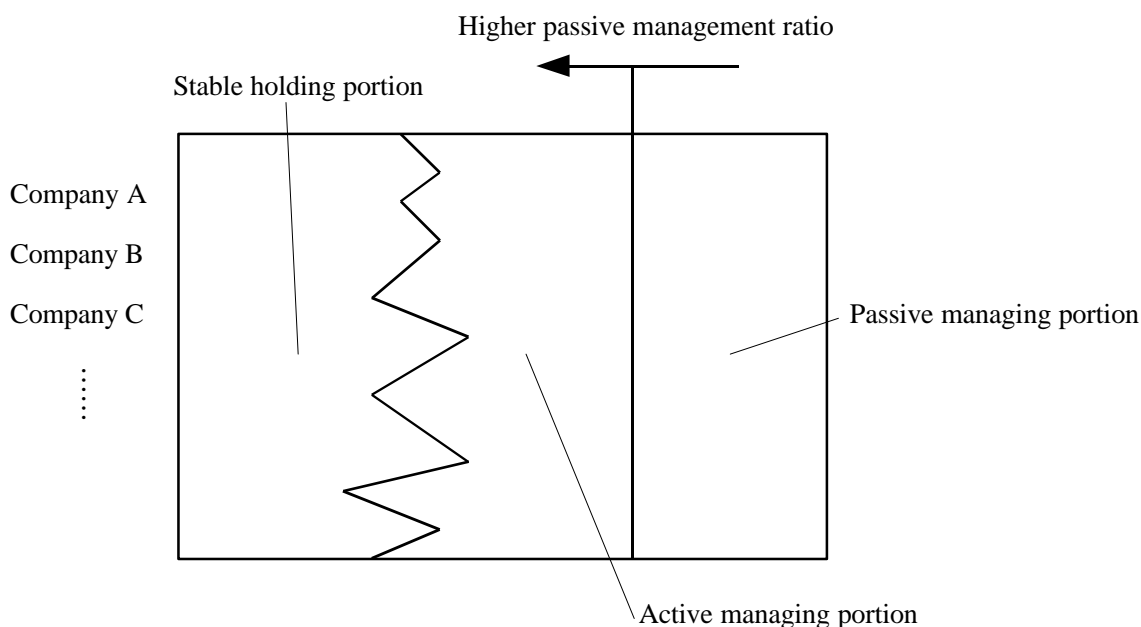Source: Nomura Securities Co., Ltd. Financial Research Institute

Table IV-2 Distortion coefficient corresponding to stable stockholding ratio and management ratio

	Passive management ratio 0%	10%	20%	30%	40%	50%	60%
Stable stockholding ratio 0%	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10%	0.11	0.12	0.14	0.16	0.19	0.22	0.28
20%	0.25	0.28	0.31	0.36	0.42	0.50	0.63
30%	0.43	0.48	0.54	0.61	0.71	0.86	1.07
40%	0.67	0.74	0.83	0.95	1.11	1.33	1.67
50%	1.00	1.11	1.25	1.43	1.67	2.00	2.50
60%	1.50	1.67	1.88	2.14	2.50	3.00	3.75
Figure at the end of 1999 (45.4%)	0.83	0.92	1.04	1.19	1.39	1.66	2.08

Source: Nomura Securities Co., Ltd. Financial Research Institute

Table IV-3 Image of distortion

In this chart, all the shares of each company are classified into three categories, namely stable holding stocks, active managing portion and passive managing portion, and they are displayed here vertically. With respect to all shares, ratio of passive managing portion is the passive management ratio, stable holding portion is the stable stockholding ratio, and the remaining portion shown in the center is the actively managed portion. We can see from this chart that distortion from the average in the stable holding portion will affect active managing portion, and also a higher ratio in passive management will result in higher distortion.

Source: Nomura Securities Co., Ltd. Financial Research Institute

Equation (IV-4) indicates that each active manager should, regardless of his own expectation of earning ratio of shares he is investing, distribute such portion of shares which is in deviation. As a result, those shares deviated to plus will be over-weighted and those in minus deviation will be under-weighted. If the price of over-weighted shares goes up, the manager will receive higher assessment, and if it goes down he will be assessed lower regardless of the manager's actual ability. The same thing happens in relation to the under-weighted shares. If an active manager take certain action to avoid loss arising from the distortion, additional demand will emerge for such shares and additional supply will be provided for some other shares.

Suppose that you are now watering somewhere with a hose. You may have experienced that if you squeeze the mouth of a hose, the water comes out with strengthened force. In the same way as this, there occurs an additional demand for this group of shares which is constantly in short supply from the viewpoint of investors, and as a result, additional earning expectations arise. That is to say that, the price of those shares which active managers under-weight and will additionally be in demand will be raised, and those additionally supplied will go down. Messrs. Kobayashi/Yamada [2000] have explained that for the shares with large distortion an additional expectation in either an upward or downward direction will emerge, by extending the ordinary CAPM (Capital Asset Pricing Model).

As a result of these effects, price of those shares with larger capitalization tends to be more easily alienated, and in particular, the shares of larger proportion which are held stably will be deviated to a minus direction and those share of less stable holding , to a plus direction. Actual distortion, if we look at realistically, could be fairly large in size. For instance, in the case of stock where the difference between TOPIX weight and the weight of total stable holding stocks is 10%, and K = 0.8, alienation will result in 0.8 x 10% = 8%. This means that the average active manager will under-weight this share 8% against TOPIX. If passive management ratio goes up to 30% under the same stable-stockholding situation, distortion coefficient which shows the rate of acceleration of distortion goes up to 1.2, and deviation will become as large as 12%.

If we look at the deviation of all shares, many of them are at a level as high as several percentage points. Seven-Eleven is a case with shares with large under-weight deviation, and Sony is a case with shares with over-weight deviation.

5. *The demonstrative analysis of three hypotheses.*

Trend of stable stockholding and its dissolution has much to do with earning ratio and volatility of related stock. In this section, we will see how the ratio of stable stockholding and the size of distortion have affected the stock market in the past 20 years, using the data of particular stock. For this purpose, the past 20 years are divided into four periods of 5 years each, creating factor figures for each stock name for each period and a regression analysis. Analyzed factors are calculated as follows.

Earning ratio
Annualized percentage numbers of 5 year earning ratio (%).

Volatility

Double the 60 months' standard deviation (Annualized percentage number, %).

Turnover ratio

12 times the 60 months average of monthly turnover ratio (= volume of trading / number of listed shares), (annualized percentage number, %).

Size

60 months average capitalization of market price of each month, and its logarithm.

Ratio of stable-stockholding

5 year average, considering the March 31st figure as the data of each year.

Distortion

TOPIX weight - Stable stockholding weight. The definition of distortion is based on our discussion in Chapter 4.

Table V-1   Correlative coefficients of each factor throughout the entire period.

Throughout the periods	Earning ratio (%)	Volatility (%)	Turnover Ratio (%)	Size	Stable stock holding ratio (%)	Distortion (%)
Earning ratio (%)	1.00	0.18	0.33	0.11	0.00	-0.02
Volatility (%)	0.18	1.00	0.28	-0.18	0.12	0.02
Turnover ratio (%)	0.33	0.28	1.00	0.16	-0.23	-0.04
Size	0.11	-0.18	0.16	1.00	-0.25	-0.03
Stable stockholding ratio (%)	0.00	0.12	-0.23	-0.25	1.00	0.15
Distortion (%)	-0.02	0.02	-0.04	-0.03	0.15	1.00

Source: Nomura Securities Co., Ltd. Financial Research Institute

First of all, the above Table V-1 is the matrix of correlative coefficients of each period's data. From there we can see that the numbers are large in positive correlations between turnover ratio and volatility, and in negative correlations between stable stockholding ratio and turnover ratio, which we can understand from the hypotheses mentioned earlier, and in positive correlation between turnover ratio and earning ratio, and in negative correlation between stable stockholding and size which can be considered as a special characteristic of the Japanese market. When we try to explain volatility or turnover ratio from stable stockholding ratio, it is necessary to exclude the bias caused by other indexes such as the fact that small companies' shares are, by nature, held more stably than others. We have excluded those biases and analyzed how much these relationships are statistically reliable, and whether or not they vary according to the period of time, by way of multi-variables regression analysis.

Earning ratio (Table V-3, left column)

When we look into the regression of earning ratio and other variables throughout the whole period, earning

ratio falls by 6 % per 1% of change of distortion, which confirms the hypothesis. When we further look into the details according to the periods, reversed regression coefficient during the first period gradually changed, and turned to the positive relationship in the fourth period. This trend can be attributed to the fact that, in the past periods, no type of index such as TOPIX based on the aggregate market capitalization had been taken note of, and no such group of shares with a large deviation existed in the Japanese asset management market. Other general tendencies of the past 20 years include the high earning ratio of those shares with high volatility, with high turnover ratio, and more stable holding shares of larger capitalization.

Table V-2　Result of Multi-Variable Regression Made Throughout the Entire Period (20 Years)

[First Period]

Variable in cases where earning ratio is explained				Variable in cases where volatility is explained				Variable in cases where Turnover ratio is explained			
Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value
Intercept	-41.82	-13.99	0.00	Intercept	38.88	33.95	0.00	Intercept	26.98	11.19	0.00
Volatility	0.24	9.29	0.00	Earning ratio	0.04	9.29	0.00	Earning ratio	0.23	28.19	.00
Turnover ratio	0.35	28.19	0.00	Turnover ratio	0.15	30.51	0.00	Volatility	0.60	30.51	0.00
Size	2.92	9.50	0.00	Size	-2.50	-20.62	0.00	Size	3.21	13.06	0.00
Stable stockholding ratio	0.27	7.92	0.00	Stable stockholding ratio	0.18	13.63	0.00	Stable stockholding ratio	-0.64	-24.20	0.00
Distortion	-6.07	-1.98	0.05	Distortion	0.54	0.44	0.66	Distortion	-0.91	-0.37	0.71

Source: Nomura Securities Co., Ltd. Financial Research Institute

Table V-3　Result of Multi-Variable Regression Made for Each Period

[First Period]

Variable in cases where earning ratio is explained				Variable in cases where volatility is explained				Variable in cases where Turnover ratio is explained			
Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value
Intercept	-51.17	-9.75	0.00	Intercept	29.42	18.03	0.00	Intercept	-17.27	-2.80	0.01
Volatility	0.94	12.92	0.00	Earning ratio	0.10	12.92	0.00	Earning ratio	0.05	1.66	0.10
Turnover ratio	0.04	1.66	0.10	Turnover ratio	0.16	25.27	0.00	Volatility	1.86	25.27	0.00
Size	6.38	10.59	0.00	Size	-2.94	-15.22	0.00	Size	7.83	11.43	0.00
Stable stockholding ratio	0.07	1.04	0.30	Stable stockholding ratio	0.17	7.89	0.00	Stable stockholding ratio	-0.76	-10.42	0.00
Distortion	17.25	1.45	0.15	Distortion	1.13	0.29	0.77	Distortion	-1.66	-0.12	0.90

[Second Period]

Variable in cases where earning ratio is explained				Variable in cases where volatility is explained				Variable in cases where Turnover ratio is explained			
Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value
Intercept	-29.43	-3.64	0.00	Intercept	37.74	18.91	0.00	Intercept	36.73	5.39	0.00
Volatility	1.41	18.09	0.00	Earning ratio	0.10	18.09	0.00	Earning ratio	0.12	6.56	0.00
Turnover ratio	0.17	6.56	0.00	Turnover ratio	0.06	8.76	0.00	Volatility	0.61	8.76	0.00
Size	3.72	4.69	0.00	Size	-1.81	-8.62	0.00	Size	5.39	8.11	0.00
Stable stockholding ratio	-0.05	-0.62	0.53	Stable stockholding ratio	0.06	2.40	0.02	Stable stockholding ratio	-0.81	-11.44	0.00
Distortion	-2.66	-0.65	0.52	Distortion	0.02	0.02	0.99	Distortion	-3.73	-1.07	0.28

[Third Period]

Variable in cases where earning ratio is explained				Variable in cases where volatility is explained				Variable in cases where Turnover ratio is explained			
Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value
Intercept	-21.15	-14.16	0.00	Intercept	52.60	24.92	0.00	Intercept	19.73	4.76	0.00
Volatility	0.26	21.19	0.00	Earning ratio	0.59	21.19	0.00	Earning ratio	0.13	2.47	0.01
Turnover ratio	0.02	2.47	0.01	Turnover ratio	0.13	11.96	0.00	Volatility	0.41	11.96	0.00
Size	0.15	1.04	0.30	Size	-2.40	-10.97	0.00	Size	3.10	7.95	0.00
Stable stockholding ratio	0.06	3.76	0.00	Stable stockholding ratio	0.07	2.85	0.00	Stable stockholding ratio	-0.45	-10.99	0.00
Distortion	-2.95	-1.19	0.24	Distortion	5.62	1.49	0.14	Distortion	-2.54	-0.38	0.70

[Fourth Period]

Variable in cases where earning ratio is explained				Variable in cases where volatility is explained				Variable in cases where Turnover ratio is explained			
Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value	Explanatory variable	Regression coefficient	t value	p value
Intercept	-85.33	-17.97	0.00	Intercept	47.36	23.35	0.00	Intercept	2.42	0.72	0.47
Volatility	0.46	11.84	0.00	Earning ratio	0.09	11.84	0.00	Earning ratio	0.05	4.05	0.00
Turnover ratio	0.11	4.05	0.00	Turnover ratio	0.34	34.99	0.00	Volatility	0.80	34.99	0.00
Size	5.84	11.71	0.00	Size	-4.03	-18.98	0.00	Size	3.25	9.61	0.00
Stable stockholding ratio	0.51	9.86	0.00	Stable stockholding ratio	0.17	7.52	0.00	Stable stockholding ratio	-0.48	-13.89	0.00
Distortion	-39.08	-4.61	0.00	Distortion	4.19	1.12	0.26	Distortion	3.21	0.56	0.58

Source: Nomura Securities Co., Ltd. Financial Research Institute

Volatility (Table V-3, Column in the center)

When we look at the result of regression of both volatility and other variables throughout the entire period, the higher the stable stockholding ratio is, the higher the volatility is, also, if we exclude the effect of size or other factors. This corresponds to the hypothesis. Furthermore, this relationship has been stronger during the first and fourth periods and weaker in the second and third periods, which was just around the time of bubble economy. Explanations based on other factors were rather weakened during and around the bubble economy

period, and the volatility was in large part affected by factors other than liquidity or size in these periods. In the area where the relationship was strong, volatility varied 0.2 percentage points per 0.1 percentage point change of stable stockholding ratio.

Turnover ratio (Table V-3, right column)

When we look at the result of regression of turnover ratio with other variables, throughout the entire period, as the stable stockholding ratio goes up by 1 percentage point, trading turnover ratio fell by 0.5 to 0.8 percentage points. This proves, as the hypothesis suggested, that the number of most commonly traded stocks was more closely related to the number of floating stocks than the total number of listed stocks. This relationship held steadily regardless of the specified period.

As we have seen in the above, degree of stable stockholding affects, to a large extent, liquidity and volatility. If this relationship continues to exist, the Japanese market will become a market with low volatility and high turnover ratio, as cross-shareholding practice dissolves in the future. It became also clear that the relationship between the excessive profit and the distortion which was not so apparent in the past, has now become more conspicuous recently. If this tendency continues to grow, as the distortion grows larger, it will affect more strongly the earning of each individual stock.

6. The future of stable stockholding practice.

As we have seen in the above, the omnipresence of stable holding shares including those of subsidiaries can influence various factors such as per share earning ratio, volatility and liquidity. It is generally believed that, among the stable stockholding, cross-holding will more easily be dissolved due to recent circumstances which the management of corporations are to face. This is called dissolution of cross-holdings, and will reduce the number of shares in stable stockholding. When we take this trend into consideration in relation to the hypothesis mentioned earlier, direct effect of dissolution of cross-holding should "solve the current problem of shortage of supply of highly cross-held stocks, bring up the liquidity, and push down the volatility."

On the other hand, several phenomena which will be more frequently observed in the future Japanese market such as the listing of more subsidiary companies, and the listing of privately owned companies, will surely be the force which will bring up the rate of stable stockholding. Furthermore, when we think of the future where passive management will grow larger mainly by the fund management of huge pension funds, the problem of "distortion of benchmark and supply and demand without due consideration of floating stocks" is a theme that can not remain unchanged for Japanese investors.

7. Appropriate benchmark for Japanese stocks.

(1) General theory of a good benchmark.
The quality of a good benchmark should include the following characteristics as we discussed above.

Table VII-1 The Benchmark of Main Financial Products Which Manage Stock / Property, and Ranking of Their Assets Sizes in the United States.(As of End of September 1999)

	Benchmark	Style/Asset Class	Balance of Asset Size (Million US$)	Nos. of Fund	Asset Size per One Fund (Million US$)
1	S & P 500	Large	2,440,180	1,184	2,061
2	MSCI EAFE	International	503,801	205	2,458
3	Russell 2000	Small	175,065	304	576
4	MSCI World	World	143,393	79	1,815
5	MSCI EAFE Free	International	107,246	9	11,916
6	Russell 1000 Growth	Growth	104,600	55	1,902
7	Russell 1000 Value	Value	84,891	69	1,230
8	S & P Mid-Cap 400	Medium Size	73,058	87	840
9	Russell 2000 Growth	Small Size Growth	59,743	86	695
10	S & P/BARRA Value	Value	54,118	35	1,546
11	MSCI Emerging Markets Free	Emerging	48,133	33	1,459
12	Russell 1000	Large	46,673	24	1,945
13	Russell-NCREIF Property	Property	42,072	32	1,315
14	Wilshire 5000	Market Oriented	39,501	13	3,039
15	MSCI Europe 14	European Stocks	37,133	28	1,326
16	Russell 2500	Small and medium	28,115	39	721
17	Russell Midcap	Medium	25,485	37	689
18	Russell Midcap Growth	Medium / Growth	25,070	32	783
19	S&P / BARRA Growth	Growth	24,883	19	1,130
20	TOPIX	Japanese Stocks	23,766	10	2,377

Source: Calculated by Nomura Securities Co. Ltd. Financial Research Institute based on the data of Nelson's Investment Managers.

The index should be worked out only from the shares traded in the market, either by coordinating the floating stocks, or excluding those stocks of which floating stocks are scarce.

The stocks traded on a different exchange should be compounded if they are in the same asset class. When there are several share prices prevailing, the price under the higher liquidity (composite price) should be adopted.

Make the coverage as wide as possible.

Do not include shares of extremely low liquidity.

and   are in the trade-off relation, and the method to attach importance to   is called "the market type" and to   is called "big name (core) type." Let's see what kind of index is used most in the case of United States. The Table VII-1 shows the ranking of asset size with regard to the benchmark of managed product such as stocks and properties, using the data of Nelson's Investment Managers which is often used by U.S. investors including the pension funds. As shown in the Table, American investors commonly use S&P 500 for U.S. stocks of large capitalization, Russell 2000 for U.S. stocks of smaller capitalization, and MSCI-EAFE for non-U.S. stocks. Also with regard to the indexes of value and growth stocks or funds, those of Frank Russell Company, S&P / BARRA are used most in that order. The best known index of Japanese stocks for U.S.

investors may be MSCI-Japan. Because, although TOPIX are listed in the 20th position, MSCI-EAFE and MSCI-World which is listed at higher position include MSCI-Japan as a sub-index for Japanese stocks.

(2) Comparison of benchmarks of Japanese stocks.

The characteristics of calculation method of important indexes of domestic stocks in Japan and the United States are compiled into a table below. In the case of RUSSELL/NOMURA and S&P/TOPIX 150, these indexes are figures out from investment-worthy numbers of stocks after adjusting the stable holding portion which we discussed earlier. On the other hand, current MSCI-Japan index is trying to remedy this problem by excluding the subsidiaries if the parent companies are included in the calculation of indexes, such as, for instance, excluding Seven-Eleven when Ito-Yokado is included in the calculation. The method that MSCI has adopted as such is simple and easy to calculate, but on the other hand, tends to lower the market capitalization coverage for the number of stocks. The said coverage of current MSCI-Japan is 60%. People are watching the outcome as MSCI is considering to change the rule of index calculation by December 2000. Another important point of the index in its calculation method is that whether the relative index is a so called composite index which covers all shares listed in the entire domestic market. If the indexes are made up only of a particular segment of market such as the Tokyo Stock Exchange or OTC, the influence of other segments of market can not be ignored when several other markets are in competition with each other.

Table VII-2 Comparisons of attributes of benchmarks in the stock investment management.

	Name of Index	Provider	Nos. of issue-names	Coverage of market capitalization	Population	Method to deal with stable stock-holdings
Japanese Stocks	TOPIX	Tokyo Stock Exchange	abt.1300	90 %	The first Section of Tokyo Stock Exchange only.	Nothing.
	MISC-Japan	MSCI	abt. 300	60 %	All of the domestic markets	Under consideration mainly in selection process of issue- names.
	S&P/TOPIX 150	S&P and Tokyo Stock Exchange	150	70 %	The First Section of Tokyo Stock Exchange only.	Under consideration in weighting..
	RUSSELL/NOMURA Total Market (Market type index)	Frank Russell Co. and Nomura Securities, Financial Research Institute.	abt. 1900	98 %	All of the domestic market.	Under Consideration in weighting.
	RUSSELL/NOMURA Large Cap (Index of largely capitalized products)	Frank Russell Co. and Nomura Securities, Financial Research Institute.	500	85 %	All of the domestic market.	Under consideration in weighting.
U.S. Stocks	S&P 500	S&P Co.	500	70 %	All of the domestic market.	Under consideration in selection of issue-names.
	RUSSELL 3000	Frank Russell Co.	3000	98 %	All of the domestic market.	Under consideration in weighting.

Note: Made by Nomura Securities Co. Ltd. Financial Research Institute, compiling various materials of companies. Market capitalization coverage was estimated by Nomura Securities Co., Ltd. Financial Research Institute based on the publicized materials of each company, though the calculation method in this relation differs according to the companies.

8. Summary.

We have discussed in this article how the listing of subsidiary companies, which will tend to increase in the future, will affect the asset management in Japan, focusing in the calculation method of a benchmark. As a result, it has become clear that when two factors coexist, that is, stable stockholding ratios are different according to the stocks, and non-floating stocks are not excluded from the standard benchmark calculation, various problems will certainly arise, such as the distortion of supply and demand, etc. Also if the passively managed asset increases under the same situation, which is expected mainly in the area of public pension fund management, it is possible that such distortion will grow further.

The simplest way to dissolve such distortion is that the party who entrusts the management of assets, such as the sponsor of a pension fund, is to specify the benchmark in which the stable stockholding factors are duly taken into consideration. Of course, it takes time and money for the parties to change from an index such as the current TOPIX to a new index which properly considers the stable stockholding factor. However, it should be noted that there exists unwanted inefficiency in the current asset management market in Japan, and it is probable that it will get worse in the years to come if the situation is left unchanged.

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