SPECIAL FEATURE– Issues Related to Indexing

Current Trends in Style Investing and Benchmarks

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Table of Contents

In examining the extent of penetration and functionality of investment styles in Japan's market place as well as their characteristics in terms of performance and stock selection ability using style indexes, it was found that style indexes are effective in explaining fund investment policies and that, by controlling these indexes, misfit risks can be reduced and transaction costs effectively lowered. In addition, as a fund's stock selection ability and risk reduction effect vary depending on investment style, managers should be selected accordingly.

However, there is still considerable resistance to style management and applying style indexes, which may be due to easy benchmark selection and excessively strict control. It would thus seem advisable to apply an investment style that takes advantage of the style's latitude as a simplified tool.

1. Introduction

Investment style is an investor's systemized management policy. Investment styles came into the spotlight as a tool to explain investment performance in the US from the late 1970s to 1980s, and the concept was introduced in Japan in the 1990s.

In the US, there have been a number of empirical analyses based on actual fund and market data to prove that funds pursuing similar management policy demonstrate similar tendencies. As a result, investment policies came to be concentrated into large vs small caps and value vs growth stocks, and the current investment styles were thus established. Furthermore, performance differences due to investment style are too big to ignore; the effect, according to Hansen (1992), accounts for approximately 60% of investment performance over the short and medium term. However, it is difficult to forecast the performance by style keep outperforming market indexes; it is also hard to continuously keep better performance through style rotation than from market indexes. Therefore, investment style has come to be widely recognized as a tool for evaluating/controlling the investment performance of fund managers. In parallel, index vendors publish style indexes for benchmarks that consider investment styles, and which are often used for active funds.

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However, as this concept was introduced to Japan without sufficient groundwork analysis, it was seen as incompatible with the Japanese market and saw a backlash from the very beginning.   In fact, in those days, the Japanese market had certain peculiarities that could not be explained by US investment styles.   In addition, we cannot ignore the difference between Japan and the US in terms of culture and business climate.   US society and culture respects individuality; for this reason, managers' efforts to clarify investment features and to differentiate themselves from the rest evolved into style differentiation.

In Japan, on the other hand, asset management companies were reluctant to adopt investment styles due to cultural and institutional settings in which managers were very conscious of the risk of adopting a different investment process.   However, as US investment and valuation methods have been successively introduced to the Japanese market, the concept of investment styles has gradually penetrated.   Along with this trend, significant progress has been made in the disclosure and accumulation of actual investment data.   Investment valuation services provided by vendors has also improved, and it is now easier to obtain qualitative and quantitative data.

Therefore, this article first examines whether Japanese equity investment practice has become style-oriented, as is widely alleged. It then analyzes information to reveal whether style investing will make any difference to stock selection ability and other characteristics.   Based on these results, how to decide and apply style benchmarks as evaluation criteria, as well as style management, are examined.

2. Investment Styles: Classification and Significance

(1)   Classification of Investment Styles

Currently, in Japan's stock market, investment styles are usually classified with reference to size (large/small) and value/growth, as shown in Figure 1 below.

<div align="center">Figure 1   Illustrative Style Classification</div>
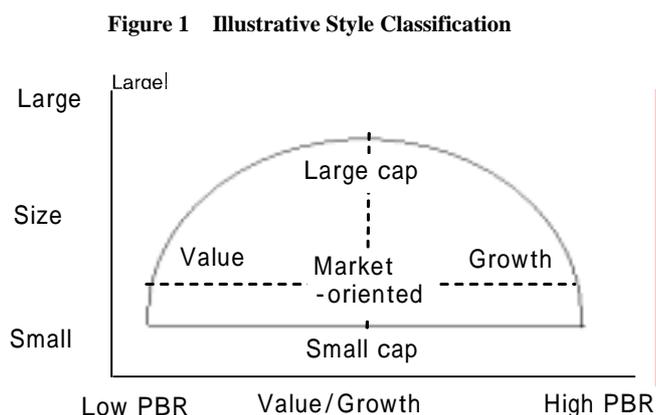
The advantages of introducing investment style to asset management are as follows:

1)   We can quantitatively measure how a fund manager's investment policy is reflected in performance.

2)   A fund manager's potential can be extracted from performance for evaluation, eliminating the effect of investment style as well as the market.

3)   The benchmark's misfit risk, which is the unintentional bias in investment towards certain styles, is reduced.

4)   If managers can specialize in investments using a particular investment style, it should improve the probability of obtaining excess earnings from using such style.   In addition, if it is difficult for any particular style to obtain excess earnings, some method that focuses on passive management might be employed.   By combining them, stable excess earnings can be expected in any management environment.

5)   As investment populations vary, contradictory transactions are unlikely; thus, the possibility of closet indexing[1], which is often seen when there is no control, can be curtailed.

If actual investment performance is more or less style-conscious, and the difference in immediate performance among investment styles is sufficiently large, such a situation should bring significant advantages to investment management.

(2)   Investment Style Indexes

Style indexes as a tool to monitor the performance of each investment style are also published by index vendors including

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[1] *Portfolio mix imitating the market index as a result of the diversified investments of active managers.*

Nomura, Nikko, Daiwa, and Nikkei (see Table 1 for each vendor's definition of key styles).

Table 1   Selection Criteria for Investment Style Classification by Vendor

	RUSSELl/NOMURA	BARRA/Nikko	Daiwa	Nikkei
Measure of classification (Large-Small)	Market capitalization ex- Stable shareholding	Market capitalization	Market capitalization	
Measure of classification (Value-Growth)	Adjusted PBR	Book-to-price ratio (reciprocal PBR) Sales growth ratio	B/P E/P ROE Growth ratio	Value: Consolidated PBR growth: Consolidated ROE (3-year average)
Frequency of review	Annually (end Nov)	Semi-annually (end Jun/Dec)	Semi-annually (end Jun/Dec)	Annually (end July)
Date first published	12/1995	12/1996	29/12/1983	1/5/1985
Date Calculation started	29/12/1979	29/12/1979	29/12/1983	1/5/1985
Method of classification (Large-Small)	Ratio of market capitalization	Ratio of market capitalization	Top 500 stocks by Market capitalization/ the rest	
Method of classification (Value-Growth)	All selected stocks are divided in half	Only large-caps are divided in half	All selected stocks are divided in half	Stocks are selected from TSE 1st Section
Size consideration (divided Value/Growth)	Not considered	Large-caps only	Considered	Considered
Others	Medium-price stocks are Distributed proportionally to both indexes depending on measured value	Medium-priced stocks are distributed proportionally to both indexes depending on measured value	Medium-priced stocks are distributed proportionally to both indexes depending on measured value	Stocks are selected by different measures

Source: RIPPA based on company websites.

Among them, the performance ranking of the RUSSELL/NOMURA Japan Index and the difference in returns by style indexes for each fiscal year are shown in Table 2, separately.   Figures below investment style indicate the value of return for each year, from which it is obvious that difference in performance among investment styles is large and that comparative performance varies from year to year on a style index basis.

Table 2   Return Ranking by Investment Style of the RUSSELL/NOMURA Japan Index (inclusive of dividends)

Rank	1980	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
1	Value 26.10	Value 8.90	Growth 21.73	Small 41.80	Small 16.53	Value 42.02	Core 55.58	Small 47.53	Value 31.53	Small 26.28	Value -10.14	Value -26.41	Core 7.20	Value 12.23	Value -11.78	Value 28.84	Core -7.34	Growth -0.80	Core 4.69	Growth 49.70	Small -6.17	Small -9.53
2	Core 24.68	Core 2.96	Core 19.84	Growth 40.29	Value 14.94	Core 31.96	Value 48.80	Value 24.84	Small 21.10	Market -8.40	Core -10.22	Core -27.22	Growth 2.94	Small 11.53	Core -14.66	Core 27.75	Value -9.85	Core -2.40	Core 4.03	Core 41.95	Value -6.25	Value -14.31
3	Market 19.19	Market -1.49	Market 18.99	Market 37.67	Market 12.14	Market 30.26	Growth 45.81	Market 17.01	Market 18.22	Value -12.16	Market -10.92	Market -27.36	Value 2.51	Core 10.64	Market -15.98	Market 25.81	Growth -11.14	Market -7.16	Market 3.26	Value 34.19	Market -21.71	Market -15.14
4	Growth 14.87	Small -3.64	Value 17.70	Value 32.92	Core 7.64	Small 26.10	Market 42.06	Core 6.66	Core 13.47	Growth -16.65	Growth -11.10	Market -27.41	Market 1.12	Growth 9.62	Growth -18.31	Market 24.12	Market -13.07	Value -9.20	Market 3.26	Small 26.80	Core -29.42	Growth -16.96
5	Small 12.64	Growth -4.06	Small 14.54	Core 32.88	Growth 7.62	Growth 20.71	Small 14.57	Growth 1.68	Growth 4.21	Core -21.29	Small -12.55	Small -29.69	Small -6.23	Growth 6.59	Small -20.05	Small 22.64	Small -25.99	Small -21.87	Small 0.18	Value 17.00	Growth -36.55	Core -17.63

Source: Financial Research Center, Nomura Securities.

3

3. Analyzed Data

   Related to this, I attempted to analyze whether investment styles can be adapted to the Japanese market and also examined the characteristics of each style using actual investment data.   The disclosure and accumulation of actual investment data has recently progressed considerably, also in Japan.   Vendors' investment valuation services have improved, and it is now easier to obtain qualitative/quantitative data.   This research uses the investment data of Japanese equity mutual funds for analysis (classification of funds by investment policy, monthly performance, and component stock data).   The number of Japanese equity mutual funds by investment policy as of end-October 2001 is shown in Table 3.   For fund classification, NRI's Fundmark classification arranged both qualitatively and quantitatively was utilized.   In fact, ample valid data suitable for analysis have been available from April 1994.   For this analysis, general-type fund data was used, which allows comparatively large room for fund managers' discretion.

Table 3   Classification of Japanese Equity Mutual Funds and Number of Funds by Policy

	Classification	Number of funds
General type	Free	283
	Value	47
	Growth	32
	Medium/Small	80
By industry	Electrical manufacturers	21
	Automobiles/Machinery	4
	Materials/Resources	9
	Pharmaceutical/Healthcare	8
	Commerce	10
	Public service	5
	Finance	4
Low-priced stocks	Low-priced stocks	14
Others	Others	18
Indexes	Nikkei 225	49
	TOPIX	45
	Nikkei 300	22

Source: NRI's Fundmark.

Table 4   Benchmark Setting of General-Type Mutual Fund

Index	Free	Value	Growth	Medium/Small cap	Total
TOPIX	101	11	5		117
TOPIX 100	1				1
TOPIX Second Section				6	6
TSE Small Cap Index				1	1
Nikkei 225	5				5
Nikkei 300	2	1			3
Nikkei 500	1				1
Russell/Nomura Large Cap Growth Index			1		1
Russell /Nomura Large Cap Value Index		1			1
Russell /Nomura Mid Small Cap Index				5	5
Russell/Nomura Small Cap Index				6	6
Russell/Nomura Total Market Growth Index			1		1
Russell/Nomura Total Market Value Index		3			3
Russell/Nomura Total Market Index	2				2

TOPIX [80%] & Russell/Nomura Small Cap Index [20]	1				1
Daiwa Style Index (Large Cap Growth)			1		1
Daiwa Style Index (Large Cap Value)		1			1
TSE 1st Section Growth Index/Daiwa Stock Indexes –2 (DSI-2)			1		1
TSE 1st Section Value Index/Daiwa Stock Indexes –2 (DSI-2)		1			1
Barra/Nikko Style Index (Japanese Small Cap)				1	1
Barra/Nikko Style Index (Japanese Large Cap)	1				1
JASDAQ				9	9
NEWS (Rebalanced Index of TSE 1st Section and Other Prices)	4				4
Salomon Smith Barney Japan Growth Index			1		1
No benchmarks	165	29	22	52	268
Total	283	47	32	80	442

Source: NRI's Fundmark

4. Effectiveness of Investment Styles

(1) Funds and their Investment Styles

First, I surveyed how benchmarks are selected for general-type mutual funds, and the results are shown in Table 4. It was found that in most cases benchmarks are not established. In addition, TOPIX is most commonly used except for medium/small cap funds. Style indexes are only employed for certain value and medium/small cap funds. I then examined to which index's performance these mutual funds are closely related. For general-type mutual funds with return data for 36 months or longer, I explored with which index these funds most strongly correlate; the results are shown in Table 5. The analyzed indexes include all the RUSSELL/NOMURA style indexes as well as TOPIX, the Nikkei Index, TOPIX-Small, TSE 2, and JASDAQ.

The indexes that most strongly correlate with free funds were broadly and almost equally distributed with respect to large, growth, and value funds as well as market-oriented funds without any style bias. Value funds have a high correlation with the entire market and Value indexes. Most growth mutual funds have a close correlation with Growth indexes. Most medium/small cap funds have a close correlation with small cap indexes, JASDAQ in particular. Accordingly, we can see that free funds without a specific investment style are a mixture of funds with various performance characteristics, while funds with a specific management policy such as value, growth, and medium/small show a strong correlation with the indexes claiming the same focus.

Table 5 Performance Correlation Between General-Type Funds and Major Indices

		Free	Value	Growth	Medium/Small
R	Total market	22	3	1	1
U	Value	8	0	0	0
S	Growth	25	0	7	0
S	Large cap	25	2	1	0
E	Large-Value	1	1	0	0
L	Large-Growth	7	0	1	0
L	Small cap	1	0	0	2
/	Small-Value	1	4	0	0
N	Small-Growth	0	0	1	4
O	Top-cap	6	0	2	0
M	Top-Value	0	0	0	0
U	Small-Growth	0	0	0	0

R	Mid cap	8	4	0	0
A	Mid-Value	4	3	0	1
	Mid-Growth	8	0	3	4
TOPIX		9	3	1	0
NK225		6	1	0	0
TOPIX-S		4	0	0	0
TSE 2nd Section		1	0	0	3
JASDAQ		4	0	0	38
Total		140	21	17	53

From fund performance tendencies, it was found that the performance of a fund with a specific investment style had corresponding characteristics. The component stocks of each fund were then categorized by style into a portfolio and the investment style of this total portfolio analyzed, as shown in Figure 2. The vertical and horizontal axes represent large/small and value/growth, respectively. The weight of each portfolio according to the style index[2] of component stocks was calculated, and its position plotted. The intersection of the axes represents where style composition matches the market index. For example, if value and growth stocks account for 60% and 40%, respectively, the plot is placed on the left on the horizontal axis by 10%. For the vertical axis, the weight was adjusted so that the plot becomes central when large cap stocks account for 85%. Data for 1997 and 2001 are shown here: value (catv), growth (catg), small (cats), and free with strong correlation with the value index (catnv); and growth index (catng), and market-oriented or large-cap index (catnn). Value, growth, and medium/small funds are mapped in the style field in accordance with relevant investment style. Compared with the free funds classified by performance tendency, they take on the characteristics that reflect the investment style.

Figure 2   Mutual Fund Stylemap
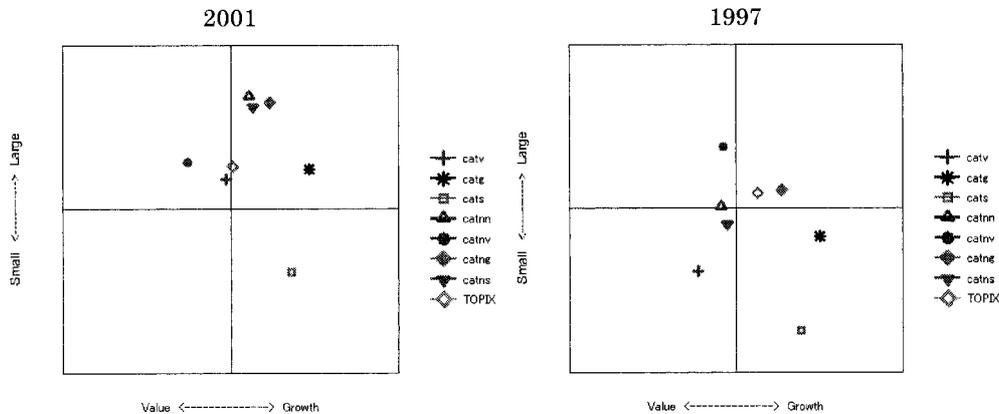
Two tendencies are found: style funds and the relevant style index strongly correlate in performance; and,   the stocks of a fund classified by style are likely to correspond with the component stocks of the style index. Funds with a defined investment style have steadily taken root in Japanese equity mutual funds. At the same time, the style indexes used here should function effectively as a tool to measure investment style.

(2)   Style Management and Offset Trading

The stocks traded during the term were then compared by style. First, a fund's component stock data for the term was collected to construct portfolios of the stocks bought and sold during the term, then data compiled by style to obtain a total long and short portfolio for each style. Next, the percentage of duplication for total long and short portfolios within each style was studied. The percentage of duplication between the long value and the short growth portfolios was also examined, as well as that between the short value and the long growth portfolios. The percentage of duplication in the trading portfolio by style from 1997 to 2001 is

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[2] *Based on the RUSSELL/NOMURA Style Index.*

shown in Figure 3.

A long and short portfolio of all funds was compiled to study the degree of duplication among selected stocks; as a result, we see that approximately 50% of the total composition overlaps. As for free funds in total, duplication exceeds 40%. Therefore, the arbitrary selection of multiple funds may increase trading commissions even though the content is the same due to offset trading, and incurs waste. On the other hand, duplication is lower in trading portfolios compiled by style than in free portfolios overall by 15% and sometimes by more than 20%. Moreover, duplication between the long value and short growth portfolios, as well as that between the short value and long growth portfolios (VG, GV), is lower than in the collective or free portfolio. Therefore, to keep several funds within the same investment style, the percentage of offset trading should be lower when stocks are chosen through investment style diversification than when stocks are chosen without considering style diversification.

Figure 3　Ratio of Duplication in Trading Portfolio (Average of the 1997-2001 period)
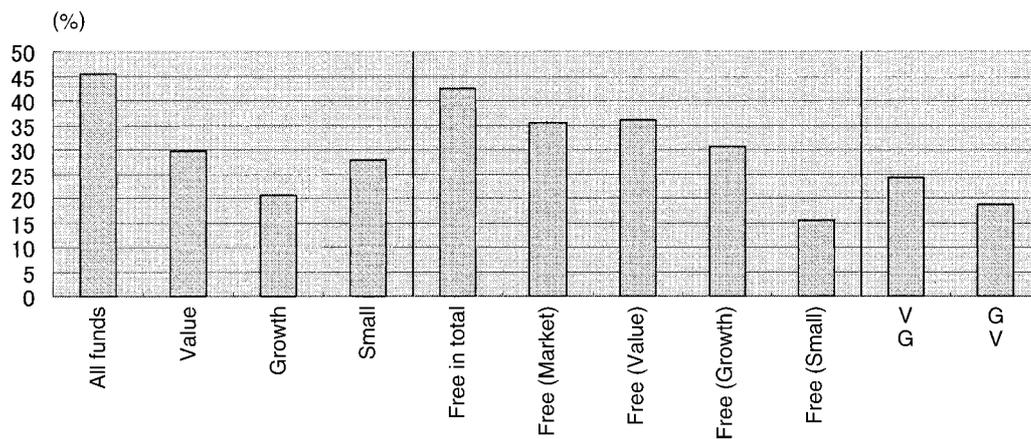
Why are there so few contradictory transactions within the funds under the same management policy? For example, in the case of funds adopting a growth investment policy, stocks are selected based on high growth; therefore, they will rarely disagree with each other on their outlook on stocks, even if they eventually choose different stocks. The percentage of duplication is low between value and growth portfolios with a defined investment style because a fund with a clearly specified management policy should target a different investment population from other funds with different management policies. However, in the case of free funds that are selected without restraints on investment style, some may buy certain stocks for their high growth potential while others in the same population sell the same stock at an overvalued price, and this may increase the possibility of offset trading.

In this context, when TOPIX or another market index is used as a target benchmark for stock investment overall, we should be able to control deviation from the market index (misfit risk) by diversified investment taking a certain amount of investment style into consideration. In addition, the percentage of offset trading will be lower in funds within and between the styles, and will be lower than in funds that do not consider style. In other words, through style diversification, all funds will be aligned with TOPIX and other target indexes, while targeting excess returns through active management. In addition, as the frequency of offset trading is lower, closet indexing becomes less likely.

On another front, when funds are selected without considering investment style, both the possibility of misfit risk, which is unintended investment style bias, and the possibility of incurring unnecessary costs for the same portfolio through cross-trading, increase. Style diversification should be a fully effective management method, even taking transaction costs into consideration.

5.　*Stock Selection Ability of Style Funds*

(1)　Performance Analysis

The performance of general-type mutual funds is summarized through existing methods, shown in Table 6. General-type mutual funds with performance data available for December 1998 to November 2001 were analyzed. In the table, ER represents excess returns against the benchmark, and TE represents tracking errors.

During this period in general, growth and small funds performed well. Performance is listed by style, revealing the following characteristics.

Free fund returns and risks vary widely. A variety of management policies ranging from quite active to near passive are mixed, also in terms of excess returns and tracking errors.

Partly because of the robust performance of growth and small cap funds in the market, value funds were inferior; however, variation in returns is smaller than other investments. The risk attaching to style indexes is smaller compared with other investment style funds.

Growth funds performed relatively well. However, variation in returns on style indexes as well as tracking errors is greater than with value funds.

Small cap funds performed extremely well against the market index, also because of the good performance of small cap stocks during the period. However, compared with JASDAQ, which showed the highest correlation with performance, average excess return is negative. The incidence of tracking errors is also high.

Table 6 General-Type Funds: Average Performance[3]

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Free

Free	Return	Risk	TOPIX	
			ER	TE
Maximum	24.55	42.62	24.96	31.91
Minimum	-10.88	12.83	-10.47	0.94
Median	1.09	19.66	1.50	9.01
Mean	1.95	20.71	2.36	10.02
Number of samples	140	140	140	140

Value

Value	Return	Risk	TOPIX		RNV	
			ER	TE	ER	TE
Maximum	12.44	24.84	12.84	22.86	9.91	15.32
Minimum	-6.94	15.49	-6.53	2.13	-9.46	5.63
Median	0.97	18.07	1.38	11.44	-1.55	9.29
Mean	2.20	18.61	2.61	11.66	-0.32	9.81
Number of samples	21	21	21	21	21	21

Growth

Growth	Return	Risk	TOPIX		RNG	
			ER	TE	ER	TE
Maximum	28.38	31.07	28.79	17.35	30.14	18.30
Minimum	-16.18	17.65	-15.77	3.29	-14.42	6.63
Median	5.02	20.71	5.43	9.37	6.78	9.21
Mean	5.15	22.38	5.56	9.87	6.91	10.41
Number of samples	17	17	17	17	17	17

Small

Small	Return	Risk	TOPIX		JASDAQ	
			ER	TE	ER	TE
Maximum	44.20	53.56	44.61	41.77	17.18	43.27
Minimum	-3.21	11.35	-2.80	8.27	-30.23	6.24
Median	16.24	36.52	16.65	25.33	-10.77	16.75
Mean	16.05	35.34	16.46	24.64	-11.06	17.70
Number of samples	53	53	53	53	53	53

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[3] *ER and TE represent excessive returns and tracking errors, respectively. RNV is an abbreviation for the RUSSELL/NOMURA Total Market Value Index and RNG for the RUSSELL/NOMURA Total Market Growth Index.*

(2)   Valuation Considering Changes in Weight of Component Stocks

Next, whether a fund's stock selection ability exhibits any characteristics depending on style was examined.

Portfolio analyses of cross-sectional component stock data and performance analyses based on return data are used for quantitative investment evaluation.   However, portfolio analyses based on cross-sectional data only provide static attributes at a specific point in time; it is thus difficult to evaluate fund managers' investment behavior on a continuing basis.   On the other hand, performance analyses require data over a long period which causes survival bias, style shifting, and other problems.

Analysis of the relationship between changes in the weight of funds' component stocks and returns during the period of analysis was next conducted: ie, whether it has shifted to stocks that produce profits.   With this method, we can obtain sufficient sample data even if the data acquisition period is short.   Therefore, we should be able to improve the reliability of analysis.

If stock selection ability is different depending on investment style, by changing the fund selection method depending on investment style, we should be able to obtain excess returns more effectively while controlling risk.

(3)   Valuation Method

The analysis here examines the relationship between changes in the weight of the subject fund's component stocks from the previous to the current term and its returns.   This analysis can be expressed as the following formula:

$$Cor(\Delta w_j, r_j)$$

wj: Changes in weight of stock j

rj: Return on stock j (Formula 1)

However, the weight of the component stocks changes anyway depending on the relative merits of returns during the term even without intentional alteration.   For this reason, the impact of the changes in returns during the terms is eliminated as follows:

$$\Delta w_j = \tilde{w}_{jt} - w_{bjtk}$$

$$w_{bjtk} = w_{jt-k} \prod_{\tau=t-k+1}^{t} \left[\frac{1+\tilde{r}_{j\tau}}{1+\tilde{r}_{p\tau}} \right]$$

where,

$\tilde{r}_{j\tau}$: return on stock j during the term

$\tilde{r}_{p\tau}$: return of the portfolio during the term

Δw_j is the difference between the hypothetical weight of the portfolio for the current term without changes in component stocks from the previous term(w_{bjtk}) and actual weight of the portfolio for the current term.

In brief, these indexes were used to reveal the correlation between changes in the component stocks during the term and returns[44]. Therefore, the availability of stock selection ability or lack of it is expressed as a positive or negative correlation, respectively. The greater the value, the more weight we can give to stocks producing surefire returns and the higher the stock selection's success ratio.

(4)   Sampling Individual Stock Selection Factors

Returns of a specific stock or portfolio are greatly affected by the market and investment style.   These matters, which are contingent on the market and investment style, can be considered as readily available data attributable to a manager's own management policy.   Therefore, if already available factors can be eliminated from specific returns, a fund manager's stock selection ability can be measured more appropriately.   This can be expressed in Formula 2 below, which eliminates the available data from Formula 1:

$$Cor(\Delta w_j, r_j \mid Z)$$

(Formula 2)

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[4] *Ferson used covariance to examine the component stocks to ascertain the relation between changes in weights and returns.   However, the correlation factor is used here to survey returns and the effect of weight change timing.*

where,

Δw_j: changes in weight of stock j

r_j: returns on stock j

Z: publicly available information

This analysis resolves the returns of a specific stock as follows to eliminate the market and style components to extract returns attributable to a specific factor attaching to stock (α).　Here, the historical beta over the last 60 months was used for β_m, and the historical beta value obtained through regression to the return data over the last 60 months for β_m and β_{vg}.

$$r_j = \underline{\beta_m\, r_m} + \underline{\beta_{vg}\, r_{vg} + \beta_{ls}\, r_{ls}} + \alpha_j + \varepsilon$$

Market component　　　Style component

β_m : beta for the market

r_m: market returns

β_{vg}: beta for the difference between value and growth

r_{vg} : difference in returns between value and growth indexes

β_{ls} : beta for the difference between large and small

r_{ls} : difference in returns between large and small indexes

As the component stocks of mutual funds are disclosed annually or semi-annually, analysis was effected on a yearly basis.

(5)　Analysis

First, the results of actual funds were checked by way of illustration.　The analyzed results of the analysis of a certain value fund for 2000 and 2001 are shown in Table 7, where the first row of the table shows the fund's absolute returns and excess returns after subtracting the effect of market, and the effect of market and style, the second row shows the correlation between the component stock's absolute and excess returns and the changes in weights.

Table 7　Component Stocks: Relationship Between Changes in Weights and Returns

	Before deduction	After deducting the market effect	After deducting the effect of market and style
Returns (%)	-9.72	6.2	0.96
Correlation	-0.001	0.008	0.135

Table 8　Component Stocks: Correlation Between Changes in Weights and Returns and Average t-Values (by Style)

Funds with Positive Excess Returns

Positive	After market effect	t-value	After style effect	t-value
Growth	0.25	2.44	0.22	2.12
Value	0.10	1.13	0.09	0.97
Small	0.25	2.24	0.24	2.18
Neutral	0.19	2.06	0.16	1.70
All	0.22	2.21	0.21	1.97

Funds with Negative Excess Returns

Negative	After market effect	t-value	After style effect	t-value
Growth	-0.19	-1.86	-0.19	-1.81
Value	-0.33	-5.02	-0.32	-4.62
Small	-0.27	-2.97	-0.24	-2.52

Neutral	-0.25	-3.04	-0.21	-2.59
All	-0.27	-3.44	-0.25	-3.04

The absolute returns of the fund were -9.72%.   The correlation between changes in the weight of the component stocks and absolute returns is almost zero.   However, considering the relation between returns after the market effect and changes in the weight, the percentage of excess returns is 6.20%, showing a slightly positive correlation.   Furthermore, after eliminating the effect of investment style, the correlation is 0.135 with positive excess returns, showing a stronger positive correlation.   This fund manager can increase the weight of the stocks with positive returns after eliminating market and style factors, and he/she is a skillful fund manager.   We must combine traditional performance and portfolio analysis to make a comprehensive assessment.

Such an assessment of general-type funds overall was conducted, and the results are shown in Table 8.   Data from 1997 to 2001 were analyzed on an annual basis.   Here, general-type funds are categorized into value, growth, small, and neutral in accordance with Fundmark's classification or correlation of performance with style indexes: funds classified as value, growth, or medium/small by Fundmark or free funds with high correlation with value, growth, or small cap stock indexes are categorized into value, growth, and small respectively, and all other funds into neutral.

First, component stocks' correlation factors between returns after subtracting the market and style effect were obtained and changes in weight and t-values analyzed for each fund.   Then, each fund was classified into growth, value, small, and neutral to obtain correlation within each category and for all funds and average t-value.   Funds with positive excess returns were compiled separately from funds with negative excess returns after subtracting the market and style effect.

In this analysis, whether the fund's performance depends on the relative merits of a significant selection of funds was studied by style.   From the results of the funds with positive excess returns, we can see whether good performance is afforded by the excellence of a significant stock selection or by the excellent performance of a few stocks in the fund.   From the results of the funds with negative excess returns, we can see whether significant stock selection failed or a few stocks with remarkably poor performance had a serious impact.

The positive excess returns data in Table 8 statistically suggest that the t-value is much higher in growth funds than in value or neutral funds; therefore, the factor is statistically significant, and stock selection appears to be good.   In contrast, when excess returns were negative, the t-value (absolute return) is quite high in value and neutral funds.   The absolute t-value is always high for small funds for both positive and negative returns.   The results show that stock selection ability is recognized in growth funds when excess returns were positive and in value funds when negative; in the case of growth-type funds, funds with good performance appear to have made a successful stock selection. However, it is unclear whether growth-type funds with poor performance are significantly inferior in stock selection ability.   In other words, although value-type funds with poor performance seem to have unsuccessful stock selection, we cannot state positively that value-type funds with good performance made a good stock selection.   For small funds, stock selection ability was perceived for both positive and negative returns; neutral funds showed similar results to value-type funds.

Next, whether the funds that made a good selection of stocks could subsequently maintain excellence in selection and vice versa was studied. General-type funds were categorized in the same manner as before to reveal the rank correlation of the correlation factors between returns after subtracting the market factor for the year and the year after and changes in weight during the term, which is shown in Figure 4.   If the correlation factor is closer to 1, funds that made a good stock selection for the year maintained a good stock selection in the following year.   Figures from 1998 to 2001 are shown here.

The results show that, except for growth funds with lowering correlations, the correlation is almost positive for all type funds. Therefore, if a fund exhibited good stock selection ability in one year, it is likely to show excellent ability in stock selection the following year.

Figure 4   Rank Correlation of Correlation Factors for the Year and the Year After
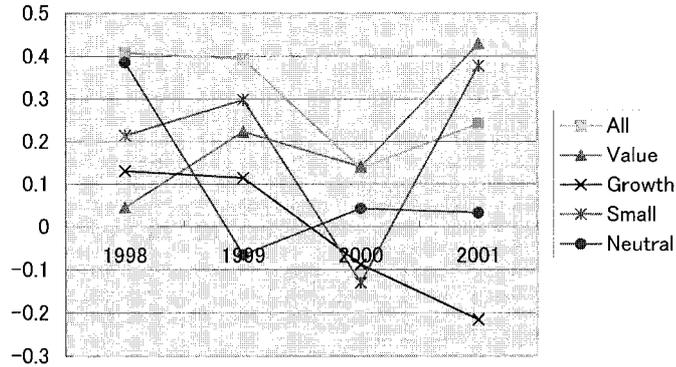
(6)   Effect of Risk Reduction by Style

   Since excess returns show different tendencies depending on investment style, the risk reduction effect was examined by investment style.   One of the benefits resulting from diversified investment is risk reduction.   However, the risk reduction effect diminishes as the number of funds increases.   For funds with investment style such as value, growth, and medium/small, the number of funds and relevant risk reduction effect is shown in Figure 5.   As the number of funds adopted increases from 1 to 2, 2 to 3, and from 3 to 4, the risk reduction effect always diminishes.   Furthermore, expected returns are also equalized in accordance with the investment ratio of the selected fund.   Therefore, if too many funds are chosen, the effect of decreasing expected excess returns will eclipse the risk reduction effect, and investment efficiency declines.   From Figure 5, we can see that the risk reduction effect of selecting two or more funds is smaller in the case of value than in growth or small.

   By examining a fund's characteristics by style, we can see that funds with different investment styles differ in characteristics in stock selection ability and in risk reduction effect when multiple funds are selected within the style.   Therefore, some may select funds to take advantage of the features of the targeted investment style, for example, by selecting several growth funds that display seemingly positive stock selection ability for active management, while emphasizing style passive management for value funds. Thus, the ability to narrow the scope of funds adopted to produce excess returns while considering the risk reduction effect at the same time is the key to fund selection within an investment style.

Figure 5   Effect of Risk Reduction by Style
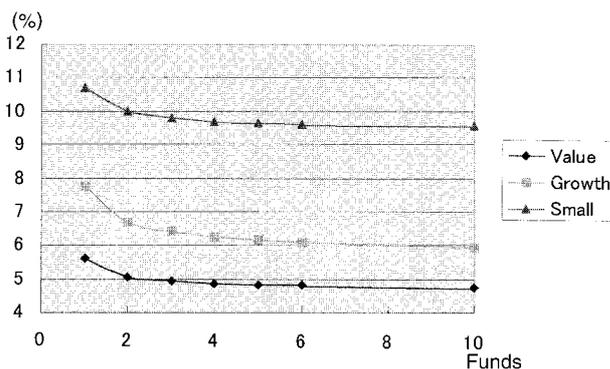
6. Style Indexes for Assessment and Management

   From these analyses so far, it can be seen that style assessment/management has a certain effect, and the style index works as an effective tool for this purpose.   Therefore, investment style indexes are efficient in terms of the following functions:

        a benchmark index for the investment performance of style funds
        a proxy to investment style for style management

However, it is often said that style indexes are cumbersome to use, and there are many pros and cons.   For this reason, common

complaints about style indexes were considered, exploring the reasons why style indexes are difficult to use and how to deal with them.

(1) Style Fund Benchmark Indexing

The most common complaint about using style indexes as benchmarks is that as turnover is high in style indexes, using them as benchmarks results in a moving target[55] effect whenever the stocks are reshuffled and it is also expensive. Commitment to fund management along with the benchmark index may certainly require revision of component stocks due to stock reshuffling and corporate activity. How to reduce transaction costs incurred by changes in the index composition is the main issue of passive management.

However, do benchmarks even for funds that are actively managed in line with investment policy need excessive restriction? The average turnover of funds by category from 1997 to 2001 (back and forth) is shown in Figure 6. For reference, the turnover of the RUSSELL/NOMURA and BARRA/NIKKO style indexes is also shown.

Table 9   Style Funds and Index Turnover

Average	Fund	Nomura	Nikko
Value	87.13	39.27	70.25
Growth	92.03	36.68	66.60
Small	98.05	48.73	35.50
Free in total	79.13		
Free (Market-oriented)	74.69		
Free (Value)	61.26		
Free (Growth)	95.09		
Free (Small)	72.99		

Figure 6   Style Funds and Index Turnover
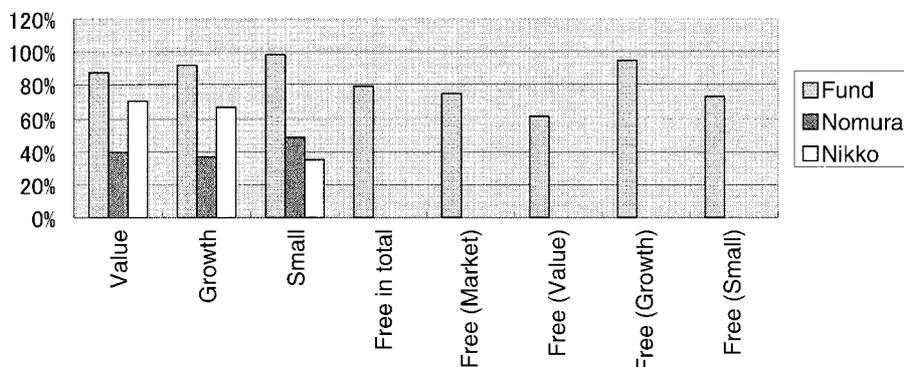
These results show that the turnover of value, growth, and medium/small funds with a defined investment style is higher than that of free funds, ranging from the upper 80s to the upper 90s in percentage terms. On the other hand, the turnover of each style index is significantly lower than the relevant style fund. In addition, in most funds, component stock data are published on a yearly basis, and stock trading should continue during the year; therefore, turnover may be even higher. In other words, funds with a specific style make investment based on relevancy to management policy, and quite frequently change the investment target.

It is often pointed out that style indexes have higher turnover and are more difficult to use than market indexes; however, turnover is high in management under a specific investment style and the investment population changes flexibly in accordance with fundamentals, including market conditions and individual stocks as well as growth. Style indexes express these changes in a simplified way; therefore, turnover is high. If turnover is limited to being low, it may be impossible to track tendencies in investment style.

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[5]*Changes in the benchmarks used as investment targets due to changes in the characteristics of the targeted market.*

Some fund managers claim that style indexes do not fit well with their investment policy. Classification measures of existing style indexes are designed to be simple and easy to understand. The purpose is to outline the basic features of a fund's investment policy. In other words, style indexes serve as the greatest common divisor for management policy. For this reason, it is natural that they do not completely meet fund management policies developed by fund managers who use their expertise. It is important for a fund manager to be faithful to his/her own management policy when making investments. Distorting the original investment policy to apply existing style indexes as benchmarks is putting the cart before the horse. Investment styles and style indexes serve as the lingua franca of sponsors and managers; however, they do not represent every value added.

In particular, the recent tendency to avoid deviation from benchmarks, which can be called 'benchmark supremacy,' may serve as a factor that hinders fund differentiation through easy benchmark selection, especially active management. Not all the component stocks of fund may be included in target style index with similar investment policies. Both sponsors and managers should consider benchmarks to avoid being confounded by a style index, which is an investment tool. If benchmarks are used for more rigorous control, such as for the investment universe, it will be more appropriate for managers to present and use their own custom benchmarks that reflect investment policies more accurately instead of existing indexes. We will better understand the investment style of these custom benchmarks by using existing or other indexes.

(2)   Proxies to Investment Styles in Style Management

In investment style management, the fact that the combination of managers' benchmarks do not fully conform to the market index used as a benchmark for the whole is often pointed out as a problem. As background to this, it is recognized that style management should be stringently conducted to allow no minor misfit. However, style management is conducted to control investment styles, which are irrelevant to fund managers' capability but may significantly influence performance, while ensuring a certain latitude for fund managers. This rough classification is used to incorporate and exploit many value-added sources, but stringent control may destroy this. To rigorously control the investment portfolio, this rough classification is unsuitable. In this case, a tool such as the multifactor risk model, should be used in parallel. Style management is conducted to create opportunities for producing excess returns while controlling risk by the greatest common divisor. I believe that the function of style management[6] is to confirm and diversify a fund's investment style, avoiding extreme misfit risk.

(3)   Responsibility of Index Vendors

This analysis shows that investment style indexes reflect actual investment practice to a certain extent. However, the current definition of indexes may be unable to continue to reflect investor management policy. Index vendors need to monitor whether style indexes are a proxy to actual management policy and to make improvements accordingly. In the case of the style indexes of US Russell, the method of classification has been revised at least twice since 1987, when the indexes were published. It is essential for indexes to strive to reflect actual market conditions on a ongoing base.

7. Conclusion

In line with the analysis so far, the characteristics of performance and the portfolios of actual funds using mutual fund data were examined, resulting in the following observations:

> Existence of investment styles has gained recognition to a certain extent, and fund management by investment style is effective in reducing misfit risk as well as transaction costs.
> fund's stock selection ability and risk reduction effect varies depending on investment style; this allows for manager selection according to style.

However, there still is great resistance to style management and applying style indexes. This may be because of easy benchmark selection and excessively strict control. It is thus advisable to apply an investment style that takes advantage of latitude as a simplified tool.

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[6] *However, in style management, style index passive and customized funds are sometimes used to dissolve misfits beyond the bounds of permissibility, though these are not yet common in Japan. These funds are called 'completeness funds.' To design or maintain a completeness fund, high turnover may pose a problem for investment purposes. In this light, development of derivatives such as style ETF/futures may be useful.*

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