

Individual Investor Behavior

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Although institutional aspects in Japan have been improved to encourage the holding of investment trusts by individual investors, it cannot yet be said that investment trusts have permeated the individual investor market. One reason for this is that the improvement of related systems was conducted without sufficient understanding of the reasons behind the investment behavior of individual investors.

By focusing on the buying and selling of investment trusts by individual investors, and examining such behavior from a behavioral finance perspective, phenomena such as “realize profits quickly when in the black, but defer taking losses when in the red” and “selecting funds based on the level of unit price” can be observed. If these characteristics of buying and selling behavior by individual investors are taken into consideration, it is clear that many investment trusts have room to rethink the way in which they manage their funds. In addition, to promote the holding of long-term positions in investment trusts, purchasing methods such as the dollar-cost averaging method may be effective. This report conducted an analysis focusing on investment trusts. However, other assets including savings deposits and shareholdings must be considered when analyzing individual asset management decisions. Sales methods applied to investment trusts should be considered in the light of the above points, on which subject future debate is also necessary.

1. Introduction

The investment trust environment in Japan has changed considerably over the last few years and opportunities for individual investors to become involved in investment trusts have increased considerably, particularly as a result of encouragement from institutional changes. Before December 1998, only securities companies were permitted to sell investment trusts. However, since that date, when their sale was also permitted at banks and other financial institutions, the number of outlets handling investment trust business has increased dramatically. Currently, there are over 15,000 banks selling investment trusts, without including other financial institutions in the count. Furthermore, in July 2001, following the introduction of exchange traded funds, it has become

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possible to purchase index investment funds at a low cost.

In addition, since the defined contribution pension plan was launched in October 2001, individual investors have been forced to choose between various financial products including investment trusts. Through the sale of investment trusts at banks and defined contribution pension plans, the balance of funds held in investment trusts has increased significantly¹. In the long term, no one denies that the balance of funds will continue to increase.

However, looking at the situation as it stands now, the total value of investment trusts held by individual investors is 28.5 trillion yen (as of the end - March 2003), which accounts for only 2% of all assets held by individuals, or equivalent to just 5% of the 547.9 trillion yen of individual assets held in time deposits (as of end - March 2003). Therefore, one cannot yet say that investment trusts have become established as a tool of individual investment.

Although institutional changes have been made which should support the holding of investment trusts by individuals, efforts to attract individuals to investment trusts have not been successful because such efforts have been made without a full understanding of the investing behavior of individual investors. In reality, although we can see much research and many theses dealing with the subject of the failure of investment trusts to gain ground among individual investors, most of these studies have placed emphasis on analyzing fund performance. Very little research has directly attempted to address patterns of investment trust buying and selling behavior.

In this report, we have focused on the behavior of individual investors when buying and selling investment trusts. In particular, we have conducted a behavioral finance analysis². Furthermore, we have asked what individual investors look for in investment trusts, and we have considered how investment trusts should be provided in the future. Our investigation focuses on publicly - offered open investment trusts. The reason for this is that, based on statistics from the Investment Trust Association, around 90% of such investment trusts are held by individual investors. While individual investors also hold public and corporate bond investment trusts, due to changes in various related systems, it is likely that the difference between such investment trusts and equity investment trusts will narrow.

2. The Irrational Nature of Buying and Selling Behavior

(1) Irrational selling behavior

Imagine a world where the majority of investors are rational, there investors can make rational decisions, but they do not have a special ability to make decisions concerning the market. Furthermore, they do not have the ability to make asset management decisions regarding individual stocks and bonds. Therefore, they decide to manage their assets through investing in an investment trust. These investors buy investment trusts or increase their holding when expected future return – on - investment is high, and reduce their holdings or sell off investment trusts when expected future return – on - investment is low or negative. In contrast to the case of ordinary stocks and other similar instruments, where the value of shares purchased equals the value of shares sold, in the case of shares in open investment trusts the value of shares issued does not necessarily equal the value of shares redeemed. Therefore, the issuance and redemption of shares in individual investment trusts represent a pure measure of investor demand. When investors expect return on investment to be high, the value of purchases will increase and the value of redeemed shares will decrease. Conversely, when expected return on investment is low, the value of purchases will decrease and the value of redemptions will increase³.

Because these investors do not have any special ability to make decisions about the market, we can assume that their expected

¹ In the six months up to June 2003, the balance of funds in investment trusts under defined contribution pension plans increased from 30.0 billion yen to 80 billion yen (DC fund balance, excluding “seed money.”)

² Buying and selling of investment trusts reflects not only the volition of the investor, but may also be affected by the sales policy of the company selling shares in the trust. However, even if the vendor has some influence, as long as the final decision is made by the investor, we believe that investor intentions can be understood through an analysis of past buying and selling data.

³ As open investment trusts, a type of contract investment trust, as a general rule, permit the issuance of new shares and the redemption of existing shares at any time. If any investor wishes to purchase additional shares in the trust (or redeem existing shares), the investment trust company will comply with such request. Thus, in contrast to ordinary stocks, the value of shares issued (bought) and the value of shares redeemed (sold) is not always the same.

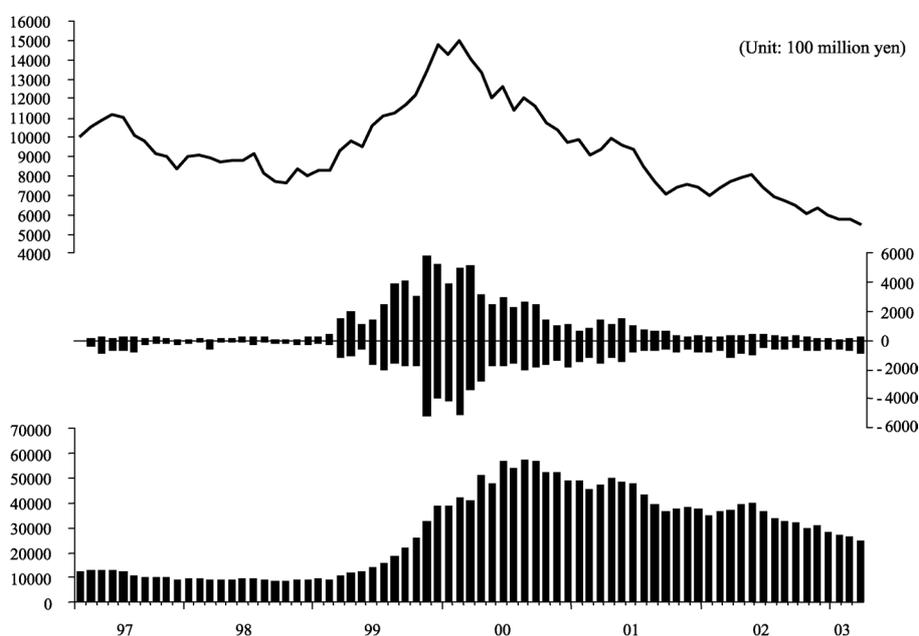
return on investment is likely to move almost in tandem with recent fluctuations in the price of the assets underlying the investment trust. Therefore, as the unit price of shares in the investment trust increases, the amount of purchases will increase and the amount of redemptions will decrease, and vice versa.

However, those in the industry often point out that there are also large numbers of redemptions when the market is rising. This can be confirmed through the data.

Chart 1 shows the average performance of investment trusts in the “Domestic Equity/Diversified”⁴ category of the NRI-FPI⁵, the Nomura Institute’s investment trust index. (The index is weighted according to the monetary value of investor holdings in the trust.) The chart then compares this index with the value of purchase and redemption amounts. The chart shows that during the so-called IT bubble period, the amount of both purchases and redemptions increased. The amount of purchases increases as the performance index rises, and decreases as the performance index falls. On this point, observed results are consistent with rational investor behavior.

On the other hand, redemption amounts, as with issuance amounts, appear to increase when the market rises and decrease when the market falls. Looking at “Domestic Equity/Diversified” investment trusts as a whole, investor behavior does not seem rational.

Chart 1 The performance of “Domestic/General” of NRI-FPI and value of shares issued and value of shares redeemed



Source: Nomura Research Institute “NRI-FPI”

Note: The top graph is a performance index (March 1997=10,000), the middle one shows the value of monthly share issuance (positive y-axis) and monthly redemptions (negative y-axis), and the bottom graph shows net asset value. It should be noted that taking the month of purchase as the first month, NRI-FPI counts new investment trust purchases from the beginning of the third month, and as such, initial payments are not included in purchase amounts.

⁴ The designation “Domestic/General” is one category among the Nomura Research Institute’s own Fundmark categorization of investment trusts. It is defined as “investment trusts which concentrate on Japanese stocks, are ranked highly in terms of real portfolio weighting, and are not limited by target industry or investment style.” As of March 2003, 291 funds, with combined net assets of 2.5 trillion yen, met the above definition.

⁵ “NRI-FPI” is an index which shows returns, outstanding balances, and the issue and redemption of shares in (open) investment trusts. As well as a general index covering the (open) investment trusts market in its entirety, the Nomura Research Institute also compiles more detailed indices based on the various levels of the Fundmark categorization of investment trusts.

Another comment regarding investor behavior which is often repeated by those in the industry is that “redemptions increase once the unit price exceeds 10,000 yen.” Rational investors should make decisions as to whether or not to redeem their shares based on the future expected rate of return. Whether the unit price is above or below 10,000 yen should not affect redemption decisions. Therefore, this behavior also falls outside the scope of rational investor behavior.

(2) Irrational purchasing behavior

Consider the case of a rational investor investing in an active fund. An active fund is a fund which aims to secure a higher rate of return than its benchmarks. Particularly, in the case of investment trusts, in order to emphasize the characteristics of each individual fund, it is commonplace for each fund to exercise unique management strategies. Looking at a company prospectus, one can conceptually understand these characteristic strategies. However, one cannot know how concretely effective these strategies will be in bringing about above average returns. Therefore, the rational investor is likely to refer to the past performance of the funds and make comparisons before deciding which investment trust to buy into. Such a rational investor would rarely buy funds from newly established funds, but, for the most part, would buy shares in funds which had already been in operation for some time. Since between one and three years of results are necessary to analyze past performance, rational investors would rarely purchase from funds within one to three years of their establishment.

Chart 2 shows the amount of shares issued in “Domestic Equity/Diversified” funds according to the number of years which have passed since the establishment of the fund. As seen in the chart, the largest amounts of shares are issued by young funds. In particular, a lot of shares are issued by funds that are less than one year old. If the younger a fund was, the better it performed, then this behavior could be explained as rational. Of course, it is difficult to accept that such a tendency exists, and therefore such behavior must be considered to be contrary to the actions of the rational investor. Furthermore, such phenomena shows that the basic strategies of investment trust firms, namely to perform better than similar funds, and thus gradually expand the assets under their management and increase revenue, are not necessarily consistent with reality.

Chart 2 Number of years since establishment of fund, and total value of shares issued

Fiscal year	Less than 1 year	From 1 to 3 years	From 3 to 5 years	From 5 to 8 years	Over 8 years
1997	1.246	1.062	187	701	4
1998	3.474	1.008	670	204	2
1999	41.358	18.224	11.916	379	1
2000	24.391	10.263	3.247	424	3
2001	2.922	3.277	1.967	964	0
2002	1.636	717	1.584	762	0

Source: Nomura Research Institute.

Note Unit: 100 million yen. Chart figures refer to “Domestic/General” funds under the Nomura Research Institute’s Fundmark classification scheme.

The above type of investor behavior is not just irrational, it also inhibits the healthy development of investment trusts. This must be considered a serious problem. In the following chapter, we will clarify, principally from a behavioral finance perspective, the criteria on which such investor behavior is based. We will then debate some possibilities for encouraging the development of investment trusts.

3. A Hypothesis to Explain Investor Buying and Selling Behavior

This chapter examines investor decision - making processes regarding buying and selling, and attempts to establish a hypothesis.

① A hypothesis regarding selling behavior - Disposition effect

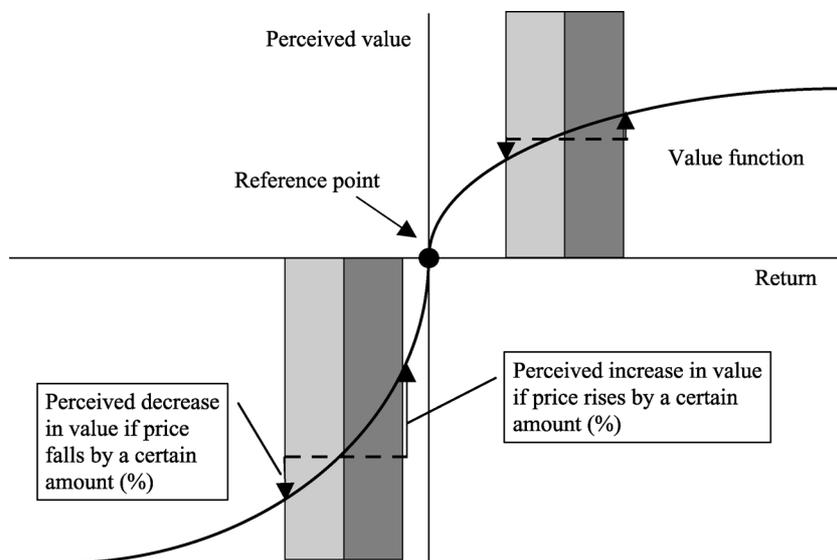
In behavioral finance, the following characteristic of investor behavior has been observed. When investments have produced a

profit, rather than try to obtain further profits, investors prefer to realize their current profits. However, when investments are running at a loss, rather than realize the loss, investors hold on to their investments in the hope of reducing their losses despite the risk of further losses. “Therefore when the price of a security rises and profit is recorded, investors tend to sell the security quickly to realize their profits. However, if the price of a security falls and it is producing a loss, investors tend to postpone the sale of the security and keep holding onto it.”⁶ This is one manifestation of the disposition effect.

The disposition effect is explained by Kahneman and Tversky’s prospect theory as follows.

Profit and loss resulting from a decision and subjective perceptions of value are related by the value function V as shown in Chart 3. The origin of the graph is termed the reference point. Perceptions of value are based on this point. It is often referred to as the purchase price, but it can also refer to any other salient price. To the left of the reference point, the value function (V) is convex, whereas to the right of the reference point, it is concave. Furthermore, the gradient of the function’s curve is steeper to the left of the reference point than to the right.

Chart 3 Value functions according to the prospect theory



Source: Nomura Research Institute.

Note: Investors consider possible future price fluctuations of a certain percentage and compare by how much the value function would increase due to rise in price of that percentage with how much it would decrease due to a fall. If they consider the increase in value accompanying a price rise to be the greater of the two, they will retain the security concerned. If they consider the decrease in value accompanying the price fall to be the greater of the two, they will sell it.

According to the theory, investors will continue to hold securities if a given fluctuation in price produces a higher expected value, and will sell securities if a given fluctuation in price produces a lower expected value. In other words, if the probability of the price of the security rising is the same as it falling, the increase in the value function ($V(p + \Delta p) - V(p)$) which occurs if the prices rises ($+\Delta p$), is compared with the decrease in the value function ($V(p) - V(p - \Delta p)$) which occurs if the price falls ($-\Delta p$). If $V(p + \Delta p) - V(p)$ is greater than $V(p) - V(p - \Delta p)$, then the investor will continue to hold the securities. Conversely, if $V(p) - V(p - \Delta p)$ is greater than $V(p + \Delta p) - V(p)$, then the investor will sell the securities. As is apparent from looking at the curve of the value function V , for a fluctuation of a given degree, the increase in the value function ($V(p + \Delta p) - V(p)$) is the greater on the left of the

⁶ Joachim Goldberg and Rudiger von Nitzsch, “Behavioral Finance”

reference point, while the decrease in the value function ($V(p + \Delta p) - V(p)$) is greater on the right of the reference point. This is why we observe the phenomena of early selling of securities when the price rises and profits are generated, and the holding of securities when the price falls and losses are generated.

That completes the explanation of the disposition effect according to prospect theory. Next, by applying prospect theory to investment trusts and examining the relation between unit price and redemption rate, we can postulate the existence of certain characteristics as outlined below.

The relation between unit price and redemption ratio

- a) When the unit price is lower than the reference point, investors will not try to sell their shares in the trust, and the redemption rate will be low.
- b) When the unit price is higher than the reference point, the redemption rate will be high.
- c) In particular, when the unit price is higher than the reference point, the redemption rate will gradually decrease as the unit price continues to increase⁷.

In this report, we state the potential hypothesis that “selling behavior by individual investors is heavily influenced by the disposition effect, and that an investigation of the relation between the unit price and redemption rate supports this assumption.”

In reality, the phenomenon, as mentioned in the previous chapter, of redemption rates increasing when unit prices rise above 10,000 yen, can be explained in terms of the disposition effect. 10,000 is not just a salient, round figure, but it is also likely to be close to the purchase price⁸, and therefore often becomes the reference point.

② A hypothesis regarding selling behavior - Shifting of the reference point

According to Kahneman and Tversky, there are times when the reference point will change. If one holds a security which has a current market value significantly in excess of the purchase price, then the reference point may shift from the purchase price to the recent market price. In such cases, if the price of the security falls, then even if the price of the security is still above the purchase price, the investor will feel psychologically that he has made a loss. The investor will then continue to hold onto the security, even if the failure to sell exposes him to the risk of further declines in price. In other words, when the unit price is significantly in excess of the purchase price, a reduction in risk avoidance behavior is observed⁹.

Thus, the second hypothesis postulated in this chapter is that “The phenomenon of reference point shift can also be seen with investment trusts.” The disposition effect simply states that when valuation gains are being recorded, redemption rates will be high. It cannot explain the phenomenon mentioned in the previous chapter that redemption rates may be low during periods of recent negative return. The observation that, even when the unit price of the security is relatively high, redemption rates are low during periods of low return, can only be explained by including the concept of a shifting reference point in the analysis.

③ A hypothesis regarding purchasing behavior

In newspapers and financial magazines, investors considering purchasing investment trusts often ask the question, “Should one avoid buying investment trusts with a low unit price?” A low unit price seems to suggest that the fund has low return since being issued, and leads to the perception of a “bad fund.” However, this way of thinking does not consider movements in the fund’s benchmarks during that time. In response to the above questions, analysts have answered that one cannot evaluate the performance of a fund without comparing it to benchmarks and other similar funds, and that simply because a fund’s unit price is low does not imply that it is performing poorly. Although some investors may understand such clear explanations that the performance of a fund and its unit price are not directly related, it may still be the case that a large number of investors will avoid investment trusts with

⁷ If the unit price is higher than the reference point, then as the unit prices increases, the difference between $V(p) - V(p - \Delta p)$ and $V(p + \Delta p) - V(p)$ becomes smaller, resulting in a gradual reduction in the redemption rate.

⁸ As stated above, issues of investment trusts are concentrated in those funds which have only just begun operation. Therefore, in many cases, the purchase price is close to the 10,000 yen price at the time of the initial issue.

⁹ Barberis, Huang, and Santos argue that when recent rates of return have been higher, risk avoidance behavior can be observed.

low unit values.

This is our third hypothesis. If this hypothesis were proved to be true, it could be that the phenomenon of share issues concentrating around the period just after launch was due to the continued declines in the stock market over the last ten or so years. Perhaps if stock markets had been rising during this period, we might conversely have seen that issues of shares in funds were fewer the newer the fund.

In the following chapter, we will attempt to explain our methods for attempting to verify the above hypothesis.

4. Investigating the Hypothesis

The verification methods used in this and the following chapters are analyses of individual investment trusts. Funds which have already been redeemed are also used as samples if they were active at the time of each analysis, in order to eliminate bias. Those funds which were used in the analysis below all meet the following criteria.

- The funds must be classified as “Domestic Equity” by the Nomura Research Institute (not including index funds)¹⁰.
- At the time selected for analysis, the funds must have been in operation for more than one year. This is because redemptions are rare immediately after the establishment of a fund, and also because returns over the past year are necessary to test hypothesis three.
- At the time of the analysis, the funds had net assets of over 1 billion yen. This is not just due to monetary importance, but also because funds with small net assets have extremely large issue ratios (the amount of shares issued over a given period of time divided by average net assets for the same period) and redemption ratios (the amount of shares redeemed over a given period divided by average net assets for the period) and also because of other technical reasons.

The analysis was conducted from April 1998 to March 2003.

① A hypothesis regarding selling behavior - Disposition effect

For the purpose of this analysis, we assume the reference point to be the original price of one unit of the fund (usually 10,000 yen or 1 yen), or the average purchase price. Since the average purchase price for beneficiaries of the fund cannot be exactly determined, we will use average trust value as a proxy¹¹.

Our analysis compares the unit price of the fund at the time of the analysis with the reference point, and plots this difference against the redemption ratio during the following five business days (amount of redeemed shares divided by average net assets of the fund over those five business days). To avoid overlap in our periods of redemption rate analysis, analysis points were placed at five-day intervals. In addition, we termed ([ratio of the current unit price to the original unit price of the fund]-1) the “unit price level,” and ([ratio of the average purchase price to the unit price]-1) the “valuation profitability ratio.” (The original unit price is usually 1 yen or 10,000 yen.)

We used this as a proxy instead of the ratio of the reference point to the unit price.

Chart 4 shows the relation between the “unit price level” and the redemption rate over the five following business days. Chart 5

¹⁰ There were 303 funds which matched the criteria, with a combined total of 3. 5732 trillion yen in assets (as of March 2003).

¹¹ A average trust value is deemed the average acquisition price, and is calculated using the formula below. Note that as of April 2004, the average trust value was no longer available to the general public. Therefore, in investigating our hypotheses, we calculated the average value of entrusted assets from the unit price of the fund, net assets, and data regarding daily issue and redemption rates. Therefore, average trust value figures after April 2004 may include a small error term.

$$\frac{C_{i,t-1} \times N_{i,t-1} - N_{i,t-1}^R \times C_{i,t-1} + N_{i,t}^S \times P_{i,t-1}^S}{N_{i,t-1} - N_{i,t-1}^R + N_{i,t}^S}$$

$C_{i,t-1}$: Average purchase price of fund i on day t

$P_{i,t}^S$: Unit trading price of fund i on day t

Note that after April 2004, this is the unit price.

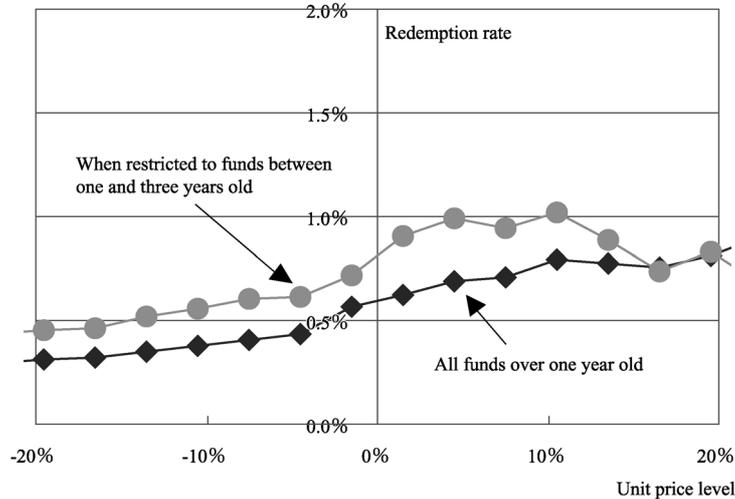
$N_{i,t-1}$: Number of beneficiary accounts for fund i on day t

$N_{i,t}^R$: Number of accounts redeemed for fund i on day t

$N_{i,t}^S$: Number of accounts issued for fund i on day t

shows the relation between “valuation profitability ratio” and the redemption rate over the five following business days. This chart shows 14 equal groups with valuation profitability groups between -20% and +20%. The median redemption rate for each group is plotted¹².

Chart 4 Unit price level and redemption rate for the following five business days.



Source: Nomura Research Institute.

Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). The graph plots the relation between the rate of appraisal profit or loss and the redemption rate. The unit price level ([Unit price divided by Original principal] -1) was divided into 14 equal groups between -20% and +20%. The median redemption rate for each group is plotted.

Firstly, looking at Chart 4, while the redemption rate is clearly higher when the unit price level is higher, the tendency for the redemption rate to increase rapidly as the unit price level moves above zero can also be seen¹³.

Next, an examination of Chart 5 allows the following conclusions:

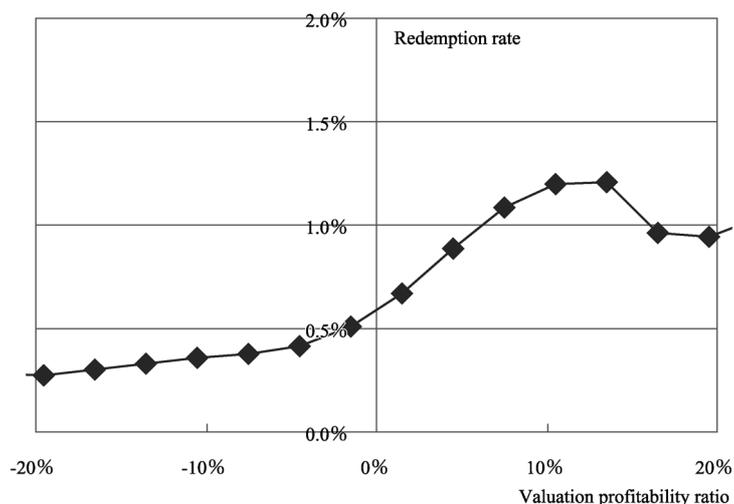
- a) When the rate of appraisal profit or loss is negative (unrealized loss), the redemption rate is comparatively low, and the rate does not increase with slight reductions in the unrealized loss.
- b) As the unrealized loss approaches zero, the redemption rate starts to increase. It peaks at an rate of appraisal profit or loss of around 10%. Above 10%, the redemption rate starts to decrease as the rate of appraisal profit or loss increases.

The phenomenon observed in a) is that of deferring the sale of securities with an unrealized loss. In b), the rise in the redemption rate that accompanies the rate of appraisal profit or loss’s rise above zero shows investors’ tendency to rush to secure profits. Both a) and b) show results as predicted by the postulated relation between unit price and redemption ratio.

¹² The median for each group is only plotted when the sample size exceeds 30.

¹³ Note that if the examination of the relation between the unit price level and the redemption ratio is restricted to funds which are between one and three years old, then, as shown in Chart 4, although the relation is not as clear as the relation between the rate of appraisal profit or loss and the redemption rate, results as predicted by the disposition effect can still be observed.

Chart 5 Rate of appraisal profit or loss plotted against the redemption rate for the following five business days.



Source: Nomura Research Institute.

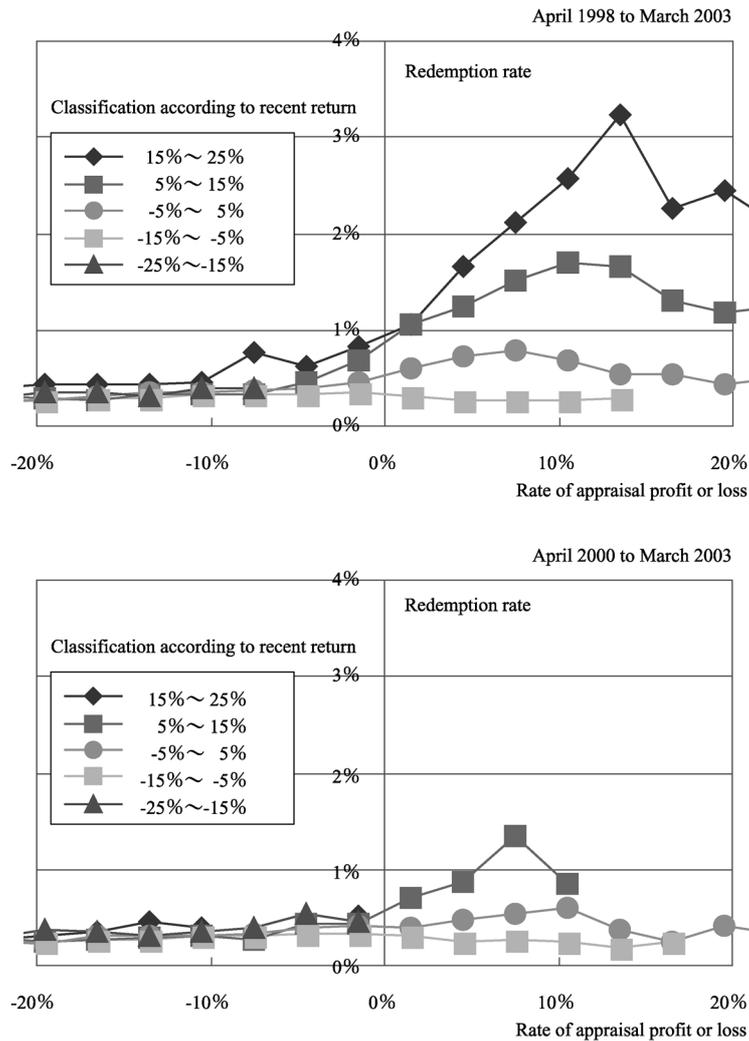
Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). The graph plots the relation between the rate of appraisal profit or loss and the redemption rate. The unit price level ($[\text{Unit price} / \text{average acquisition price}] - 1$) was divided into 14 equal groups between -20% and +20%. The median redemption rate for each group is plotted.

Note that up until March 2003, the average trust value was legally treated as an acquisition price. Therefore, if the rate of appraisal profit or loss became positive (the unit price was greater than average trust value), one could interpret the observed selling behavior to be the result of an investor attempting to avoid taxation. However, from April 2000 onwards, the same tendency is apparent, and this cannot be explained as selling based on the desire to avoid tax. We will refer to this later in our verification of hypothesis 2.

② A hypothesis regarding selling behavior - Shifting of the reference point

In Chart 6 (upper panel), funds are divided into five groups according to their return over the 60 most recent business days (15%~25%, 5~15%, -5~5%, -15%~5%, -15%~-25%) and the rate of appraisal profit or loss is plotted against the redemption rate for each group. As with Chart 5, there are 14 equal divisions in the rate of appraisal profit or loss between -20% and +20% and the median redemption rate for each division is plotted.

Chart 6 Rate of appraisal profit or loss plotted against the redemption rate for the following five business days.



Source: Nomura Research Institute.

Note: Data includes all funds classified as “Domestic equity” by the Nomura Research Institute (excluding index funds). Funds are divided into five groups, depending on their return over the last 60 business days. The rate of appraisal profit or loss is plotted against the redemption rate for each of the five groups. There are 14 equal divisions in the rate of appraisal profit or loss between -20% and +20%. The median redemption rate for each division is plotted.

The upper graph analysis is for the period between April 1998 to March 2003, and the lower graph is specifically from the period beginning April 2000.

From Chart 6 (upper panel), we can draw the following conclusions:

- a) When the rate of appraisal profit or loss is negative (unrealized loss), irrespective of the fund’s return over the most recent 60 business days, the redemption rate will remain low.
- b) When the rate of return is greater than 5%, the redemption rate rises as the rate of appraisal profit or loss moves from negative into positive territory. The redemption rate reaches a peak, then gradually decreases.
- c) Note that when the rate of appraisal profit or loss is in positive territory, the lower the rate of return over the 60 most recent business days, the lower the redemption ratio. In particular, when the cumulative rate of return over the 60 most recent business

days is negative (-15%~5%), the redemption rate is low, around the same level as observed when the rate of appraisal profit or loss is negative.

From a) and b) we can conclude that, when redemption rates are analyzed according to recent rates of return, as was the case for hypothesis 1, the relation between the unit price and redemption rates exhibits the same results as were predicted. Regarding c), from the observation that redemption rates remain low particularly when the accumulated return over the most recent 60 business days is negative (-15%~5%), the hypotheses that reference points shift, and that falls in price after a reference point shift will lead to lower redemption rates, appear to be supported.

Furthermore, Chart 6 (lower panel) restricts the period of analysis to after April 2000, when the tax system based on average trust value systems was abolished. During this interval, there were no extended bull market periods; therefore, although the tendency cannot be seen as clearly as in the upper panel, the above observations a) to c) appear to hold for this period, based on limited observations. This shows that when the rate of appraisal profit or loss becomes positive (the unit price exceeds the average price of investment in the trust), the increase in redemptions is not necessarily due to the motivation of tax avoidance, and may be an artifact of the disposition effect.

③ A hypothesis regarding purchasing behavior

For each of the following components relating to investment trusts, standardized factor values were calculated for each point of analysis, and a regression analysis of share issue factors over unit price factors and return factors was conducted.

- Issue rate

Issue rate for the current month (Issuance amount \div Monthly average of assets in trust)

- Return

Return over the 12-month period up to the previous month

- Unit price level

The ratio of the original principal for one unit of the trust to the unit price at the end of the previous month.

Note that, as can be seen in Chart 2, depending on the number of years that have passed since the establishment of the fund, the amount issued can vary greatly. Therefore, funds are divided into four groups according to the number of years that have passed since their establishment. (1~3 years, 3~5 years, 5~8 years, over 8 years) and each is analyzed separately.

Looking at the results of the regression analysis for share issues and return or unit price (Chart 7), when all funds are included in the analysis, the issue rate rises in concert with the past rate of return and the unit price level. Furthermore, the relation between the issue rate and unit price level is stronger than the relation between the issue rate and past rate of return. In addition, the separate analysis of funds classified by years since establishment shows the same tendency, with the exception of funds which are over eight years old. These results therefore show that, even among funds that were established at around about the same time, funds with a higher unit price have a higher issue rate. In other words, investors have a tendency to purchase funds with a higher unit price, thus our hypothesis is supported.

Furthermore, an analysis of the intercept of the regression line shows a negative relation for funds which are over five years old. This shows that if the unit price and past return are almost the same, the issue rate will vary depending on the number of years since the fund's establishment, and once funds are over five years old, the issue rate will decrease.

Chart 7 Relation between issue rate, and past return and unit price level

Years in operation	Tranche		Return over the past 12 months		Unit price level	
	Coefficient	t value	Regression coefficient	t value	Regression coefficient	t value
All funds	0.000	0.000	0.051	5.002	0.188	18.251
1-3 years	0.060	4.563	0.035	1.973	0.240	13.056
3-5 years	0.060	3.219	0.085	3.761	0.151	6.187
5-8 years	-0.131	-6.067	0.067	3.050	0.167	7.285
Over 8 years	-0.056	-2.955	0.086	3.976	-0.022	-0.912

Source: Nomura Research Institute.

Note: Regression analysis is conducted for the issue rate for a given month against the return for the previous 12 months, and the unit price level (ratio of the unit price to the original principal for one unit of the fund).

From the above data, as can be seen in Chart 2, the reason that the issue rate decreases as the age of the fund increases cannot be explained solely in terms of low unit price. Even if this is taken into consideration, additional share issues still decrease as time passes. In other words, even if the domestic stock market had not been falling over the past ten years, the tendency for investor purchases of funds to decline with the passage of time would still be apparent.

5. Investor Expectations of Investment Trusts

In this chapter, we will examine what kind of fund investors expect, based on the results of the hypothesis verification conducted in the previous chapter. We will also examine implications for the product viability of investment trusts, and the approach to investment trust sales.

① Methods for reducing investors' fixation with unit price

According to hypothesis ①, investors take great account of unit price, and tend to be quick to redeem shares to realize valuation profits. We will not embark upon a full discussion of the benefits of holding long-term positions; however, investors' attitudes as described above do prevent the holding of long-term positions. If we wish to promote long-term investment, it is necessary to find a way of reducing investor fixation with unit price. Although this will not be easy, one method would be to increase the prevalence of purchasing through dollar cost averaging (typically accumulating funds on a regular monthly basis). Because the dollar cost averaging method allows for purchases at set times according to set rules, the level of commitment (the feeling of responsibility for your own decision) at the time of purchase is low. According to behavioral finance studies, the greater the feeling of commitment, the more pronounced loss avoidance behavior becomes. As the dollar cost averaging method does not involve high commitment, it can also be considered to mitigate loss avoidance behavior. Another method of promoting long-term investment is to fix the reference point at a level higher than the purchase price.

② Designing products to meet customer inclinations

From the perspective of encouraging long-term investment, there is room to improve the appeal of investment trust products to mitigate the "rush to sell" phenomenon.

In this report, for the most part, we have analyzed active funds which have a high weight of domestic equities. Although the aim of such funds is to realize a higher return than stock indices, as long as these funds contain a high proportion of domestic stocks, they will not be able to avoid a fall in unit price if the stock index falls.

However, as was shown through the verification of the first disposition effect hypothesis, investors are strongly conscious of unit price. For most investors, purchase price is their benchmark, not the stock index. Management policies which assume unit price reductions if stock indices fall significantly are not in line with investor expectations.

Furthermore, the phenomenon of unit price level exerting a strong influence as we saw for hypothesis③ is also a manifestation of investor reluctance to participate in funds which decrease in value along with market indices.

The above arguments suggest that policies that advocate maintaining a high proportion of equities in the trust portfolio could benefit from review. Perhaps the investment trust market could benefit from more funds which actively manage their portfolio in response to expectations of market performance.

Recently, funds such as “long-short” funds have begun to appear, although they have not expanded to any great extent.

To promote the further adoption of investment trusts, products should not be designed blindly. It is necessary that funds should be developed based on an analysis of investor preferences¹⁴, in order to facilitate investor participation.

③ Further improvement in investor education

Although it is important to provide products which meet investor needs, it is also important to educate investors.

The above assertion that products should be designed to meet investor preferences does not imply that all investor preferences must be taken into account. Much investor behavior is irrational. Yet such irrational behavior may be deeply rooted in the psyche of investor, and attempts to modify such behavior will not succeed easily. Thus, it is imperative that investor education be advanced further.

Investor behavior may be unduly influenced by the prevailing atmosphere. However, acting on intuition can only lead to the repeating of failures and mistakes. As shown in the next chapter, making impulsive decisions based on the prevailing atmosphere results in a tendency to purchase at high prices. Purchases made through the dollar cost averaging method, assuming a typical level of decision-making ability, tend to result in fewer failures. Although this is just one example, it illustrates the necessity of investor education across the nation.

6. Effect of the Dollar-Cost Averaging Method

In the previous chapters, we analyzed the behavior of investors buying and selling investment trusts from a behavioral finance perspective. We explained how investors tend to pay too much regard to purchase price, and unless measures are taken to mitigate that tendency, it will be difficult to encourage long-term investment. Thus, the opinion was put forward that the dollar-cost averaging method may be effective.

It is true that there are criticisms of the dollar cost averaging method. Those criticizing the method state that the rational investor buys when prices are low and sells when prices are high. Thus, it is foolish to buy set amounts at regular intervals over a long period of time. However, for most ordinary investors, it is extremely difficult to buy and sell at the appropriate time.

This can be observed through a simple simulation.

As shown in Chart 1, investor purchases of investment trusts tend to increase as performance increases. Chart 1 shows only “Domestic Equity/Diversified” and most other categories show the same pattern. Therefore, we compared the hypothetical unrealized gains resulting from a purchasing pattern based on the past purchasing behavior of all investors in major investment trust categories (specifically, the amount of monthly purchases is altered according to the total value of investment trust assets), with a purchasing pattern based on the dollar cost-averaging method (a set amount is purchased each month) (Chart 8). The simulation assumes purchasing started in April 1997, and continued until March 2003 using each of the respective methods. Results show that as of March 2003, the dollar-cost averaging method has produced larger appraisal profit or loss than the alternative method¹⁵. Furthermore, the periods in which the investment strategy based on the past investment behavior of all investors producing larger unrealized gains than the dollar-cost averaging method are extremely limited. From a financial standpoint, although one cannot say that the dollar-cost averaging method is a sophisticated investment strategy, for the majority of investors, who only have a general ability to make investment decisions, it is very difficult to gain better returns on investment other than are available through the dollar-cost averaging method.

¹⁴ Hypothesis ② suggests that if the unit price exceeds the purchase price by 20% to 30%, investors will shift their reference point. This tendency can be explained in terms of investors considering their investment a success if the unit price exceeds the purchase price by 20% to 30%. Investors then perceive the future movement of the security as a new investment. In reality, there are many funds, particularly unit-type funds, which cease holding stocks that exceed 12,000 to 13,000 yen per share. These funds can be regarded as having correctly appraised investors' preferences well.

¹⁵ Almost exactly the same results are obtained when the simulation is conducted over other time periods.

Chart 8 Investment results generated by dollar cost averaging method.

Broad classification	Narrower classification	Dollar cost-averaging method		Past purchasing patterns for all investors purchasing investment trusts	
		Rate of appraisal profit or loss	Number of months	Rate of appraisal profit or loss	Number of months
Domestic equities	Diversified	-37.7%	69/71	-50.5%	2/71
	Style	-28.7%	71/71	-45.3%	0/71
	Industry	-39.5%	71/71	-56.2%	0/71
	Index	-38.0%	20/71	-38.2%	51/71
	Other	-31.5%	71/71	-47.2%	0/71
Overseas equities	Global	-35.3%	71/71	-41.6%	0/71
	Emerging	-26.9%	69/71	-40.3%	2/71
	North America	-47.1%	59/71	-56.2%	12/71
	Asia/Oceania	-26.9%	68/71	-34.1%	3/71
	Europe	-35.9%	66/71	-46.3%	5/71
	Latin America	-30.3%	71/71	-52.0%	0/71
	Mining	52.6%	65/71	37.4%	6/71
Domestic bonds	Domestic bonds	2.4%	61/71	2.1%	10/71
Overseas bonds	Global	15.1%	71/71	9.6%	0/71
	Emerging	13.3%	65/71	7.8%	6/71
	US Dollar	1.4%	71/71	-1.6%	0/71
	European Currency	21.2%	41/71	14.4%	30/71
Domestic hybrid funds	Convertible bonds	-2.9%	71/71	-7.9%	0/71
	Asset mix	-24.6%	71/71	-35.3%	0/71
Overseas equities	Convertible bonds	2.8%	30/71	1.7%	41/71
	Asset mix	-19.9%	70/71	-23.6%	1/71

Source: Nomura Research Institute.

Note: Rate of appraisal profit or loss is as of March 2003. Number of months refers to the months in which the rate of appraisal profit or loss obtained through one method exceeded those of the other. The comparison assumes that investment started in April 1997 and continued until March 2003.

The above example suggests that the dollar-cost averaging method can be used not only as a measure of mitigating the tendency to sell quickly when investments are in profit, but also as a realistic, effective method of improving the return on investment for many ordinary investors.

7. Conclusion

In this report, we debated the buying and selling of investment trusts principally from a behavioral finance perspective. As a result, we concluded that investors have a strong preoccupation with purchase price, and tend to sell rapidly when unit price exceeds purchase price. We proposed the adoption of the dollar-cost averaging method as one method of reducing such impulsive behavior. We also questioned the prevailing portfolio management practice of maintaining high weightings for domestic and overseas equities. We also concluded that much investor behavior is irrational, and pointed out that, as such, further investor education is necessary.

This report focused on investment trusts and debated the behavior of individual investors. However, from the perspective of individual investors, investment trusts are only one means of managing assets. Going forward, we need to improve our understanding of the decision-making processes of individual investors with regard to asset management, while also taking savings deposits and equity holdings into account. In addition, we hope that related parties will advance the debate over improving product

appeal and sales techniques for investment trust products.

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