

# Investment Risk and Disposition Effect: Evidence from the Trading Behavior of Institutional Investors in Korea

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## **Abstract**

This study investigates the trading behavior of institutional investors in Korea. The findings of this study are as follows. First, Korean investors are just as prone to the disposition effect as U.S. investors but less overconfident than U.S. investors. Second, bond fund shows a higher disposition effect than mixed and equity funds, suggesting that conservative investors tend to delay the needed changes in their portfolio composition when new information forces them to re-analyze the situation and prospects. Third, the disposition effect is sensitive to the reference point changes. Fourth, the disposition effect is positively associated with the length of the holding period, contradicting the findings of previous studies. Finally, the disposition effect in Korea disappears after the global financial crisis, suggesting that Korean investors trade more rationally since the crisis. Our findings indicate that the disposition effect is not a universal phenomenon. The results suggest that the degree of the disposition effect is very sensitive to the type of investor groups.

## **Keywords**

Disposition Effect, Fund Risk, Reference Point, Holding Period, Global Financial Crisis

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## I. Introduction

The disposition effect, first labeled by Shefrin and Statman (1985), relates to the tendency of investors to keep losing stocks for too long and sell winning stocks too soon. The effect has been well documented in the previous literatures. Previous studies suggest that risk may play an important role in revealing the disposition effect. For instance, Cheng, Lee, and Lin (2013) suggest that the disposition effect is correlated with old age and gender (female) because of higher risk-averse tendencies of these investors. Barberis and Xiong (2009) argue that greater risk-averse tendencies make investors more likely to postpone losses and realize gains instead, generating a stronger disposition effect.

In this paper, we examine whether different types of investment risk have a differential impact on the disposition effect. For this purpose, we use a unique data set that reports all fund trades in Korea from 2006 to 2012. Each fund is categorized into stock, mixed, and bonds based on investment risk. The methodology given in Odean (1998) is applied to compute the disposition effect.<sup>1)</sup> We examine 562,560 daily trading records from 348 funds during the sample period and test whether there is a significant difference in the disposition effect for funds with different risk type. We found that the disposition effect is negatively related to investment risk. Bond funds show the highest disposition effect while stock funds show the lowest disposition effect. Mixed funds show the modest effect. The results in this paper suggest that conservative investors tend to feel the pain of losses more than the pleasure of gains as compared to other types. As such, these investors hold losing investments too long, even when they see no prospect of a turnaround. Consequently, conservative investors

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1) Odean (1998) measure the disposition effect by using the difference between the proportion of gains realized and the proportion of losses realized in stock trading.

seem to be more prone to the disposition effect than other types of investors. We consider the other potential factors of the disposition effect, such as holding period and reference point. The effects of these other factors did not distort the inverse relationship between investment risk and the disposition effect.

The rest of this paper is organized as follows. Section II reviews previous studies. Section III explains the samples and experimental design. Section IV presents the results of the empirical analysis. Section V summarizes the results.

## II . Literature Review

Shefrin and Statman (1985) first developed a concept called the “disposition effect”, which implies that investors have great propensity to sell winners rather than losers in an attempt to avoid regrets. Related work and theories proliferated thereafter, and the major previous works are described as follows. Odean (1998) investigated the presence of the disposition effect in the U.S. stock retail market. He analyzed 10,000 individual trading accounts of a large discount brokerage firm from 1987 to 1993 and found that when an investor sells shares, he has a great propensity to sell shares of a stock that has risen in value rather than one that has fallen in value. Jordan and Diltz (2004) investigated the presence of disposition effect among day traders. They used data from seven branch offices of a national securities firm specializing in day trading. For all traders, the average of average holding times for profitable trades was 27.05 minutes and 32.14 minutes for losing trades. Sample traders held losing trades approximately five minutes longer than profitable ones. Cici (2012) extended Odean’s study

by analyzing 3,268 actively managed U.S. equity funds from 1980~2009. He found no disposition effect for the aggregate market. Nevertheless, he reported that 22%~55% of his sample exhibited the disposition effect.

There are some studies in this area to consider the effect of investor heterogeneity on the degree of the disposition effect. Recognizing that not all investors are the same, Dhar and Zhu (2006) analyzed 7,965 accounts of individual investors to determine whether the disposition effect varies with individual preferences. They found significant cross-sectional variations in the degree of the disposition effect. They also found that the disposition effect became stronger among lower income, less sophisticated investors compared to higher income investors who engage in more sophisticated trading. Barberis and Xiong (2009) argued that an investor's responses toward risk aversion in terms of realizing gains or losses are correlated with the disposition effect. Investors who prefer less risky assets tend to be risk averse; thus, they fail to realize losses, and gains are swiftly changed into the cash.

While the mainstream of significant research on the disposition effect has been conducted for developed markets, some studies investigated the disposition effect in emerging markets. For instance, Chen, Kim, Nofsinger, and Rui (2007) investigated the disposition effect in China by analyzing brokerage account data come from a brokerage firm in China from May 20, 1998 to September 30, 2002. Sample of 46,969 individual investor accounts and 212 institutional investor accounts were analyzed. They found that Chinese individual investors are making poor trading decisions similar to U.S. individual investors. In comparison to Odean (1998), they concluded that Chinese investors are more overconfident than U.S. investors and their disposition effect is stronger. Choe and Eom (2009) examined the Korean stock index futures market and found that individual investors

are much more susceptible to the disposition effect than institutional and foreign investors. They conclude that sophistication and trading experience tend to reduce the disposition effect. Cheng et al. (2013) investigated the trading accounts of 137,572 individual investors on the Taiwan Stock Exchange for 33 months and found that female and elderly investors are highly disposition-prone. Additionally, they investigated trading behavior of TE (Electronic Sector Stock Index Futures) and TF (Finance Sector Stock Index Futures) traders and found that TF traders (who are assumed to have a low risk preference) exhibit a stronger disposition effect than TE traders.

### III. Sample and Research Model

#### 1. Research Sample

Daily transaction data for 1,281 funds in the Korea stocks market were collected from the FN guide Database ([www.fnguide.com](http://www.fnguide.com)) from January 1<sup>st</sup>, 2006 to December 31<sup>th</sup>, 2012. For a given date, the database provides the name and identifier of each fund. These data were supplemented with prices, volume, and other fund information. To be included in our sample, a fund must have more than 5 billion KRW (or roughly 4 million US \$) of asset size.<sup>2)</sup> Our final sample consists of 564,912 daily transactions of 348 funds. Each fund is categorized into stock, mixed, and bond types based on the type of investment risk.<sup>3)</sup>

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2) This requirement is needed to prevent the infrequent trading problem of the fund.

3) Classifications of funds are as follows: stock (invests more than 60% in stocks and stock-related derivatives), pure stock (invests more than 60% in only stocks), mixed asset (invests in non-stocks and non-bonds), bond (no stock investments, invests more than 60% in bonds), and pure bond (no investments in stock and stock derivatives, invests more than 60% only in bonds).

<Table 1> Basic Information of Korean Fund Market

			Year	Year	Year	Year	Year	Year	Year	Year	Year
			2004	2005	2006	2007	2008	2009	2010	2011	2012
Stock	Net Asset Value	100									
		Million (KRW)	5,078	24,149	35,673	63,400	48,446	64,781	57,937	56,899	57,993
Mixed	Net Asset Value	100									
		Million (KRW)	13,216	16,678	16,503	12,700	8,813	8,746	9,382	8,031	8,070
Bond	Net Asset Value	100									
		Million (KRW)	23,786	10,347	7,651	5,245	4,718	6,726	7,911	7,478	9,324

<Table 1> shows the basic information for the sample. It shows the rapid growth of fund in Korean stock market since 2005 when Korean government allowed the introduction of asset securitization. <Table 1> also shows that the net asset values dropped significantly in 2008, reflecting the effect of the global financial crisis originated from the U.S. Net asset value of stock funds shows an increasing trend while net asset values of mixed and bond asset funds show a decreasing trend.

## 2. Model

We measure the disposition effect by using Odean (1998)'s model. Odean (1998) defines the proportion of gains realized, PGR, and the proportion of losses realized, PLR, as equations (1) and (2). Then, the disposition effect is measured as the difference between the two proportions. It show the presence of the disposition effect if  $PGR - PLR > 0$ . Odean (1998) reports  $PGR = 0.148$  and  $PLR = 0.098$  in his study and concludes the presence of the disposition effect.

$$PGR = \frac{Realized\ Gains}{Realized\ Gains + paper\ Gains} \quad (1)$$

$$\text{PLR} = \frac{\text{Realized Losses}}{\text{Realized Losses} + \text{paper Losses}} \quad (2)$$

For every stock in the investor's portfolio on that day that is sold, a "realized gain" is counted if the stock price exceeds the average purchased price and a "realized loss" is counted if the stock price is below the average purchased price.

As in Odean (1998), we compute the proportion of realized capital gains, PGR, and the proportion of realized capital losses, PLR, for each fund and each day when fund sale took place. The average purchase price is calculated by the daily average of purchase price of fund from the fund starting date to the sale date. For the purchase price of the fund starting date, we use face value of the fund. Amount of sale and purchase are measured by using the changes in fund cash balance. By comparing the cash balance between the current and previous days, we are able to determine the sales that occurred.

## IV. Empirical Results

### 1. Analysis of the Disposition Effect by Fund Risk

We examine the relationship between the disposition effect and investment risk by analyzing the trading pattern of each fund in Korea. <Table 2> reports the disposition effect by type of investment fund. The results show that the difference between PGR and PLR for the aggregate market is 0.0279, indicating the presence of the disposition effect in Korea. Odean (1998) reports PGR = 0.148 and PLR = 0.098 in his study for retail investors in U.S. It seems that Korean investors are just as prone to the

<Table 2> Degree of the Disposition Effect (DDE) by Types of Fund

	Mean	Std. Dev	t Value	Pr >  t
Aggregate	0.0279	0.0956	5.4	<.0001
Stock	0.0215	0.0963	3.23	0.0014
Mixed	0.0275	0.0871	3.07	0.0028
Bond	0.0642	0.1058	3.74	0.0006

disposition effect as U.S. investors but less overconfident than U.S. individuals. In this regard, Chen et al. (2007) show that Chinese investors are more prone to the disposition effect than U.S. investors. They report that the difference between PGR and PLR is 0.2092 and 0.0877 for individual and institutional investors, respectively. <Table 2> also shows that the disposition effect is sensitive to investment risk. Disposition effects for stock, mixed, and bond funds are 0.0215, 0.0275 and 0.0642, respectively. <Table 3> shows that the differences between funds are statistically significantly. A lower risk fund tends to exhibit a higher degree of the disposition effect. It is well known that conservative investors place great emphasis on financial security and preserving wealth. Although they don't pay much, bond funds provide an essential buffer for the risk of the equity funds. Therefore, it is not irrational to presume that investors of bond funds are conservative investors. Conservative investors are more likely to obsess over short-term performance and are slow to make investment decisions because they're uncomfortable with change and uncertainty. This behavior is consistent with their approach to their professional lives; they are careful not to take excessive risks. How these investors behave in the events of failure and/or success? The results in <Table 2> suggest that conservative investors (investors of bond fund in this study) tend to feel the pain of losses more than the pleasure of gains as compared to other types. As such, these investors hold losing investments too long, even when they see no prospect of a turnaround.<sup>4)</sup> Conservative investors



seem to be more prone to the disposition effect than the other types of investors.

<Table 3> Statistical Significance of Differences in the Disposition Effect between Fund Types

	N	Mean	Std. Dev	Minimum	Maximum	t Value	Pr >  t
Stock	337,377	0.0221	0.0958	-0.2154	0.3061		
Mixed	162,010	0.0272	0.0868	-0.1550	0.3813		
Mixed-Stock		-0.0051	0.0929			25.50	<.0001
	N	Mean	Std. Dev	Minimum	Maximum	t Value	Pr >  t
Mixed	162,010	0.0272	0.0868	-0.1550	0.3813		
Bond	65,525	0.0636	0.1050	-0.1539	0.3343		
Bond-Mixed		-0.0363	0.0924			90.75	<.0001
	N	Mean	Std. Dev	Minimum	Maximum	t Value	Pr >  t
Stock	337,377	0.0221	0.0958	-0.2154	0.3061		
Bond	65,525	0.0636	0.105	-0.1539	0.3343		
Bond-Stock		-0.0414	0.0973			103.5	<.0001

## 2. Fund Performance and the Disposition Effect

Cici (2012) finds that disposition-prone funds tend to have negative effects on trading performance. Goetzmann and Massa (2008) report that a stronger disposition effect is associated with lower returns. We investigate this issue by analyzing the relationship between return and DDE. <Table 4> shows the result of the simple regression which regresses DDE on the fund's performance. The coefficients are -0.00005, 1.2747, -2.1906, and -18.9829 for the aggregate market, stock, mixed and bond, respectively. The coefficient of RT, b1, shows a significantly negative sign for all groups with the exception of stock type funds.<sup>5)</sup> The results show that the disposition effect is negatively related to the fund's performance, supporting the findings

4) This loss aversion is a very common bias and is seen by many conservative investors.

5) Stock fund shows insignificant sign.

of Cici (2012) and Goetzmann and Massa (2008). In addition, bond fund shows the most significant result, indicating that bond investors' loss is likely to lead to the more serious dispositional trading.

<Table 4> Regression analysis between DDE and Return

$$DDE = b_0 + b_1 RT + \epsilon$$

DDE is the disposition effect and RT is the fund performance.

Fund type	b1	SE	t Value	Pr >  t
Aggregate	-0.0005***	0.00004	-12.43	<.0001
Stock	1.2747	0.5710	1.63	0.1256
Mixed	-2.1906***	0.4831	-4.53	<.0001
Bond	-18.9829***	0.5300	-35.81	<.0001

\*Significant at 10% level, \*\*Significant at 5% level, \*\*\*Significant at 1% level.

### 3. The Effect of Reference Point

We test the effect of reference point on DDE. Kahneman and Tversky (1979) predict that trading outcomes are interpreted as gains or losses relative to a reference point. Weber and Camerer (1998) argue that the closer is the reference price to the current price, the smaller the magnitude of the disposition effect. We test predictions of Weber and Camerer (1998) by analyzing the disposition effect by using various reference points. <Table 5> shows the result. MA3, MA5, MA9 and MA12 represent the moving average of stock price for the latest 3 days, 5 days, 9 days and 12 days. For the aggregate market, DDE are -0.1046, -0.0476, -0.0282, and -0.0269 for MA3, MA5, MA9 and MA12, respectively, indicating the absence of the disposition effect when recent moving average price is used as the reference point. Negative values of DDE are also found for stock and mixed funds. For bond funds, disposition effect becomes insignificantly positive as the reference point gets closer to the current price. The result is consistent with the prediction of Weber and Camerer (1998).

**<Table 5> Analysis of Reference Point Effect**

<Table 5> shows the disposition effect by various reference points, MA indicates moving average price. The results indicate the absence of the disposition effect when recent moving average price is used as the reference point.

<b>DDE for Aggregate</b>				
<b>Reference point</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
MA3	-0.1046	0.1667	-11.6	<.0001
MA5	-0.0476	0.1226	-7.18	<.0001
MA9	-0.0282	0.1036	-5.03	<.0001
MA12	-0.0269	0.1084	-4.6	<.0001
<b>DDE for Stock</b>				
<b>Reference point</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
MA3	-0.1706	0.1366	-18.1	<.0001
MA5	-0.0757	0.1071	-10.25	<.0001
MA9	-0.0378	0.0901	-6.08	<.0001
MA12	-0.0281	0.1037	-3.92	0.0001
<b>DDE for Mixed</b>				
<b>Reference point</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
MA3	-0.0049	0.1368	-0.35	0.7266
MA5	-0.0068	0.1121	-0.6	0.5526
MA9	-0.0003	0.1115	-0.03	0.9772
MA12	-0.0090	0.1074	-0.82	0.4144
<b>DDE for Bond</b>				
<b>Reference point</b>	<b>Mean</b>	<b>Std. Dev</b>	<b>t Value</b>	<b>Pr &gt;  t </b>
MA3	0.0135	0.1988	0.42	0.6779
MA5	0.0069	0.1746	0.25	0.8068
MA9	-0.0438	0.1381	-1.96	0.0578
MA12	-0.0646	0.1271	-3.14	0.0033

#### 4. The Effect of Holding Period

<Table 6> shows the effect of trading interval on the disposition effect. Kaustia (2010) argues that the disposition effect is sensitive to the length of the holding period. He shows that the likelihood of a sale is much higher if a gain is realized. However, this tendency weakens as the investor increases his holding periods. Ben-David and Hirshleifer (2012) also report that the disposition effect is weaker for longer prior holding periods. We

investigate this issue by comparing the disposition effect (DE) for weekly and monthly holding periods. <Table 6> shows the results. DE values for the aggregate market are 0.0136 and 0.0279 for weekly and monthly holding periods, respectively. Monthly holding period shows significantly higher disposition effects than weekly holding period across sub fund sectors. The results imply that the degree of the disposition effect (DDE) increases as the length of the holding period increases. The result contradicts the findings of Kaustia (2010) and Ben-David and Hirshleifer (2012).<sup>6)</sup>

<Table 6> Analysis of Interval Effect on DDE

We investigated the relation between holding period and DDE. <Table 6> shows that DDE increases as holding period increases.

Aggregate DDE					
Interval	Mean	Std. Dev	t Value	Pr >  t	Diff.
Week	0.0136	0.0742	3.41	0.0007	
Month	0.0279	0.0956	5.4	<.0001	0.0143***
Stock DDE					
Interval	Mean	Std. Dev	t Value	Pr >  t	Diff.
Week	0.0157	0.0689	3.3	0.0011	
Month	0.0215	0.0963	3.23	0.0014	0.0058**
Mixed DDE					
Interval	Mean	Std. Dev	t Value	Pr >  t	Diff.
Week	0.0100	0.0805	1.21	0.228	
Month	0.0275	0.0871	3.07	0.0028	0.0175***
Bond DDE					
Interval	Mean	Std. Dev	t Value	Pr >  t	Diff.
Week	0.0114	0.0873	0.81	0.4238	
Month	0.0642	0.1058	3.74	0.0006	0.0502**

\*\*significant at 5%, \*\*\* significant at 1%.

6) However, it should be noted that those two previous studies use longer intervals for holding period than this study. In Kaustia (2010)'s study, the shortest holding period is 5-8 weeks and the longest one is 25-42 weeks. Likewise, Ben-David and Hirshleifer (2012) use 1~20 days and 250+α days for the shortest and the longest holding periods, respectively.

## 5. Financial Crisis and the Disposition Effect

Research related to asset price theory argued that macroeconomic shocks lead to higher risk-averse tendencies among investors that, in turn, increase the risk premiums on financial assets. If macroeconomic shocks provoke investors' perception of risks, these shocks may also affect investors' trading behavior. To investigate the effect of GFC on the level of disposition effect, we partitioned the sample period into two subsample periods; (i) pre-crisis period covering from January 1st, 2006 to September 15<sup>th</sup>, 2008 and (ii) post-crisis period covering from September 16th, 2008 to December 31<sup>st</sup>, 2012. <Table 7> shows the results. The disposition effect has decreased from the pre-crisis period of 0.0253 to the post-crisis period of -0.0096. The disposition effect seems to disappear after the crisis, implying that investors tend to behave rationally because of their investment experiences accumulate during the crisis period. The results in this paper suggest that the global financial crisis affect investor behavior, especially institutional investors, regarding their risk tolerance and willingness to invest in funds so that they can trade more wisely. Regarding this issue, Cici (2012) investigates whether the behavior of mutual funds with respect to the disposition effect changes through time. He postulates that recent advances in investment technologies could have brought more disciplined trading activities and less susceptible to behavioral heuristics. However, he finds no evidence

<Table 7> Disposition Effect (DDE) before and after the Financial Crisis

(Table 7) examines the effect of GFC on the disposition effect. We measure the disposition effect for two sub periods: before and after GFC. The result shows that the disposition effect has decreased from the pre-crisis period of 0,0253 to the post-crisis period of -0,0096.

	Mean	Std. Dev	t Value	Pr >  t
Pre- crisis DDE	0.0253	0.0103	2.04	0.042
Post-crisis DDE	-0.0096	0.0081	-1.26	0.210
Pre-Post	0.0340	0.0145	2.34	0.022

that the disposition effect changes as time changes. On the contrary, we find that the disposition effect is sensitive to changes in time.

## 6. Robustness Check

We test the robustness of empirical results by considering volatility and size variables. Multiple regression model is employed to analyze DDE across different types of funds by using volatility and size as control variables. Volatility is the monthly volatility of fund value. It is measured by the standard deviation of each fund for the month when sale took place. Size is the natural log of fund size. The results are shown in <Table 8>. <Table 8> shows the results of the regression analysis. Coefficient of volatility,  $\beta_1$  is significantly positive for bond type fund, indicating that high volatility is likely to lead to a dispositional trading only for a bond type fund in Korea. For the other types of fund, we are not able to find a significant relationship between volatility and DDE. In addition,  $\beta_2$  is insignificant, regardless of fund type. The result suggests that there is no size effect on DDE. All types of funds exhibit significantly positive intercept, indicating the presence of disposition effect. They are 6.1559,

<Table 8> Effect of Volatility and Size on DDE.

$$DDE = \beta_0 + \beta_1 \text{Volatility}_{i,t} + \beta_2 \text{Size}_{i,t} + \epsilon_{i,t}$$

Volatility is the monthly volatility of fund value. It is measured by the standard deviation of each fund for the month when sale took place. Size is the natural log of fund size.

Variable	Coefficient			
	Aggregate	Stock	Mixed	Bond
Intercept	9.1440***	6.1559***	10.6131***	12.8729***
Volatility	-0.00504	-0.00284	0.00572	0.00983**
Size	-0.001	0.0003	-0.010	-0.0014
Adj R-Sq	0.0437	0.041	0.0132	0.0379

\*Significant at 10% level, \*\*Significant at 5% level, \*\*\*Significant at 1% level.

10.6131, and 12.8729 for stock, mixed and bond type funds, respectively. Consistent with the previous results, bond type fund is exposed to the highest dispositional trading behavior.

## V. Summary and Conclusions

This study investigates the effect of investment risk on the disposition effect in Korea. For this purpose, 562,560 daily trading records from 348 funds are analyzed during the period from January 1<sup>st</sup>, 2006 to December 31<sup>st</sup>, 2012. The findings of this study are as follows.

First, we find that a stronger disposition effect is associated with a lower risk. Bond type funds are more prone to the disposition effect than stock or mixed type funds. This finding indicates that conservative investors may have more judgmental biases in the event of failure. In addition, we find that Korean investors are just as prone to the disposition effect as U.S. investors but less overconfident than U.S. individuals.

Second, we find that disposition effect can disappear if the reference point changes. Weber and Camerer (1998) predict that if the current price is the reference point from which gains and losses are valued, rather than the purchased price, then there should be no disposition effect. We confirm Weber and Camerer (1998)'s prediction except for bond type fund. For bond type, disposition effect appears as the reference point gets closer to the current price.

Third, we find that the disposition effect becomes stronger as the length of the holding period increases, contradicting the findings of Kaustia (2010) and Ben-David and Hirshleifer (2012).

Fourth, a stronger disposition effect is found to be associated with lower

returns. Evidence in this paper shows that disposition effect is negatively related to the fund's performance, supporting the findings of previous studies.

Finally, the disposition effect disappears after the global financial crisis, suggesting that Korean investors trade more rationally since the crisis. DDE decreases from 0.0253 for the pre-crisis period to -0.0096 for the post-crisis period.

Our findings indicate that the disposition effect is not a universal phenomenon. The level of the disposition effect is very sensitive to the different contexts or different investor groups. We contribute to the body of research in this field to investigate the relationship between investment risk and the degree of the disposition effect. Traditional finance assuming the rational investor used to be the dominant paradigm. However, behavioral finance has provided more understanding of psychological aspects of investment since the global financial crisis. These new understandings of investor's behavior may play as useful information for investors to trade more efficiently since the crisis. The results in this paper suggest that the global financial crisis affects investor behavior regarding their risk tolerance and trading strategy so that they can trade more wisely.

The results in this study suggest that Korean case shows some inconsistent results with the behavioral interpretation of the disposition effect. However, the present paper has not provided the explanation for these inconsistencies. Furthermore, the issue of the other potential factors of the disposition effect (i.e., information asymmetry between informed and uninformed investors) has not been explored in this paper. Consideration of various investor heterogeneities may be needed for the future study. In addition, the investigation of the effect of interest rate changes and diversity of fund product on the dispositional trading are also important topics worthy of study in the future.



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