

LOSS AVERSION AND THE DISPOSITION EFFECT AROUND
THE WORLD

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Abstract

In this article, we study how the performance of mutual fund affects investor's behavior. I use mutual fund from around the world and analyse cross country differences on a sample of 45 countries. The study focuses on investigating the loss aversion, the disposition effect, and risk-aversion. Empirical results show that investors pay more attention on the fund which attracted larger fund flows previously, and loss aversion, disposition effect is significant among around half countries' investors. Bigger funds are preferred by investors before financial crisis and this result changed after the crisis. The evidence is weak to conclude that whether the investors prefer older funds.

Key words: drawdown risk, loss aversion, disposition effect, flow-performance relationship

JEL classification code: G11, G23

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Resumo

Esta tese estuda como a performance passada dos fundos afecta os fluxos de investimento em fundos em vários países. É usada uma amostra internacional de fundos e são analisadas diferenças entre países em comportamentos tais como “disposition effect”, aversão às perdas e aversão ao risco. São esperadas diferenças entre os vários países, países desenvolvidos e emergentes, europeus, asiáticos e americanos. Os resultados mostram evidencia de aversão ao risco, “disposition effect” e aversão às perdas na maioria dos países. Os resultados também mostram que os fluxos são autoregressivos e que os investidores preferiam fundos de grande dimensão antes da crise, mas os resultados mudaram depois da crise. A evidencia não é clara sobre se os investidores preferem fundos mais antigos ou mais recentes.

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1. Introduction

The disposition effect has been widely acknowledged in the literature of behavioral finance. Shefrin and Statman (1985) defined disposition effect as a phenomenon that investors sell winners too early and ride losers too long. It relates to the tendency of investors to sell shares whose price has increased, while keeping assets that have dropped in value. That is to say, when investors have unrealized investment gains, they are “risk averse” so they tend to sell their investments too early to lock in their investment gains.

There are numerous papers study disposition effect (Lee, Yen, Chan, 2013), the research related to flow performance relationship (Sirri and Tufano, 1998; Ferreira, Keswani, Miguel, Ramos, 2012), and research by Haigh and List (2005) relate to loss aversion.

Studies on investment behavior also have acknowledged loss aversion. Loss aversion refers to people's tendency to strongly prefer avoiding losses to acquiring gains. Some studies suggest that losses are twice as powerful, psychologically, as gains. Loss aversion was first demonstrated by Amos Tversky and Daniel Kahneman.(Kahneman, D. and Tversky, A. 1984. Choices, Values, and Frames. *American Psychologist* 39 (4): 341–350.). This leads to risk aversion when people evaluate an outcome comprising similar gains and losses, since people prefer avoiding losses to making gains.

Downside risk was introduced in the financial literature to measure financial risk associated with losses. That is, the risk of difference between the actual return and the expected return (when the actual return is less), or the uncertainty of that return.

Shefrin and Statman (1985) and Frazzini (2006) suggest that the disposition effect of investors is a result of the prospect theory and mental accounting (Lee, Yen, Chan, 2013), when investors have unrealized investment gains, they are risk-averse investors so they tend to sell investments so early that cannot lock in their investment gains.

Investors are less willing to recognize losses (which they would be forced to do if they sold assets which had fallen in value), but are more willing to recognize gains. This is irrational behavior, as the future performance of equity is unrelated to its purchase price. If anything, investors should be more likely to sell “losers” in order to exploit tax reductions on capital gains.

In this thesis, I study how the performance of mutual fund affects investors' behavior, if they reveal disposition effect, the investors will tend to sell shares whose price has increased, while keeping assets that have dropped in value. Their purpose is locking returns, investors are less

willing to recognize losses, nevertheless are more willing to recognize gains. The disposition effect can be partially explained loss aversion. I use a sample of 45 countries from January 2002 to December 2013 and monthly frequency data. The investors' behavior is measured by fund flows. I analyses how standard deviation, drawdown risk, past returns, affect fund flows. I use also several control variables such as fund size, fund age and previous fund flow. I found that loss aversion and disposition effect are significant among around half countries' investors. The mutual funds which attracted fund flow previously, these funds will attract more cash inflows. Bigger funds are preferred by investors before financial crisis and this result changed after crisis. Weak evidence shows whether the investors prefer older funds or not.

The thesis has the following structure, section 2 is a review of the relevant literature. Section 3 describes the data. Section 4 explains the methodology. Section 5 presents and discusses the empirical results. The 6th and final section give the concluding remarks.

2. Literature review

There are numerous papers that study how investment flows depend on past performance using US mutual fund flow data. Most of them show that flows are highly dependent on past performance and investors chase winners more intensely than they sell poorly performing funds.

The article (Ferreira, Keswani, Miguel, Ramos, 2012) discusses how mutual fund flows depend on past performance across 28 countries and show there are marked differences in the flow-performance relationship across countries.

The article used biased-free data from Lipper Hindsight database on mutual fund sizes and returns, Lipper collect these data from fund management companies directly, in order to avoid double-counting funds.

The fund flow for fund i in country c at quarter t is the fraction with the denominator total net assets value at the end of quarter t and numerator which is the difference between total net assets value at the end of quarter t and product of net assets value at the end of quarter $t-1$ multiply $1+R_{i,c,t}$, $R_{i,c,t}$ is fund i 's raw return from country c in quarter t . Performance measurement is using raw returns and risk-adjusted returns in local currency, authors calculate four-factor alphas for domestic funds and the same way to calculate Jensen's alpha, and use market, size, value and momentum factors instead of a single market factor. Besides, non-performance-related variables are also important in explaining flows and the sensitivity

to performance, dummy variable is introduced to capture the impact of geography, zero represents a domestic fund while one represents an international fund, control for the number of countries where a fund is registered to sell. The style of funds may affect the flows they receive, the author estimate the loading on SMB and HML factors in each fund quarter and include the loadings as additional control variables, and the average percentage flow across all funds in the prior quarter in each country is also included. Next this article expounds the flow-performance relationship and explaining this relationship across countries.

The authors show that there are substantial differences in flow-performance relationship across countries. Investors in more developed countries are generally more proactive than elsewhere. More sophisticated investors are and the lower participation costs they face, the less convex the flow-performance convexity.

The study by Barber, Odean, Zheng (2000) finds evidence of disposition effect, the authors state three main results, investors buy funds with strong past performance lead to more than half of fund purchases occur in top ranked funds; investors sell funds with strong past performance and are reluctant to sell their losing fund investments, thus nearly 40% of fund sales occurred in funds which ranked top quintile of past annual returns; investors also sensitive to the form in which fund expenses are charged, they are less likely to buy funds with high transaction expenses.

The authors of this study used mutual fund account data and returns data, and collected the primary fund data from a large discount brokerage firm on the investment of 78000 households from January 1991 through December 1996, 42% of the sampled households reside in the western part of United States, 19% in the East, 24% in the South, and 15% in the Midwest, the dataset enables to separately analyse purchase and redemption decisions and discloses the exact timing and amount from TNA and fund returns. This research exclude from the current analyses investments in common stocks, American receipts, warrants and options. The frequency of mutual fund returns data is monthly, the data is from Center for Research in Security Prices mutual fund database, this part restrict analyses to bond funds, international equity funds and specialized sector funds.

The author calculated proportion of gains and losses realized based on these data with two ratios by formula:

$$PGR = \frac{\text{Realized gains}}{\text{Realized gains} + \text{Unrealized gains}} \quad (1)$$

$$PLR = \frac{\text{Realized losses}}{\text{Realized losses} + \text{Unrealized losses}} \quad (2)$$

It will helpful to discover investors are more willing to realize either gains or losses since a large difference in the proportion of PGR and PLR is figured out. Then to estimate monthly time-series regression and Fama-French model monthly time-series return in order to evaluate the performance of fund purchase portfolios. As the previous research, this article discussed flow-performance relations as well and found a strong tendency for purchases to follow strong past performance yields large net inflows to top-ranked funds.

Based on the empirical evidence, the past fund performance is useful in predicting future returns. Mutual fund investors use simple decision heuristics when selecting mutual funds, when purchasing funds, investors use a representativeness heuristic, where recent performance is deemed overly representative of a fund manager's true ability. When selling funds, the representativeness heuristic is more than offset by investor's reluctance to realize losses which is called disposition effect.

The study by Andrade (2009) , on a mutual fund sample from CRSP US mutual fund database, this paper contain quarterly and monthly data for all US open-end mutual funds that operated at any point between December 1969 and March 2007, author obtain the timing and source of fund performance from conditional and unconditional return equations, the equation of modified one-factor model splits the market's upward and downward moves, thus it provides a more flexible framework than Jensen's α one factor model. The conditional measures of return-based are introduced to express the mutual fund's excess return conditional on the sign of market's return.

This study confirms that mutual fund investors use historic performance to pick funds that had low downside risk and good performance. The author used two approaches to figure out fund flows are decreasing on downside risk and increasing in performance which support investors chase funds with low downside risk.

Another research analyses disposition effect and market states based on the data from Taiwan mutual investors (Lee, Yen, Chan, 2013). The data in the study obtained from the Taiwan Securities Investment Trust and Consulting Association, the sample is from July 2001 to October 2008, the frequency of the data is monthly, there are 110 mutual funds totally with monthly returns and other necessary data such as redemption rate, market adjusted return, size, turnover rate, management expenses. The individual data from August 2000 to October 2008 is obtained as well in order to get robust results. Authors identified market states and used the basic model to examine the behavior of mutual fund investors' redemption in the full, bull, bear and neutral market. Author also set three testable hypotheses, first one is mutual fund investors more actively redeem their mutual fund units when the mutual funds

have losses under a bear market than under a bull market; second, investors actively redeem both winner and loser mutual fund units under a neutral market; third, mutual fund investors are more (less) actively to redeem their funds have moderate gains under a bear (bull) market. The modified equation include various levels of mutual fund gains and losses and follow Lee et al (2010) to classify the mutual fund gains and losses in five different categories and account for the fixed effect from mutual fund by introduce dummy variables.

This study finds that Taiwan mutual fund investors also exhibit a disposition effect which is consistent with the results of Taiwan stock investors in Barber et al. (2007); investors redeem their mutual fund units more under a bear market than a bull market when they have extreme capital losses; When investors have moderate gains, they are less active in redeeming their mutual fund units under a bull market relative to a bear market; Under a neutral market, investors actively redeem mutual fund units in both winner and loser mutual funds except when they have extreme capital losses. So disposition effect isn't uniform, it varies by market conditions.

It seems different market states affect investor psychology regarding future market trends and disposition effect varies across bull, bear and neutral markets. In a bull market, investors are relatively more reluctant to redeem mutual fund shares than in a bear market for a loser mutual fund.

The investors may be able to predict the next period's mutual fund returns correctly, and there exists strong correlations between mutual fund returns and local market returns (Hens, 2013). The data on time preference and risk attitudes is from international test of risk attitudes and the survey carried out among more than 6000 economics students from 53 countries, this study provides data on time preferences, loss aversion, and uncertainty aversion. Mutual fund data is provided by Morningstar which consists of fund flows, total net asset values, returns of individual mutual funds and equity funds, the monthly frequency data is from the beginning of 1991 to the end of 2011 with each fund has domicile and region of sale information. The stock market data is from Thomson Reuters Datastream. This study test the hypotheses that differences in time and risk preferences can explain the cross-sectional differences in equity fund flows. Dr. Thorsten Hens performed regression on the fund flows and squared fund flows, capturing the volatility to test effects of patience and loss aversion; performed regression for the fund flow return relationship for every country separately. The returns and flows mostly strong auto correlated, so heteroscedasticity adjusted New-West standard errors for t-statistics in the regressions is necessary. The result shows loss aversion and patience have significant effects on the flows, explaining the cross-country difference. Moreover,

investors actually evaluate returns with their utility functions and execute their trading decisions since the interactions between returns and flows with the substitution of interaction between loss aversion and returns. These conclusions became even stronger after 2007 financial crisis time.

There are quite a few studies (Shefrin and Statman, 1985; Frazzini, 2006) that validate the existence of the disposition effect. It's meaningful in the USA, Europe and the Asia Pacific.

3. Data

3.1. Description of the samples

We study the disposition effect and loss aversion of mutual fund investors across several countries. The data in this article are drawn from Lipper database with monthly returns. The time period is from January 2002 to December 2013.

In order to get the representative results, the data of 7 countries which with the least number of funds are eliminated, the data from 38 countries in different continents are drawn from the Lipper database.

3.2. Descriptive summary statistics

Table 1. Mean and gross value of TNA by country

domicile	mean	sum
Argentina	7.00	2,750.35
Australia	132.44	7,593,864.00
Austria	45.52	148,860.70
Belgium	69.78	1,069,102.00
Brazil	125.86	2,416,668.00
Canada	175.49	9,596,055.00
Chile	19.46	57,558.01
China	759.20	5,630,977.00
Denmark	99.65	788,135.50
Estonia	21.06	6,129.49
Finland	120.92	968,181.40
France	114.38	6,204,562.00
Germany	310.26	9,197,262.00
Greece	23.11	4,875.23
Hong Kong	251.54	1,395,543.00
Hungary	13.45	3,362.97
India	60.17	1,194,961.00
Indonesia	92.79	274,279.60
Ireland	254.98	8,504,390.00
Israel	9.95	128,068.40
Italy	207.32	5,056,273.00
Japan	75.52	9,322,457.00
Korea (Republic)	47.08	1,557,830.00
Liechtenstein	88.55	181,078.40
Luxembourg	223.43	26,600,000.00
Malaysia	54.36	709,137.30
Mexico	18.54	33,365.89
Netherlands	341.25	1,847,210.00
New Zealand	100.87	69,799.02
Norway	232.70	1,007,342.00
Philippines	78.13	76,255.95
Poland	62.27	56,353.43
Portugal	43.75	34,255.08
Russia	14.68	83,994.14
Singapore	62.73	766,914.60
Slovakia	27.71	12,332.29
South Africa	55.43	5,542.82
Spain	50.84	1,718,865.00
Sweden	220.02	1,222,232.00
Switzerland	180.87	2,694,935.00
Taiwan	53.66	1,033,875.00
Thailand	34.68	398,175.10
Turkey	8.32	4,924.20
UK	440.91	34,600,000.00
USA	681.49	398,000,000.00
Total	378.53	542,000,000.00

Loss Aversion And The Disposition Effect

Table1 shows the mean and gross value of funds by country, at the end of 2013. The country with greatest total TNA is USA which is 398000 billion.

Table 2: Summary statistic of fund variables by country

domicile	returns		flows		age	
	mean	standard deviation	mean	standard deviation	mean	standard deviation
Argentina	0.0047669	0.0839732	-0.0234714	0.0743478	8.230745	0.3767727
Australia	0.0098774	0.0625201	-0.0101686	0.0453623	8.284605	0.4673019
Austria	0.0032407	0.0639653	-0.0017644	0.0770694	8.550321	0.3620563
Belgium	0.0081291	0.0587057	-0.0106786	0.058655	8.694837	0.2928327
Brazil	-0.0081339	0.0768607	-0.0021863	0.0630039	8.16894	0.4222166
Canada	0.0069897	0.0532814	-0.0044279	0.0487596	8.517483	0.3675328
Chile	0.005457	0.0574403	-0.0061148	0.0742413	8.047049	0.3509631
China	0.0065537	0.0622056	-0.0082683	0.072948	8.00676	0.2940057
Denmark	0.0060878	0.0634623	-0.0027002	0.0573311	8.554643	0.3252818
Estonia	0.0070842	0.0773961	-0.0086333	0.0581258	7.995205	0.1646956
Finland	-0.0037091	0.0711359	0.0095059	0.0754154	8.20455	0.3145752
France	0.0065533	0.0609204	-0.0079392	0.0559576	8.880976	0.3524096
Germany	0.0046957	0.0588565	-0.0082446	0.044922	8.927228	0.387144
Greece	0.0072725	0.0743312	-0.0054732	0.0509102	8.17664	0.3254509
Hong Kong	0.0071525	0.0601982	-0.0006291	0.0508709	8.71703	0.5581472
Hungary	0.0021772	0.0536826	-0.0219755	0.0449864	7.684882	0.1447832
India	0.0080349	0.0791087	-0.0059096	0.0875339	8.330615	0.3664915
Indonesia	-0.0030254	0.0729412	0.0032868	0.0796867	8.206405	0.4196239
Ireland	0.006123	0.0573365	-0.0075891	0.0634895	8.60458	0.3408262
Israel	0.0076368	0.0605209	-0.0022184	0.0736169	8.24259	0.2739247
Italy	0.0042089	0.0470967	-0.008628	0.0418851	8.798428	0.220064
Japan	0.0066797	0.0481597	-0.0079755	0.0417826	8.434568	0.3763015
Korea (Republic)	0.0107416	0.0674494	-0.0229169	0.0696807	8.025947	0.3103486
Liechtenstein	-0.0017868	0.0617396	0.0025157	0.0562565	8.423152	0.5036391
Luxembourg	0.0044531	0.060589	-0.005712	0.0660503	8.681946	0.3672843
Malaysia	0.0097591	0.0511539	-0.008571	0.0520986	8.515365	0.4777568
Mexico	0.0055336	0.058369	-0.0054903	0.0683708	8.131011	0.2851709
Netherlands	-0.0065184	0.0627956	0.0062228	0.0518267	8.783595	0.4403671
New Zealand	0.0114202	0.056861	0.0003675	0.044965	8.50033	0.4227659
Norway	0.0113497	0.0652011	-0.0042943	0.0595042	8.524456	0.2186698
Philippines	0.0147492	0.063452	0.0113575	0.0694531	8.300179	0.3405411
Poland	0.0071718	0.0736266	-0.005459	0.06576	7.795473	0.1705892
Portugal	-0.0027336	0.0706596	-0.0035936	0.0554194	8.647086	0.3685719
Russia	0.0019069	0.0751427	-0.0167515	0.0570045	8.007888	0.2509424
Singapore	0.0107605	0.0578663	-0.0095199	0.0497555	8.664477	0.291043
Slovakia	0.0183076	0.0537221	-0.0139297	0.0440274	7.973155	0
South Africa	0.010562	0.052293	-0.0037556	0.0282762	8.118207	0.4638656
Spain	0.0046222	0.0665468	-0.0091815	0.0628307	8.679709	0.2044968
Sweden	0.0081489	0.065379	-0.000472	0.0634025	8.626417	0.432912
Switzerland	0.0048797	0.0611109	-0.0052092	0.0623842	8.882828	0.5054474
Taiwan	0.0025988	0.0734762	-0.0017628	0.0641092	8.607155	0.3468301
Thailand	0.0139668	0.0708354	-0.004753	0.0533729	8.387246	0.3726722
Turkey	0.0000365	0.0748794	0.0033578	0.1036341	8.402403	0.292638
UK	0.0077698	0.0555588	-0.0065151	0.0500947	9.009647	0.4177293
USA	0.0060237	0.0514384	-0.0034215	0.0523534	8.761842	0.4241803
Total	0.0061145	0.0566384	-0.0055511	0.0555718	8.697144	0.4418047

Table 2 represents the fund variables by country, each represents winsorized returns, winsorized relative flows, and age of the fund, and two columns are mean, standard deviation in sequence.

Table 3: Number of funds by country

Country	Domicile	N* funds
1	Argentina	393
2	Australia	57,338
3	Austria	3,270
4	Belgium	15,321
5	Brazil	19,201
6	Canada	54,683
7	Chile	2,958
8	China	7,417
9	Denmark	7,909
10	Estonia	291
11	Finland	8,007
12	France	54,245
13	Germany	29,644
14	Greece	211
15	Hong Kong	5,548
16	Hungary	250
17	India	19,859
18	Indonesia	2,956
19	Ireland	33,353
20	Israel	12,872
21	Italy	24,389
22	Japan	123,436
23	(Republic of Korea)	33,091
24	Liechtenstein	2,045
25	Luxembourg	118,964
26	Malaysia	13,046
27	Mexico	1,800
28	Netherlands	5,413
29	New Zealand	692
30	Norway	4,329
31	Philippines	976
32	Poland	905
33	Portugal	783
34	Russia	5,722
35	Singapore	12,225
36	Slovakia	445
37	South Africa	100
38	Spain	33,808
39	Sweden	5,555
40	Switzerland	14,900
41	Taiwan	19,267
42	Thailand	11,483
43	Turkey	592
44	UK	78,494
45	USA	584,129
	Total	1,432,846

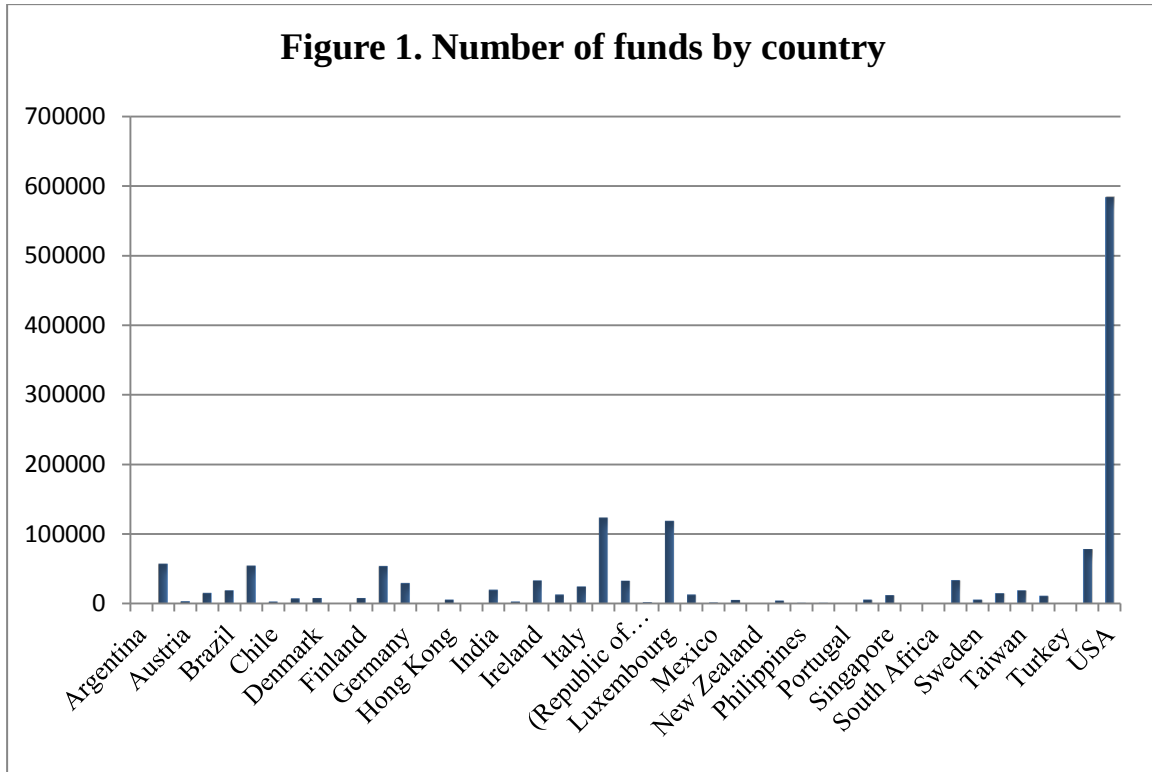


Table 3 presents summary the number of funds by country. As we would expect, the number of funds in developed countries is larger, in USA, there are 584,129 funds in USA which with 40.77% of total observations. There are totally 1432846 funds at the end of year. The funds size of emerging market is in the middle, such as China, Thailand and Hong Kong, Japan which is the top Asian country is with the second largest funds number. We can see the English-speaking countries and some developed European countries hold the highest number of observations.

3.3. Variables

3.3.1. Fund flows:

In this article, we define new money growth rate as the net growth in total net assets (TNA) based on Chevalier and Ellison (1997) and others. Fund flow for time period t is calculated as:

$$\text{Flow}_t = \frac{TNA_t - TNA_{(t-1)}}{TNA_t} \quad (3)$$

Assume the flows occur at the end of each quarter. The absolute fund flow is calculated as:

$$\text{Flow}_t = TNA_t - TNA_{t-1} \quad (4)$$

To make sure the extreme values will not drive the results, we winsorize fund flows and returns by country at the bottom and top 1% level of distribution.

The future flow performance is measured by past performance, returns and others.

Our purpose is to figure out how the past performance affects the future flows of funds.

3.3.2. Drawdown

Drawdown measures the decline from a historical peak in some variable, it is the “pain” period experienced by an investor between a peak (new highs) and subsequent valley (a low point before moving higher). Maximum drawdown is the worst (the maximum) peak to valley loss since the investment’s inception. The maximum drawdown duration is the worst (the maximum/longest) amount of time an investment has seen between peaks.

Drawdown is performance-related variable which is introduced in order to study loss aversion, we predict the investors’ behavior react to drawdown cross countries is different.

3.3.3. Risk (Standard deviation)

Standard deviation is applied to the rate of return of an investment to measure the investment's volatility. Standard deviation is also known as historical volatility and is used by investors as a gauge for the amount of expected volatility.

There are risk seeker and risk-averse investors, we introduce this independent variable in order to investigate the type of investors. Greater volatility sometimes leads to higher returns, nevertheless the benefits and risks are always together.

3.3.4. Past returns

The past returns or profit is the income of investor, also it is the object of investment. Raw returns are drawn from Lipper database. We introduce past return to study disposition effect, loss is more powerful than gain rationalize that investors reduce the cash inflow once they have returns on the fund.

3.3.5. Flows t-i

We introduce previous fund flows to investigate how this variable will affect future flows as it is close related to the future flows, it may create positive cycle of investing. We regress flows of future one month and three month, so $i=1$ or 3 .

3.3.6. Fund size (TNA)

In our regression, the study controls for fund size by computing the natural logarithm of total net assets. Total net assets are the difference between assets and liabilities. Fund size is a very important control variable, although it is the non-performance-related variable, investors always take this into consideration when they make decisions. We expect larger fund is more prone to attracts cash flow.

3.3.7. Age of fund

Age of fund is also a control variable which may affect investors' choice, as the funds exist for long time, it is well known the people and brand dominates some other factors in the judgment of investing. In the study, we set the last date of our observation as a value and the difference this value and value of launch date is the age of fund. In regression, we calculate age of fund by natural logarithm of age,

4. Methodology

This study aims to measure how investors' behavior reacts to losses. Investor behavior is measured by fund flows. The fund performance is measured by several factors, we set future fund flows as the dependent variable, the monthly, seasonally, and future flows will be measured one by one. The independent variables include past returns, drawdown risk, gains and losses, extreme performances.

Besides these variables, it shows non-performance-related variables always effect the future flows, we think it's necessary to introduce some control variables in order to explaining future flows and sensitivity to performance, we will figure out if the large fund capture larger amount of money for example. We will use natural logarithm of TNA as one control variable. Some studies choose fund age to explain the flows, we use it here as well. As Gil-Bazo and Ruiz-Verdu (2009) and others show the fund fees will effect the flow, we include actual annual charge (aac), actual initial charge (aic) and arc as other control variables.

4.1. Regression equation:

We will use two equations the following linear regression specifications

$$\text{Flow}_t = b_1 \times \text{Drawdown}_{t-i} + b_2 \times \text{Past Returns} + b_3 \times \text{Flows}_{t-i} + b_4 \times \text{TNA} + b_5 \times \text{Age} + c \quad (5)$$

$$\text{Flow}_t = b_6 \times \text{Risk} + c \quad (6)$$

$$\text{Flow}_t = a_1 \times \text{Risk}_{t-i} + a_2 \times \text{Past Returns} + a_3 \times \text{Flows}_{t-i} + a_4 \times \text{TNA} + a_5 \times \text{Age} + c \quad (7)$$

The above flows are regressed by domicile and monthly, seasonally, semi-annually, annually flows are regressed separately.

Based on my study across different countries or regions, the piecewise linear regression is necessary. Piecewise regression is a method in regression analyses in which the independent variable is partitioned into intervals and a separate line segment is fit to each interval. This regression is useful when the independent variables, clustered into different groups, exhibit different relationships between the variables in these regions. As we all know the 2007

financial crisis, we will investigate the investors' decisions favoring before and after crisis, if there exists some differences, so we will regress everything again before year 2007 and after year 2006.

4.2. Hypotheses:

For the coefficients of our regressions, we make some hypotheses:

Hypotheses 1: $b_1 < 0$, because of loss aversion, usually when the funds resulted in loss, investors would decrease the cash inflow to the funds in the future in order to avoid loss more.

Hypotheses 2: $b_4 > 0$, the funds that with large total net asset may attract more flows as they are more visible and well-known by investors, big fund also better in withstand outer impingement.

Hypotheses 3: $b_6 < 0$, because of risk aversion, greater volatility is the potential problem for investors.

We will compare the hypotheses with the empirical results.

5. Empirical results

5.1. Correlation of variables

Table 4: Correlation of variables						
	drawdown	risk	PastReturns	flows	TNA	age
drawdown	1					
risk	0.5278	1				
PastReturns	-0.2974	0.0007	1			
flows	0.0386	0.0025	-0.2889	1		
TNA	0.1399	0.279	0.0227	0.0436	1	
age	-0.0514	-0.1373	-0.0004	-0.0095	0.273	1

Table 4 present correlations for variables. From the results, we can see drawdown is positively correlated with risk or standard deviation, the drawdown increases, the more declines from peak to trough means rising risk of lose as we expected. As the correlation coefficient is 0.5278, these two variables are moderate correlated. When the absolute value of correlation coefficient is between 0.3 and 0.5, they are low correlated. Past returns and drawdown are negatively low correlated, it is obviously that drawdown leads to the deductions of returns, but not that much based on our research of these countries. As past returns decreased, the fund will lose some amount of cash inflows than before, so past returns and flows are also negatively low correlated. There is evidence shows risk and total net assets

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are positively low correlated with the coefficient which equals to 0.279. Generally speaking, the older fund will own more net assets, otherwise the fund will fade away, so TNA is positively low correlated with age of the fund. For the rest of the correlations between variables, we can conclude they are not correlated as the absolute value coefficients between them are close to zero or far less than 0.3.

As drawdown and risk are moderate correlated, in order to avoid multicollinearity, we will regress them separately.

5.2. Regression approach results

5.2.1. Regression of 1-month fund flow on drawdown risk

Table 5: Regression of 1-month fund flow on drawdown risk								
	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Argentina	-0.014	0.192	0.323**	-0.005	0.008	385	0.337	0.192
Australia	0.009	-0.106*	0.094***	0.002***	-0.006***	5,584	0.071	0.057
Austria	-0.029	0.228***	0.072	0.005***	-0.005	2,212	0.106	0.064
Belgium	0.005	-0.337***	0.269***	0.001	-0.001	13,786	0.221	0.214
Brazil	-0.009**	0.045***	0.171***	0.001**	-0.007***	16,896	0.054	0.046
Canada	0.005	-0.228***	0.250***	0.001***	-0.002	48,017	0.161	0.158
Chile	-0.088**	0.005	0.132	-0.001	0.004	899	0.245	0.187
China	0.034***	0.274***	-0.072***	0.003***	0.009***	7,307	0.427	0.419
Denmark	0.011	0.196***	0.166***	0.004***	-0.009***	3,914	0.171	0.142
Estonia	0.234**	0.28	0.021	0.002	-0.026	127	0.62	0.202
Finland	-0.029**	0.125***	0.175***	0.003*	-0.016**	2,651	0.18	0.139
France	0.001	-0.254***	0.357***	0	-0.002*	45,489	0.24	0.238
Germany	0.001	-0.205***	0.376***	0	0.002*	27,169	0.243	0.24
Greece	-0.019	0.211*	0.283	0	-0.015	211	0.629	0.293
Hong Kong	-0.008	-0.152**	0.368***	0.002**	-0.002	4,522	0.209	0.189
Hungary	-0.07	-0.202	0.265*	0.005	-0.031	250	0.235	0.061
India	0.012	0.492***	0.107***	0	-0.002	13,702	0.639	0.636
Indonesia	-0.072***	0.284	0.194***	0.003**	-0.005	2,184	0.263	0.228
Ireland	-0.015***	-0.239***	0.307***	0.002***	-0.004**	28,489	0.176	0.172
Israel	-0.066**	0.083	0.356***	0.002	-0.005	932	0.268	0.218
Italy	-0.003	-0.245***	0.388***	0	0.001	23,782	0.304	0.301
Japan	-0.009***	0.024***	0.381***	-0.000**	0.001*	52,698	0.204	0.202
Korea	-0.017**	0.03	0.277***	0.001***	-0.007**	19,685	0.183	0.178
Liechtenstein	-0.018	-0.149**	0.262***	0.001	0.016**	1,581	0.205	0.147
Luxembourg	-0.001	-0.227***	0.272***	0.001***	-0.002*	100,964	0.133	0.131
Malaysia	0.006	-0.046	0.115***	0.003***	0	12,305	0.106	0.099
Mexico	-0.233	-1.019**	-0.016	0.001	-0.026	141	0.273	-0.13
Netherlands	-0.009*	-0.314***	0.412***	0.001	-0.004**	5,132	0.435	0.421
New Zealand	0.123***	0.101	0.109	0.004*	-0.009	692	0.254	0.051
Norway	0.01	0.083	0.163***	0.004**	-0.016	1,026	0.24	0.135
Philippines	-0.072*	-0.096	0.168***	0.002	-0.001	920	0.163	0.092
Poland	0.004	-0.118	0.200***	-0.002	-0.03	380	0.151	0.013
Portugal	-0.017	-0.073	0.04	0.003	0.003	553	0.398	0.178
Russia	0.012	-0.365***	0.220***	0.001	-0.014**	5,567	0.208	0.199
Singapore	-0.003	-0.159***	0.505***	0.001	-0.002	11,702	0.343	0.335
Slovakia								
South Africa	0.016	-0.095	0.653***	0.004	0.005	100	0.792	0.497
Spain	-0.002	-0.236***	0.385***	0.001**	-0.004	30,924	0.279	0.275
Sweden	-0.017	0.258***	0.102***	0.001	0.001	2,684	0.19	0.15
Switzerland	-0.003	-0.375***	0.380***	-0.001	-0.005***	11,946	0.337	0.332
Taiwan	-0.008**	-0.212***	0.457***	0	-0.001	15,956	0.344	0.34
Thailand	0.002	0.080**	0.196***	0.004***	-0.003	10,938	0.138	0.13
Turkey	-0.088**	0.059	0.06	0.006*	-0.002	576	0.198	0.161
UK	0.004	-0.245***	0.214***	0.002***	-0.003***	72,542	0.128	0.127
USA	-0.015***	-0.314***	0.471***	0.001***	-0.004***	583,943	0.415	0.415

USA: $\text{Flows}_t = -0.015 \times \text{drawdown} - 0.314 \times \text{past returns} + 0.471 \times \text{Flows}_{t-1} + 0.001 \times \text{TNA} - 0.004 \times \text{Age} + c$

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Canada: $\text{Flows}_t = -0.005 \times \text{drawdown} - 0.228 \times \text{past returns} + 0.250 \times \text{Flows}_{t-1} + 0.001 \times \text{TNA} - 0.002 \times \text{Age} + c$

China: $\text{Flows}_t = 0.034 \times \text{drawdown} + 0.274 \times \text{past returns} - 0.072 \times \text{Flows}_{t-1} + 0.003 \times \text{TNA} + 0.009 \times \text{Age} + c$

Japan: $\text{Flows}_t = -0.009 \times \text{drawdown} + 0.024 \times \text{past returns} + 0.381 \times \text{Flows}_{t-1} - 0.000 \times \text{TNA} + 0.001 \times \text{Age} + c$

UK: $\text{Flows}_t = 0.004 \times \text{drawdown} - 0.245 \times \text{past returns} + 0.214 \times \text{Flows}_{t-1} + 0.002 \times \text{TNA} - 0.003 \times \text{Age} + c$

Germany: $\text{Flows}_t = 0.001 \times \text{drawdown} - 0.205 \times \text{past returns} + 0.376 \times \text{Flows}_{t-1} + 0 \times \text{TNA} + 0.002 \times \text{Age} + c$

Table 5 analyses whether fund flows are sensible to drawdown, the regression result of fund flow for the future one month. From the result, it is obviously total net assets and fund flow of original month are positively correlated with the future fund flows, we cannot easily summarize the relationship between drawdown and past returns, it depends on specific country or region. It's always more difficult for funds which are old to attract fund flows, investors are more willing to select young fund as their investments. We include standard deviation in the dependent variables in order to find out the level of risk averse of investors, the USA which is the country with the largest observations, the investors in the country are less risk averse, more risk seekers are among US investors, high risk sometimes means high returns.

Let's see the regression equation of some countries, we choose USA, Japan as the developed country, China which is the representative of emerging market. The Chinese investors are always positively with all variables except previous fund flows, there are more risk seekers in China, Chinese investors are more interested in the funds which with high risk, also they paid more attention to the larger age fund for insurance as they believe the funds which exist and attract flows for long time must be with some certain reasons, Japanese and German investors are the same at this point while most of the investors from others prefer young funds. For the past returns, more than half of the countries are not trend to invest more if they earn profit from that fund, Investors are less willing to recognize losses which they would be forced to do if they sold assets which had fallen in value, but are more willing to recognize gains. We call it "disposition effect", it relates to the tendency of investors to sell shares whose price has increased, while keeping assets that have dropped in value. For example, US investors will not invest in the funds which the asset value increased, for the Asian countries, such as China, Japan and Korean, they are opposite, the Chinese and Japanese investors are risk seekers

when lose and risk averse when they gain. Besides USA and UK, some EU countries, such as Portugal, Spain, Luxembourg, Germany and France, their investing tendency are negatively correlated with past returns. It's no doubt that the larger total net assets of funds, the easier to attract cash inflow, there doesn't exist any country which prefer smaller total net assets, the coefficients of TNA which are negative almost statistically insignificant from zero, Japan is the only one with negative coefficient which is statistically different from zero, but it's close to zero. We can get the certain conclusion based on results. Drawdown is the peak-to-trough decline during a specific record period of an investment, fund or commodity. A drawdown is usually quoted as the percentage between the peak and the trough, generally when it happens, the inflows will be affected a lot, we can see more than half of the investors among 45 countries would not increase cash inflow in the fund, USA, Singapore, Korea, Indonesia, and Ireland, etc, investors from these countries are negatively impact by drawdown. There also exists quite a few of 45 countries are not accept lose from drawdown willingly, close to 40% investors would insist on increasing inflow even they experienced "pain" period between a peak (new highs) and subsequent valley (a low point before moving higher). Chinese, Estonian, Indian, Dutch and New Zealander are positively correlated with drawdown. Based on the regression result for one month, we can see Chinese are more activist investors as their fund flows are all positively correlated with five factors out of six, the only one they don't prefer is the fund flows of last month, Japanese investors are sensitive to past returns, previously cash flow and risk, drawdown and total net assets almost doesn't affect their behavior or willingness. American and Canadian investors' behavior are quite similar, they are risk averse and don't like drawdown, the disposition effect are obviously for them and prefer larger age fund. For the European countries, there includes variety kinds of investors and investing behavior. Next we will see the same facts based on three months.

5.2.2. Regression of 3-months fund flow on drawdown risk

Table 6: Regression of 3-months fund flow on drawdown risk								
	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Argentina	-0.009	0.141**	0.193*	-0.011**	0.011	360	0.357	0.212
Australia	0.008	-0.04	0.122***	0.001**	-0.005**	5,033	0.091	0.077
Austria	-0.008	0.07	-0.003	-0.003	-0.005	2,116	0.087	0.044
Belgium	0.006	-0.350***	0.267***	-0.001	0.001	13,272	0.369	0.363
Brazil	-0.016***	0.025***	0.136***	-0.001**	-0.007***	15,307	0.076	0.067
Canada	0.002	-0.217***	0.287***	0	0	46,079	0.293	0.291
Chile	-0.068**	0.07	0.065**	-0.003**	0.006	816	0.37	0.319
China	-0.022***	0.185***	0.029***	-0.001	0.007***	6,650	0.319	0.309
Denmark	0.009	0.115***	0.104***	0	-0.009**	3,762	0.159	0.129
Estonia	0.176*	0.20	-0.105	-0.013	0.065	117	0.673	0.284
Finland	0.003	0.05	0.022	-0.006***	-0.013	2,490	0.135	0.09
France	0.006**	-0.275***	0.298***	-0.001***	-0.001	43,870	0.331	0.328
Germany	0.006*	-0.237***	0.305***	0	0.003**	26,263	0.321	0.318
Greece	-0.063**	0.08	0.081	0.001	-0.021	180	0.607	0.142
Hong Kong	-0.007	-0.179***	0.277***	0.001	-0.002	4,300	0.229	0.209
Hungary	-0.117	-0.04	0.079	0.007	-0.036	208	0.258	0.064
India	-0.023**	0.336***	0.153***	-0.001	-0.001	12,972	0.523	0.52
Indonesia	-0.082***	0.288***	0.057**	0	-0.004	2,028	0.249	0.212
Ireland	-0.011***	-0.285***	0.255***	0.001***	-0.004*	27,286	0.261	0.257
Israel	-0.049**	0.05	0.200**	-0.005	-0.006	865	0.22	0.165
Italy	0	-0.271***	0.334***	-0.001**	0.002	22,991	0.406	0.404
Japan	-0.009***	0.038***	0.195***	-0.002***	0.003***	50,525	0.142	0.14
Korea	-0.029***	0.02	0.203***	0	-0.008**	17,998	0.169	0.164
Liechtenstein	-0.011	-0.122*	0.156***	-0.001	0.024***	1,487	0.262	0.206
Luxembourg	0.006***	-0.278***	0.230***	0	0	96,672	0.221	0.22
Malaysia	0.017**	0.00	0.113***	0.002***	0	11,721	0.17	0.164
Mexico	-0.512***	-0.562***	0.034	-0.027**	0.018	119	0.483	0.141
Netherlands	-0.008	-0.300***	0.442***	0	-0.003*	4,940	0.586	0.576
New Zealand	0.077	-0.04	0.096	0.003	-0.011	638	0.282	0.07
Norway	0.023	0.05	0.051	0.003*	-0.015	990	0.238	0.13
Philippines	-0.079**	0.07	0.127***	-0.003	-0.003	869	0.223	0.156
Poland	-0.036	-0.42	0.075	-0.004	-0.038	330	0.179	0.032
Portugal	-0.003	0.05	0.028	-0.016**	0.003	532	0.504	0.318
Russia	0.015*	-0.319***	0.255***	0	-0.010*	4,968	0.346	0.339
Singapore	0.002	-0.196***	0.382***	0	-0.002	11,289	0.335	0.327
Slovakia								
South Africa	0.062	-0.358**	0.193	0.006	0.001	82	0.703	0.074
Spain	0.003	-0.291***	0.284***	-0.001**	-0.001	29,870	0.334	0.331
Sweden	0	0.00	0.012	-0.004***	0.004	2,561	0.16	0.118
Switzerland	0.002	-0.385***	0.336***	-0.003*	-0.005**	11,467	0.461	0.457
Taiwan	-0.004	-0.302***	0.300***	-0.002	-0.001	15,293	0.349	0.345
Thailand	-0.020**	0.159***	0.091***	0.002***	-0.003	10,386	0.124	0.116
Turkey	-0.103**	0.209*	-0.004	0.001	0.009	490	0.28	0.247
UK	0.003	-0.249***	0.243***	0.001**	-0.002*	69,892	0.255	0.253
USA	-0.011***	-0.341***	0.433***	0.000***	-0.004***	568,028	0.534	0.534

Tables 6 is the regression result of fund flow without risk as independent variable for the future three months, based on the results, we compare the coefficient of major countries with table 5, the conclusion here are with some significant similarities to the future one month fund flow. Overall, the major differences between table 5 and table 6 are the investors' behavior to

the total net assets, the funds with larger TNA will be easier to attract flows for next one month, nevertheless when we extent to fund flows of next three months, things are different, previously we have cash inflows of 39 out of 45 countries are positively correlate with TNA while there are only 16 countries left for the three months fund flows. We infer that the TNA may attract flows in short period, when period become longer, it will attract less. More and more countries will consider less of this factor, the fund with larger TNA cannot continue keep attraction of cash inflows in a long time.

Here we choose more European countries with large observations besides major countries we analysed of table 4,

France: $Flows_{t+2} = 0.006 \times \text{drawdown} - 0.275 \times \text{past returns} + 0.298 \times Flows_{t-1} - 0.001 \times TNA - 0.001 \times \text{Age} + c$

Germany: $Flows_{t+2} = 0.006 \times \text{drawdown} - 0.237 \times \text{past returns} + 0.305 \times Flows_{t-1} - 0.000 \times TNA + 0.003 \times \text{Age} + c$

Ireland: $Flows_{t+2} = -0.011 \times \text{drawdown} - 0.285 \times \text{past returns} + 0.255 \times Flows_{t-1} + 0.001 \times TNA - 0.004 \times \text{Age} + c$

Italy: $Flows_{t+2} = 0 \times \text{drawdown} - 0.271 \times \text{past returns} + 0.334 \times Flows_{t-1} - 0.001 \times TNA + 0.002 \times \text{Age} + c$

Luxembourg: $Flows_{t+2} = 0.006 \times \text{drawdown} - 0.278 \times \text{past returns} + 0.230 \times Flows_{t-1} - 0 \times TNA - 0 \times \text{Age} + c$

Spain: $Flows_{t+2} = 0.003 \times \text{drawdown} - 0.291 \times \text{past returns} + 0.284 \times Flows_{t-1} - 0.001 \times TNA - 0.001 \times \text{Age} + c$

Switzerland: $Flows_{t+2} = 0.002 \times \text{drawdown} - 0.385 \times \text{past returns} + 0.336 \times Flows_{t-1} - 0.003 \times TNA - 0.005 \times \text{Age} + c$

UK: $Flows_{t+2} = 0.003 \times \text{drawdown} - 0.249 \times \text{past returns} + 0.243 \times Flows_{t-1} + 0.001 \times TNA - 0.002 \times \text{Age} + c$

We can see the disposition effect is obviously for these European countries, all of the 8 countries' fund flows are negatively correlated with past returns, especially Switzerland which is with the lowest coefficient. Half of countries are risk averse, which is similar to the global result. The investors from UK and Ireland would decrease their investment when drawdown increases, they are conservative investors at this point.

Japan: $Flows_{t+2} = -0.009 \times \text{drawdown} + 0.038 \times \text{past returns} + 0.195 \times Flows_{t-1} - 0.002 \times TNA + 0.003 \times \text{Age} + c$

Korea: $Flows_{t+2} = -0.029 \times \text{drawdown} + 0.021 \times \text{past returns} + 0.203 \times Flows_{t-1} - 0 \times TNA - 0.008 \times \text{Age} + c$

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Taiwan: $\text{Flows}_{t+2} = -0.004 \times \text{drawdown} - 0.302 \times \text{past returns} + 0.300 \times \text{Flows}_{t-1} - 0.002 \times \text{TNA} - 0.003 \times \text{Age} + c$

China: $\text{Flows}_{t+2} = -0.022 \times \text{drawdown} + 0.185 \times \text{past returns} + 0.029 \times \text{Flows}_{t-1} - 0.001 \times \text{TNA} + 0.007 \times \text{Age} + c$

Based on the regression functions of Asian countries, we can see they are quite different from European and North American countries, there doesn't exist disposition effect for investors from China, Japan and Korea, when they earn profit from the funds, they won't do the same as the Europeans and Americans, they will keep in increasing cash flow in these funds in order to get more profit even if the potential risk always exists.

Canada: $\text{Flows}_{t+2} = 0.002 \times \text{drawdown} - 0.217 \times \text{past returns} + 0.287 \times \text{Flows}_{t-1} + 0.000 \times \text{TNA} + 0.000 \times \text{Age} + c$

USA: $\text{Flows}_{t+2} = -0.011 \times \text{drawdown} - 0.341 \times \text{past returns} + 0.433 \times \text{Flows}_{t-1} + 0.000 \times \text{TNA} - 0.004 \times \text{Age} + c$

Brazil: $\text{Flows}_{t+2} = -0.016 \times \text{drawdown} + 0.025 \times \text{past returns} + 0.136 \times \text{Flows}_{t-1} - 0.001 \times \text{TNA} - 0.007 \times \text{Age} + c$

The two North American countries are similar to Europeans and their behaviors are stable in comparison with what they did for the one month fund flow, the Brazilian investors are similar to Asian as at disposition effect, they are risk averse.

5.2.3. Regression of 1-month fund flow on standard deviation

Table 7: Regression of 1-month fund flow on standard deviation					
	Risk	Constant	Observations	R-squared	Adjusted R-squared
Argentina	1.160	-0.122*	386	0.247	0.094
Australia	0.052*	-0.013***	54,887	0.019	0.016
Austria	-0.100	0.004	3,242	0.056	0.028
Belgium	0.084	-0.014***	15,321	0.022	0.014
Brazil	-0.799***	0.058***	19,091	0.084	0.077
Canada	0.135***	-0.010***	54,594	0.024	0.021
Chile	-0.120	0.001	2,887	0.148	0.130
China	0.154**	-0.018***	7,417	0.406	0.397
Denmark	0.051	-0.006	7,907	0.064	0.048
Estonia	0.426	-0.045	291	0.284	0.073
Finland	-0.604***	0.047***	8,007	0.096	0.082
France	0.070	-0.011***	54,096	0.013	0.011
Germany	-0.004	-0.008**	29,537	0.024	0.020
Greece	0.168	-0.018	211	0.557	0.184
Hong Kong	0.159	-0.009	5,548	0.038	0.019
Hungary	-0.653	0.023	250	0.168	-0.001
India	0.143	-0.016*	19,377	0.404	0.401
Indonesia	-0.213	0.017	2,847	0.167	0.138
Ireland	-0.025	-0.007*	32,954	0.007	0.003
Israel	-0.148	0.006	12,872	0.036	0.032
Italy	-0.021	-0.008***	24,186	0.039	0.036
Japan	-0.145***	-0.001	86,691	0.035	0.033
Korea	0.001	-0.023***	31,290	0.056	0.053
Liechtenstein	-1.024***	0.057***	2,045	0.192	0.149
Luxembourg	-0.006	-0.005**	118,318	0.013	0.012
Malaysia	0.062	-0.012**	12,985	0.076	0.069
Mexico	-0.049	-0.003	1,656	0.071	0.034
Netherlands	-0.557***	0.032***	5,413	0.137	0.117
New Zealand	-0.116	0.007	692	0.205	-0.004
Norway	0.418**	-0.029**	4,063	0.107	0.080
Philippines	-0.552	0.046*	976	0.126	0.061
Poland	-0.093	0.002	905	0.072	-0.002
Portugal	-0.148	0.006	751	0.301	0.135
Russia	0.273	-0.036**	5,572	0.036	0.026
Singapore	0.168**	-0.017***	12,225	0.038	0.027
Slovakia	0.406*	-0.031	445	0.203	0.078
South Africa	0.860	-0.058	100	0.526	-0.043
Spain	0.039	-0.011***	33,707	0.052	0.048
Sweden	0.093	-0.006	5,555	0.093	0.073
Switzerland	-0.183	0.003	14,811	0.015	0.009
Taiwan	-0.144	0.007	19,173	0.061	0.056
Thailand	-0.052	-0.001	11,483	0.075	0.068
Turkey	-0.180	0.017	576	0.183	0.152
UK	0.104***	-0.011***	78,056	0.010	0.008
USA	-0.004	-0.003***	584,129	0.004	0.004

Loss Aversion And The Disposition Effect

Based on our previous hypotheses, b_2 is negative. We will compare with the empirical results, there are 24 countries are negatively impacted on risk. As US which with the largest number of observations, this coefficient of US is not statistically different from zero, we cannot detect how the US investors impact on risk, probably they pay more attention on other factors. The Brazilians are sensitive to risk and negative impact on this, the Finnish, Japanese, Dutch and investors from Liechtenstein are similar. There are also significant interested in risk, British, Canadian and Chinese investors are in this group, these three are large countries respectively located in Europe, North America and Asia. Some medium or small countries, such as Singapore, Slovakia, and Norway are risk seekers. Generally speaking, the risk seekers are half while risk averse investors are another half on their fund flow for one month. Next we will see how they will act for three months' cash flow.

5.2.4. Regression of 3-months fund flow on standard deviation

	Risk	Constant	Observations	R-squared	Adjusted R-squared
Argentina	1.366*	-0.140**	360	0.206	0.040
Australia	0.045	-0.013***	51,975	0.013	0.011
Austria	-0.094	0.004	3,080	0.048	0.019
Belgium	0.090	-0.015***	14,708	0.020	0.012
Brazil	-0.828***	0.061***	17,370	0.120	0.112
Canada	0.137***	-0.010***	52,230	0.027	0.025
Chile	-0.057	-0.002	2,685	0.206	0.189
China	0.099	-0.015***	6,745	0.293	0.283
Denmark	0.065	-0.006	7,551	0.054	0.038
Estonia	0.540	-0.054	272	0.247	0.019
Finland	-0.597***	0.047***	7,582	0.122	0.108
France	0.073*	-0.011***	51,918	0.016	0.013
Germany	0.002	-0.008**	28,484	0.025	0.021
Greece	0.258	-0.029*	180	0.541	0.045
Hong Kong	0.137	-0.008	5,269	0.028	0.009
Hungary	-0.481	0.011	208	0.177	-0.014
India	0.157	-0.017*	18,407	0.210	0.206
Indonesia	-0.221	0.017	2,658	0.169	0.139
Ireland	-0.024	-0.007*	31,466	0.008	0.003
Israel	-0.154	0.005	12,118	0.033	0.029
Italy	-0.021	-0.008***	23,367	0.039	0.035
Japan	-0.144***	-0.000	82,568	0.036	0.035
Korea	-0.003	-0.023***	29,039	0.033	0.030
Liechtenstein	-1.019***	0.058***	1,921	0.295	0.257
Luxembourg	0.002	-0.006***	112,906	0.014	0.013
Malaysia	0.067	-0.012**	12,344	0.122	0.116
Mexico	-0.051	-0.001	1,538	0.085	0.047
Netherlands	-0.549***	0.032***	5,200	0.168	0.149
New Zealand	-0.211	0.013	638	0.209	-0.016
Norway	0.410**	-0.029**	3,886	0.141	0.114
Philippines	-0.628	0.052*	922	0.171	0.108
Poland	-0.268	0.016	822	0.076	-0.001
Portugal	-0.151	0.006	712	0.411	0.265
Russia	0.282	-0.038**	4,968	0.050	0.040
Singapore	0.157*	-0.017***	11,770	0.028	0.017
Slovakia	0.385*	-0.031*	421	0.243	0.124
South Africa	1.042	-0.074	82	0.508	-0.328
Spain	0.044	-0.011***	32,437	0.054	0.050
Sweden	0.112	-0.008	5,279	0.089	0.068
Switzerland	-0.175	0.003	14,148	0.015	0.009
Taiwan	-0.140	0.007	18,282	0.051	0.046
Thailand	-0.080	-0.000	10,892	0.076	0.068
Turkey	-0.082	0.008	490	0.259	0.231
UK	0.102***	-0.011***	75,038	0.010	0.009
USA	-0.005	-0.003***	568,208	0.003	0.003

Loss Aversion And The Disposition Effect

This table is the regression result of fund flow for next three months, risk is the only independent variable, at first glance the results are more or less the same as it for one month, there is one more country became risk seeker. USA keep the same, they are not sensitive to risk. British, Canadian and Chinese investors are always risk seekers. They search for greater volatility and uncertainty in investments in exchange for anticipated higher returns. Risk seekers might pursue investments such as small-cap stocks and international stocks, preferring growth investments over value investments. That being said, risk-seeking investors should conduct even greater due diligence when considering a riskier investment, due to the increased implied risk of such investments. French are risk seekers for three months fund flow. We can see there exists few difference of investors' behavior between fund flow for one month and three months.

5.2.5. Regression of 1-month fund flow on standard deviation before financial crisis

Table 9: Regression of 1-month fund flow on standard deviation before financial crisis					
	Risk	Constant	Observations	R-squared	Adjusted R-squared
Australia	1.122	-0.051	245	0.235	-0.014
Austria	-0.257	0.007	163	0.089	0.029
Belgium	-0.678**	0.010	1,451	0.073	0.047
Canada	0.067	-0.005	2,819	0.028	0.006
China	-3.240***	0.156**	113	0.370	0.272
Denmark	0.436	-0.019	693	0.210	0.155
Finland	0.456	-0.017	214	0.357	0.222
France	0.209	-0.015**	4,083	0.054	0.039
Germany	0.145	-0.017***	2,651	0.019	0.007
Hong Kong	1.682***	-0.066***	338	0.189	0.129
India	0.917***	-0.058***	1,142	0.056	0.046
Ireland	-0.043	-0.006	2,851	0.043	0.022
Italy	0.246	-0.021***	2,226	0.043	0.039
Japan	-0.154*	0.001	16,044	0.050	0.046
Korea	0.517***	-0.051***	1,104	0.302	0.292
Liechtenstein	-0.255	0.005	124	0.125	-0.035
Luxembourg	0.124	-0.015***	9,182	0.023	0.017
Malaysia	-1.805***	0.018	751	0.129	0.117
Netherlands	-0.051	-0.008*	536	0.106	0.040
New Zealand	0.307	-0.015	142	0.302	-0.215
Norway	-0.963**	0.045*	375	0.260	0.179
Portugal	3.492**	-0.177**	100	0.697	0.230
Singapore	0.491**	-0.029***	1,363	0.131	0.095
Spain	-0.088	-0.015	2,778	0.050	0.029
Sweden	-0.649*	0.040**	605	0.313	0.268
Switzerland	0.570	-0.029	989	0.035	0.026
Taiwan	-0.101	-0.001	1,454	0.085	0.079
Thailand	-1.024	0.055	517	0.052	0.037
UK	0.215	-0.011**	7,163	0.038	0.032
USA	-0.002	-0.001	194,404	0.004	0.004

Now we will see the empirical result of fund flow before financial crisis with risk only, and check whether the crisis would affect the investors' philosophy or not. We have totally 30 countries with sufficient observations to get the regression results. There are 13 of them are risk seekers while 6 countries are statistically significant different from zero, the risk aversion is obviously in 17 countries and 5 of them are statistically significant different from zero. We cannot analyze USA and UK here, although Chinese investors seemed conservative in this period, that is the first time Chinese are not risk seekers until now, we cannot take this as conclusion for this part, because there are just 113 observations which is far less than enough.

Loss Aversion And The Disposition Effect

The same reason is for the country like Norway, Portugal, and etc. The Indian and Korean, Singaporean investors' amount of cash flow is positively correlated with risk. Japanese are rational investor, until now Japanese always keep their rational investing options and after financial crisis, we will discuss it in the following part. Before financial crisis, the number of risk seek investors is smaller, we will discuss how it happens.

5.2.6. Regression of 1-month fund flow on standard deviation after financial crisis

	Risk	Constant	Observations	R-squared	Adjusted R-squared
Argentina	1.160	-0.122*	386	0.247	0.094
Australia	0.051*	-0.013***	54,642	0.016	0.015
Austria	-0.098	0.004	3,079	0.054	0.028
Belgium	0.093	-0.014**	13,870	0.021	0.015
Brazil	-0.799***	0.058***	19,031	0.082	0.078
Canada	0.136***	-0.010***	51,775	0.024	0.022
Chile	-0.120	0.001	2,887	0.148	0.130
China	0.170**	-0.019***	7,304	0.407	0.400
Denmark	0.041	-0.006	7,214	0.030	0.018
Estonia	0.426	-0.045	291	0.284	0.073
Finland	-0.614***	0.048***	7,793	0.088	0.079
France	0.069	-0.011***	50,013	0.010	0.008
Germany	-0.005	-0.008**	26,886	0.024	0.021
Greece	0.168	-0.020	199	0.449	0.043
Hong Kong	0.134	-0.008	5,210	0.029	0.013
Hungary	-0.653	0.023	250	0.168	-0.001
India	0.131	-0.015*	18,235	0.424	0.421
Indonesia	-0.213	0.016	2,836	0.153	0.127
Ireland	-0.025	-0.007*	30,103	0.004	0.001
Israel	-0.148	0.006	12,872	0.036	0.032
Italy	-0.023	-0.007***	21,960	0.038	0.034
Japan	-0.144***	-0.001	70,647	0.029	0.028
Korea	-0.005	-0.023***	30,186	0.041	0.038
Liechtenstein	-1.035***	0.059***	1,921	0.197	0.160
Luxembourg	-0.009	-0.005**	109,136	0.012	0.011
Malaysia	0.078	-0.011**	12,234	0.058	0.052
Mexico	-0.049	-0.003	1,656	0.071	0.034
Netherlands	-0.568***	0.034***	4,877	0.130	0.115
New Zealand	-0.132	0.010	550	0.178	0.029
Norway	0.432**	-0.031**	3,688	0.084	0.062
Philippines	-0.552	0.046*	976	0.126	0.061
Poland	-0.093	0.002	905	0.072	-0.002
Portugal	-0.216	0.009	651	0.193	0.074
Russia	0.273	-0.036**	5,572	0.036	0.026
Singapore	0.162*	-0.017***	10,862	0.024	0.016
Slovakia	0.406*	-0.031	445	0.203	0.078
South Africa	0.860	-0.058	100	0.526	-0.043
Spain	0.040	-0.010**	30,929	0.051	0.048
Sweden	0.130	-0.009	4,950	0.047	0.030
Switzerland	-0.199	0.005	13,822	0.016	0.010
Taiwan	-0.144	0.007	17,719	0.058	0.053
Thailand	-0.050	-0.001	10,966	0.076	0.069
Turkey	-0.180	0.017	576	0.183	0.152
UK	0.103***	-0.011***	70,893	0.007	0.005
USA	-0.005	-0.005***	389,725	0.002	0.002

Obviously there's an important difference happened after financial crisis. After going through the results, there are 25 risk seekers among all 45 countries. Chinese, Canadian, Singaporean and UK investors are interested in greater volatility and uncertainty in investments in exchange for anticipated higher returns. Australians also join the risk investment group while they are negatively impact on risk before crisis. Japanese kept the same as before. We think after financial crisis, some investors who lose a large amount because of it become more rational and conservative. But a few of 45 countries, as they've already lost a large amount, they were enthusiastically in greater returns and higher volatility, we analyze this is because of game psychology, otherwise they'll never have the chance to win the returns back in short term. Besides risk, we have more other factors, we will analyze how they affect investors' behavior.

5.2.7. Regression of 1-month fund flow on drawdown risk before financial crisis

Table 11: Regression of 1-month fund flow on drawdown risk before financial crisis								
	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Austria	-0.302*	-0.105	-0.097	0.006	-0.050***	163	0.133	0.051
Belgium	0.002	-0.398***	0.116*	0.004***	0.007	1,441	0.144	0.117
Canada	0.015	-0.087	0.230***	0.001	-0.005	2,819	0.080	0.058
China	0.590**	-0.033	-0.063	0.020**	0.114	113	0.401	0.279
Denmark	0.024	0.333**	0.097	0.010***	-0.042**	691	0.241	0.182
Finland	-0.037*	0.190**	0.283**	-0.003	-0.107*	214	0.449	0.317
France	0.050***	0.035	0.244***	0.003***	0.000	4,083	0.127	0.113
Germany	0.012	0.079	0.261***	0.002***	-0.003	2,651	0.097	0.084
Hong Kong	0.086***	0.425**	0.309***	0.002	0.018	294	0.274	0.200
India	0.044	0.543***	0.038	0.003	-0.085***	700	0.086	0.065
Ireland	0.005	-0.269***	0.288***	0.003***	0.016	2,851	0.207	0.189
Italy	0.046***	-0.164***	0.227***	-0.000	0.003	2,226	0.127	0.121
Japan	0.006	0.017	0.408***	-0.001**	-0.007***	11,051	0.246	0.242
Korea	-0.110	-0.181	0.078	0.003	0.020	458	0.450	0.426
Liechtenstein	-0.044	-0.384*	0.343***	0.000	-0.005	124	0.268	0.099
Luxembourg	0.012	0.048	0.184***	0.002***	0.002	9,182	0.065	0.058
Malaysia	0.080	-0.396*	0.110**	-0.001	0.003	751	0.129	0.112
Netherlands	0.001	0.050	0.176**	0.000	-0.003	536	0.135	0.063
New Zealand	0.111	0.015	0.035	0.003**	-0.027	142	0.317	-0.251
Norway	-0.178**	-0.053	0.159**	0.006*	-0.079	244	0.338	0.204
Portugal	0.182	1.732***	-0.022	-0.011	-0.032	100	0.733	0.245
Singapore	-0.022	0.121	0.396***	0.005***	-0.005	1,363	0.302	0.271
Spain	0.018	-0.190***	0.237***	0.003***	-0.005	2,778	0.124	0.103
Sweden	-0.034	0.276**	0.022	-0.002	0.023	605	0.319	0.270
Switzerland	0.069***	-0.325***	0.166**	-0.002	-0.007*	989	0.241	0.230
Taiwan	-0.018	0.158*	0.336***	0.006**	0.000	1,423	0.197	0.189
Thailand	-0.084	0.001	0.049	0.005***	0.002	517	0.084	0.063
UK	0.030***	-0.209***	0.144***	0.003***	0.002	7,161	0.090	0.083
USA	-0.009***	-0.337***	0.423***	0.001***	-0.008***	194,386	0.330	0.330

In this table, we have 29 countries with sufficient observations. Before financial crisis, there are 10 countries negatively correlated with drawdown, that is to say most of investors are

willing to invest more in the fund which with the drawdown increased. The empirical result here is different from our hypotheses to some degree, we suppose this coefficient is positive because of loss aversion. After crisis, more countries are not like previously, we will see it in the next table. We can conclude the fund flows for future one month is half positively and half negatively correlated with past returns and age of the fund. The original fund flow definitely affects the future flow, if the fund attracted cash inflow, it will attract more and more flow in next month, which is the positive cycle and vice versa. The similar situation to total net assets, this is highly corresponding to our hypotheses that TNA is positively correlated to fund flow, big funds attract more flows. For the reasons, we think big funds are more visible and well-known by investors. For the specific countries or continents, USA which is the country with largest number of observations and variety kinds of funds, the investors prefer big funds and the funds that attracted more cash flows, they don't interested in large age funds and dislike drawdown, especially for past return, the disposition effect is very important for Americans, they will sell the fund as soon as it bring them some amount of returns. UK investors are similar to USA except their attitude to drawdown, British investors didn't averse loss of fund, once the fund price drop a lot from peak to trough, they will increase cash flow invest on this fund and wait for the price increase, UK investors don't accept loss because of drawdown, they are seeking long-term profits. Chinese, French, Hong Kong, Italian and Switzerland investors are the same impact on drawdown as UK. Japan is the only one country which doesn't prefer big funds, but the value of coefficient is not large.

5.2.8. Regression of 1-month fund flow on drawdown risk after financial crisis

Table 12: Regression of 1-month fund flow on drawdown risk after financial crisis								
	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Argentina	-0.014	0.192	0.323**	-0.005	0.008	385	0.337	0.192
Australia	0.009	-0.106*	0.094***	0.002***	-0.006***	5,584	0.071	0.057
Austria	-0.024	0.242***	0.085	0.005***	-0.004	2,049	0.108	0.068
Belgium	0.005	-0.332***	0.279***	0.001	-0.002	12,345	0.227	0.221
Brazil	-0.009**	0.045***	0.171***	0.001**	-0.007***	16,836	0.050	0.045
Canada	0.005	-0.231***	0.250***	0.001***	-0.002	45,198	0.165	0.163
Chile	-0.088**	0.005	0.132	-0.001	0.004	899	0.245	0.187
China	0.035***	0.280***	-0.075***	0.003***	0.009***	7,194	0.428	0.421
Denmark	0.011	0.176***	0.197***	0.003***	-0.008**	3,223	0.135	0.111
Estonia	0.234**	0.280	0.021	0.002	-0.026	127	0.620	0.202
Finland	-0.029**	0.115***	0.166***	0.003*	-0.016**	2,437	0.156	0.125
France	0.001	-0.255***	0.369***	0.000	-0.002*	41,406	0.257	0.255
Germany	0.002	-0.205***	0.389***	0.000	0.002**	24,518	0.263	0.260
Greece	-0.019	0.211*	0.283	0.000	-0.015	199	0.539	0.170
Hong Kong	-0.012	-0.167***	0.363***	0.002***	-0.002	4,228	0.207	0.190
Hungary	-0.070	-0.202	0.265*	0.005	-0.031	250	0.235	0.061
India	0.012	0.498***	0.115***	0.001	-0.001	13,002	0.669	0.667
Indonesia	-0.072***	0.284	0.194***	0.003**	-0.005	2,173	0.250	0.218
Ireland	-0.016***	-0.237***	0.308***	0.002***	-0.005***	25,638	0.174	0.171
Israel	-0.066**	0.083	0.356***	0.002	-0.005	932	0.268	0.218
Italy	-0.004	-0.239***	0.409***	-0.000	0.000	21,556	0.325	0.322
Japan	-0.011***	0.025***	0.367***	-0.000*	0.002***	41,647	0.189	0.187
Korea	-0.016**	0.030	0.286***	0.001***	-0.007***	19,227	0.169	0.165
Liechtenstein	-0.018	-0.139**	0.251***	0.001	0.017**	1,457	0.202	0.151
Luxembourg	-0.001	-0.234***	0.280***	0.001***	-0.002*	91,782	0.142	0.141
Malaysia	0.006	-0.038	0.113***	0.003***	-0.000	11,554	0.090	0.083
Mexico	-0.233	-1.019**	-0.016	0.001	-0.026	141	0.273	-0.130
Netherlands	-0.010*	-0.320***	0.419***	0.001	-0.004**	4,596	0.447	0.436
New Zealand	0.123***	0.118	0.127	0.004*	-0.009	550	0.238	0.093
Norway	0.029**	0.109	0.149***	0.003**	-0.014	782	0.168	0.062
Philippines	-0.072*	-0.096	0.168***	0.002	-0.001	920	0.163	0.092
Poland	0.004	-0.118	0.200***	-0.002	-0.030	380	0.151	0.013
Portugal	-0.036	-0.194	0.023	0.009	0.002	453	0.291	0.119
Russia	0.012	-0.365***	0.220***	0.001	-0.014**	5,567	0.208	0.199
Singapore	-0.002	-0.166***	0.516***	0.000	-0.002	10,339	0.357	0.351
Slovakia								
South Africa								
Spain	-0.002	-0.231***	0.400***	0.001*	-0.004	28,146	0.293	0.291
Sweden	-0.014	0.250***	0.130***	0.002	-0.000	2,079	0.131	0.092
Switzerland	-0.007	-0.370***	0.391***	-0.001	-0.005***	10,957	0.347	0.342
Taiwan	-0.007**	-0.220***	0.471***	0.000	-0.001	14,533	0.372	0.368
Thailand	0.002	0.080**	0.199***	0.004***	-0.003	10,421	0.139	0.132
Turkey	-0.088**	0.059	0.060	0.006*	-0.002	576	0.198	0.161
UK	0.004	-0.243***	0.223***	0.002***	-0.003***	65,381	0.134	0.133
USA	-0.015***	-0.298***	0.500***	0.001***	-0.003***	389,557	0.461	0.461

From the first sight of the result after financial crisis, there are two visible differences overall, the drawdown and age of fund. There are nearly 60% of 45 countries, their cash inflow in investing is negatively correlated with drawdown while this indicator is just one out of three before crisis. The investors would not invest or wait until the fund price increase, the crisis is

really with great impact force, and the investors' don't have confidence like before, in order to avoid losing anymore, they would not increase the investing amount. Also the age of fund is not as useful as before, before crisis, nearly half of investors prefer large age fund while this number decrease to 25% after crisis, the large age is not an important judgment basis as before. The rest factors to investors didn't change a lot after crisis. Past returns are still half positively and half negatively correlated with fund flow, the original flow and size of funds always positively affect the investors' behavior without doubt. Especially 100% of fund which they attracted cash flows, the more they got before, the more the investors would invest in next month, we can see the positive cycle is very important.

The USA and UK investors keep unchanged, Chinese investors still positive impact on drawdown, the crisis didn't affect them a lot. Japanese became significant of drawdown and past returns, their impact just like most of countries, one difference of Japanese after crisis is they trust large age fund more than before. The European countries, Germany, France are similar except fund age. The disposition effect and loss averse are core and negative impact on Irish investors. Based on the investing behavior of specific countries, there are not similarities for the investors come from the same continent, even the neighboring country, their action are quite different. We have special country here, Chinese investors almost positive correlated with every factors, besides the 5 factors we have in this table, they are also risk seekers in table 11, it's the only one country negatively correlated with original fund flows, as this is the fund flow for future one month, we will see if this indicator would be different in cash flow of next three month.

5.2.9. Regression of 3-months fund flow on standard deviation before financial crisis**Table 13: Regression of 3-months fund flow on standard deviation before financial crisis**

	Risk	Constant	Observations	R-squared	Adjusted R-squared
Australia	1.027	-0.048	245	0.287	0.055
Austria	0.134	-0.009	163	0.094	0.034
Belgium	-0.699**	0.009	1,451	0.099	0.073
Canada	0.138	-0.005	2,819	0.029	0.008
China	-3.858***	0.183***	113	0.527	0.453
Denmark	0.486	-0.021	693	0.223	0.169
Finland	0.408	-0.021	214	0.093	-0.098
France	0.221	-0.017**	4,083	0.067	0.053
Germany	0.205	-0.021***	2,651	0.029	0.017
Hong Kong	1.570**	-0.063***	338	0.161	0.099
India	0.921***	-0.061***	1,142	0.101	0.092
Ireland	-0.038	-0.005	2,851	0.050	0.030
Italy	0.155	-0.019***	2,226	0.035	0.031
Japan	-0.179**	0.002	15,980	0.061	0.057
Korea	0.500***	-0.049***	1,104	0.203	0.192
Liechtenstein	-0.156	0.001	124	0.201	0.055
Luxembourg	0.088	-0.013***	9,182	0.012	0.006
Malaysia	-1.527**	0.005	751	0.132	0.121
Netherlands	-0.102	-0.007	536	0.054	-0.016
New Zealand	0.236	-0.013	142	0.337	-0.154
Norway	-0.850*	0.038	375	0.255	0.174
Portugal	3.891*	-0.196*	100	0.703	0.247
Singapore	0.380	-0.024**	1,363	0.072	0.034
Spain	0.083	-0.016*	2,778	0.028	0.007
Sweden	-0.508*	0.033**	605	0.322	0.278
Switzerland	0.649	-0.032	989	0.061	0.052
Taiwan	-0.014	-0.001	1,454	0.045	0.038
Thailand	0.076	-0.011	517	0.013	-0.002
UK	0.184	-0.012***	7,157	0.038	0.032
USA	-0.008	-0.001	194,404	0.004	0.004

This table shows the regression results of fund flow after financial crisis for future three months with risk as the only independent variable, the three month results is more close to the investor's behavior in a longer term while one month is focus more on the investors' first response to the external factors.

From the empirical result here, it's similar to that of one month.

5.2.10. Regression of 3-months fund flow on standard deviation after financial crisis

	Risk	Constant	Observations	R-squared	Adjusted R-squared
Argentina	1.366*	-0.140**	360	0.206	0.040
Australia	0.044	-0.013***	51,730	0.011	0.009
Austria	-0.096	0.004	2,917	0.046	0.019
Belgium	0.099	-0.015**	13,257	0.018	0.012
Brazil	-0.828***	0.061***	17,310	0.118	0.114
Canada	0.137***	-0.010***	49,411	0.026	0.025
Chile	-0.057	-0.002	2,685	0.206	0.189
China	0.121	-0.016***	6,632	0.289	0.280
Denmark	0.055	-0.006	6,858	0.025	0.013
Estonia	0.540	-0.054	272	0.247	0.019
Finland	-0.607***	0.048***	7,368	0.125	0.115
France	0.072*	-0.011***	47,835	0.012	0.010
Germany	0.001	-0.008**	25,833	0.023	0.019
Greece	0.258*	-0.028*	168	0.519	0.066
Hong Kong	0.113	-0.007	4,931	0.023	0.007
Hungary	-0.481	0.011	208	0.177	-0.014
India	0.144	-0.017*	17,265	0.219	0.216
Indonesia	-0.221	0.017	2,647	0.154	0.128
Ireland	-0.023	-0.007*	28,615	0.004	0.001
Israel	-0.154	0.005	12,118	0.033	0.029
Italy	-0.023	-0.007***	21,141	0.036	0.032
Japan	-0.140***	-0.001	66,588	0.029	0.027
Korea	-0.008	-0.023***	27,935	0.028	0.025
Liechtenstein	-1.032***	0.060***	1,797	0.302	0.270
Luxembourg	-0.000	-0.005**	103,724	0.013	0.013
Malaysia	0.081	-0.011*	11,593	0.072	0.066
Mexico	-0.051	-0.001	1,538	0.085	0.047
Netherlands	-0.559***	0.035***	4,664	0.158	0.143
New Zealand	-0.229	0.017	496	0.181	0.021
Norway	0.423**	-0.030**	3,511	0.133	0.112
Philippines	-0.628	0.052*	922	0.171	0.108
Poland	-0.268	0.016	822	0.076	-0.001
Portugal	-0.231	0.010	612	0.319	0.215
Russia	0.282	-0.038**	4,968	0.050	0.040
Singapore	0.152*	-0.017***	10,407	0.022	0.014
Slovakia	0.385*	-0.031*	421	0.243	0.124
South Africa	1.042	-0.074	82	0.508	-0.328
Spain	0.044	-0.011**	29,659	0.055	0.052
Sweden	0.144	-0.010	4,674	0.054	0.037
Switzerland	-0.193	0.005	13,159	0.017	0.011
Taiwan	-0.143	0.008	16,828	0.051	0.047
Thailand	-0.080	0.000	10,375	0.076	0.069
Turkey	-0.082	0.008	490	0.259	0.231
UK	0.101***	-0.011***	67,881	0.008	0.007
USA	-0.005	-0.005***	373,804	0.001	0.001

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Overall, the regression result future three months' fund flow is similar to that of one month. There exists some small difference, Australian's behavior became insignificant for three months time period, some investors will not change the investing strategy immediately once the external factors changed, they need some time to analyse and decide the investing options, Australian is visible risk seeker on one month's reaction. Chinese investors are different from Australian, they are opposite, for three months investing behavior, Chinese are risk seekers while they are insignificant to be risk seeker or risk-averse investors for shorter term, Chinese are always risk investors in great majority parts. Investors from France and Greece searched for greater volatility and uncertainty in investments in order to get anticipated higher returns. French, Japanese, Dutch and Liechtensteiner are still risk averse investors while investors from Singapore, UK and Norway are risk seekers, these countries kept the behavior unchanged from one month to three months.

When we compare this table to previously one, it's quite different. There are more risk seekers after financial crisis, investors are confidence with the prospect of economic recovery. From another perspective, the increase of consumption and investment amount, especially risk investment increased, the signal means the economic rapid recovery.

5.2.11. Regression of 3-months fund flow on drawdown risk before financial crisis

	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Austria	-0.118	0.098	-0.044	-0.007	-0.019	163	0.147	0.066
Belgium	-0.007	-0.408***	0.150***	0.003**	0.008	1,441	0.257	0.233
Canada	0.004	-0.002	0.320***	-0.000	-0.001	2,819	0.161	0.142
China	-0.368	0.249*	-0.093**	0.019*	0.099	113	0.629	0.553
Denmark	-0.006	0.176*	0.055	-0.002	-0.002	691	0.225	0.166
Finland	-0.062*	0.040	0.164	-0.017***	-0.094	214	0.328	0.168
France	0.039***	-0.075	0.191***	0.001*	0.003	4,083	0.161	0.148
Germany	0.023	0.002	0.160***	0.001	-0.002	2,651	0.080	0.066
Hong Kong	0.046	0.158	0.250***	-0.000	0.020	294	0.191	0.109
India	0.007	0.228*	0.109**	-0.000	-0.039*	700	0.109	0.088
Ireland	0.003	-0.335***	0.241***	0.002***	0.017	2,851	0.274	0.257
Italy	0.034***	-0.334***	0.162***	-0.001	0.002	2,226	0.170	0.165
Japan	-0.010	0.023	0.215***	-0.002***	-0.006***	11,051	0.187	0.182
Korea	-0.126**	-0.100	0.016	-0.001	0.015	458	0.322	0.292
Liechtenstein	0.028	0.283**	0.031	-0.004	-0.007	124	0.241	0.067
Luxembourg	0.000	-0.127***	0.127***	0.000	0.005	9,182	0.056	0.049
Malaysia	0.153	0.020	0.147***	-0.003	0.016*	751	0.169	0.153
Netherlands	-0.029	0.035	0.134***	-0.002**	-0.000	536	0.118	0.045
New Zealand	0.198*	0.046	-0.126**	0.001	-0.047	142	0.474	0.037
Norway	-0.119	0.290*	0.052	0.001	-0.038	244	0.354	0.223
Portugal	0.009	0.399	-0.120*	-0.051**	0.062	100	0.756	0.311
Singapore	-0.065***	-0.057	0.279***	0.003*	0.002	1,363	0.211	0.176
Spain	0.024	-0.214***	0.092***	0.002	-0.013	2,778	0.085	0.064
Sweden	0.000	-0.032	-0.008	-0.011**	0.010	605	0.334	0.285
Switzerland	0.069***	-0.270***	0.160***	-0.004**	-0.004	989	0.398	0.390
Taiwan	-0.052	0.053	0.168***	0.002	-0.000	1,423	0.109	0.100
Thailand	0.002	-0.022	0.000	0.003***	-0.012**	517	0.099	0.078
UK	0.022**	-0.214***	0.137***	0.001***	0.003*	7,157	0.139	0.132
USA	-0.005***	-0.368***	0.393***	0.001***	-0.007***	194,386	0.461	0.461

In this table, we have 29 countries with sufficient observation. For the three months' fund flow, US investors just follow the funds that with more original flows and big total net assets, they don't ever trust the large age fund. They deducted the cash flow once they get the returns from the fund or it decrease from peak to trough in order to averse loss, US investors are very cautious. In comparison with UK investors, British are more patient, they will not go into action as soon drawdown occurs, and they prefer large age fund, because it's more stable and less risk. German investor only positively correlated with original flows. We don't analyse Chinese investors, the reasons are the same as one month's fund flow, and the number of observation is too small. Japanese's style is dislike big and large age fund, more original fund flows is attractive to them. French investors are positive in this time period.

When we look back to previous table, the affect of drawdown, past return, original flow, and fund age are more or less the same. The investor's based on total net assets changed a lot, Japan is the only one country which significantly negatively correlated with big funds for one month's fund flow among all countries, and here are half of the countries dislike big funds,

generally speaking, big funds are more well-known and visible by investors, based on empirical results here, we can see investors from different countries have different ideas. It's up to specific country.

5.2.12. Regression of 3-months fund flow on drawdown risk after financial crisis

Table 16: Regression of 3-months fund flow on drawdown risk after financial crisis								
	drawdown_12m	past returns	Flows t-1	TNA	Age	Observations	R-squared	Adjusted R-squared
Argentina	-0.009	0.141**	0.193*	-0.011**	0.011	360	0.357	0.212
Australia	0.008	-0.04	0.122***	0.001**	-0.005**	5,033	0.091	0.077
Austria	-0.006	0.06	-0.000	-0.002	-0.004	1,953	0.084	0.042
Belgium	0.007	-0.346***	0.275***	-0.001	0.000	11,831	0.376	0.372
Brazil	-0.016***	0.025***	0.136***	-0.001**	-0.007***	15,247	0.073	0.068
Canada	0.002	-0.223***	0.284***	0.001	-0.000	43,260	0.301	0.300
Chile	-0.068**	0.074	0.065**	-0.003**	0.006	816	0.370	0.319
China	-0.021***	0.182***	0.029***	-0.001	0.006***	6,537	0.314	0.305
Denmark	0.01	0.105***	0.130***	0.000	-0.009**	3,071	0.122	0.097
Estonia	0.176*	0.197	-0.105	-0.013	0.065	117	0.673	0.284
Finland	0.007	0.048	0.009	-0.005**	-0.012	2,276	0.132	0.098
France	0.006**	-0.275***	0.310***	-0.001***	-0.001	39,787	0.351	0.349
Germany	0.006*	-0.234***	0.323***	-0.000	0.003***	23,612	0.351	0.348
Greece	-0.063**	0.081	0.081	0.001	-0.021	168	0.588	0.161
Hong Kong	-0.011	-0.190***	0.271***	0.001	-0.003	4,006	0.241	0.225
Hungary	-0.117	-0.037	0.079	0.007	-0.036	208	0.258	0.064
India	-0.025***	0.353***	0.160***	-0.000	-0.000	12,272	0.554	0.551
Indonesia	-0.082***	0.288***	0.057**	-0.000	-0.004	2,017	0.235	0.201
Ireland	-0.012***	-0.282***	0.256***	0.001***	-0.004**	24,435	0.260	0.258
Israel	-0.049**	0.046	0.200**	-0.005	-0.006	865	0.220	0.165
Italy	-0.001	-0.261***	0.357***	-0.001**	0.002	20,765	0.432	0.430
Japan	-0.009***	0.041***	0.184***	-0.001***	0.004***	39,474	0.127	0.125
Korea	-0.028***	0.021	0.212***	-0.000	-0.009**	17,540	0.166	0.162
Liechtenstein	-0.012	-0.125**	0.166***	-0.001	0.025***	1,363	0.277	0.229
Luxembourg	0.006***	-0.281***	0.241***	-0.000	-0.001	87,490	0.239	0.238
Malaysia	0.014*	0.001	0.109***	0.002***	-0.001	10,970	0.123	0.116
Mexico	-0.512***	-0.562***	0.034	-0.027**	0.018	119	0.483	0.141
Netherlands	-0.008*	-0.303***	0.455***	0.000	-0.003*	4,404	0.600	0.592
New Zealand	0.049	-0.019	0.148	0.003	-0.010	496	0.274	0.124
Norway	0.034*	0.023	0.038	0.003*	-0.013	746	0.186	0.081
Philippines	-0.079**	0.066	0.127***	-0.003	-0.003	869	0.223	0.156
Poland	-0.036	-0.417	0.075	-0.004	-0.038	330	0.179	0.032
Portugal	-0.016	-0.02	0.036	-0.010	0.002	432	0.405	0.258
Russia	0.015*	-0.319***	0.255***	0.000	-0.010*	4,968	0.346	0.339
Singapore	0.004	-0.198***	0.393***	-0.001	-0.002	9,926	0.362	0.357
Slovakia								
South Africa	0.062	-0.358**	0.193	0.006	0.001	82	0.703	0.074
Spain	0.003	-0.284***	0.303***	-0.001**	-0.001	27,092	0.356	0.354
Sweden	-0.001	0.018	0.015	-0.003*	0.003	1,956	0.095	0.054
Switzerland	-0.001	-0.383***	0.346***	-0.003*	-0.005**	10,478	0.469	0.465
Taiwan	-0.001	-0.308***	0.316***	-0.002*	-0.001	13,870	0.388	0.384
Thailand	-0.020**	0.161***	0.093***	0.002***	-0.003	9,869	0.125	0.117
Turkey	-0.103**	0.209*	-0.004	0.001	0.009	490	0.280	0.247
UK	0.003	-0.246***	0.257***	0.001**	-0.002**	62,735	0.269	0.268
USA	-0.012***	-0.325***	0.458***	0.000***	-0.003***	373,642	0.573	0.572

In three months' time period after financial crisis, American investors willing to invest more in the funds with original fund flows, from now on, they don't care about the big or small funds, there no correlation between their cash inflow and total net asset of fund, after financial crisis, US investors are cautious and not as patient as before, they tried to avoid any potential chance of losing even at the price of potential return. UK are similar to USA, they both dislike large age fund. Thai are positive to the factors except drawdown, Chinese are the same. Brazilians are positively correlated with past returns and original flows. European countries, France, Germany are similar to each other, Japanese and Korean just different in their attitude to the age of fund, both of them are patient when face drawdown, and prefer big fund. The unification of countries is more visible here, especially for the countries from the same continent.

In comparison with results before financial crisis, less than half countries' fund flow is positively correlated with drawdown while this percentage increased close 60% after crisis. The big funds are more welcomed as the countries which positively correlated with total net assets is increase by 10% before and after, big funds is more stable and less risk, it affect less than the small or medium fund in the crisis. Besides, large age fund are more welcomed by investors before and after, the fund that stays for longer time usually with its own advantage. The rest empirical results keep unchanged after crisis.

In three months' time, just like comparison between one month and three months before crisis, the big difference is much more countries' cash inflow is negatively correlated with total net assets of funds. The advantage of big funds that attract investors would not obvious as the time passes.

6. Conclusion

Our understanding of what factors drive investors' cash flow on mutual fund is based primarily on the behavior of investors across countries. To fill this gap in the study we use data on a large sample of mutual funds in 45 countries. There are substantial differences in flow-performance relationship across countries.

The methodology is based on six variables changes various fund flows measures, we include performance-related variables and control variables. The flows response is strong in the tests based on regression results.

For the loss aversion and disposition effect which are our important objects, the results are not conclusive. There are always half of the countries' investors are risk seekers while another

half are risk averters. This result is true before and after financial crisis, there are a few countries' investors became risk seekers after financial crisis while almost same number of investors became more conservative, so the loss aversion of investors kept overall balance all the time. The result rationalizes the existence of different type of investors. Some of investors interested in higher volatility in order to get potential higher returns, the financial crisis doesn't affect investors too much at this point.

Our results exhibit a disposition effect, the evidences show that loss aversion and disposition among investors are similar, half of the countries' investors are positively correlated while rest of them are negatively correlated with past returns. The results truly reflect investors' behavior, half of countries' investors tend to decrease the cash inflow when they get the return as the price increases in order to lock return. The rest of investors are not satisfied with current level of return, they continue to invest more amount of cash flow and expect the price increase since these funds' performed well recently. For Taiwan investors at this point, our result is consistent with the research by Lee, Yen and Chan (2013), Barber et al. (2007), because Taiwan mutual fund investors exhibit a disposition effect.

We cannot conclude how the loss aversion and disposition effect affect investors' behavior as these two factors are not uniform, they vary by different countries and keep equal proportion during all time periods.

In the methodology part previously, we hypothesizes drawdown and standard deviation are both negatively correlated with investors' cash inflow, the coefficient of total net asset is positive. As expected, US which with the largest observations and value of total net assets, their investors will reduce investments amount once drawdown happens based on all regression results of US. And they are risk-averse investors. Japanese investors are the same react to drawdown as Americans. Nevertheless investors from UK which is the country with third largest observations in our sample, they are positively correlated with drawdown risk.

We investigate disposition effect which is important in this study. Americans' disposition effect is significant, once they have returns from funds, the cash inflow will be reduced in order to avoid loss and lock current gains. Some related studies suggest that losses are more powerful than gains, it's reasonable. Not only US investors but also UK investors' fund flows are negatively with this variable, both of them tend to sell the fund when price increases to lock return in all cases, Japanese prefer investing more in the funds which they get return. The chasing performance is visible in Japan as they are willing to invest more in the funds that performed well recently.

There is no doubt that for the funds if they could attract cash inflows previously is important for investors, all our regression results exhibit investors will take this factor into consideration and almost all of investors will invest more in the kind of funds which attract more cash flows. This is the factor that with most followers based on this study.

The investors' behavior to fund size is different before and after financial crisis, also this is the only major difference among variables affected by financial crisis. Before 2007, big funds are always preferred as they are visible and well known to the people, after crisis, investors from more than half of the countries are negatively react to big fund, the fund size is not a factor as important as before. Smaller funds are more prone to manipulative techniques that may result in higher returns.

We have weak evidence to prove whether the investors prefer older funds or not, it is obviously US and UK investors dislike older funds as their investing propensity is negatively correlated with age of fund. Japanese don't prefer older funds like US and UK people before financial crisis, after 2006, they tend to invest more in the older funds. Older funds may be more stable and not easy to be shocked like young funds as they exist for longer time.

In the study, we find there are always number of similar risk-seekers and risk-averse investors, this is changed a little bit after financial crisis, and there is small increase in the number of risk seekers. More people interested in greater volatility and uncertainty in exchange for anticipated higher returns. This change rationalized the economic recovery after crisis.

Study the flow performance relationship is helpful for investors analyses each factor and take others and macro-economic situation as reference. For future study, it is recommended to conduct more studies for mutual fund markets with longer time period. Since there may be difference between the year before and after 1997, also as time passes, more observation will be available after 2007 financial crisis, it will be objective and accurate to revealing reality. Additional studies may provide answers to better understand the investors' behavior to the factors. Until now, to figure out which factors matter to investment, we need to continue studying in the following years.

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8. Appendix

Table 17: Regression of 1-month fund flow on standard deviation with control variables

	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Argentina	0.185	0.307**	-0.006	0.002	0.873	385	0.345	0.202
Australia	-0.108*	0.093***	0.002***	-0.007***	-0.106	5,584	0.071	0.057
Austria	0.244***	0.074	0.005***	-0.003	0.094	2,212	0.104	0.063
Belgium	-0.341***	0.268***	0.001	-0.001	0.032	13,786	0.221	0.214
Brazil	0.052***	0.172***	0.001**	-0.007***	-0.054	16,896	0.054	0.045
Canada	-0.231***	0.248***	0.001***	-0.002	0.055**	48,017	0.161	0.159
Chile	0.065	0.119	-0.000	-0.002	-1.030***	899	0.253	0.195
China	0.255***	-0.076***	0.003***	0.011***	0.247***	7,307	0.427	0.418
Denmark	0.187***	0.166***	0.004***	-0.009***	0.013	3,914	0.171	0.141
Estonia	0.088	0.121**	-0.004	0.063	-0.409	127	0.579	0.115
Finland	0.145***	0.173***	0.003*	-0.016**	-0.227*	2,651	0.180	0.139
France	-0.255***	0.357***	0.000	-0.002*	0.015	45,489	0.240	0.238
Germany	-0.208***	0.376***	0.001*	0.002*	-0.020	27,169	0.243	0.240
Greece	0.214*	0.275	-0.001	-0.020	0.157	211	0.630	0.294
Hong Kong	-0.143**	0.369***	0.002***	-0.001	-0.001	4,522	0.209	0.189
Hungary	-0.156	0.217*	0.006	-0.042	-0.637	250	0.254	0.085
India	0.480***	0.106***	0.001	-0.002	-0.094	13,702	0.639	0.636
Indonesia	0.353**	0.197***	0.002*	-0.005	-0.287	2,184	0.260	0.225
Ireland	-0.224***	0.308***	0.002***	-0.004***	-0.062*	28,489	0.175	0.171
Israel	0.118	0.370***	0.002	-0.004	-0.231	932	0.261	0.210
Italy	-0.242***	0.388***	-0.000	0.000	-0.018	23,782	0.304	0.301
Japan	0.029***	0.380***	-0.000*	0.001	-0.122***	52,698	0.205	0.202
Korea	0.041	0.278***	0.001***	-0.007**	-0.003	19,685	0.182	0.178
Liechtenstein	-0.089	0.234***	0.002	0.007	-0.583***	1,581	0.225	0.169
Luxembourg	-0.226***	0.271***	0.001***	-0.002**	-0.033*	100,964	0.133	0.132
Malaysia	-0.053	0.115***	0.003***	-0.000	-0.007	12,305	0.106	0.099
Mexico	-0.958**	-0.008	0.004	-0.016	-1.706	141	0.281	-0.119
Netherlands	-0.280***	0.391***	0.002***	-0.005**	-0.220***	5,132	0.445	0.431
New Zealand	0.058	0.119	0.004*	-0.010	0.314	692	0.244	0.038
Norway	0.097	0.156***	0.003*	-0.013	0.311**	1,026	0.245	0.140
Philippines	-0.013	0.159***	0.005*	-0.009	-1.036**	920	0.170	0.099
Poland	-0.114	0.200***	-0.002	-0.027	0.122	380	0.152	0.014
Portugal	-0.054	0.039	0.005	0.004	-0.351	553	0.399	0.179
Russia	-0.369***	0.219***	0.001	-0.014**	0.065	5,567	0.208	0.199
Singapore	-0.151***	0.504***	0.000	-0.001	0.058	11,702	0.343	0.335
Slovakia								
South Africa	-0.012	0.566***	0.005	0.001	0.500***	100	0.802	0.522
Spain	-0.233***	0.385***	0.001**	-0.004	-0.004	30,924	0.279	0.275
Sweden	0.275***	0.092**	0.005***	-0.005	-0.509***	2,684	0.197	0.158
Switzerland	-0.372***	0.379***	-0.001	-0.005***	-0.058	11,946	0.338	0.332
Taiwan	-0.203***	0.458***	0.001	-0.001	-0.036	15,956	0.344	0.340
Thailand	0.079**	0.196***	0.004***	-0.002	-0.025	10,938	0.138	0.130
Turkey	0.139	0.066	0.006*	-0.003	-0.415	576	0.196	0.159
UK	-0.250***	0.214***	0.002***	-0.003***	0.024	72,542	0.128	0.127
USA	-0.302***	0.474***	0.001***	-0.004***	-0.021***	583,943	0.414	0.414

Loss Aversion And The Disposition Effect

Table 18: Regression of 3-months fund flow on standard deviation with control variables

	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Argentina	0.142**	0.162*	-0.012**	0.003	1.474**	360	0.395	0.258
Australia	-0.042	0.121***	0.001***	-0.005**	-0.081	5,033	0.092	0.077
Austria	0.067	-0.003	-0.003*	-0.001	0.321*	2,116	0.091	0.049
Belgium	-0.356***	0.267***	-0.001	0.001	0.045	13,272	0.369	0.363
Brazil	0.038***	0.136***	-0.001**	-0.007***	-0.083*	15,307	0.075	0.066
Canada	-0.217***	0.285***	0.000	-0.000	0.071***	46,079	0.296	0.294
Chile	0.069	0.059**	-0.003**	0.002	-0.877**	816	0.378	0.328
China	0.201***	0.030***	-0.001	0.010***	0.205**	6,650	0.319	0.308
Denmark	0.106***	0.103***	-0.001	-0.009**	0.149	3,762	0.162	0.132
Estonia	0.236*	-0.080	-0.015*	-0.017	4.053	117	0.670	0.278
Finland	0.050	0.022	-0.006***	-0.013	-0.007	2,490	0.135	0.090
France	-0.282***	0.298***	-0.001***	-0.001	0.037*	43,870	0.331	0.329
Germany	-0.244***	0.306***	-0.000	0.003**	0.008	26,263	0.320	0.317
Greece	0.124	0.059	-0.003	-0.031	0.370	180	0.604	0.135
Hong Kong	-0.171***	0.277***	0.001	-0.002	0.037	4,300	0.228	0.208
Hungary	0.053	0.046	0.009*	-0.040	-0.583	208	0.263	0.069
India	0.361***	0.154***	-0.001*	-0.001	0.072	12,972	0.523	0.519
Indonesia	0.365***	0.060**	-0.001	-0.005	-0.558	2,028	0.243	0.205
Ireland	-0.274***	0.256***	0.001***	-0.003*	-0.027	27,286	0.259	0.255
Israel	0.073	0.203***	-0.007	0.001	-0.495*	865	0.228	0.173
Italy	-0.271***	0.333***	-0.001**	0.002	-0.019	22,991	0.406	0.404
Japan	0.044***	0.193***	-0.001***	0.002*	-0.173***	50,525	0.146	0.143
Korea	0.042***	0.204***	-0.000	-0.008**	0.050	17,998	0.167	0.163
Liechtenstein	-0.071	0.130***	-0.001	0.013**	-0.593***	1,487	0.301	0.248
Luxembourg	-0.285***	0.230***	-0.000	-0.001	0.013	96,672	0.220	0.219
Malaysia	-0.015	0.114***	0.002***	-0.000	0.053	11,721	0.169	0.163
Mexico	-0.354**	0.062	-0.023	0.025	-2.553**	119	0.449	0.084
Netherlands	-0.272***	0.423***	0.001	-0.003*	-0.194***	4,940	0.596	0.586
New Zealand	-0.063	0.104	0.003	-0.012	0.166	638	0.273	0.059
Norway	0.062	0.042	0.002	-0.011	0.436***	990	0.258	0.154
Philippines	0.160**	0.121***	-0.000	-0.010	-0.938**	869	0.230	0.164
Poland	-0.389	0.075	-0.004	-0.038	-0.132	330	0.177	0.030
Portugal	0.047*	0.030	-0.018*	0.002	0.259	532	0.506	0.320
Russia	-0.323***	0.255***	-0.000	-0.010*	0.079	4,968	0.347	0.339
Singapore	-0.192***	0.379***	-0.001	-0.000	0.105**	11,289	0.338	0.330
Slovakia								
South Africa	-0.096	0.108	0.006*	-0.008	1.377**	82	0.769	0.281
Spain	-0.294***	0.284***	-0.001**	-0.001	0.030	29,870	0.335	0.331
Sweden	0.004	0.008	-0.002	0.002	-0.193*	2,561	0.163	0.121
Switzerland	-0.387***	0.336***	-0.003	-0.005**	-0.030	11,467	0.462	0.457
Taiwan	-0.297***	0.301***	-0.002**	-0.001	0.031	15,293	0.349	0.345
Thailand	0.176***	0.091***	0.002***	-0.003	-0.104	10,386	0.124	0.116
Turkey	0.323**	0.002	0.001	0.008	-0.119	490	0.274	0.239
UK	-0.252***	0.243***	0.001**	-0.002	0.037*	69,892	0.255	0.254
USA	-0.332***	0.436***	0.000	-0.003***	0.007	568,028	0.534	0.533

Loss Aversion And The Disposition Effect

Table 19: Regression of 1-month fund flow on standard deviation with control variables before financial crisis

	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Austria	0.218	-0.068	0.006	-0.030	-0.774	163	0.102	0.017
Belgium	-0.355***	0.107*	0.005***	0.007	-0.418**	1,441	0.153	0.126
Canada	-0.108*	0.232***	0.001	-0.005	0.081	2,819	0.079	0.058
China	-0.077	-0.036	0.014*	0.045	-1.688*	113	0.387	0.262
Denmark	0.316**	0.097	0.010***	-0.041*	0.120	691	0.240	0.182
Finland	0.185***	0.274**	0.002	-0.150	0.382	214	0.450	0.318
France	-0.045	0.247***	0.003***	0.000	0.124	4,083	0.122	0.108
Germany	0.061	0.262***	0.002***	-0.003	0.029	2,651	0.097	0.083
Hong Kong	0.188	0.287***	-0.001	0.011	1.459***	294	0.278	0.205
India	0.490***	0.037	0.003	-0.086***	0.553	700	0.086	0.065
Ireland	-0.270***	0.288***	0.003***	0.016	-0.060	2,851	0.207	0.189
Italy	-0.247***	0.232***	-0.001	0.004	0.209*	2,226	0.122	0.117
Japan	0.012	0.408***	-0.001**	-0.007***	0.053	11,051	0.246	0.242
Korea	-0.191	0.079	0.002	0.021	1.352**	458	0.452	0.428
Liechtenstein	-0.358*	0.344***	0.001	-0.004	-0.094	124	0.266	0.097
Luxembourg	0.034	0.183***	0.002***	0.002	0.033	9,182	0.064	0.058
Malaysia	-0.234	0.093*	-0.000	0.002	-1.388**	751	0.139	0.122
Netherlands	0.052	0.178***	0.000	-0.003	-0.086	536	0.136	0.064
New Zealand	-0.094	0.042	0.009	-0.031	2.014	142	0.316	-0.253
Norway	0.077	0.170**	0.004	-0.058	-0.548	244	0.322	0.185
Portugal	1.194**	-0.012	0.057*	-0.085	6.919*	100	0.740	0.265
Singapore	0.142*	0.399***	0.005***	-0.005	-0.030	1,363	0.301	0.270
Spain	-0.259***	0.237***	0.003***	-0.008	-0.246	2,778	0.125	0.105
Sweden	0.341***	0.008	0.008	-0.009	-1.210***	605	0.334	0.286
Switzerland	-0.491***	0.199**	-0.003*	-0.006	0.161	989	0.219	0.208
Taiwan	0.182*	0.334***	0.006***	-0.001	-0.157	1,423	0.198	0.190
Thailand	0.048	0.041	0.005***	-0.001	-0.757	517	0.086	0.065
UK	-0.251***	0.145***	0.003***	0.002	0.149	7,161	0.088	0.082
USA	-0.331***	0.423***	0.001***	-0.008***	-0.015	194,386	0.330	0.330

Loss Aversion And The Disposition Effect

Table 20: Regression of 1-month fund flow on standard deviation with control variables after financial crisis								
	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Argentina	0.185	0.307**	-0.006	0.002	0.873	385	0.345	0.202
Australia	-0.108*	0.093***	0.002***	-0.007***	-0.106	5,584	0.071	0.057
Austria	0.255***	0.087	0.005***	-0.002	0.129	2,049	0.107	0.067
Belgium	-0.336***	0.279***	0.001	-0.001	0.036	12,345	0.227	0.222
Brazil	0.052***	0.172***	0.001**	-0.007***	-0.054	16,836	0.050	0.045
Canada	-0.234***	0.249***	0.001***	-0.002	0.054**	45,198	0.166	0.164
Chile	0.065	0.119	-0.000	-0.002	-1.030***	899	0.253	0.195
China	0.260***	-0.078***	0.003***	0.011***	0.264***	7,194	0.428	0.421
Denmark	0.167***	0.197***	0.003***	-0.008**	0.005	3,223	0.134	0.110
Estonia	0.088	0.121**	-0.004	0.063	-0.409	127	0.579	0.115
Finland	0.133***	0.162***	0.004**	-0.017***	-0.318**	2,437	0.157	0.126
France	-0.256***	0.369***	0.000	-0.002*	0.016	41,406	0.257	0.255
Germany	-0.208***	0.389***	0.000	0.002**	-0.016	24,518	0.263	0.260
Greece	0.214*	0.275	-0.001	-0.020	0.157	199	0.540	0.172
Hong Kong	-0.155***	0.365***	0.002***	-0.002	-0.028	4,228	0.206	0.189
Hungary	-0.156	0.217*	0.006	-0.042	-0.637	250	0.254	0.085
India	0.486***	0.114***	0.001	-0.001	-0.115	13,002	0.669	0.667
Indonesia	0.353**	0.197***	0.002*	-0.005	-0.287	2,173	0.247	0.215
Ireland	-0.221***	0.309***	0.002***	-0.005***	-0.062*	25,638	0.173	0.170
Israel	0.118	0.370***	0.002	-0.004	-0.231	932	0.261	0.210
Italy	-0.235***	0.409***	-0.000	0.000	-0.019	21,556	0.325	0.322
Japan	0.032***	0.365***	-0.000	0.002**	-0.146***	41,647	0.190	0.188
Korea	0.041	0.286***	0.001***	-0.007***	-0.013	19,227	0.169	0.165
Liechtenstein	-0.078	0.221***	0.002	0.008	-0.602***	1,457	0.225	0.175
Luxembourg	-0.233***	0.279***	0.001***	-0.003**	-0.034*	91,782	0.142	0.141
Malaysia	-0.044	0.114***	0.003***	-0.001	0.000	11,554	0.090	0.083
Mexico	-0.958**	-0.008	0.004	-0.016	-1.706	141	0.281	-0.119
Netherlands	-0.287***	0.398***	0.002***	-0.005**	-0.219***	4,596	0.456	0.446
New Zealand	0.085	0.137	0.004*	-0.010	0.273	550	0.227	0.079
Norway	0.103	0.139**	0.002*	-0.012	0.355**	782	0.175	0.071
Philippines	-0.013	0.159***	0.005*	-0.009	-1.036**	920	0.170	0.099
Poland	-0.114	0.200***	-0.002	-0.027	0.122	380	0.152	0.014
Portugal	-0.165	0.013	0.018***	0.007	-1.129*	453	0.303	0.135
Russia	-0.369***	0.219***	0.001	-0.014**	0.065	5,567	0.208	0.199
Singapore	-0.159***	0.514***	-0.000	-0.001	0.063*	10,339	0.357	0.352
Slovakia								
South Africa	-0.012	0.566***	0.005	0.001	0.500***	100	0.802	0.522
Spain	-0.228***	0.400***	0.001*	-0.003	0.000	28,146	0.293	0.291
Sweden	0.260***	0.122***	0.004***	-0.004	-0.393***	2,079	0.136	0.098
Switzerland	-0.364***	0.391***	-0.001	-0.005***	-0.065*	10,957	0.347	0.342
Taiwan	-0.212***	0.471***	0.000	-0.001	-0.025	14,533	0.372	0.368
Thailand	0.079**	0.199***	0.004***	-0.002	-0.021	10,421	0.139	0.132
Turkey	0.139	0.066	0.006*	-0.003	-0.415	576	0.196	0.159
UK	-0.247***	0.222***	0.002***	-0.003***	0.023	65,381	0.134	0.133
USA	-0.285***	0.504***	0.000***	-0.003***	-0.016***	389,557	0.460	0.459

Loss Aversion And The Disposition Effect

Table 21: Regression of 3-months fund flow on standard deviation with control variables before financial crisis

	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Austria	0.170	-0.030	-0.008	-0.007	0.061	163	0.130	0.048
Belgium	-0.360***	0.142***	0.003***	0.008	-0.392**	1,441	0.272	0.249
Canada	-0.011	0.320***	-0.000	-0.001	0.145	2,819	0.163	0.144
China	0.331**	-0.102**	0.017*	0.069	-2.308**	113	0.641	0.568
Denmark	0.136	0.050	-0.004	-0.001	0.488*	691	0.237	0.179
Finland	0.067	0.166*	-0.014**	-0.119	0.081	214	0.304	0.138
France	-0.137***	0.193***	0.001*	0.004	0.168	4,083	0.157	0.143
Germany	-0.031	0.160***	0.001	-0.002	0.142	2,651	0.079	0.066
Hong Kong	0.089	0.199**	-0.004	0.010	1.605**	294	0.238	0.161
India	0.218**	0.107***	0.000	-0.046*	0.710	700	0.118	0.098
Ireland	-0.338***	0.241***	0.002***	0.017	-0.007	2,851	0.274	0.257
Italy	-0.395***	0.165***	-0.001	0.003	0.132	2,226	0.166	0.160
Japan	0.028	0.214***	-0.002***	-0.006***	0.059	11,051	0.186	0.182
Korea	-0.076	0.019	-0.002	0.018	0.933	458	0.321	0.291
Liechtenstein	0.267	0.025	-0.004	-0.009	-0.272	124	0.243	0.069
Luxembourg	-0.128***	0.127***	0.000	0.006	0.072	9,182	0.056	0.050
Malaysia	0.147	0.131***	-0.003	0.016*	-1.182*	751	0.179	0.163
Netherlands	0.056*	0.140***	-0.002**	-0.001	-0.163**	536	0.117	0.043
New Zealand	-0.121	-0.104**	-0.001	-0.051	0.447	142	0.409	-0.082
Norway	0.375*	0.062	-0.001	-0.013	-0.045	244	0.333	0.198
Portugal	0.469	-0.112*	-0.089*	0.065	-3.153	100	0.763	0.330
Singapore	-0.009	0.288***	0.002	0.005	0.133	1,363	0.201	0.166
Spain	-0.280***	0.094***	0.002	-0.014*	-0.083	2,778	0.083	0.061
Sweden	-0.026	-0.010	-0.009**	0.004	-0.170	605	0.335	0.286
Switzerland	-0.426***	0.191***	-0.005***	-0.003	0.256	989	0.366	0.357
Taiwan	0.117	0.166***	0.002	0.000	-0.041	1,423	0.100	0.091
Thailand	-0.023	0.000	0.003***	-0.012**	0.037	517	0.099	0.078
UK	-0.246***	0.137***	0.001**	0.004**	0.123	7,157	0.137	0.131
USA	-0.366***	0.393***	0.001***	-0.007***	0.013	194,386	0.461	0.461

Loss Aversion And The Disposition Effect

Table 22: Regression of 3-months fund flow on standard deviation with control variables after financial crisis

	Past returns	Flows t-1	TNA	Age	Risk	Observations	R-squared	Adjusted R-squared
Argentina	0.142**	0.162*	-0.012**	0.003	1.474**	360	0.395	0.258
Australia	-0.042	0.121***	0.001***	-0.005**	-0.081	5,033	0.092	0.077
Austria	0.064	-0.000	-0.003*	-0.001	0.324*	1,953	0.089	0.048
Belgium	-0.351***	0.275***	-0.001	0.001	0.051	11,831	0.377	0.372
Brazil	0.038***	0.136***	-0.001**	-0.007***	-0.083*	15,247	0.071	0.066
Canada	-0.222***	0.282***	0.000	0.000	0.069***	43,260	0.304	0.302
Chile	0.069	0.059**	-0.003**	0.002	-0.877**	816	0.378	0.328
China	0.198***	0.030***	-0.001*	0.010***	0.227**	6,537	0.314	0.305
Denmark	0.096***	0.129***	0.000	-0.009**	0.100	3,071	0.123	0.098
Estonia	0.236*	-0.080	-0.015*	-0.017	4.053	117	0.670	0.278
Finland	0.043	0.008	-0.005**	-0.013	-0.071	2,276	0.132	0.098
France	-0.281***	0.310***	-0.001***	-0.001	0.039**	39,787	0.351	0.349
Germany	-0.241***	0.323***	-0.000	0.003***	0.010	23,612	0.350	0.348
Greece	0.124	0.059	-0.003	-0.031	0.370	168	0.585	0.154
Hong Kong	-0.179***	0.273***	0.001	-0.003	0.001	4,006	0.239	0.223
Hungary	0.053	0.046	0.009*	-0.040	-0.583	208	0.263	0.069
India	0.379***	0.161***	-0.001	-0.000	0.037	12,272	0.553	0.550
Indonesia	0.365***	0.060**	-0.001	-0.005	-0.558	2,017	0.228	0.194
Ireland	-0.270***	0.257***	0.001***	-0.004**	-0.026	24,435	0.259	0.256
Israel	0.073	0.203***	-0.007	0.001	-0.495*	865	0.228	0.173
Italy	-0.261***	0.356***	-0.001**	0.002	-0.018	20,765	0.432	0.430
Japan	0.045***	0.181***	-0.001***	0.003***	-0.208***	39,474	0.133	0.131
Korea	0.042***	0.212***	-0.000	-0.009***	0.040	17,540	0.165	0.161
Liechtenstein	-0.074	0.140***	-0.000	0.014*	-0.583***	1,363	0.316	0.271
Luxembourg	-0.287***	0.241***	-0.000	-0.001	0.011	87,490	0.239	0.238
Malaysia	-0.012	0.109***	0.002***	-0.001	0.048	10,970	0.122	0.116
Mexico	-0.354**	0.062	-0.023	0.025	-2.553**	119	0.449	0.084
Netherlands	-0.276***	0.435***	0.001	-0.004*	-0.191***	4,404	0.610	0.602
New Zealand	-0.031	0.152*	0.003	-0.010	0.120	496	0.271	0.120
Norway	0.016	0.025	0.002	-0.011	0.418**	746	0.210	0.109
Philippines	0.160**	0.121***	-0.000	-0.010	-0.938**	869	0.230	0.164
Poland	-0.389	0.075	-0.004	-0.038	-0.132	330	0.177	0.030
Portugal	-0.008	0.034	-0.008	0.003	-0.243	432	0.405	0.259
Russia	-0.323***	0.255***	-0.000	-0.010*	0.079	4,968	0.347	0.339
Singapore	-0.197***	0.389***	-0.001*	-0.001	0.107**	9,926	0.366	0.361
Slovakia								
South Africa	-0.096	0.108	0.006*	-0.008	1.377**	82	0.769	0.281
Spain	-0.288***	0.303***	-0.002**	-0.000	0.035	27,092	0.357	0.355
Sweden	0.018	0.012	-0.001	0.001	-0.176	1,956	0.098	0.057
Switzerland	-0.382***	0.345***	-0.003	-0.005**	-0.039	10,478	0.469	0.465
Taiwan	-0.307***	0.316***	-0.003***	-0.001	0.038	13,870	0.388	0.384
Thailand	0.178***	0.092***	0.002***	-0.003	-0.108	9,869	0.124	0.117
Turkey	0.323**	0.002	0.001	0.008	-0.119	490	0.274	0.239
UK	-0.249***	0.257***	0.001**	-0.002*	0.036*	62,735	0.269	0.268
USA	-0.315***	0.461***	-0.000	-0.002***	0.012**	373,642	0.571	0.571