RESEARCH ARTICLE

INVESTMENT DECISION UNDER RISK: EMPIRICAL EVIDENCE ON THE MUTUAL FUND MARKET CRISIS IN INDONESIA, 2005

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ABSTRACT

Investment decisions under risk may lead investors to behave irrationally in managing their portfolio investments. This study aims to examine the behavior of mutual fund investors in making investment decisions during the mutual fund market crisis in Indonesia in 2005. Specifically, this study examines the effect of investment motives and investment benefits on mutual fund investment performance by considering the fund redemption motives during a mutual fund crisis 2005. This study also controls the effect of different types of investors on empirical models. This study used primary data with a sample of 96 mutual fund investors, of which 46 are investors who have invested in a period of mutual fund crises. This study adopted a factor analysis technique to reduce the number of variables and minimize multicollinearity between independent variables. Furthermore, t-test in multiple regression analysis is used to test the research hypothesis. The results showed that the influence of investment motives and investment benefits on mutual fund investment performance is sensitive to different types of investors. Investors who also invest directly in the capital market seem more sophisticated in managing their portfolios than investors who only invest in the mutual fund market. Investors make redemption of funds in a period of mutual fund crisis caused by misleading factors rather than panic factors. This study found no signs of trauma from investors after experiencing huge investment losses due to the mutual fund crisis in 2005.

Keywords: *investment motive; benefit and performance; mutual fund crisis*

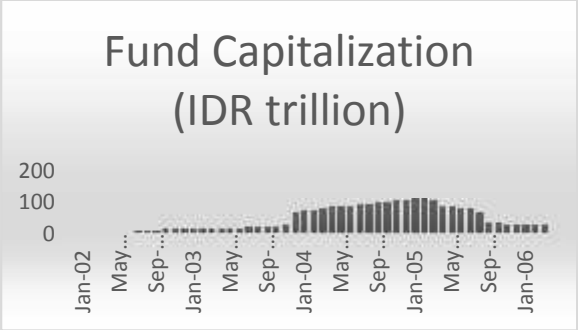
INTRODUCTION

Indonesia's funds market has grown rapidly since the government allowing investment manager to operate open-end investment funds on January 1, 1996. Figure 1 shows the fund trend from January 2002 to March 2006. There was an uptrend of fund market capitalization from IDR 360 billion to IDR 110.78 trillion from January 2002 to February 2005 consecutively. The bullish trend has ended in February 2005, since there were domino effects of systematic fund redemptions by investors in March 2005. The bearish funds market trend continued along

twelve months until February 2006 with remain fund market capitalization of IDR 26.20 trillion. In March 2006, the market turning back to an upward trend with a market capitalization of IDR 27.97 trillion. The upward trend continued to recover fund market capitalization of IDR 112,98 trillion at the end of 2009. It needs 4 years to recover the fund market capitalization above IDR 100 trillion.

There was no clear answer to explain the caution of the fund market crash. Table 1 shows the fundamental economic indicators 2001-2010. During the fund market crash in 2005, two economic indicators --- inflation and interest rate of BI certificate --- sharply increased by 17.10% and 12.80% respectively. While other economic indicators have stabled trends before, during, and after the fund market crash.

Furthermore, Table 2 reports market capitalization of other financial instruments including stock, government and corporate bonds from 2001 to 2006. Stock and corporate bond markets have an upward trend from 2001 to 2006. While government bond has a stable trend with slightly decreased in 2004 and 2005 by IDR 399.30 trillion and IDR 389.51 trillion respectively. Those market trends, except the fund market trend, are less sensitive to economic indicators. Unfortunately, there is no sufficient empirical study in explaining the causal factor of the Indonesia fund market crash in 2005. The problem is still unresolved satisfactorily.



Per 16 Maret 2006
Source: Bapepam.go.id

Figure 1. Indonesia Funds Market Capitalization Trend 2002-2006

Table 1. Fundamental Economic Indicators 2001-2010

Year	Economic growth	Inflation	Currency rate (US$)	Interest rate of BI Certificate	Composite stock price index
2001	3.60%	12.60%	10,400	17.60%	392.00
2002	4.50%	10.00%	8,940	12.90%	424.90
2003	4.80%	5.10%	8,465	8.30%	679.30
2004	5.00%	6.40%	9,290	7.40%	1,000.20
2005	5.70%	17.10%	9,830	12.80%	1,162.60
2006	5.50%	6.60%	9,020	9.80%	1,805.50
2007	6.30%	6.60%	9,419	8.00%	2,745.80
2008	6.00%	11.10%	10,950	10.80%	1,355.40
2009	4.60%	2.90%	9,400	6.50%	2,534.00
2010	5.90%	2.40%	8,952	6.30%	2,914.00

Source: Statistical Yearbook of Indonesia, 2010

Table 2. Market Capitalization of Stock, Corporate and Government Bond and Mutual Fund in Indonesia 2000-2006 (IDR trillion)

Year	Stock	Corporate Bond	Government Bond	Mutual Fund
2000	259.62	12.07	31.63	5.52
2001	239.26	14.31	64.65	8.00
2002	268.42	19.63	397.97	46.61
2003	460.37	44.93	390.48	69.48
2004	679.95	62.80	399.30	104.04
2005	801.25	62.89	389.51	29.41
2006	1,249.07	67.81	438.04	51.62

Source: BAPEPAM LK 2006/2007

Tandelilin (2004) provided three empirical evidences that represent early signals of the crisis. First, even though there were positive trends in Indonesian mutual fund market capitalization during several years before 2005,

the funds underperform the market portfolio. Second, there were reverse persistence fund performances. Third, investors shifted their primary factor considering investment decisions from the potential return to total risk due to the Asian financial crisis in 1997.

The first evidence arouses two paradoxical arguments: (a) It is relevant to the efficient market hypothesis, "no one can beat the market." (b) Otherwise, fund managers have lack of investment knowledge and skill, who lead their fund underperform market portfolio.

Parallel with Tandelilin (2004), several previous studies in other countries also found fund underperform market portfolios (Carhart, 1997; Elton et al., 1996; Gruber, 1996; Isa, 2004; Jensen, 1968; Malkiel, 1995; Sharpe, 1966; and Zhao, 2005). While other studies found fund managers who have superior knowledge, skill, and information have more chances to get positive abnormal returns. They make their fund outperform the market portfolio (Grinblatt and Titman, 1993, 1992; Grinblatt et al., 1995).

The second evidence parallels to other ASEAN studies that found reverse persistence fund performances in Malaysia (Isa (2004) and the Philippines (Bautista, 2004). However other studies find persistence fund performances (Grinblatt and Titman (1992; Hendricks, Patel, and Zeckhauser (1993; Elton, Gruber, and Blake, 1996; Malkiel, 1995; Brown and Goetzmann, 1995; Grinblatt, Titman, and Wermers, 1995; Gruber, 1996; and Charhart, 1997).

The third evidence has less attention from scholars. Asian financial crisis 1997 hit Indonesia harder than other Asian countries. It shifts Indonesian people to be more sensitive to total risk than total return. In Indonesia, almost investment managers are held by the bank as a holding company. The fund managers used their bank holding company to acquire the bank customers as fund investors. In this situation, many bank customers do not realize that mutual funds are investment instruments not saving instruments. While bank customer typically has depositor's mental set rather than the investor's mental set. They think they deposit (not invest) their money on a mutual fund. Furthermore, many fund managers did not inform the risk on fund investment clearly and transparently. It means that some "investors" may still in depositor's mental set position. A local newspaper reported some fund managers did not inform the risk of fund investment transparently that contravenes with fund managers' code of ethics (Kompas, 9 September 2005).

The study aims to examine the effects of investment motive and investment benefit on mutual fund investment performance. Regarding the issue of fund crisis in 2005, this study investigates the contribution of redemption motive to control the effect of investment motive and investment benefit on investment performance.

The rest of this paper is organized as follows. Section 2 discusses the literature review and hypothesis development. Section 3 provides the research method that conducting the data gathering, sample, and tools of analysis. Section 4 reports the data analysis and results discussion. The conclusion and implication of this study will be noted in the last section.

MATERIAL AND METHODS

MATERIAL

Investment Performance

A comprehensive review of the mutual fund literature has been carried out by

Cremers et al. (2019). They found that recent research showed that the average investment performance of mutual funds underperformed after fees. This study is interesting because fund managers must prove to investors that they have an attraction related to the benefits and motives of investors who are not sophisticated in managing the returns and risks of their portfolios. Barber et al. (2016) argued that investors should consider all factors when assessing fund manager skill. These factors guide the investor to search and find the best fund manager that fits with investor's goals in evaluating investment performance in mutual fund. Expected fund performance is an ex-ante performance that can't be observed directly. Previous studies used ex post performance to measure the performance, especially using ex post or realized return as a proxy of expected fund performance. Other approach to measure ex-ante fund performance is based on investor's experiences in practices of investment decision. Fund expected performance can be reflected by perspective fund investor about historical fund performance, fund manager performance, Expected capital gain, lower price, and Lower risk. Those investment performances need not be composed in a single factor due to different investor's goals in mutual fund investment.

Benefit and Motive of Mutual Fund Investment

Ippolito (1989) suggested that in an efficient market, fund managers will hold portfolios that earned risk-adjusted returns sufficiently higher than those benchmarks to pay for the extra expenses. Ippolito shifted investor's attention from the issue of market efficiency toward the skills and abilities of fund managers in managing their portfolio. Fund managers, who show reliable superior performance, will pay investors' attention to take the fund into their priority list of investments plans. Other benefits in mutual fund investment are diversification, cost efficiency, and safety. Those benefits especially are relevant for investors, who have not enough money and or time to direct invest at a capital market to perform portfolio investment.

Investors might have different motives for investment decision in the fund market. One holds the fund for the short-term, while others might prefer to take a long position. Remolona et al. (1997) argued that fund investors also concern on dividend, especially for an income equity fund. Furthermore, they also noted that household investors might save their money through retirement in mutual fund. Precautionary motive is also relevant to investor to save their money in a mutual fund.

H1 : Investment Motive affects fund investment performance

H2 : Investment Benefit affects fund investment performance

Redemption Motive

Fund redemption is an ordinary activity and commonly appears in the fund market in a normal situation. Lack of knowledge and experience in mutual fund investment might lead investor to make a decision which is inconsistent with utility theory. This issue is relevant to bounded rationality proposed by Simon (1972) that people have limited rationality and knowledge to make a decision.

While, Kahneman and Tversky (1979) found there were choices among risky investment opportunities that exhibit pervasive effects that are inconsistent with utility theory, called prospect theory. Singh (2012) suggested that the study of psychology and other social sciences have a contribution to explain the unpredictable and erratic nature of human behavior explain anomalies, bubbles, and crashes in financial markets. that challenge the efficient market paradigm as well as. Choi and Kahan (2006) provided evidence that investors would overreact and would make huge redemption due to the fund's scandal. While Borensztein and Gelos (2000) provided empirical evidence that contagion effects of mutual markets in emerging countries are leaded by herding behavior rather than panic behavior. Empirical evidences on the issue of fund investment decision under risk are relatively mixed and less clear.

In an efficient market, the information is costless, any efforts and costs in order to acquire more information are meaningless to gain positive abnormal returns (Fama, 1970). Market efficiency has two meanings: first, one cannot systematically beat the market, and second, asset prices are rational. Statman (1999) argued that rational price is relevant for utilitarian but irrelevant for value-expressive characteristics. Simon (1972) argued that one may not always has perfect knowledge that limits his rationality to make a decision. Some investment decisions are based on beliefs relying on likelihood of uncertain events outcomes. Tversky and Kahneman (1974) proposed three heuristics and its biases---representativeness, availability, judgment, and anchoring---that contribute to performing these beliefs. In general, heuristics are useful to improve the quality of decision making, but sometimes they lead to severe errors. Gigenrenzer (2001) explained that in noisy environments, where there are only part of available information and limited time and knowledge, heuristic can be frugal, fast and accurate through exploiting information structure in the environment. Furthermore, Sing (2012) suggested that heuristic leads to cognitive illusions such as representativeness, anchoring, overconfidence, loss aversion, gambler's fallacy, and mental accounting.

Butterfly effect hypothesis is also relevant to explain the caution of market crisis (Petersen, 2011). Disappointed or panicky fund investor influences other investors to redeem their fund that will lead to contagion effects of redemption. Yang (2012) provided empirical evidence that the contagion effect has been a typical feature of financial crisis in emerging markets.

H3: Redemption motive affects fund investment performance

H4: Redemption motive affects the relationship between investment motive and investment benefit and fund investment performance

METHODS

Data and Sample

This study used primary data in the form of respondent answers to questionnaire. The respondents, as samples of this study, are Indonesia fund investors. The samples were collected through convenience sampling that facilitated by Ikatan Bankir Indonesia (IBI) and Certified Wealth Managers' Association (CWMA) Indonesia. Those organizations have wide access and networks to Indonesia fund investors. There were 600 form of

questionnaires distributed to fund investors during the collection period from April to July 2008. The response rate was 22.8% with 137 forms were received back during the collection period. Unfortunately, many forms have not been completely filled by respondents. Process of the data screening produced 96 remain questionnaires that meet the adequate response and answer to be processed in further data analysis. There were 47 investors who had invested in the mutual fund market during the mutual fund crisis in 2005 called crisis experienced Investor or Type EI Investor, while 49 investors did not invest called crisis inexperienced Investor or Type II Investor. In addition, 31 investors also have experience in investing directly in the stock and bond markets, called direct investment investor (DI).

Instrument Indicators of Variable

This study adopted instrument indicators of variables that be used by Tandelilin (2004). The operational definition and instrument indicators of variable are developed based on individual fund investor's practices and perceptions. Individual investor' perception in mutual fund markets covered the reflective measurement of instrument indicators for fund investment performance, investment motive, Investment benefit, and redemption motive. This study used a five point Likert scale to assess respondents' perceptions of the level of importance of instrument indicators of Investment Performance, Investment Motive, and Investment Benefit. While a five point Likert scale a five point Likert scale is used to assess respondents' perceptions of the level of agreement of instrument indicators of redemption motive related to mutual fund crisis in 2005. The detail of instrument indicators for each variable are listed in the Table 3.

Table 3. The list of Instrument Indicators for Variable

No	Group of Variable		Variable	5 Point Likert Scale
1	Investment Performance	IP1	a. Historical performance	Very important, Important, Neutral, Unimportant, Very unimportant
		IP2	b. Fund manager performance	Very important, Important, Neutral, Unimportant, Very unimportant
		IP3	c. Expected capital gain	Very important, Important, Neutral, Unimportant, Very unimportant
		IP4	d. A low price	Very important, Important, Neutral, Unimportant, Very unimportant
		IP5	e. Lower risk	Very important, Important, Neutral, Unimportant, Very unimportant
2	Investment motive	IM1	a. Short-term advantage	Very important, Important, Neutral, Unimportant, Very unimportant
		IM2	b. Long-term advantage	Very important, Important, Neutral, Unimportant, Very unimportant
		IM3	c. Dividend	Very important, Important, Neutral, Unimportant, Very unimportant
		IM4	d. Retirement	Very important, Important, Neutral, Unimportant, Very unimportant
		IM5	e. Precautionary	Very important, Important, Neutral, Unimportant, Very unimportant
3	Investment benefit	IB1	a. Professional manager	Very important, Important, Neutral, Unimportant, Very unimportant
		IB2	b. Superior performance	Very important, Important, Neutral, Unimportant, Very unimportant
		IB3	c. Diversification	Very important, Important, Neutral, Unimportant, Very unimportant
		IB4	d. Safety	Very important, Important, Neutral, Unimportant, Very unimportant
		IB5	e. Cost efficiency	Very important, Important, Neutral, Unimportant, Very unimportant
4	Redemption motive	RM1	a. Misconception	Strongly agree, Agree, Undecided, Disagree, Strongly disagree
		RM2	b. Misunderstanding	Strongly agree, Agree, Undecided, Disagree, Strongly disagree
		RM3	c. Panic	Strongly agree, Agree, Undecided, Disagree, Strongly disagree
		RM4	d. Miscommunication	Strongly agree, Agree, Undecided, Disagree, Strongly disagree
		RM5	e. Misinformation	Strongly agree, Agree, Undecided, Disagree, Strongly disagree

The instrument used as a proxy variable in this study is not a group of indicators that have a common pattern, but each has a different indication, therefore the structural equation modeling approach becomes inappropriate because it is most likely not to meet the criteria specified in the approach. Alternatively, this study uses two stages of analysis. First, factor analysis is used to reduce variables and to reduce the potential for multicollinearity in the models. Second, multiple regression analysis is used to test the research hypothesis.

RESULT AND DISCUSSION

Respondent Profiles

Table 4 shows respondent profiles that describes characteristics of investors based on gender, education, occupation, income, and ethnicity. While data about the age of investors is provided separately in Table 5 due to different type of measurement. The number of male investors is slightly smaller than female investors, with ratio 22: 27, 18: 28, and 40: 55 for type 0, type 1, and total investors respectively. More than 70% of investors hold a bachelor's degree, followed by a master / PhD degree in second place. Whereas in terms of employment, most investors work in private company officers of more than 87% followed by state-owned enterprises (SOEs) officers in the second place. In terms of income, respondents are dominated by investors with annual income between IDR41-80 million, IDR81-120 million, less than IDR40 million for rank 1, 2 and 3 respectively. In other words, respondents are dominated by investors with income of less than IDR10 million per month. This characteristic is suitable for the types of mutual fund investments that are designed for small investors. Respondents were dominated by Indigenous in the first place and Chinese in the second place and there was only 1 respondent from other ethnic groups.

Table 4. Respondent Profiles

Characteristic	Inexperienced Investor		Experienced Investor		Total	
	Freq.	Percent	Freq.	Percent	Freq.	Percent
Gender						
Male	22	44.9	18	38.3	40	41.7
Female	27	55.1	28	59.6	55	57.3
Missing System	0	0.0	1	2.1	1	1.0
Total	49	100.0	47	100.0	96	100.0
Education						
High School	4	8.2	0	0	4	4.2
Diploma	3	6.1	1	2.1	4	4.2
Bachelor	35	71.4	37	78.7	72	75.0
Master & PhD	7	14.3	8	17.0	15	15.6
Missing System	0	0	1	2.1	1	1.0
Total	49	100.0	47	100.0	96	100.0
Occupation						
Entrepreneur	1	2.0	1	2.1	2	2.1
SOE officers	4	8.2	3	6.4	7	7.3
Private company officers	43	87.8	43	91.5	86	89.6
Others	1	2.0	0	0.0	1	1.0
Total	49	100.0	47	100.0	96	100.0
Income (IDR)						
< 40 million	8	16.3	4	8.5	12	12.5
41-80 million	16	32.7	7	14.9	23	24.0
81-120 million	12	24.5	13	27.7	25	26.0
121-160 million	6	12.2	5	10.6	11	11.5
161-200 million	1	2.0	5	10.6	6	6.3
> 200 million	5	10.2	10	21.3	15	15.6
Missing System	1	2.0	3	6.4	4	4.2
Total	49	100.0	47	100.0	96	100.0
Ethnicity						
Indigenous	32	65.3	29	61.7	61	63.5
Chinese	17	34.7	15	31.9	32	33.3
Others	0	0.0	1	2.1	1	1.0
Missing System	0	0.0	2	4.3	2	2.1
Total	49	100.0	47	100.0	96	100.0

Table 5 reports age of respondents. The mean age of respondents was 32.9 years and 35.8 years for type CI and type CE investors respectively. CE investors are older than CI investors. The youngest investor aged 18 years and the oldest 56 years old with relatively which is evenly distributed.

Table 5. Descriptive of Age of respondent (year)

Descriptive		Inexperienced Investor	Experienced Investor
N	Valid	49	46
	Missing	0	1
Mean (year)		32.92	35.80
Range		38.00	27.00
Minimum		18.00	24.00
Maximum		56.00	51.00
Percentiles	25	27.00	30.00
	50	31.00	32.50
	75	38.00	43.00

Descriptive Statistics

Table 6 reports descriptive statistics for instrument indicators. The first panel presents investment motives consisting of five indicators. The results of the statistic descriptive show that the long-term investment motive has the highest score of important level, while the short-term investment motive has the lowest score.

Table 6. Statistic Descriptive for Instrument Indicators

Indicator	CI Investor					CE Investor					Total				
	N	Mean	Min	Max	SD	N	Mean	Min	Max	SD	N	Mean	Min	Max	SD
Investment Motive															
IM1	49	2.59	1.00	5.00	1.71	47	2.60	1.00	5.00	1.42	96	2.59	1.00	5.00	1.57
IM2	49	3.98	1.00	5.00	1.23	47	4.04	1.00	5.00	1.16	96	4.01	1.00	5.00	1.19
IM3	49	3.12	1.00	5.00	1.18	47	2.87	1.00	5.00	0.99	96	3.00	1.00	5.00	1.10
IM4	49	3.37	1.00	5.00	1.44	47	3.77	1.00	5.00	1.37	96	3.56	1.00	5.00	1.41
IM5	49	3.47	1.00	5.00	1.10	47	3.09	1.00	5.00	1.08	96	3.28	1.00	5.00	1.10
Investment Benefit															
IB1	49	4.27	1.00	5.00	1.02	47	4.23	1.00	5.00	1.00	96	4.25	1.00	5.00	1.01
IB2	49	4.31	2.00	5.00	0.89	47	3.74	1.00	5.00	1.01	96	4.03	1.00	5.00	0.99
IB3	49	3.92	1.00	5.00	1.30	47	4.28	1.00	5.00	0.97	96	4.09	1.00	5.00	1.16
IB4	49	3.65	1.00	5.00	1.33	47	3.60	1.00	5.00	1.38	96	3.63	1.00	5.00	1.35
IB5	49	3.63	1.00	5.00	1.44	47	3.68	1.00	5.00	1.48	96	3.66	1.00	5.00	1.45
Investment Performance															
IP1	49	3.98	1.00	5.00	1.31	47	4.13	1.00	5.00	0.97	96	4.05	1.00	5.00	1.16
IP2	49	4.00	1.00	5.00	1.26	47	4.28	1.00	5.00	0.95	96	4.14	1.00	5.00	1.12
IP3	49	4.02	2.00	5.00	0.95	47	4.02	2.00	5.00	1.01	96	4.02	2.00	5.00	0.97
IP4	49	3.51	1.00	5.00	1.39	47	3.38	1.00	5.00	1.42	96	3.45	1.00	5.00	1.40
IP5	49	3.45	1.00	5.00	1.42	47	3.19	1.00	5.00	1.38	96	3.32	1.00	5.00	1.40
Redemption Motive															
RM1						47	4.04	1.00	5.00	1.27	47	4.04	1.00	5.00	1.27
RM2						47	3.87	1.00	5.00	1.24	47	3.87	1.00	5.00	1.24
RM3						47	3.96	1.00	5.00	1.16	47	3.96	1.00	5.00	1.16
RM4						47	3.81	2.00	5.00	1.19	47	3.81	2.00	5.00	1.19
RM5						47	3.94	1.00	5.00	1.15	47	3.94	1.00	5.00	1.15

The second panel presents investment benefit motives consisting of five indicators. The second panel presents the investment benefit motive consisting of five indicators. Inexperienced investors consider superior performance as the most important indicator, followed by professional managers, diversification, security, and cost efficiency, in second, third, fourth, and fifth positions respectively. On the other hand, Experienced investors prefer diversification and professional managers as the first and runner up important indicators, followed by superior performance, safety, and cost efficiency in the third, fourth, and fifth positions respectively. These results indicate that Experienced investors are more cautious than Inexperienced investors in making investment decisions.

The third panel presents investment performance measurement consisting of five indicators. Inexperienced investors pay more attention to the expected capital gains and performance of mutual fund managers in the first and second order, followed by historical

performance, lower prices, and lower risk in the third, fourth, and fifth sequence respectively. Whereas Investor Experienced pays more attention to fund manager performance and historical performance in the first and second order, followed by expected capital gains, lower prices, and lower risks in the third, fourth, and fifth place respectively.

The final panel in Table 6 presents the results of descriptive statistics for redemption motives. There are five indicators to find out why investors make redemption of mutual funds. The results of the descriptive statistical analysis show that misconception and panic factors are the first and second most important reasons that explain why investors undertake fund redemption, followed by misinformation, misunderstanding, and miscommunication as third, fourth, and fifth important factors respectively.

Factor Analysis

This study conducted three factor analyses, this approach is used to group each indicator into a composite variable for IM, IB, and IP. This technique will minimize the effect of multicollinearity among composite variables in a factor analysis.

KMO and Bartlett's Test. KMO (Kaiser-Meyer-Olkin) is a test tool in factor analysis to measure of sampling adequacy. The minimum KMO value is 0.60. The table 7 shows that IM and IB have a KMO of more than 0.60, while IP has a KMO of 0.52. The KMO value for IP is slightly lower than the minimum threshold. However, the difference is relatively marginal, so the analysis of these factors can still be used with a note of weaknesses in IP. In addition, Bartlett's test for all three factor analyzes is significant at the 1% level indicating that each factor analysis model can be carried out for further analysis processes.

Table 7. KMO and Bartlett's Test

Statistic		IM	IB	IP	RM
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		0.612	0.669	0.520	0.641
Bartlett's Test of Sphericity	Approx. Chi-Square	44.713	79.843	72.794	100.040
	Sig.	0.000	0.000	0.000	0.000

Communality. Communality indicate the total amount of variance in each variable for factor. Small value of communality indicates that variable does not fit well with solution of the factor. It is noted as h2 that represent the sum of squared factor loading for the variable. Table 8 reports communality of indicators for each factor analysis. The range of communality values for factor analysis of investment motives is 0.413 to 0.681, for investment benefits is 0.43 to 0.76 and investment performance is 0.42 to 0.76. The three factor analysis results show that the lowest community value is still above the minimum limit of 0.4 (Osborne, et al., 2008). Thus the results of the community analysis meet the requirements for analysis for the next step.

Table 8. Communality: Extraction

Investment Performance (N=97)		Investment Motive (N=97)		Investment Benefit (N=97)		Redemption Motive (N=47)	
EP1	0.612	IM1	0.664	IB1	0.641	RM1	0.612
EP2	0.708	IM2	0.681	IB2	0.430	RM2	0.708
EP3	0.424	IM3	0.413	IB3	0.634	RM3	0.424
EP4	0.754	IM4	0.500	IB4	0.760	RM4	0.754
EP5	0.761	IM5	0.656	IB5	0.753	RM5	0.761

Table 9. Total Variance Explained

Component	Initial Eigenvalues			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
Investment Performance (N = 97)						
1	1.75	34.96	34.96	1.73	34.70	34.70
2	1.51	30.23	65.19	1.52	30.49	65.19
Investment Motive (N = 97)						
1	1.80	35.90	35.90	1.76	35.16	35.16
2	1.12	22.39	58.29	1.16	23.14	58.29
Investment Benefit (N = 97)						
1	2.20	44.02	44.02	1.61	32.23	32.23
2	1.02	20.34	64.36	1.61	32.13	64.36
Redemption Motive (N = 47)						
1	2.755	55.100	55.100	2.733	54.656	54.656
2	1.062	21.245	76.345	1.084	21.689	76.345

Total Variance Explained. This study uses the criteria for each factor retained in the model must have a minimum eigenvalue equal

to 1 (Kaiser, 1960). Table 9 reports each factor analysis produces two factors with a total variance that can be explained in the analysis model of 58.29%, 64.36%, and 65.19% for investment motive, Investment benefit, and investment performance, respectively.

Component Matrix. Table 10 presents component matrixes for each factor analysis. The component matrix presents correlations between variables with estimated components or factors.

- Investment performance consist of two factors. Explanation of the first factor, IP_1, is dominated by fund manager (IP2), historical (IP1), and expected capital gain performances (IP3), which is called Return Performance. While the rest variables of investment performance, lower risk (IP5) and a lower price (IP4) have greater contribution in explaining the second factor, IP_2, called Risk Performance. The higher IP_2 score indicates the better mutual funds in managing their risk performance.
- Investment motives consist of two factors. The first factor, IM_1, is dominated by long-term advantage (IM2), short-term advantage (IM1), and dividend (IM4) motives, called Income Target Motive. While retirement plan (IM5) and precautionary motives (IM3) have greater contribution in explaining the second factor, IM_2, which is called Pension Target Motive.
- Investment benefit consist of two factors. The first factor, IB_1, is dominated by cost efficiency (IB5) and safety (IB4) benefits, called Saving Benefit. Whereas the second factor, IB_2, the dominant contribution is explained by diversification (IB3), professional manager (IB1), and superior performance (IB2) benefits, called Portfolio Motive.
- Redemption motive consist of two factors. Explanation of the first factor, RM_1, is miscommunication (RM4), misunderstanding (RM2), misinformation (RM5), and misconception (RM1), which is called Misleading factor. While the rest variable of redemption motive is Panic RM3) has the greatest contribution in explaining the second factor, IP_2, called Panic factor.

Table 10. Rotated Component Matrix using Varimax Rotation Method

Investment Performance			Investment Motive			Investment Benefit			Redemption Motive		
Variable	**IP1**	**IP2**	**Variable**	**IM1**	**IM2**	**Variable**	**IB1**	**IB2**	**Variable**	**RM1**	**RM2**
IP2	**0.835**	-0.106	IM2	**0.825**	0.011	IB5	**0.865**	0.060	RM4	0.901	0.078
IP1	**0.757**	0.200	IM1	**-0.809**	0.101	IB4	**0.834**	0.256	RM2	0.859	0.301
IP3	**0.650**	-0.040	IM4	**0.648**	0.284	IB3	-0.070	**0.793**	RM5	0.831	-0.128
IP5	0.156	**0.858**	IM5	0.011	**0.810**	IB1	0.287	**0.748**	RM1	0.702	-0.056
IP4	-0.137	**0.858**	IM3	0.054	**0.640**	IB2	0.284	**0.591**	RM3	0.010	0.984

Table 11 provide summarizes the name of factor and dominant item contribution for each factor. Each factor analysis produced two factors. Those factors will be used to further analysis to examine the research hypotheses.

Table 11. the Name of Factor and Dominant Item Contribution to The Factor

Factor	Dominant Item Contribution of Factor Analysis for each factor		
	Tick	Factor 1	Factor 2
Return Performance (IP_1)	IP2	Fund manager performance	
	IP1	Historical performance	
	IP3	Capital gain performance	
Risk Performance (IP_2)	IP5		Lower risk
	IP4		A low price
Income Target Motive (IM_1)	IM2	Long-term advantage	
	IM1	Short-term advantage	
	IM4	Dividend	
Pension Protection Motive (IM_2)	IM5		Retirement plan
	IM3		Precautionary
Saving Benefit (IB_1)	IB5	Cost Efficiency	
	IB4	Safety	
Portfolio Benefit (IB_2)	IB3		Diversification
	IB1		Professional manager
	IB2		Superior performance
Misleading factor (RM_1)	RM4	Miscommunication	
	RM2	Misunderstanding	
	RM5	Misinformation	
	RM1	Misconception	
Panic factor (RM_2)	RM3		Panic

The final stage of factor analysis is calculating the factor score for each factor. This study uses a regression analysis approach to calculate factor scores. Calculation of the factor score coefficient for each factor is presented in Table 12. The equation models for each score factor are as follows:

Table 12. Factor Score

Investment Performance			Investment Motive			Investment Benefit			Redemption Motive		
Variable	IP1	IP2	Variable	IM1	IM2	Variable	IB1	IB2	Variable	RM1	RM2
EP1	0.433	0.116	IM1	-0.473	0.151	IB1	0.008	0.463	RM1	0.264	-0.099
EP2	0.484	-0.086	IM2	0.474	-0.054	IB2	0.048	0.351	RM2	0.298	0.224
EP3	0.376	-0.039	IM3	-0.018	0.556	IB3	-0.260	0.589	RM3	-0.061	0.918
EP4	-0.096	0.566	IM4	0.351	0.199	IB4	0.531	-0.036	RM4	0.329	0.014
EP5	0.073	0.560	IM5	-0.056	0.707	IB5	0.605	-0.185	RM5	0.316	-0.174

Return Performance (IP_1)

$$IP_1 = 0.433IP1 + 0.484IP2 + 0.376IP3 - 0.096IP4 + 0.073IP5 \quad [1]$$

Risk Performance (IP_2)

$$IP_2 = 0.116IP1 - 0.086IP2 - 0.039IP3 + 0.566IP4 + 0.560IP5 \quad [2]$$

Income Target Motive (IM_1):

$$IM_1 = -0.473IM1 + 0.474IM2 - 0.018IM3 + 0.351IM4 - 0.056IM5 \quad [3]$$

Pension Protection Motive (IM_2):

$$IM_2 = -0.151IM1 - 0.054IM2 + 0.556IM3 + 0.199M4 - 0.707IM5 \quad [4]$$

Saving Benefit (IB_1)

$$IB_1 = 0.008IB1 + 0.048IB2 - 0.260IB3 + 0.531IB4 + 0.605IB5 \quad [5]$$

Portfolio Benefit (IB_2)

$$IB_2 = 0.463IB1 + 0.351IB2 + 0.589IB3 - 0.036IB4 - 0.185IB5 \quad [6]$$

Misleading Motive (RM_1)

$$RM_1 = 0.264RM1 + 0.298RM2 - 0.061RM3 + 0.329RM4 + 0.316RM5 \quad [7]$$

Panic Motive (RM_2)

$$RM_2 = -0.099RM1 + 0.224RM2 + 0.918RM3 - 0.014RM4 - 0.174RM5 \quad [8]$$

Regression Model of Investment Performance

The study developed two regression models based on factor analysis of investment performance. Factor analysis summarizes 5 investment performance variables into 2 factors. the first factor is called return performance, and the second factor is called Risk Performance. The composite of return performance (IP1) factor is dominated by fund manager performance, historical performance, and capital gain performance. While the composite of a risk performance factor is dominated by lower risk and a low price. This study developed six regression models. The first

model is an initial model, the second model controlled the different type of investor based on investor, who has experience in mutual fund during crisis period of 2005 called experienced investor (EI), equal to 1, while 0 for the other. The third model controlled different type of investor based on investor, who also has direct investment in capital market (DI) equal to 1, while 0 for the other. The fourth model controlled both experienced investor (EI) and direct investment (DI) investor. The fifth model examined the effect of redemption motive on the regression model of investment performance. The last model combined both experienced investor and redemption motive due to mutual fund crisis in 2005. The first four models use a total sample of 96 that includes both experienced and inexperienced investors. While the last two models only use experienced investors as a sample that includes 47 respondents.

Regression Model of Return Performance (IP_1). Table 13 reports the regression model of return performance. The effects of Income target motive (IM_1) on return performance (IP_1) are mixed. The effects of IM_1 on IP_1 are sensitive to different types of investors. This effect is positive and statistically significant for investors who also directly invest in the capital market with parameter coefficient value of 0.310 (-0.105 + 0.415) and 0.378 (-0.062 + 0.440) in the Model 1c and 1d. In addition, when the model used observation of experienced investors in mutual fund crisis, it has a negative effect and statistically significant for investors who only invest in mutual funds. While it has a positive and significant effect for investors who also invest in the capital market directly. This is indicated by the parameter coefficient values of -0.266 and 0.277 (-0.266 + 0.493) for investors who only invest in mutual funds and investors who also invest directly in the capital market, respectively. This effect is robustly confirmed in all models that be controlled by dummy variable of DI. It can be seen on Table 11 in the Model 1c, 1d, and 1f.

The effect of Pension protective motive (IM_2) on IP_1 is negative and statistically significant at 10% and 5% in the Model 1a, 1b, and 1d. However, the effect is sensitive to the presence of direct investment investors (DI) and experienced investors (EI). The existence of dummy variables EI and DI as control variables led to changes in the level of significance of the effect of IM_2 on IP_1. Controlling different type of investor based direct investment investor led different result of the relationship between IM_2 and IP_1. This effect becomes insignificant when direct investment investor variable was entered into the Model 1c and 1f. While entering experienced investor variable in the Model 1d led the significant effect of IM_2 on IP_1. This effect is not significant if the partial sample used in the model is limited to experienced investor --- investors who have invested in the period of mutual fund crisis in 2005 --- in the Model 1e and 1f. Overall, this study found no difference in the effects of MI_2 on IP_1 due to different investor types, both by EI and DI investor types.

The effect of Saving benefit (IB_1) on IP_1 is positive and statistically significant at 1% in the model 1a, 1b, 1c, and 1d, while it has no significant effect in the model 1e and 1f. Regression analysis in The models 1a, 1b, 1c, and 1d used full sample of 96 respondents that include both experienced and inexperienced investors, whereas models 1e and 1f only used a partial sample of experienced investors by 47 respondents. The results of the study using the

full sample, showed that BI_1 had a positive and significant effect on PI_1, the results were confirmed robustly and not sensitive to the presence of dummy control variables EI and DI. Saving Benefit (BI_1) represent cost efficiency and safety benefit in mutual fund investment which are perceived by mutual fund investor. The positive relationship between Saving Benefit and Return performance is parallel with previous studies which also prove cost efficiency has a positive effect on mutual fund performance (Droms & Walker, 1996; Prather et al. 2004; and Vijayakumar et al. 2012). On the other hand, the results of the study show a negative relationship between cost efficiency and mutual fund returns (Elton et al. 2012; Mansor et al. 2015). Meanwhile there are also a number of studies that did not find evidence of a significant relationship between cost efficiency and mutual fund performance (Babbar & Sehgal, 2018; Ippolito, 1989; and Low, 2010).

The effect of Portfolio benefit (IB_2) on IP_1 is positive and statistically significant at 1% in all models. The results are robust on all analysis models 1a, 1b, 1c, 1d, 1e, and 1f. These results are less sensitive to all control dummy variables of EI and DI. However, further analysis found different results that investors who do not invest directly in the capital market have a parameter coefficient of IB_2 greater than investors who also invest directly in the capital market. The model 1c shows that investors who do not invest directly in the capital market have the IB_2 parameter coefficient of 0.807, while investors who also invest directly in the capital market have a parameter coefficient of 0.292. The number 0.292 is obtained from (0.807 + -0.515). The same result is also found in the Model 1d with a ratio of 0.860 and 0.344 or (0.860 + -0.516) for non-direct investment investor and direct investment investor respectively. These results indicate that return performance for direct investment investors are less sensitive to portfolio benefit, it is because direct investment investors can do and create their own portfolios rather than rely their investment entirely on investment managers. The research result is in line with a study conducted by Manek (2016) who found that portfolio turnover in mutual funds had a positive effect on mutual fund returns. Also, Dahlquist et al. (2000) and Kaushik and Pennathur (2012) who found a positive relationship between portfolio turnover and mutual fund performance. While Babbar and Sehgal (2018), Ippolito (1989) and Low (2010) did not find a significant relationship between portfolio turnover and the performance of mutual funds.

Related to the 2005 mutual fund crisis, the Misleading factor (RM_1) has positive and significant effect on return performance at 1%. This means that misleading factors can make investors aware not to make mistakes in making decisions under risk. Furthermore, the results also showed that the Panic factor had no significant effect on return performance. This result indicates that the 2005 mutual fund crisis was not caused by panic market participants, but due to misleading factor, especially related to lack of clarity of information and lack of knowledge and understanding about investing in mutual funds.

Regression Model of Risk Performance (IP_2). Table 14 presents the regression model of risk performance (IP_2). The table shows that Income target motive (IM_1) has no impact on risk performance (IP_2) in all models. This result

indicated that there is no relationship between Income target motive and risk performance. On the other hand, Pension protection motive (IM_2) has a positive effect on risk performance (IP_2). The effect is statistically significant at the levels of 10%, 5% and 1%. The test results for IM_2 are robust on all analysis models 1a, 1b, 1c, 1d, 1e, and 1f. These results are less sensitive to all control variables.

The effect of Saving benefit (IB_1) on risk performance (IP_2) is statistically significant at 1% in all models, except Model 2b. Relationship between Saving benefit and Risk performance is sensitive to EI (experienced investor) dummy variable. This relationship between IB_1 and IP_2 is not significant when the model controlled by EI dummy variable in the Model 2b. Furthermore, the effect is positive and statistically significant that be reflected by coefficient of parameter of 0.534 for investor who only invest in mutual fund market, while it has negative effect and statistically significant that be indicated by coefficient of parameter of -0.232 (0.534 + -0.766) in the Model 1c. The similar result was also found in the Model 1d, where the IB_1 parameter coefficient for investors who only invest in mutual funds is 0.448, and for investors who also invest directly in the capital market is -0.313 (0.448 + -0.761).

Table 13. Regression Model of Return Performance (IP_1)

Variable	Full Sample, N = 96												Experienced Investors Sample, N = 47					
	Model 1a			Model 1b			Model 1c			Model 1d			Model 1e			Model 1f		
	Coef.	t-val	P	Coef.	t-val	p	Coef.	t-val	p	Coef.	t-val	P	Coef.	t-val	p	Coef.	t-val	p
(Constant)	7.653E-17	0.000		-0.080	-0.783		0.054	0.629		-0.024	-0.223		0.100	1.165		0.137	1.223	
IM_1	0.021	0.238		0.061	0.541		-0.105	-1.048		-0.062	-0.508		-0.130	-1.160		-0.266	-1.954	*
IM_2	-0.152	-1.888	*	-0.241	-2.111	**	-0.158	-1.597		-0.259	-2.039	**	-0.086	-0.904		-0.138	-1.131	
IB_1	0.362	4.851	***	0.485	4.430	***	0.273	2.881	***	0.374	2.949	***	0.132	1.320		0.105	0.808	
IB_2	0.663	7.237	***	0.711	5.358	***	0.807	7.678	***	0.860	6.105	***	0.523	4.690	***	0.598	4.528	***
EI				0.191	1.305					0.186	1.300							
EI*IM_1				-0.135	-0.765					-0.146	-0.851							
EI*IM_2				0.200	1.234					0.203	1.285							
EI*IB_1				-0.241	-1.608					-0.181	-1.237							
EI*IB_2				-0.105	-0.573					-0.107	-0.599							
DI							-0.212	-1.391		-0.198	-1.286					-0.110	-0.543	
DI*IM_1							0.415	2.010	**	0.440	2.116	**				0.493	1.907	*
DI*IM_2							-0.013	-0.078		0.003	0.018					0.118	0.567	
DI*IB_1							0.185	1.131		0.147	0.892					-0.005	-0.023	
DI*IB_2							-0.515	-2.583	**	-0.516	-2.593	**				-0.243	-1.036	
RM_1													0.294	2.859	***	0.302	2.761	***
RM_2													0.143	1.401		0.124	1.112	
R2	0.518			0.551			0.575			0.604			0.595			0.637		
Adj. R	0.496			0.504			0.531			0.536			0.534			0.523		
F	24.406	***		11.718	***		12.940	***		8.832	***		9.787	***		5.582	***	

EI is 1 for experienced investor and 0 for others, DI is 1 for direct investment investors and 0 for others.
*, **, and *** Sig at 10%, 5%, and 1% respectively

Table 14. Regression Model of Risk Performance (IP_2)

Variable	Full Sample, N = 96												Experienced Investors Sample, N = 47					
	Model 2a			Model 2b			Model 2c			Model 2d			Model 2e			Model 2f		
	Coef.	t-val	P	Coef.	t-val	p	Coef.	t-val	p	Coef.	t-val	P	Coef.	t-val	p	Coef.	t-val	p
(Constant)	9.511E-17	0.000		0.015	0.119		-0.106	-1.059		-0.080	-0.624		-0.001	-0.007		-0.028	-0.190	
IM_1	-0.056	-0.516		-0.121	-0.835		0.046	0.397		-0.009	-0.058		0.016	0.095		0.226	1.277	
IM_2	0.319	3.184	***	0.276	1.888	*	0.358	3.114	***	0.273	1.809	*	0.360	2.491	**	0.436	2.748	**
IB_1	0.323	3.463	***	0.189	1.354		0.534	4.859	***	0.448	2.969	***	0.450	2.976	***	0.800	4.727	**
IB_2	-0.006	-0.053		0.086	0.510		-0.164	-1.339		-0.076	-0.455		-0.073	-0.433		-0.261	-1.515	
EI				-0.018	-0.098					-0.031	-0.180							
EI*IM_1				0.140	0.620					0.098	0.477							
EI*IM_2				0.079	0.381					0.165	0.878							
EI*IB_1				0.243	1.273					0.144	0.824							
EI*IB_2				-0.147	-0.628					-0.131	-0.620							
DI							0.410	2.316	**	0.411	2.238	**				0.294	1.114	
DI*IM_1							0.047	0.196		0.083	0.335					-0.356	-1.058	
DI*IM_2							-0.201	-1.044		-0.207	-1.050					-0.187	-0.692	
DI*IB_1							-0.766	-4.023	***	-0.761	-3.885	***				-0.941	-3.564	**
DI*IB_2							0.431	1.860	*	0.409	1.728	*				0.420	1.374	
RM_1													-0.023	-0.149		-0.113	-0.792	
RM_2													0.035	0.228		0.178	1.224	
R2	0.251			0.269			0.427			0.440			0.360			0.574		
Adj. R	0.218			0.192			0.367			0.343			0.264			0.441		
F	7.604	***		3.516	***		7.123	***		4.540	***		3.745	***		4.293	***	

*, **, and *** Sig at 10%, 5%, and 1% respectively

Portfolio benefit (IB_2) has no significant effect on risk performance (IP_2) for all regression model. However, controlling DI dummy variable in the model 1c and 1d indicate the effect IB_2 on IP_2 is positive and statistically significant at 10% for the investors who also invest directly in the capital market. The value of parameter coefficient of 0.267 (-0.164 + 0.431) and 0.333 (-0.076 + 0.409) in the Model 1c and Model 1d respectively. This result indicates that relationship between IB_2 and risk performance in those models are sensitive to control variable of direct investment investors. The rational argument of this finding is parallel to model regression of IP_1, which suggested that direct investment investor can do and create their own portfolios rather than rely their investment entirely on investment managers. They used mutual fund instrument as a part of asset in their portfolio to manage their risk performance.

Related to the 2005 mutual fund crisis, both misleading factor (RM_1) and panic factor (RM_2) have no significant effect on risk performance. The effect of Factor misleading on risk performance (Model 2) model is different from return performance model (Model 1). The analysis showed that misleading did not have a significant effect on risk performance. While panic factors provided consistent results with Model 1, that there is no relationship between panic factors and risk performance in the crisis period of mutual market in Indonesia.

CONCLUSION

Investor foresight in choosing fund managers who are able to provide mutual fund performance consistently and persistently in the future is an important part of investing in the mutual fund market. Especially after they experienced trauma due to the mutual fund crisis in 2005 which caused huge losses for mutual fund investors. This study seeks to examine the impact of investment motives and benefit motives on mutual fund performance. Using primary data obtained 3 years after the crisis occurred in 2005, this study employs two statistical tools that are used in stages. First, factor analysis to reduce the number of variables and reduce the potential for multicollinearity between independent variables. Second, multiple regression analysis

to test the research hypothesis. Based on Factor Analysis, this study separates the performance of mutual funds into two performance factors, called the management of return performance and risk performance perceived by investors. The higher performance management scores indicate the better fund managers in managing return performance and risk performance.

The research findings of return performance showed that: (a). The effect of income target motive on return performance is positive for direct investment investors, but negative for non-direct investment investors for a sample that is limited only to investors who have invested in mutual funds during a mutual crisis; (b) Pension protective motive has a negative effect on return performance; but the effect is affected by the existence of dummy variable control experienced investors and direct investment investors; (c) Saving benefits have a positive effect on return performance; (d) Portfolio benefits have a positive effect on return performance. But the effect is greater for investors who only invest in mutual funds than investors who also invest directly in the capital market; and (e) The decision of investors to redeem their funds from mutual funds during the 2005 crisis period was not caused by panic, but by misleading factors. The main elements of misleading factor based on the order of its importance are miscommunication, misunderstanding, misinformation, and misconception.

The research findings of risk performance indicated that: (a) There is no relationship between Income target motive and risk performance; (b) Pension protective motive has a positive effect on risk performance. (c) The effect of saving benefits on risk performance is positive for non-direct investment investor and negative for direct investment investor; (d) Portfolio benefit has positive effect on return performance. This finding is only relevant to investors who also invest directly in the capital market; (e) the redemption motives have no impact on risk performance.

The implications of the results of the study are related to investment practices in the mutual fund market. Fund managers need to pay attention to the different types of investors who only invest in mutual funds and investors who also invest directly in the capital market. Investors who also invest directly in the capital market can do and create their own portfolios, so they are less dependent on fund managers in compiling their investment portfolios than investors who only invest in mutual funds. Direct investment investor is more sophisticate than non-direct investment investor in managing their income target motive to increase mutual fund return. Mutual fund investors realize that it is important to invest in the mutual fund market for the purpose of protecting their retirement plans and for precautionary needs in the event of an urgent need for funds. It is very interesting that redemption motives have no effect on risk performance. Mutual fund investors are not traumatized by the losses experienced in the mutual fund crisis that just happened 3 years ago. There is a possibility that they have experienced a rapid trauma recovery process, or indeed because of investor awareness, that there is always the possibility of risk if they invest in risky assets. Regulators must strictly regulate and supervise the practices of investment managers so as not to engage in misleading persuasion in attracting mutual fund investors to make investment decisions in the mutual fund market.

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