

Risk Perceptions of Mutual Funds-Evidence from an Experimental Approach

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Abstract

Analysis of mutual fund advertisements in previous research has shown that most (88%) do not contain all the requisite information on the risk-return trade-off, principal-agent conflict, and transaction costs that consumers need to optimize their investment decisions. This research reports the findings of an experiment carried out to understand the Huhmann-Bhattacharyya (2005) paradox. Results indicate that including information on risk-return trade-off, principal-agent conflict, and transaction costs in mutual fund advertisements increase consumer risk perceptions of the mutual fund. This result has important policy implication for levelling the playing field in mutual fund advertising. For example an interesting and important public policy question would be whether or not financial literacy training alters advertising information usage and attitudes. Results could help determine public policy on imparting financial literacy training to the general population.

I. Introduction

Financial markets and institutions channel funds from the savings sectors of the economy to the investing sectors of the economy. An efficient financial market is indispensable for the efficient allocation of resources into productive ventures. Mutual funds are important players in the financial markets.

Mutual funds depend on funds flow from investors and try to attract the attention of these investors through various means. Advertisements constitute one such channel. It is well established that mutual fund families that spend more on advertising attract more funds from investors (e.g., Barber, Odean, and Zheng 2005; Korkeamaki, Puttonen, and Smythe, 2007; Sirri and Tufano, 1998; Yankow, Smythe, Lesseig and Jones, 2011). Further, Jain and Wu (2000) found that the 294 mutual funds that advertised in *Barron's* or *Money* magazine grew faster than a control group of funds with similar prior performance.

One would expect that mutual fund advertisements would carry the information relevant to investors for their decision-making. Theories of finance hold that the information required for investment decision making can be classified under three categories: information on the risk-return trade-off (e.g. Jordan and Kaas, 2002; Huang and Litzenberger, 1988 and Ingersol, 1987), information on transaction costs (e.g. (Chordia, 1996; Dellva and Olson, 1998; Livingston and O'Neal, 1996 & 1998 and Ramasamy and Yeung, 2003), and information to mitigate agency costs (e.g. Arya, Glover and Rajan, 2000; Ross, 1973; Holmstrom, 1979; Fama, 1980; Grossman and Hart, 1983 and Ramasamy and Yeung, 2003).

Huhmann and Bhattacharyya (2005) conducted a content analysis of mutual fund advertisements to see whether these advertisements indeed carry the type of information deemed relevant by finance theory. They found that most (88.8 per cent) mutual fund advertisements did

not contain all the requisite information on the risk-return trade-off, principal-agent conflict, or transaction costs that consumers needed to optimize investment decisions. The objective of the current paper is to resolve the puzzle as to why mutual fund advertisements would not carry the requisite financial information expected based on the finance literature. It finds that if mutual fund advertisements do contain relevant information, then the advertised mutual fund is perceived to be risky. This would explain Huhmann and Bhattacharyya's (2005) earlier finding that mutual fund advertisements, by and large, do not contain all relevant financial information.

II. Literature Review

Prior research has found that risk, investment style, past performance, expenses, manager tenure, and fund age explain a significant amount of the variation in subsequent mutual fund returns (Peterson, Pietranico, Riepe, and Xu, 2001). Studies of the information that financial advisors use in evaluating mutual funds finds that previous performance, transaction costs, fund size, and fund manager experience and qualifications are particularly important (Ramasamy and Yeung, 2003). Prior research has also documented a negative relation between fund flows and total fund expenses, such as amortized front-end-load fees and operating expenses (Sirri and Tufano, 1998). There is a trade-off between risk and return; therefore, higher returns are often required to compensate for greater risk (Tasari, Bolton, Hutt, and Walker, 2011). So, from a financial point of view, consumers require risk-return, transaction cost, and agency information to optimize investment decisions.

Advertising is a primary information source for consumer's mutual fund investment decisions. A recent survey found that 40% of all consumers used Internet or periodicals when planning mutual fund investments (Pellinen, Törmäkangas, Uusitalo, and Raijas, 2011). Therefore, consumers should value informative mutual fund advertising because it reduces their search costs (Sirri and Tufano, 1998).

More informative advertising for a service concretizes the advertised product in consumers' minds, which reduced purchase risk (Abernethy, Gray, and Butler, 1997). Perceived risk can be further reduced when service advertising includes quality cues emphasizing reliability, assurance, responsibility and tangibility (Clow, Baack, and Fogliasso, 1998).

Believability of advertising claims influences purchase intentions (PI) and attitudes (Holbrook, 1978). Information that enhances perceptions of credibility and quality has also been shown to improve attitude toward the advertisement (AAD), attitude toward advertisement claims (AADC) and attitude toward advertisement visuals, and PI when included in advertisements for other financial services, such as automobile insurance (Clow, James, Kranenburg, and Berry, 2006). However, informativeness has no main effect on attitude toward the brand (AB) or PI (Kamins and Marks, 1987).

Many advertising researchers hold that more information is better (Abernethy and Franke, 1998; Pollay, 1986). However, greater amounts of information in advertising also have been shown to discourage consumers from reading information (Franke, Huhmann and Mothersbaugh, 2004). Unfortunately, the information load in marketing communications for financial services is much greater than that for tangible goods due to the complex presentation

and the lack of full disclosure of important details (Chang and Hanna, 1992; Hill and Kozup, 2007; Huhmann and Bhattacharyya, 2005). Financial industry marketing communications (e.g. mutual fund advertisements, credit card solicitations, securities prospectus) provide a great deal of information that largely is required by regulations, but is difficult to comprehend by consumers with poor financial numeracy. In this paper, we use experimental methods to understand the role of informativeness in advertising for mutual funds.

III. Method

For our experiment, we created two versions of an advertisement for a fictitious mutual fund. Stylistic properties and copy length mimicked actual mutual fund advertisements that appear in investor-oriented periodicals, such as *Barron's*. The two versions were identical in all respects except that the text of one version was written to convey the relevant risk-return, transaction cost and agency information that financial theory holds that potential investors should value when making investment decisions ("the treatment advertisement"); whereas the other version did not have any specific financial information ("the control advertisement"). The two advertisements are placed in appendix for ready reference. This technique is similar to that in Holbrook (1978) who manipulated advertisement claims about a foreign car or Kamins and Marks (1987) who manipulated advertisement claims about a ballpoint pen. The two advertisements are placed in the Appendix for ready reference.

A. Subject Pool Characteristics.

Undergraduate students at two major North American universities viewed the advertisement. Table 1 summarizes sample characteristics for the 294 valid responses.

Table 1: Demographic Characteristics

Age in Years	Mean	21.51
	Median	21
	Standard Deviation	3.7
	Maximum	50
	Minimum	17
Gender	Male	54.4%
	Female	45.6%
Ethnicity	White	61.6%
	Asian	21.8%
	Hispanic	5.4%
	Black	3.1%
	Others	8.1%

Citizenship	Canada	63.3%
	US	17.0%
	Others	19.7%
Native English Speakers		74.1%
Percent exposed to the treatment ad		49.7%

B. Procedure.

Each subject saw only one advertisement, either the treatment or control version of the advertisement. The treatment version contained the relevant risk-return, transaction cost and agency information. Versions were randomly assigned. Subjects then completed a questionnaire containing 7-point scale measures of dependent and independent variables and some demographic identifiers. Also, manipulation check items were completed to verify that subjects were, in fact, able to discern differences in the presence of risk-return information, transaction cost information, and agency information between the informative treatment and the uninformative control version of the advertisement. See Table 2 for a description of each variable and its measurement reliability where appropriate.

C. Regression.

Our empirical methodology is to examine the effect of mutual fund information on the dependent variables using multiple regression analysis. Our objective is to find out whether and in what manner financial information in the mutual fund advertisement influence the investor decisions. Specifically we estimate thirteen regressions. Each of the regressions has the same set of independent variables. The form of a regression equation is as below:

$$\begin{aligned} \tilde{Y} = & \beta_0 + \beta_{DUM} DUM_MUFU + \beta_{NFC} NFC_MEAN + \beta_{RT} RT_MEAN \\ & + \beta_{GEND} DUM_GEND + \beta_{AGE} AGE + \beta_{DISB} DISB_MEAN + \beta_{MIST} MIST_MEAN \\ & + \beta_{ENG} ENG_YN + \beta_{WHITE} WHITE_YN + \tilde{\epsilon} \end{aligned} \quad (1)$$

where

\tilde{Y} is the dependent variable. We run thirteen regressions. So there are thirteen dependent variables. These are RISK_MEAN, USEF_MEAN, AB_MEAN, PI_MEAN, RECO_MEAN, WOM, RETN_MEAN, AAD_MEAN, AADC_MEAN, AADP_MEAN, MCRR_MEAN, MCTC_MEAN, MCAG_MEAN. Table 2 describes these dependent variables.

And

$\tilde{\epsilon}$ is the random error term.

Table 2: Independent and Dependent Variables

<u>Independent Variables</u>	
<i>DUM_MUFU</i>	A manipulated dummy variable that indicates whether the subject was exposed to the control (0) or informative treatment (1) version of the advertisement.
<i>NFC_MEAN</i>	Cacioppo, Petty, and Kao's (1984) 18-item need for cognition scale (coefficient alpha = .86).
<i>RT_MEAN</i>	Raju's (1980) 9-item degree to which a subject is a risk taker scale (coefficient alpha = .79).
<i>DUM_GEND</i>	A dummy variable for gender indicating whether the respondent is male (1) or female (0).
<i>AGE</i>	Age of the respondent in years.
<i>DISB_MEAN</i>	Boush, Friestad, and Rose's (1994) skepticism toward advertising subscale that measures subjects' disbelief of information in an advertisement (coefficient alpha = .79).
<i>MIST_MEAN</i>	Boush, Friestad, and Rose's (1994) skepticism toward advertising subscale that measures subjects' mistrust of advertising claims and advertisers' motives. Coefficient alpha (.52) was near the lower end of the range (.58 to .73) reported by Boush, Friestad and Rose (1994) in their administrations of the mistrust subscale.
<i>ENG_YN</i>	A dummy variable equal to 1 for native English speakers and 0 for others.
<i>WHITE_YN</i>	A dummy variable for ethnicity equal to 1 for White respondents and 0 for others.
<u>Dependent Variables</u>	
<i>RISK_MEAN</i>	Mean of four items measuring perceived investment risk for the advertised mutual fund (coefficient alpha = .87).
<i>USEF_MEAN</i>	Mean of three items measuring perceived usefulness of information in the mutual fund advertisement (coefficient alpha = .66).
<i>AB_MEAN</i>	Mean of three brand attitude items (coefficient alpha = .93).
<i>PI_MEAN</i>	Mean of three purchase intention items (coefficient alpha = .93).
<i>RECO_MEAN</i>	Mean agreement with two brand recommendation items regarding recommending the advertised mutual fund to someone looking to invest (correlation = .95).
<i>WOM</i>	Mean single-item positive word-of-mouth likelihood rating.
<i>RETN_MEAN</i>	Mean of three-item measure of the respondent's belief that the mutual fund will provide a higher return (coefficient alpha = .75).
<i>AAD_MEAN</i>	Mean overall attitude toward the advertisement (coefficient alpha = .93)..
<i>AADC_MEAN</i>	Mean of Miniard, Bhatla, and Rose's (1990) attitude toward the advertisement claims scale (coefficient alpha = .86).
<i>AADP_MEAN</i>	Mean of Miniard, Bhatla, and Rose's (1990) attitude toward peripheral cues in the advertisement scale. Peripheral cues are the parts of the advertisement other than the claims. Examples include a non-informative picture, a logo, or the type font (coefficient alpha = .94).
<i>MCRR_MEAN</i>	Mean of the three-item risk-return information manipulation check (coefficient

alpha = .80).

<i>MCTC_MEAN</i>	Mean of the three-item of transaction cost information manipulation check (coefficient alpha = .66).
<i>MCAG_MEAN</i>	Mean of the three-item agency information manipulation check (coefficient alpha = .88).

We are most interested in the coefficient of DUM_MUFU. This coefficient will tell us if relevant information in the mutual fund advertisement affects the respondents' perceptions, evaluation, and intentions and the nature of that effect. The other independent variables are incorporated to ensure that results are robust after controlling for various independent variables.

IV. Results

A. Descriptive statistics

Table 3 presents descriptive statistics for the dependent variables and for the non-dummy independent variables. Descriptive statistics include the median, mean, standard deviation and the range (i.e., the minimum and maximum value) for each variable.

Table 3: Descriptive Statistics

Name	N	Mean	Median	Standard Deviation	Minimum	Maximum
<u>Non Dummy Independent Variables</u>						
NFC_MEAN	293	4.73	5	0.80	3	7
RT_MEAN	293	3.72	4	0.99	1	7
AGE	294	21.51	21	3.70	17	50
DISB_MEAN	294	5.52	6	0.97	2	7
MIST_MEAN	291	5.37	5	0.84	1	8
<u>Dependent Variables</u>						
RISK_MEAN	294	4.67	5	1.18	1	7
USEF_MEAN	294	3.19	3	1.24	1	7
AB_MEAN	293	4.48	5	1.23	1	7
PI_MEAN	294	4.17	4	1.44	1	7
RECO_MEAN	294	3.74	4	1.68	1	7
WOM	294	4.86	5	1.66	1	7
RETN_MEAN	293	3.67	4	1.09	1	7
AAD_MEAN	294	4.15	4	1.29	1	7
AADC_MEAN	294	4.13	4	1.27	1	7

AADP_MEAN	294	4.19	4	1.48	1	7
<u>Manipulation Checks</u>						
MCRR_MEAN	294	3.30	3	1.48	1	7
MCTC_MEAN	293	2.97	3	1.44	1	7
MCAG_MEAN	293	4.45	4	1.22	1	7

B. Results of Regression Analyses.

The correlation coefficients between the non-dummy independent variables are given in Table 4. The correlations are low, thus confirming absence of multi-collinearity. Regression results are provided in Table 5.

Table 4: Correlation Coefficients Between Non-dummy Independent Variables

	NFC_MEAN	RT_MEAN	AGE	DISB_MEAN	MIST_MEAN
NFC_MEAN	1.00				
RT_MEAN	0.13	1.00			
AGE	0.19	0.15	1.00		
DISB_MEAN	0.14	0.08	0.08	1.00	
MIST_MEAN	0.01	0.02	0.01	0.05	1.00

Table 5: Regression Results

Predictor	Dependent Variables				
	RISK_MEAN	USEF_MEA	AB_MEAN	PI_MEAN	RECO_MEAN
DUM_MUFU	0.77***	0.36***	-0.15	-0.26	-0.24
NFC_MEAN	0.02	-0.06	-0.05	0.02	-0.18
RT_MEAN	-0.01	-0.06	-0.10	-0.20**	-0.01
DUM_GEND	-0.16	0.25*	0.14	-0.11	-0.24
AGE	0.02	-0.02	-0.04**	-0.09***	-0.06**
DISB_MEAN	0.02	-0.15*	-0.06	-0.08	-0.12
MIST_MEAN	0.08	-0.01	0.06	0.11	0.01
ENG_YN	0.2	0.04	0.47***	0.29	0.29
WHITE_YN	-0.22*	-0.48***	0.00	-0.22	-0.43**
CONSTANT	3.33***	5.06***	5.69***	6.67***	6.78***
N	289	289	288	289	289

R² 11.5% 9.94% 7.08% 10.35% 7.64%

*Significant at 10% level, **significant at 5% level and ***significant at 1% level.

Table 5: Regression Results (Continued)

Predictors	Dependent Variables				
	WOM	RETN_MEAN	AAD_MEAN	AADC_MEA	AADP_MEAN
DUM_MUFU	-0.30	0.29**	0.03	0.23	0.12
NFC_MEAN	-0.15	0.02	0.00	-0.07	0.06
RT_MEAN	0.00	-0.03	-0.24***	-0.09	-0.26***
DUM_GEND	0.03	-0.06	-0.06	0.16	-0.02
AGE	0.02	-0.04**	-0.06***	-0.06***	-0.06***
DISB_MEAN	-0.02	-0.16**	-0.02	-0.04	0.05
MIST_MEAN	0.20	-0.02	0.01	-0.04	-0.11
ENG_YN	0.11	0.21	0.42**	0.58***	0.47**
WHITE_YN	0.38*	-0.06	-0.28*	-0.23	-0.24
CONSTANT	3.98**	5.28***	6.21***	6.13***	6.24***
N	289	288	289	289	289
R ²	3.65%	6.72%	10.1%	10.55%	9.57%

*Significant at 10% level, **significant at 5% level and ***significant at 1% level.

C. Manipulation Checks.

Looking at the manipulation checks, the subjects were able to discern differences between the informative advertisement and the uninformative advertisement. Paired comparisons show that the means are significantly different in the expected pattern for the two advertisements. The informative advertisement ($\bar{X} = 3.96$) was rated higher in terms of the presence of risk-return information than the uninformative advertisement ($\bar{X} = 2.64$; $t = 8.626$, $df = 292$, $p < .001$). The informative advertisement ($\bar{X} = 4.24$) was also rated higher in terms of the presence of transaction cost information than the uninformative advertisement ($\bar{X} = 1.96$; $t = 14.268$, $df = 291$, $p < .001$). Finally, the informative advertisement ($\bar{X} = 4.71$) was rated higher in terms of the presence of agency information than the uninformative advertisement ($\bar{X} = 4.22$; $t = 3.612$, $df = 291$, $p < .001$).

The regressions with dependent variables measuring manipulation checks pertaining to risk and return, (MCCR_MEAN), transaction cost (MCTC_MEAN) and agency aspect (MCAG_MEAN) all have significant coefficient for the DUM_MUFU variables (see Table 6). This shows that respondents viewing the informative advertisement do process the relevant

information. This enhances the robustness of the results of our experiment.

Table 6: Multiple Regression Analyses on Manipulation Check Variables

Predictors	Dependent Variables		
	MCRR_MEAN	MCTC_MEAN	MCAG_MEAN
DUM_MUFU	1.31***	1.80***	0.40***
NFC_MEAN	0.10	0.02	0.10
RT_MEAN	-0.08	-0.04	-0.17**
DUM_GEND	0.02	0.19	0.12
AGE	-0.04*	0.00	-0.06***
DISB_MEAN	-0.10	-0.12	-0.12*
MIST_MEAN	-0.02	-0.09	0.09
ENG_YN	0.03	0.36**	0.03
WHITE_YN	-0.37**	-0.32**	-0.13
CONSTANT	4.18***	3.05***	5.80***
N	289	288	288
R ²	23.51%	42.20%	10.81%

*Significant at 10% level, **significant at 5% level and ***significant at 1% level.

V. Discussion

As mentioned earlier, the coefficient of interest in this regression is DUM_MUFU, the dummy variable that captures whether the respondent was shown the version of the advertisement containing financial information. The coefficients of DUM_MUFU are significant at 1% level in 6 out of the 13 regressions run. The dependent variables in the seven regressions where the coefficients of DUM_MUFU are significant are RISK_MEAN, USEF_MEAN, RETN_MEAN, MCRR_MEAN, MCTC_MEAN and MCAG_MEAN.

For the regressions with dependent variables RISK_MEAN and RETN_MEAN, the coefficients of the DUM_MUFU term are 0.77 and 0.29 respectively. This indicates that respondents who viewed the informative version considered the mutual fund to be both risky and generating some return. However, when the dependent variable is RISK_MEAN, the DUM_MUFU coefficient is 2.6 times what it is when the dependent variable is RETN_MEAN. *Thus, respondents who view an informative advertisement tend to associate a higher risk to the advertised mutual fund.* This would explain why Huhmann and Bhattacharyya (2005) found that mutual funds in many cases were hesitant to put risk-return information in their advertisements.

Respondents also find informative advertisements to be useful. This is supported by the fact that when the dependent variable is USEF_MEAN, the coefficient of the DUM_MUFU is 0.36 and is significant at 1% level. It is also clear from the results that factors other than the information contained in an advertisement also enter into an investor's decision making process. This follows from the fact that none of the other regressions with the dependent variables of AB_MEAN, PI_MEAN, RECO_MEAN, or WOM have a significant DUM_MUFU coefficient.

However, overall attitude to the advertisement is positively influenced by advertisement information. We can infer this by noting that when the dependent variable is AAD_MEAN, the DUM_MUFU coefficient is positive and significant a 1% level of significance. This is a paradoxical result because when the dependent variable involves either attitude towards advertisement claims or peripheral cues (i.e., AADC_MEAN or AADP_MEAN), the DUM_MUFU coefficient is not significant. This paradox is for future research to resolve.

One limitation of the current experiment is the use of student subjects. Although some question the use of student subjects, Hovland (1959) concluded that student and non-student sample methodologies produce similar results. A more recent meta-study by Peterson (2001) did not find any systematic patterns of differences between student and adult subjects, but did suggest that caution should be used when generalizing from student subjects to the more general population. We suggest that future research should replicate these findings with a population of adult investors.

VI. Conclusions

We conducted this experiment in order to understand the paradox discovered by Huhmann and Bhattacharyya (2005) viz. that mutual fund advertisements do not contain all the information necessary for making financial decisions. We conducted an experiment and found that including financial information in a mutual fund advertisement increases perceived riskiness of the advertised mutual fund. This would explain advertisers' reluctance to include financially relevant information in mutual fund advertisements. Our results are also consistent with those of Jones and Smythe (2003) who found a decreasing amount of transaction cost information in mutual fund advertising.

This research can be extended in several directions. Our experiment included all the relevant financial information in one informative advertisement. A more fine-tuned experiment is possible in which the presence of a single type of financial information is manipulated to determine the impact of that information in financial service advertising on investment decisions or information processing. Another interesting extension of these results would be from the information processing aspect which would examine whether ads containing two or more types of financial information get selectively processed and if so, which type of financial information are preferentially processed. A related research question, important from a public policy perspective would be whether or not financial literacy training alters advertising information usage and attitudes. Results could help determine public policy on imparting financial literacy training to the general population.

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Appendix



BOINANZA
Experience ■ Strength ■ Leadership

Rated as the **Top New Fund** of 2004
- Kiplinger's Personal Finance

BOINANZA
Focused Growth Fund

How can you retire early?

It's not as impossible as you think. And it's not about lots of complicated math. It's all about thinking differently. You can do it with help from the Boinanza Focused Growth Fund.

You need a fund that takes a focused approach to investing by selecting the stocks that are best poised for growth. Our fund managers, Edward J. Conetti and Rita Dugald, are both previous winners of the prestigious *Standard & Poor's BusinessWeek Excellence in Fund Management Award*. Keep your long-term goals in focus and choose a fund whose managers keep their focus, too.

Best of all, our fund has a back-load sales commission, so you pay nothing up front as well as some of the lowest management (1.34%) and custodial fees (0.57%) in the industry. It doesn't get any better than this for reaching for your retirement goals.

Consult with your financial advisor or call 1-800-730-8913 (ext. 357) for additional information and a free copy of the prospectus. Also, call today for our free guide on how to retire early.

Why Choose Boinanza?

- Our fund managers, Edward J. Conetti and Rita Dugald, are both previous winners of the prestigious *Standard & Poor's BusinessWeek Excellence in Fund Management Award*.
- Our fund has a back-load sales commission, so you pay nothing up front as well as some of the lowest management (1.34%) and custodial fees (0.57%) in the industry.
- Higher returns generally accompany higher risk. This fund is more exposed to individual stock volatility and market pressure than a fully diversified fund. Therefore, it is expected to have a higher return.

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This fund is non-diversified, meaning it may concentrate its assets in fewer individual holdings of specific stocks than a diversified fund. Therefore, the fund is more exposed to individual stock volatility and market pressure than a fully diversified fund. Higher risk accompanies higher returns.

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Figure 1: Treatment Advertisement with Risk-Return, Transaction Cost and Agency Information



BOINANZA

Experience ■ Strength ■ Leadership

Rated as the

Top New Fund of 2004

- *Kiplinger's Personal Finance*

BOINANZA Focused Growth Fund

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You need a fund that takes a focused approach to investing by selecting the stocks that are best poised for growth. Our fund managers stick to their disciplines -- no matter what the latest "hot" trends may be. Keep your long-term goals in focus and choose a fund whose managers will keep their focus, too.

Our strategy seeks growth through focus on what is right for the customer. It is designed to create a fund that you will feel confident and comfortable investing in. It doesn't get any better than this for reaching for your retirement goals.

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- Our fund managers stick to their disciplines -- no matter what the latest "hot" trends may be.
- Our strategy seeks growth through focus on what is right for the customer. It is designed to create a fund that you will feel confident and comfortable investing in.
- Our fund is one of the most talked about funds in the market today. We have more extended families among our customers than most other comparable firms.

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Figure 2: Control Advertisement with No Risk-Return, Transaction Cost nor Agency Information