Which are the Investment Fund Managers in Brazil behavioral investing biases and their characteristics?

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Abstract

Behavioral Investing Biases are cognitive and emotional aspects than may intervene in investment decisions. Searching for evidences of behavioral biases in the Investment Fund managers (IFM) in Brazil, it was created a 28 questions survey, sent to 936 IFM and 98 responses were obtained. Biases like Optimism and Regret Aversion were present in more than 75% of the respondents. On the other hand, Overconfidence and Status Quo were present in less than 10%. Respondents were 90% male, 36 years-old average, BA bachelors, with Master Degree. Their personal investments are conservative despite of the majority are Equities or Multi-Markets IFM.

Key Words: behavioral investing biases; investment fund managers; Brazil.

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1. Introduction

Behavioral biases are "systematic errors in judgment" (Pompian, 2006). So Behavioral Investing Biases can be understood as cognitive and emotional aspects than may intervene in investment decisions. **Cognitive biases** are unconscious distortions in one's perception that influences judgment and should be corrected or mitigated in the investing process. **Emotional Biases**, on the other hand, are distortions in the decision making process due to emotional disorders and it is hard to prevent them because they are related to instinct and intuition. In the literature can be found several studies about how emotions can influence perceptions and the decision making process. Those psychological studies have been applied to Finance aiming to explain financial and economic behavior, from the individual (micro) and from the market (macro) perspectives, in special from 1980 on.

Searching for evidences of cognitive and emotional biases in the Investment Fund managers (IF managers) in Brazil, it was created a 28 questions survey including personal and Assets characteristics and 18 questions to identify the presence or absence of behavioral investing biases. IF manager's personal characteristics were investigated with questions about gender, age, graduation, post-graduation and personal investments. Asset's information was searched with questions about being Independent or part of a conglomerate, Brazilian or Foreign, location (São Paulo, Rio de Janeiro or other), fund categories (fixed income, equities, multi-markets or other funds) and total assets under management. The eighteen tested bias were: Overconfidence, Anchoring, Mental Accounting, Loss Aversion, Status Quo, Availability, Recency, Regret Aversion, Conservatism, Confirmation, Illusion of Control, Outcome, (Lack of) Self-Control, Optimism, Affinity, Representativeness, Hindsight and Framing.

The questionnaire was sent to 936 Investment Fund managers in Brazil and 98 responses were obtained.

Not all tested biases were confirmed. Some biases like Optimism and Regret Aversion were present in more than 75% of the respondents, according to their answers. On the other hand, some biases like Overconfidence and Status Quo were present in less than 10% of the respondents, not confirming the presence of this bias in the analyzed IF managers. A detailed explanation about the meaning of each bias, questions used to test (confirm or not) them and results obtained with this survey are presented further.

Eleven of the 18 tested biases had at least 20% of positive responses confirming the presence of those biases in the 98 respondents. IF manager's personal characteristics (like gender, age, graduation, post-graduation and personal investments) and Asset's information (like Independent or part of a conglomerate, Brazilian or Foreign, location, fund categories and total assets under management) presented a low explanatory power when modeled with different regression methods against the tested biases. So descriptive statistics and relations between the questions were made to better understand IF managers in Brazil profile and their behavioral investing biases.

The most relevant observed characteristics can be summarized as follows. In terms of personal profile, respondents predominantly are male, average age 36 years-old with 8 years standard deviation, business administration or economics bachelors, with a Master Degree in Brazil or abroad. Their personal investments are more conservative (until 20% in equities) despite of the majority of them are Equities or Multi-Markets Fund Managers having more than R$ 100 million under their management. Their Assets were in general Independent, Brazilian, and São Paulo located.

2. Behavioral Finance applied to the Individual's Investment Decisions: Historical Perspective

The studies on Behavior Finance started in the end of 1970's with the publication of Kahneman and Tversky (1979), *Prospect Theory: An analysis of Decision under Risk*, about human behavior and the decision process under risk. Aiming to comprehend financial investor's day-by-day attitudes, the authors presented several problems to different groups, in which people should decide based on the benefits (win or loss) and risks involved in each decision. From this study arose one of the most important concepts in Behavior Finance that is the "loss aversion", concluding that people suffer much more the pain for a loss than the delight for an equivalent gain (Halfeld and Torres, 2001).

Kahneman and Tversky (1979) explain that their "paper presents a critique of expected utility theory as a descriptive model of decision making under risk, and develops an alternative model, called prospect theory. Choices among risky prospects exhibit several pervasive effects that are inconsistent with the basic tenets of utility theory. In particular, people underweight outcomes that are merely probable in comparison with outcomes that are obtained with certainty". So while taking financial decisions people don't behave as the "Rational Economic Man" (REM) seeking to maximize their economic well-being, utility-optimizing goals, and ignoring social values. REM "is an individual who tries to achieve discretely specified goals to the most comprehensive, consistent extent possible while minimizing economic costs. REM´s choices are dictated by his utility function" (Pompian, 2006).

"Facing uncertainty, most people cannot and do not systematically describe problems, record all the necessary data, or synthesize information to create rules for making decisions. Instead, most people venture down somewhat more subjective, less ideal paths of reasoning in an attempt to determine the course of action consistent with their basic judgments and preferences" (Pompian, 2006).

Kakneman and Riepe (1998), in *Aspects of investor psychology: beliefs, preferences, and biases investment advisor should know about* brought an important contribution to the use of behavior finance in investment decisions. They start by saying that "financial advising is a prescriptive activity whose main objective should be to guide investors to make decisions that best serve their interests. To advice effectively, advisors must be guided by an accurate picture of the cognitive and emotional weaknesses of investors that relate to making investment decisions: their occasionally faulty assessment of their own interests and true wishes, the relevant facts that they tend to ignore, and the limits of their ability to accept advice and to live with the decisions they make". They add that "people make judgments about the probabilities; they assign value (sometimes called *utilities*) to outcomes; and they combine these beliefs and values in forming preferences about risky options". They identify some behavioral biases, like Overconfidence, Optimism, Hindsight, and Narrow Framing, using financial and day-by-day questions, and make several recommendations to advisors on how to deal with these biases in the client's investment decision making process and its possible harmful consequences.

In the same track, in 2005, Pompian with Longo published the article *The Future of Wealth Management: Incorporating behavioral finance into your practice*, presenting some experiments to identify investor's behavioral biases and bringing the idea that there are some of those biases that should be moderated and others that should be adapted – and this is the main role of a financial advisor in the individual's asset allocation process. They better explain: "Behavioral biases fall into two broad categories, cognitive and emotional, though both types yield irrational decisions. Because cognitive biases stem from faulty reasoning, better information and advice can often correct them. Conversely, because emotional biases originate from impulsive feelings or intuition – rather than conscious reasoning – they are difficult to correct. Cognitive biases include heuristics, such as anchoring and adjustment, availability, and representativeness biases. Other cognitive biases include selective memory and overconfidence. Emotional biases include regret, self-control, loss aversion, hindsight, and denial".

Pompian's ideas in special guided the elaboration of a questionnaire that was applied to Investment Fund Managers in Brazil with the purpose to identify its behavioral investing biases. These mentioned biases will be further carefully explained.

3. Investment Fund Manager and Its Role

The Brazilian regulation establishes a formal difference between "administrator" ("administrador", in Portuguese) and "manager" ("gestor", in Portuguese) of an investment fund. The focus of this study is to identify the behavioral investing biases from the individual point of view, from the manager's perspective. According to the current regulation[1], the "manager" is responsible for the professional management of the financial assets that are in the fund's portfolio (asset allocation), according to the policies established in the fund's brochure[2]. He/she is entitled to: negotiate in the fund's name its financial assets and has the right to vote in its name, when applicable; decide the assets that will make part of the portfolio, choosing those with better profitability perspectives given a certain risk level compatible with the fund's investment policy; give buy/sell orders in the fund's name.

In this paper when mentioned "manager" it will be referring to "gestor" regarding to Investment Fund manager.

4. Investment Funds Industry and Regulation in Brazil

[1] Source: Comissão de Valores Mobiliários (CVM – similar to Security Exchange Comission in Brazil) website: http://www.portaldoinvestidor.gov.br/menu/Menu_Investidor/fundos_investimentos/obrigacoes.html

[2] "Regulamento", in Portuguese, is here translated in English as "brochure".

In Brazil, investment funds are regulated by Comissão de Valores Mobiliários (CVM) and they are under supervision of Anbima[3] (Associação Brasileira das Entidades dos Mercados Financeiro e de Capitais). Anbima establishes the parameters for the investment fund's managers in terms of the investment fund's creation and asset management's policies, in order to standardized procedures and increase the information quality and publicity and the fiduciary patterns[4].

In the last two decades, the amount under management in investment funds raised from less than R$ 100 billion to R$ 2.3 trillion – the sixth net asset in the world –, and mean net asset by fund to R$ 151 million. The number of funds grew six times in 2012, from 289 to almost 12.000 in the end of the year. Brazilian investment funds market had a very quick recover since 2008 crises, growing 100% it net asset since 2008 (Anbima, 2013).

Investment funds in Brazil are currently divided in 46 different categories according to the fund's asset allocation policy and its correspondent benchmarks. For example: fixed income (5 different types), equities (11 different types), multi-markets funds ("multimercados", in Portuguese, 10 different types), off-shore (3 different types), etc. So its managers have to adhere to these asset allocation categories and don't have total free will to make his/her own investment decision.

5. Methodology and Results

Based on Pompian (2012), Pompian (2006), Belsky and Gilovich (1999) it was created a 18 questions questionnaire. Each one of these questions aims to capture a behavioral bias, defined as "systematic errors in judgment", and most commonly divided in cognitive and emotional biases.

Biases, questions and results are presented below. Questions were selected in the applied bibliography considering the target interviewees (Investment Fund managers in Brazil). Questions involving bets simulations and calculation of statistic proportions were not used as well as questions involving images comparison. It was privileged questions related to investments decisions.

5.1. Data Gathering

An e-mail referring to the survey was sent to 936 Investment Fund managers in Brazil, inviting them to answer to the questions and affirmations mentioned bellow and explaining them about the research. It was sent in total to 861 different e-mails because in some Assets we couldn't obtain the direct e-mail of each Investment Fund manager (individual corporative e-mail) but only a "generic" one (like contact@institution) – and these cases were those we obtained the lowest response percentage. In total, we obtained 98 responses – equivalent to 11.4% response degree. As

[3] Anbima represents institutions that are in the Brazilian capital markets, including banks, assets and broker dealers to act in front of the Government, the market and the society.

[4] Source: Anbima website: http://portal.anbima.com.br/fundos-de-investimento/regulacao/codigo-de-fundos-de-investimento/Pages/codigo-e-documentos.aspx

a result of having only general e-mails in special from large Assets which in general are part of bank conglomerates, almost 91% of the respondents were from Independent Assets.

The questionnaire was open for responses from March 10 to March 21, 2014.

5.2. The Questionnaire and the Behavioral Biases

As mentioned, it was created a 18 questions questionnaire (besides other 10 questions about IF managers characteristics and Asset's information) based on the applied bibliography, in special in Pompian (2012), Pompian (2006) and Belsky and Gilovich (1999). Each question refers to a specific emotional or cognitive bias, as follows.

Affirmation 1: You make investment decisions with no much previously research.

Source: Belsky and Gilovich (1999), p. 170.

Tested Bias: Overconfidence

Overconfidence is an emotional bias. It's present in people who tend to overestimate both their own predictive abilities and the precision of the information received. "People think they are smarter and they have better information than they actually do" (Pompian, 2006), tending to confuse amount with quality of the information held to make decisions.

Affirmation 2: It's difficult to you sell an asset/investment for a price lower than you paid.

Source: Belsky and Gilovich (1999), p. 146.

Tested Bias: Anchoring

Anchoring is a cognitive bias. "Price anchoring is related to the heuristics bias and to the investor's memory. It is based on the presupposition that an investor evaluates the price and the market expectative regarding an asset's price based on its historical information" (KUTCHUKIAN, EID JR., and DANA, 2010). In other words: "people are generally better at estimating relative comparisons rather than absolute figures" (Pompian, 2006).

Affirmation 3: You classify your investments in categories like "new car", "vacation", etc.

Source: Pompian (2012), p. 98.

Tested Bias: Mental Accounting

Mental Accounting is a bias first introduced by Richard Thaler, a University of Chicago professor. "Mental accounting is the set of cognitive operations used by individuals and households to organize, evaluate, and keep track of financial activities. (…) Both the sources and uses of funds are labeled in real as well as in mental accounting systems. Expenditures are grouped into categories (housing, food, etc.) and spending is sometimes constrained by implicit or explicit budgets. (…) components of mental accounting violate the economic principle of fungibility. As a result, mental accounting influences choice, that is, it matters" (Thaler, 1999). People with this bias tend to save money in separated investment accounts and sometimes keep on debt in current account and/or in credit cards while holding money invested in a lower interest rate than their cost of credit.

Affirmation 4: If you buy a stock and latter you read or listen to the news that potentially may negatively affect the stock's price, you will wait for checking the market's reaction and only afterwards you will decide what to do.

Source: Pompian (2012).

Tested Bias: Loss Aversion

Loss Aversion is an emotional bias developed by KAHNEMAN and TVERSKY (1979) as part of the Prospect Theory when presenting relative preferences (e.g., "I prefer avoiding a loss to realizing a gain") (Pompian, 2006). This bias "can make investors dwell excessively on risk avoidance when evaluating possible gains, since dodging a loss is a more urgent concern that seeking a profit. When their investments do begin to succeed, loss-averse individuals hasten to look in profits, fearing that, otherwise, the market might reserve itself and rescind their returns. The problem here is that divesting prematurely to protect gains limits upside potential. In sum, loss aversion causes investors to hold their losing investments to sell their winning ones, leading to suboptimal portfolio returns" (Pompian, 2006).

Affirmation 5: When seeking for new investment alternatives, you thing about this topic but end up doing nothing.

Source: Pompian (2012), p. 97.

Tested Bias: Status Quo

Status Quo is an emotional biases first introduced by SAMUELSON and ZECKHAUSER (1988) which "predispose people facing an array of choice options to elect whatever option ratifies or extends the existing condition (i.e., the "status quo") in lieu of alternative options that might bring about change" (Pompian, 2006). It's a kind of "inertia". This bias can make an investor take excessive risks or keep on investing in too conservative investments.

Affirmation 6: You frequently decide suddenly for an investment (with no much afterthought) when an investment makes sense to you.

Source: Pompian (2012), p. 96.

Tested Bias: Availability

Availability is a cognitive bias that "allows people to estimate the probability of an outcome based on how prevalent or familiar that outcome appears in their lives. People exhibiting this bias perceive easily recalled possibilities as being more likely than those prospects that are harder to imagine or difficult to comprehend" (Pompian, 2006).

Investors with this bias tend to estimate the probability of an event according to how familiar it seems to them. For example, events that appear more in the media seem more likely to happen than others that are ignored.

Affirmation 7: When considering investing your money in an investment fund, you consider positive return's track record in the recent months as very relevant information to make your decision.

Source: Pompian (2006), p. 222.

Tested Bias: Recency

Recency "is a cognitive predisposition that causes people to more prominently recall and emphasize recent events and observations than those that occurred in the near or distant past" (Pompian, 2006). This "bias refers to the errors people make when the recency effect prejudices their recollections. Recency bias privileges information recently retained and neglects events and observations not as fresh in the mind" (Pompian, 2006).

Affirmation 8: Investment decisions you made in the past and ended up not so succeed alter your future decisions.

Source: Pompian (2012), p. 96.

Tested Bias: Regret Aversion

Regret Aversion is an emotional bias. People with this bias "avoid taking decisive actions because they fear that, in hindsight, whatever course they select will prove less than optimal. Basically, it seeks to forestall the pain of regret associated with poor decision making" (Pompian, 2006). Investors with regret aversion bias tend to "hold onto losing positions too long in order to avoid admitting errors and realizing losses", according to the same author.

Affirmation 9: Once you make your investment decision rarely you will change it later.

Source: Pompian (2012), p. 97.

Tested Bias: Conservatism

Conservatism is a cognitive bias linked to "a mental process in which people cling to their prior views or forecasts at the expense of acknowledging new information. (…) it may cause the investor to underreact to the new information, maintaining impressions derived from the previous estimate rather than acting on the updated information" (Pompian, 2006). Investors with this bias tend to keep attached to previous expectations and are incapable to change its view when facing a new scenario.

Affirmation 10: When an investment is not performing very well, you seek for new information that even though confirms you made the correct decision in the past.

Source: Pompian (2012), p. 99.

Tested Bias: Confirmation

Confirmation is a cognitive bias. It "refers to a type of selective perception that emphasizes ideas that confirm our beliefs, while devaluing whatever contradicts your beliefs. (…) We attach undue emphasis to events that corroborate the outcomes we desire and downplay whatever contrary evidence arises" (Pompian, 2006).

Affirmation 11: You believe that when you make your investment decision on your on the result will be better when you follow an advisor or another person's advice.

Source: Pompian (2012), p. 99.

Tested Bias: Illusion of Control

Illusion of Control is a cognitive bias which "describes the tendency of human beings to believe that they can control or at least influence outcomes when, in fact, cannot. This bias can be observed in Las Vegas, where casinos play host to many forms of this psychological fallacy. (…) Some people, when successful at trying to predict the outcome of a series of coin tosses, actually believe that they are "better guessers", and some claim that distractions might diminish their performance at this statistically arbitrary task" (Pompian, 2006).

Affirmation 12: To you what matters is a positive result on your investments. You don't care about following a plan.

Source: Pompian (2012), p. 99.

Tested Bias: Outcome

Outcome is a cognitive bias that drives an investor to make decisions considering only recent results no matter how they were obtained. "In monetary gambles, subjects rated the thinking as better when the outcome of the option not chosen turned out poorly than when it turned out well. Although subjects who were asked felt that they should not consider outcomes in making these evaluations, they did so. This effect of outcome knowledge on evaluation may be explained partly in terms of its effect on the salience of arguments for each side of the choice" (BARON and HERSHEY, 1988).

Affirmation 13: Most of the times you buy what you desire at the moment without considering if you are paying fair price or not.

Source: Pompian (2012), p. 95.

Tested Bias: (Lack of) Self-Control

(Lack of) Self-Control is an emotional bias present in individuals that spend too much at the present moment at the expense of future savings. These investors have difficult to meet their long run plans and goals because of their poor discipline in saving enough money for hard times or for retirement, for example.

Affirmation 14: Relatively to other investors, coworkers, friends and relatives, how good an investor you are?

Source: Pompian (2006), p. 169.

Tested Bias: Optimism

Optimism is an emotional bias that makes an investor considers yourself better than average. These people believe that bad things happen only to the others and not to themselves. "Investors tend to be overly optimist about the markets, the economy, and the potential positive performance of the investments they make. (…) Such oversights can damage portfolios because people fail to mindfully acknowledge the potential for adverse consequences in the investment decisions they make" (Pompian, 2006).

Affirmation 15: You prefer to buy stocks of well-known companies which fabricate products that you normally buy.

Source: Pompian (2012), p. 98.

Tested Bias: Affinity

Affinity is an emotional bias present in people who make decisions of consumption or investment based on affinity or positive first impressions without considering costs involved in that decision or possible other similar goods or assets at more convenient price.

Affirmation 16: Most of you investment decisions are made based on past returns of that same investment.

Source: Pompian (2012), p. 98.

Tested Bias: Representativeness

Representativeness is cognitive bias that makes people come to conclusions based on few representative events. Sometimes people have difficulties in understanding something new and so try to classify it into something more familiar or connect to pre-existent ideas. Pompian (2006), referring to Kahneman, Slovic and Tversky in *Judgment under Uncertainty: Heuristics and Biases,* mentions examples of harmful effects of sample-size neglect for investors: "Investors can make significant financial errors when they examine a money manager's track record. They peruse the past few quarters or even years and conclude, based on inadequate statistical data, that the fund's performance is the result of skilled allocation and/or security selection".

Affirmation 17: When reflecting about an investment you made in the past and was not well succeed, you conclude that it was a mistake that could easily be avoided.

Source: Pompian (2012), p. 98.

Tested Bias: Hindsight

Hindsight is a cognitive bias. It "is the impulse that insists: 'I knew it all along!' Once the event has elapsed, people afflicted with hindsight bias tend to perceive that the event was predictable – even if it wasn't. (…) people tend to overestimate the accuracy of their own predictions" (Pompian, 2006).

Affirmation 18: You believe that investment recommendations from large financial institutions are more trustful than those from smaller institutions.

Source: Pompian (2012), p. 97.

Tested Bias: Framing

Framing is a cognitive bias that "notes the tendency of decision makers to respond to various situations differently based on the context in which a choice is presented (framed). (…) People subject to framing experience an optical illusion" (Pompian, 2006). Depending on how an alternative is described, it will be chosen or not. The decision is influenced by how a situation is presented and by personal habits and characteristics.

5.3. Metrics for the Survey Possible Answers

Using 1-5 Linkert Scale, a metric created by the psychologist Rensis Likert and widely used in the social sciences to survey attitudes and individual's behavior, respondents could choose one between the following possible answers, except for the Affirmation 14:

Possible Answers	**Bias**
Totally Agree	Confirmed
Partially Agree	Confirmed
Indifferent	Not confirmed
Partially Disagree	Not confirmed
Totally Disagree	Not confirmed

For Affirmation 14, related to the Optimism bias, the possible answers were:

Possible Answers	**Bias**
Much better than average	Confirmed
Above average	Confirmed
Average	Not confirmed

Below average	Not confirmed
Worse than average	Not confirmed

5.4. Confirmation of the Tested Biases: Answers to the Survey

Table below summarizes IF managers answers to the 18 tested biases. Percentages refer to respondents that chose “Totally Agree” or “Partially Agree”, confirming that emotional or cognitive bias.

Affirmation Number	Bias	% of Confirmation (*)
14	**Optimism**	**77,55%**
8	**Regret Aversion**	**75,51%**
11	**Illusion of Control**	**60,20%**
10	**Confirmation**	**45,92%**
16	**Representativeness**	**36,73%**
17	**Hindsight**	**35,71%**
7	**Recency**	**33,67%**
4	**Loss Aversion**	**28,57%**
2	**Anchoring**	**23,47%**
12	**Outcome**	**23,47%**
13	**(Lack of) Self-Control**	**23,47%**
6	**Availability**	19,39%
9	**Conservatism**	17,35%
3	**Mental Accounting**	16,33%
15	**Affinity**	16,33%
18	**Framing**	11,22%
5	**Status Quo**	8,16%
1	**Overconfidence**	5,10%

(*) "Totally Agree" or "Partially Agree" responses.

Analyzing results in terms of the highest confirmed bias, it calls attention that some biases were strongly confirmed like Optimism, Regret Aversion, Illusion of Control and Confirmation. In the other hand, some biases were not confirmed, like as Overconfidence, Status Quo and Framing. It was considered a “confirmed bias” when at least 20% of the responses were “Totally Agree” or “Partially Agree”.

5.5. IF Managers profile and their Asset’s characteristics

In a similar methodology to Rield and Smeets (2014) which analyzed investor’s choice by American investment funds and related to their personal profile, it was created 10 initial questions aiming to identify personal characteristics on the IF managers and in their Assets which could be related to the their measured emotional and cognitive biases. These questions were the following:

Nº	Question	Possible Answers					
1	**Gender**	Male	Female				
2	**Age**	In years					
3	**Graduation**	Business Administration	Economics	Engineering	Other		
4	**Post-Graduation**	MBA in Brazil	MBA Abroad	Master Degree	PhD	Other	No Post-Graduation
5	**Asset Property**	Independent	Part of a Conglomerate or a Bank				
6	**Asset Origin**	Brazilian	Foreign				
7	**Asset Location**	São Paulo	Rio de Janeiro	Other			
8	**Assets under your management**	Until R$ 20 million	From R$ 20 to 100 million	From R$ 100 to 500 million	More than R$ 500 million		
9	**Fund Class under your management**	Fixed Income	Equities	Multi-Markets Funds	Other		
10	**Percentage of Equities in your personal investments**	Until 20%	From 20% to 50%	From 50% to 100%			

Investment Fund’s managers responses to these first 10 questions are summarized in the table below.

IF manager's personal characteristics			
1	Gender	Male	89,8%
		Female	10,2%
2	Age	Untill 30 years-old	19,4%
		From 30 to 40 years-old	48,0%
		Up to 40 years-old	32,7%
3	Graduation	Business Administration	41,8%
		Economics	33,7%
		Engineering	18,4%
		Other	6,1%
4	Post-Graduation(*)	MBA in Brazil	29,6%
		MBA Abroad	12,2%
		Master Degree	21,4%
		PhD	1,0%
		Other	14,3%
		No Post-Graduation	29,6%
10	Percentage of Equities in your personal investments	Until 20%	42,9%
		From 20% to 50%	25,5%
		From 50% to 100%	31,6%

Asset's characteristics			
5	Asset Property	Independent	90,82%
		Part of a Conglomerate or a Bank	9,18%
6	Asset Origin	Brazilian	89,80%
		Foreign	10,20%
7	Asset Location	São Paulo	61,22%
		Rio de Janeiro	21,43%
		Other	17,35%
8	Assets under your management	Until R$ 20 million	7,14%
		From R$ 20 to R$ 100 million	22,45%
		From R$ 100 to 500 million	30,61%
		More than R$ 500 million	39,80%
9	Fund Class under your management (**)	Fixed Income	27,55%
		Equities	73,47%
		Multi-Markets Funds	51,02%
		Other	21,43%

(*) Some IF Managers have more than one Post-Graduation.
(**) 38.8% of the IF managers have more than one fund class under management. In some cases, they have both fixed income, equities and multi-markets funds under their responsibility.

Since respondents could choose more than one alternative in questions 3, 4 and 9 in the end it generated several different variables that had to be treated an analyzed as follows.

5.6. Summary and Analysis of the Responses to the Survey

The initial 10 questions were transformed in 14 more relevant independent variables. It was considered "relevant" all possible answers with more than 10% of the responses. For example, only 1% of the respondents hold a PhD degree and only 10% are female. So these possible answers were not included. These 14 variables, for regressions analysis purpose, were categorized in "IF manager's personal characteristics" (questions 1 to 4 and 10 above) and "Asset's characteristics" (questions 5 to 9 above).

In Appendix 1 is presented a detailed explanation about the binary values (dummies) and scale creating for each of the 14 independent variables and its abbreviations. In Appendix 2 are listed the 18 tested behavioral biases and its abbreviations (dependent variables).

Descriptive statistics was applied to search for relations between dependent and independent variables. The most relevant findings are summarized in the following tables[5].

5.6.1. Fund categories under management of a single IF Manager:

	No of Respondents	% of Total
Only FIFM	3	3,1%
Only EFM	36	36,7%

[5] In these tables FIFM is a Fixed Income Fund Manager; EFM is an Equity Fund Manager; and MFM is a Multi-Market Fund Manager; PIN is Personal Investments.

Only MFM	16	16,3%
FIFM and EFM	4	4,1%
FIFM and MFM	2	2,0%
EFM and MFM	14	14,3%
FIFM, EFM and MFM	18	18,4%
Other Fund Category	5	5,1%
Total	98	

In total 38.8% of the IF managers have more than one fund class under management.

5.6.2. IF Managers Categories x Personal Investments, in number of respondents:

	FIFM	**EFM**	**MFM**
Number of Respondents	**27**	**72**	**50**
PIN in Equities: Until 20%	17	26	30
PIN in Equities: From 20% to 50%	8	19	10
PIN in Equities: From 50% to 100%	2	27	10

5.6.3. IF Managers Categories x Personal Investments, in percentage of 98 respondents:

	FIFM	**EFM**	**MFM**
Number of Respondents	**27**	**72**	**50**
PIN in Equities: Until 20%	63,0%	36,1%	60,0%
PIN in Equities: From 20% to 50%	29,6%	26,4%	20,0%
PIN in Equities: From 50% to 100%	7,4%	37,5%	20,0%

Interesting to note that 63% of the respondents' personal investments are until 20% in equities (80% in fixed income and/or low risk investments) while the 67.4% of them are Equity and/or Multi-Market Fund Managers – which usually take higher risks than Fixed Income Managers.

5.6.4. Personal IF Managers and Assets Characteristics and the Behavioral Investing Biases investigated

Table below reports main data obtained through the survey[6].

Behavioral Investing Bias	Overconfidence	Anchoring	Mental Accounting	Loss Aversion	Status Quo	Availability	Recency	Regret Aversion	Conservatism	Confirmation	Illusion of Control	Outcome
Bias Confirmation *	5	23	16	28	8	19	33	74	17	45	59	23
MALE	5	16	15	24	5	18	31	67	14	39	55	19
AGE Average	34,2	35,1	33,9	36,6	33,4	35,5	38,2	36,6	36,5	34,4	37,3	35,1
AGE Standard Deviation (years)	9,7	9,0	7,3	7,0	6,9	8,1	8,0	8,0	9,8	6,0	7,6	7,6
BA	3	11	6	10	4	7	16	36	7	24	23	14
ECON	2	8	8	11	2	9	9	23	8	14	18	4
ENG	0	1	1	4	2	3	5	10	1	5	15	4
POSTGRAD	3	18	15	24	5	14	25	52	11	29	40	13
IND_ASS	4	21	11	24	8	14	29	66	12	39	54	20
BZ_ASS	5	19	12	21	6	17	28	65	13	41	54	23
SPL	2	14	11	14	5	10	23	46	12	31	33	11
AUM: Until R$ 20 million	0	1	0	4	0	1	2	4	0	3	6	0
AUM: From R$ 20 to R$ 100 million	1	8	4	9	3	4	8	17	5	12	14	4
AUM: From R$ 100 to 500 million	3	6	5	7	2	6	10	26	3	11	20	9
AUM: More than R$ 500 million	1	8	7	8	3	8	13	27	9	19	19	10
FIFM	1	9	6	11	2	9	10	18	10	12	15	7
EFM	3	19	14	19	7	12	24	55	14	32	45	18
MFM	1	11	8	17	2	14	21	36	12	22	29	10
PIN in Equities: Until 20%	1	12	10	16	2	9	22	32	9	17	20	9
PIN in Equities: From 20% to 50%	1	7	6	7	3	5	5	17	5	16	14	4
PIN in Equities: From 50% to 100%	3	4	0	5	3	5	6	25	3	12	25	10

The most relevant observed characteristics can be summarized as follows. In terms of personal profile, respondents predominantly are male, average age 36 years-old with 8 years standard deviation, business administration or economics bachelors, with a Master Degree in Brazil or abroad. Their personal investments are more conservative (until 20% in equities) despite of the majority of them are Equities or Multi-Markets Fund Managers having more than R$ 100 million under their management. Their Assets are in general Independent, Brazilian, and São Paulo located.

Several different regressions were tested using Logit and Probit models, separating variables in two categories and all together for each behavioral bias. It was found high p-value and low R^2 resulting in equations of a low explanatory power.

6. Questionnaire Limitations

Rield and Smeets (2014) mention that "survey questions have many advantages but also some known limitations. For instance, participants might differ from non-participants and the answers of respondents may depend

[6] All variables creation and abbreviations mentioned in the table below are in the Appendix 1 and 2.

upon the framing of the questions. (…) Surveys also have major benefits. In our case, (…) we can collect information on additional important control variables, like self-rated investment knowledge, income level, gender, age, etc.”

In addition, 98 respondents not necessarily perfectly represent the whole investment fund managers in Brazil. Consequently, it’s not possible to infer that those not confirmed biases, like Overconfidence, Affinity and Framing, are not present in the whole IF managers in Brazil population.

Even so this research brings an important contribution to the behavioral investing biases study, with a unique and recent data base and important findings to the investment fund industry in Brazil.

7. Conclusion

This paper had the purpose to analyze 18 Behavioral Investing Biases in the Investment Fund Managers in Brazil from 98 answers to a 28 questions survey. Eleven of the eighteen searched biases were considered confirmed having more than 20% of positive answers (“Totally Agree” or “Partially Agree”) between respondents, in terms of highest confirmation order: Optimism, Regret Aversion, Illusion of Control, Confirmation, Representativeness, Hindsight, Recency, Loss Aversion, Anchoring, Outcome and (Lack of) Self-Control. Searched but not confirmed (less than 20% of positive answers) were, in decreasing confirmation order: Availability, Conservatism, Mental Accounting, Affinity, Framing, Status Quo and Overconfidence – according to the respondent’s answers.

This survey also aimed to map the personal profile of Investment Fund Managers in Brazil and their Assets characteristics. In terms of personal characteristics, it was found that 90% of the respondents were male, average age 36 years-old (with 8 years standard deviation), Business Administration or Economics Bachelors, with MBA in Brazil, Abroad or Master Degree. Most of them are Equities or Multi-Markets Investment Fund Managers with more than R$ 100 million under management but their personal investments are mostly in fixed income (until 20% in equities). Assets searched are 90.8% Independent (not part of a Bank or a Conglomerate), Brazilian, São Paulo located.

A suggestion for further studies is to investigate if the existence of (i) investment committees in Assets and (ii) investment funds categories (according to the Anbima’s funds classification) and its correspondent asset allocation policies (that has to be adherent to the fund classification by the Brazilian regulation) both or individually affect the relation between the Investment Fund manager’s emotional and cognitive biases and its asset allocation decisions. In addition, relations between IF managers behavioral investing biases and their investment fund’s results could also be studied.

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Appendix 1

Ten initial questions aiming to identify personal characteristics on the IF managers and in their Assets were created seeking for explaining the existence of the 18 measured emotional and cognitive biases (dependent variables). These questions were transformed in 14 more relevant **independent variables**, in order to generate regression models for each confirmed bias. The table below presents a detailed explanation about the binary value and scale creating for each variable.

No	Question	**Independent Variable**	Answers Considered	Dummies and Scales
IF Manager's Personal Characteristics				
1	Gender	MALE	Male	1
			Female	0
2	Age	AGE	In years	number of years
3	Graduation	BA	Business Administration	1 if "yes" or 0 if "no"
		ECON	Economics	1 if "yes" or 0 if "no"
		ENG	Engineering	1 if "yes" or 0 if "no"
4	Post-Graduation	POSTGRAD	MBA in Brazil; MBA Abroad; Master Degree; PhD; Other; No Post-Graduation	1 if "some post-graduation" or 0 if "no post-graduation"
10	% of Equities in your personal investments	PINV	Until 20%	0
			From 20% to 50%	1
			From 50% to 100%	2
Asset's Characteristics				
5	Asset Property	IND_ASS	Independent	1
			Part of a Conglomerate or a Bank	0
6	Asset Origin	BZ_ASS	Brazilian	1
			Foreign	0
7	Asset Location	SPL	São Paulo	1 if "yes" or 0 if "no"
8	Assets under your management	AUM	Until R$ 20 million	0
			From R$ 20 to R$ 100 million	1
			From R$ 100 to 500 million	2

			More than R$ 500 million	3
9	Fund Class under	FIFM	Fixed Income	1 if "yes" or 0 if "no"
	your	EFM	Equities	1 if "yes" or 0 if "no"
	management	MFM	Multi-Markets Funds	1 if "yes" or 0 if "no"

A similar approach was used to create binary values for the 18 emotional and cognitive biases which are the **dependent variables**, according to the respondent answer to each question, as follows:

Possible Answers	**Binary Value**
Totally Agree	1
Partially Agree	1
Indifferent	0
Partially Disagree	0
Totally Disagree	0

If 1, it is a “confirmed bias”. If 0, it is a “not confirmed bias”.

Appendix 2

The 18 tested cognitive and emotional biases and its abbreviation in the tables (data summary) are presented below.

Bias	Abbreviation
Overconfidence	OVERCONF
Anchoring	ANCHOR
Mental Accounting	MACC
Loss Aversion	LOSSAV
Status Quo	STATUSQUO
Availability	AVAILAB
Recency	RECENCY
Regret Aversion	REGRETAV
Conservatism	CONSERV
Confirmation	CONFIRM
Illusion of Control	ILUSCONTR
Outcome	OUTCOME
(Lack of) Self-Control	SELFCONTR
Optimism	OPTIM
Affinity	AFINN
Representativeness	REPRESENT
Hindsight	HINDSIGHT
Framing	FRAMING