Investment Decision: The Analysis of Risk Perception, Regret Aversion Bias Perception, and Overconfidence

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ABSTRACT

Capital market has become the most preferred investment instrument. It can be seen from the significant growth of investment in Indonesia. The investment growth in the country is on the rise in a significant way, proven by the rising number of Single Investor Identifications (SID). There are numerous things to be considered in making an investment decision. This research study aims to examine the influence of risk perception, regret aversion bias perception, and overconfidence on investment decision-making among Yogyakarta people. The number of respondents is 200 respondents; the data were processed by using the SPSS statistics 26. The research findings reveal that risk perception and overconfidence have a significant and positive influence, while regret aversion bias perception does not have an influence on investment decision.

Keywords: Risk Perception, Regret Aversion Bias Perception, Overconfidence, Investment Decision.

1. INTRODUCTION

Capital market is the place where investors and emittents do the transactions of buying and selling bonds, stocks, mutual funds, and other instruments for the long run. It plays such an important role in economic activities and has become one of economic barometers of economic growth (Budiarto et al. 2017). Investing in capital market has been popular these days; this can be seen from the investment growth which is on the rise significantly, proven by the rising number of Single Investor Identification (SID) during the past 5 years, from 2016 – January 2021 (KSEI, 2021). Figure 1 is the graph of the increasing number of Single Investor Identification (SID) in 2016-2021.

The graph explicitly informs that investing activities in the capital market are on the rise. When an investor intends to make an investment, it is concerned with investment decision. Investment decision is a policy taken to make decisions in which the individual faces two or more investment options with the hope of gaining returns in the future over the capital invested (Budiarto et al. 2017). The success of an investment is determined by how correctly the decisions are made, the investment types selected, and times that have a greater probability to gain returns (Afriani et al. 2019).

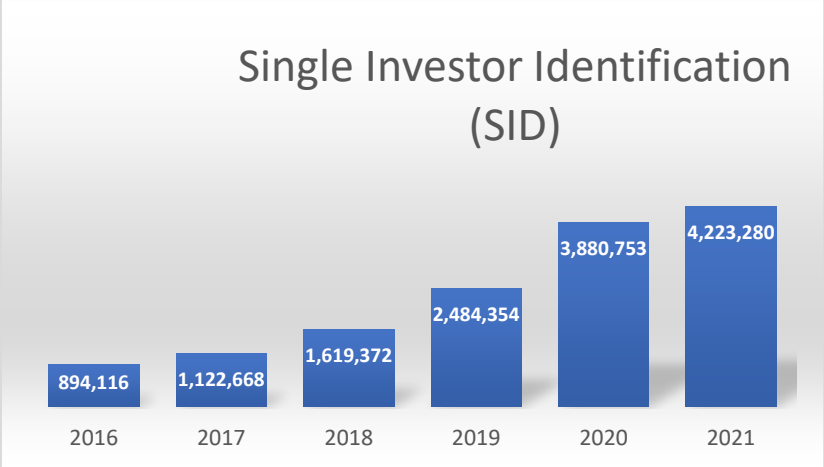

Figure 1.

As it is well-known that the process of decision-making is not easy; investors will come across a wide range of risks and bear any financial consequences, namely profits or losses. Due to the expectation of high returns over the choices made, they should think and behave rationally. However, they often do conversely (Afriani et al. 2019). The irrationality arises due to the psychological factor from the investor himself. Risk perception is one of the factors that influence investment decision-making. In the study of Fridana (2020), risk perception had a positive influence on investment decision, which means the investors considered risks when deciding to invest. In contrast, Mutawally (2019) found that risk perception did not influence investment decision-making.

Regret aversion bias is a bias or regret aspect that arises due to suffering from losses, so that the decisions made aim to avoid similar mistakes (Nurdinda et al., 2020). The study of Nurdinda (2020) revealed that regret aversion bias had an influence on investment decision making. On the contrary, Wardani (2017) suggested that regret aversion bias did not influence investment decision. The absence of this influence is because most of the respondents did not regret with the unpleasant experiences when investing.

Overconfidence is a bias in which the individual is confident with his ability to evaluate events correctly, including to assess a situation. At times, there is a bias affecting the investor when making decisions (Budiarto et al. 2017). Overconfidence is an individual's tendency to be extremely certain with his ability and prediction to succeed (Afriani et al. 2019). Fridana (2020) argued that overconfidence had an influence on investment decision-making. In contrast, Afriani (2019) revealed different finding, that overconfidence did not influence investment decision making. The absence of this influence is because the respondents hadn't had such an expertise in stock transactions.

Numerous studies on investment decision making have been conducted, but the findings haven't not been found consistent. That's why this research is conducted by involving the Yogyakarta people who have the knowledge of capital market and have invested in the capital market as the respondents. This research study aims to prove (1) the influence of risk perception on investment decision making, (2) the influence of regret aversion bias perception on investment decision making, and (3) the influence of overconfidence on investment decision making.

2. LITERATURE REVIEW

2.1. Behavioral Finance

According to Afriani (2019), behavioral finance is the science that explains how cognitive and emotional factors can affect financial decision making.

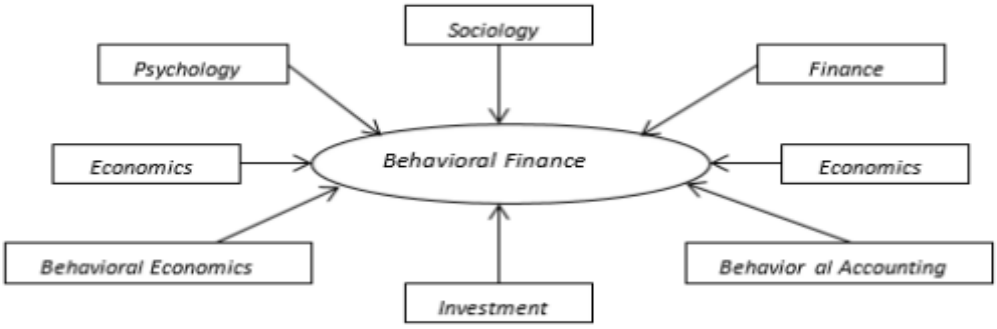

Figure 2

Fridana (2020) explained that behavioral finance is an individual's act based on his psychological state, so that it can be used to find out his emotions and cognitive mistakes when making decisions. The psychological factors are risk perception, that is a situation in which an investor assesses whether a thing is risky depends on the investor's psychological characteristics and condition (Pradikasari et al. 2018). Bias regret aversion is an individual's act to avoid similar decision mistakes. Such avoidance occurs due to the fear to encounter similar losses (Yohnson, 2008). Overconfidence is a condition in which an investor is inclined to be too confident with his ability and knowledge when making decisions (Afriani et al. 2019).

2.2. Prospect Theory

Prospect theory is the theory developed by Kahneman and Tversky (1979) which combines 2 (two) different disciplinary areas – economics and psychology. This theory assumes that human behavior is considered strange and contradictory in decision making and always irrational. Initially, investors' decisions are made based on estimates and investment prospects, but over time there are other factors that influence investment decision making, that is psychological factor. Even experts showed that the one which the most affects an individual in decision making is his psychological factor (Pradhana, R.W., 2018).

According to Mutawally and Asandimitra (2019), prospect theory is the theory that says an individual decides in an uncertain condition. This theory assumes that one's behavior is considered contradictive and always irrational when making decisions. Pradikasari and Isbanah (2018) explained that an individual is not always acting rationally under risks and uncertainty; psychological factor and behavior instability will play such a significant role in making rational decisions. This theory states that there is a bias attached to the individual continuously motivated by psychological factor and affect his choices in uncertain conditions.

Pompian (2006) explained that bias is categorized into two cognitive and emotional bias. Cognitive bias is irregularities in the process of understanding, processing, and making decisions on information or facts. Overconfidence is categorized

into cognitive bias, that is a belief which is not guaranteed, and only based on intuition, judgement, and cognitive ability. Furthermore, emotional bias is the mistakes that take place due to emphasizing more on feelings and spontaneity rather than facts. One of the examples of this bias is regret bias, that is the decision made aims to avoid similar mistakes because of the fear to experience the same losses.

2.3. Hypotheses

2.3.1. Risk Perception and Investment Decision Making

Risk perception is an individual judgment about risky situations to be faced. The judgement is dependent upon the individual's psychological characteristics and conditions (Pradikasari et al. 2018). According to Kumar in Mutawally & Asandimitra (2019), risk perception is based on prospect theory, which means the investors will take into account risks in financial asset by focusing on their purposes and past experiences. Yolanda & Tasman (2020) explained that an investor will assess risks based on his professional knowledge, so that the level of acceptable risks can be determined and the right investment decisions are made.

The study of Fridana & Asandimitra (2020) showed that risk perception had a positive influence on investment decision making. In this study, the respondents acted based on thorough considerations and the information owned. Thus, hypothesis 1 is proposed as follows:

H1 : Risk perception has a positive influence on investment decision.

2.3.2. Regret Aversion Bias Perception and Investment Decision Making

Regret bias perception is the perception of loss, so the decision is made to avoid mistakes due to the fear of having losses (Yohnson, 2008). Kahneman in Budiarto in Susanti (2017) regarding prospect theory contended that the bias attached to an individual will affect his choices in uncertainty conditions. Those who suffer from losses in investing activities will be more careful in deciding the types of investment in the future and inclined to select the type of investment with lower risk level. Conversely, if the investor has pleasant experiences, he will be more likely to choose the types of investment that have higher risk level with a certain level of returns (Wardani et al. 2016).

The research conducted by Nurdinda (2020) revealed that regret aversion bias influenced investment decision making. This indicates that an investor's failure or losses would affect his investment decision making in the future. The explanation leads to H2 proposed as follows:

H2 : Regret Aversion Bias Perception has a positive influence on investment decision.

2.3.3. The Influence of Overconfidence on Investment Decision Making

Overconfidence is unreasonable beliefs over intuitive reasoning, judgement, and one's cognitive ability. Being too confident is a bias that may affect investment decisions. When an individual is in a bias condition, he will believe in his ability to evaluate situations in a correct way, and to assess the situations. Thus, the presence of bias may impact the process of decision making (Budiarto et al. 2017). An investor with a high

level of self-confidence will dare to make investment decisions, whereas an investor with a lower level of overconfidence will be more careful in making decisions.

Fridana and Asandimitra (2020) found that overconfidence had an influence on investment decision. This indicates that the respondents had a higher level of confidence in making decisions. This research finding is in line with that of Budiarto & Susanti (2017). Based on the explanation, H3 is proposed as follows:

H3 : Overconfidence has a positive influence on investment decision.

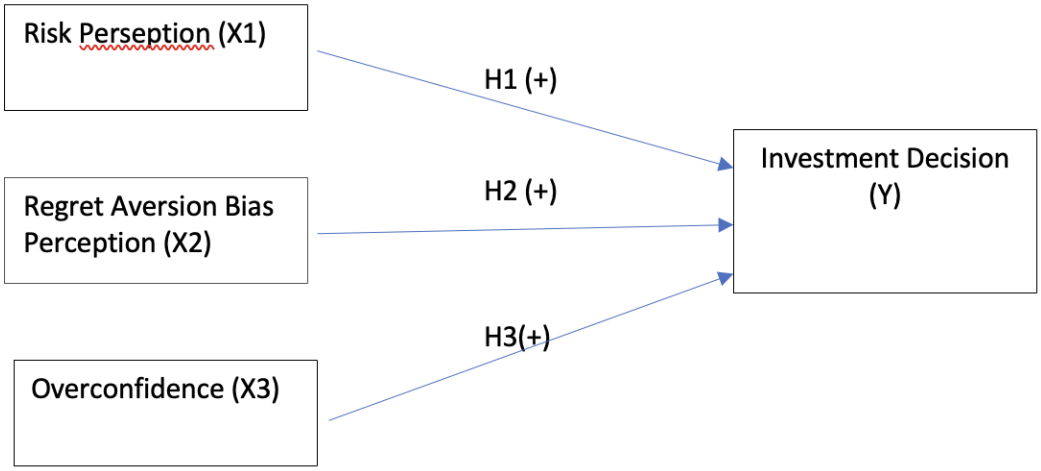

Figure 3

3. RESEARCH METHOD

3.1. Populasi dan Sampel

The population in this research is the community in Special Region of Yogyakarta. Those who become the respondents are the people who domicile in Yogyakarta, who have the knowledge of capital market and have invested in the capital market.

3.2. Data Collection Technique

The questionnaire was distributed online using Google form. Each question was measured by using the 1 – 6 Likert scale.

3.3. Research Variable

3.3.1. Dependen Variable

3.3.1.1. Investment Decision

According to Budiarto et al. (2017), investment decision is a policy taken to make decisions in which an individual is faced with two or more investment options with the hope of gaining returns in the future over the capital invested. This variable is measured using the Likert scale with 7 question items developed by Putri (2019). The indicators

that make up investment decisions are measured by the basics of investment decisions, namely return/level of return on investment, risk and time factor.

3.3.2. Independent Variable

3.3.2.1. Risk Perception

Risk perception is an individual judgement about risky situations; the judgement is dependent on his psychological characteristics and conditions (Pradikasari et al. 2018). The variable of risk perception was measured by using the Likert scale with 3 question items developed by Wulandari (2014). The indicators that make up risk perception variable are investment with various considerations and guarantees, and the use of income for non-risky investment.

3.3.2.2. Regret Aversion Bias Perception

According to Nurdinda et al. (2020), regret bias is the regret that arises due to suffering from losses, so that the decisions made aims to avoid similar mistakes. This variable was measured by using the Likert scale with 2 question items developed by Budiarto (2017). The indicators for this variable are measured using the statements of the fear and the uncertainty about similar investment losses, as well as avoiding the same losses.

3.3.2.3. Overconfidence

Overconfidence is the feeling of being too self-confident with self-ability and knowledge when making investments (Pradikasari et al. 2018). The variable of overconfidence was measured by using the Likert scale with 3 question items developed by Angga Budiarto et al. (2017). The indicators that make up this variable are the assessment of selecting the exact investment, level of belief in the ability and knowledge owned, the belief in investment choice.

4. RESULTS AND DISCUSSIONS

4.1 Results of Data Collection

The respondents in this research are the people who domicile in Yogyakarta, have the knowledge of capital market and have invested in the capital market. The questionnaire was distributed online using Google form; 200 respondents were obtained. In determining the minimum sample size, Crocker and Algina (1986) stated that a minimum sample size of 200 is minimally required for stability.

4.2 Description of Respondents Data

4.2.1 Distribution of Survey Respondents by Gender

Table 1. Distribution of Survey Respondents by Gender

Gender	Amount	Percentage
Male	92	46%
Female	108	58%
Total	200	100%

The number of respondents filling out the data completely is 200, which consists of 92 or 46% of the respondents are male respondents, and 108 or 58% of the respondents are female respondents.

4.2.2 Distribution of Survey Respondents by Age

Table 2. Distribution of Survey Respondents by Age

Age	Amount	Percentage
< 20 years old	17	8.5%
20 – 25 years old	170	85%
> 25 years old	13	6.5%
Total	200	100%

Table 2 above shows that most of the respondents (85%) were aged between 20-25 years old. Those who were aged less than 20 years old are 8.5%, and those who were aged more than 25 years old are 6.5%.

4.2.3 Distribution of Survey Respondents by Education

Table 1. Distribution of Survey Respondents by Education

Occupation	Amount	Percentage
Undergraduate Student	169	84.5%
Associate's Degree	2	1%
Bachelor's Degree	28	14.5%
Others	0	0%
Total	200	100 %

Based on those respondents who reported their educational background, most of them were still undergraduate students (84.5%), 14.5% were bachelor's degree, and the rest were associate's degree.

4.3. Descriptive Analysis

Table 4. Descriptive Statistics of the Research Variables

	N	Minimum	Maximum	Mean	Std. Deviation
Risk Perception	200	1	6	5.04	0.977
Regret Aversion Bias	200	1	6	4.37	1.366
Overconficande	200	1	6	4	1.200

Investment Decision	200	1	6	5.21	0.827
Valid N (listwise)	200				

(Source: Primary Data 2021)

Table 4 displays that the average of all variables is above 4. This indicates that the respondents have high risk perception, high regret aversion bias, and high overconfidence.

4.4 Validity Test

From the results of validity test, it is known that each question in the questionnaire is declared to be valid, as r count is larger than r table. Out of the 200 sample, obtained (dF) = 200-2, with a level of confidence of 95% atau (α = 5%), so that the value (dF) from 198 is 0.116.

Table 5 Hasil Uji Validitas

Construct	Item	R Count	Information
Risk Perception	X1.1	0.780	Valid
	X1.2	0.845	Valid
	X1.3	0.745	Valid
Regret Aversion Bias	X2.1	0.929	Valid
Perception	X2.2	0.927	Valid
Overconfidence	X3.1	0.714	Valid
	X3.2	0.891	Valid
	X3.3	0.881	Valid
	X3.4	0.550	Valid
Investment Decision	Y1	0.624	Valid
	Y2	0.681	Valid
	Y3	0.658	Valid
	Y4	0.762	Valid
	Y5	0.761	Valid
	Y7	0.612	Valid

(Source: Primary Data 2021)

4.5 Reliability Test

For the reliability test in this research study, the value of cronbach alpha larger than 0.6 is obtained. This indicates that the questionnaire in this research is reliable or can be the indicator for the variable being measured (Ghozali, 2018).

Table 2. Results of Reliability Test

Variables	Cronbach Alpha	Information
Risk Perception	0.639	Reliable
Regret Aversion Bias	0.839	Reliable
Overconfidence	0.765	Reliable
Investment Decision	0.812	Reliable

*(*Source: Primary Data 2021*)*

4.6 Classical Assumption Test Uji Asumsi Klasik

4.6.1 Normality Test

Normality test aims to find out whether the independent and dependent variables are normally distributed or not. In this test, the value of Asymp. Sig.(2-tailed) > 0.05 is categorized to be normal.

Table 3 Result of Normality Test

One-Sample Kolmogorov-Smirnov Test	
	Unstandardized Residual
Asymp. Sig. (2-tailed)	0.200

*(*Source: Primary Data 2021)

Based on the normality test using One Sample Kolmogorov- Smirnov, the value of Asymp. Sig. is 0.200, which means the regression model is normally distributed as 0.200 > 0.05.

4.6.2 Multicollinearity Test

Multicollinearity test aims to examine if there is a correlation between independent variables in the regression model (Ghozali, 2018). A regression model is good if a correlation does not occur between independent variables. This test produces the value of tolerance and variance inflation factor (VIF). Multicollinearity can be detected by the value of cut off showing the tolerance value > 0.1 or similar to the value of VIF < 10.

Table 8 Results of Multicollinearity Test

Variables	Tolerance	VIF
Risk percetion	0.880	1.136
Regret aversion bias	0.860	1.162
Overconfidence	0.974	1.026

(Source: Primary Data 2021)

Table 8 demonstrates that the three variables have a tolerance value of > 0.1 and a VIF value < 10, so that it can be concluded that the multicollinearity does not take place.

4.6.3 Heteroscedasticity Test

Heteroscedasticity test aims to examine if the variable inequality occurs from the residual of one observation to other observations in the regression model. If the variance from the residual of one observation to other observations is fixed, it is called homoscedasticity. This research study makes use of Park test by regressing the natural logarithm value from the residual squared (LnU2i). Heteroscedasticity test generates the significance value of Park correlation between each independent variable and its residual. If the significance value is larger than α (5%), heteroscedasticity does not take place. Otherwise, if the significance value is smaller than α (5%), heteroscedasticity takes place.

Table 4 Results of Heteroscedasticity Test

Variabel	Sig.
Risk percetion	0.202
Regret aversion bias	0.767
Overconfidence	0.139

(Source : Primary Data 2021)

Table 9 shows that the significance values of the independent variables are larger than 0.05 or 5%. Thus, the regression model is free from heteroscedasticity symptoms.

4.7. Results of Hypothesis Testing

The following table presents the results of hypothesis testing.

Table 10 Results of Hypothesis Testing

Hipotheses	Description	Coefficient	p-Value	Information
H1	Risk perception has a positive influence on investment decision.	0.128	0.004	**Supported**
H2	Regret aversion bias perception has a positive influence on investment decision.	-0.017	0.442	**Not Supported**
H3	Overconfidence has a positive influence on investment decision.	0.068	0.000	**Supported**
Adjusted R Square 0.128				

4.7.1 Risk Perception and Investment Decision

Table 10 displays that the value of regression coefficient is 0.128 and the p-value is 0.004 (smaller than 5%) for hypothesis 1 testing. It means that the variable of risk perception has a positive influence on the decision to invest in the capital market. Thus, H1 is SUPPORTED.

Risk perception is an individual judgement about a situation that contains risks; the judgement is dependent upon the individual's psychological characteristics and conditions (Pradikasari et al. 2018). This understanding is in line with the theory of behavioral finance,

that the individual's act is based on his psychology. With the theory of behavioral finance, emotions and cognitive mistakes are identified when the individual is making investment decisions (Fridana et al. 2020). So, according to this theory, psychological conditions may affect the process of decision making. In addition, this research study makes use of prospect theory – the theory explaining how an individual is making decisions in uncertainty conditions. If he has a high level of perception risk, he will be more likely to consider various things to make the right decision in investing. This research finding corroborates Fridana et al. (2020) revealing that risk perception has a positive influence on investment decision.

4.7.2 Regret Aversion Bias Perception and Investment Decision

Table 10 shows that hypothesis 2 testing has generated the value of regression coefficient -0.017 and the p-value 0.442 (larger than 5%). It means the variable of regret aversion bias perception does not influence investment decision. Thus, H2 is NOT SUPPORTED.

The variable of Regret Aversion Bias Perception (X2) has an insignificant and negative influence on investment decision. This can be seen from the significance of Regret Aversion Bias (X2) 0.442 which is above 0.05, meaning insignificant. So, it can be concluded that the hypothesis stating regret aversion bias has an influence on investment decision is not supported.

This is aligned with the theory of behavioral finance that one's act is based on one's psychology. This theory is used to find out the individual's emotions and cognitive mistakes, when he makes investment decisions (Fridana et al. 2020). Regret aversion bias is a position in which an investor is unable to act decisively due to the past mistakes. In this research, regret aversion bias does not have a significant influence on investment decision. It indicates that most of the respondents had no such a regret when suffering from losses in the past. This research finding supports Wardani et al. (2016) revealing that regret aversion bias did not affect investment decision. According to Yohnson (2008), from the perspective of an economic psychologist, there are a few factors why regret aversion bias does not influence investment decision. First, Indonesian economy expectation. Second, the perception of the increasing price level. Thus, when an investor has losses, it does not have any influence in investment decision making.

4.7.3 Overconfidence and Investment Decision

Table 10 demonstrates that the value of regression coefficient is 0.068 and the p-value is 0.000 (smaller than 5%) for hypothesis 3 testing. It indicates that the variable of overconfidence has a significant and positive influence on the decision to invest in the stock market. Thus, hypothesis 3 is SUPPORTED.

Such significant and positive influence can be seen from the significance value of overconfidence (X3) 0.000 which is less than 0.05, meaning significant. So, it can be concluded that the hypothesis stating overconfidence has an influence on investment decision is supported.

This research is in line with prospect theory that says human behavior is considered contradictory and always irrational in making decisions. Being too confident is the unreasonable belief over intuitive reasoning, judgement, and one's cognitive ability. The consequence of overconfidence will impact the investor - exaggerating his ability to assess a company's potential, tend to be exaggerated in trading, and tend to underestimate risks (Afriani

et al. 2019). Thus, when the individual has a high level of confidence, he will dare to make decisions,

This research finding corroborates the research finding of Budiarto at al. (2017) revealing that overconfidence had an influence on investment decision.

4.8. Analysis of Determination Coefficient

The multiple regression analysis conducted has generated the value of Adjusted R Square 0.128. This indicates that the independent variables – risk perception, risk aversion bias, and overconfidence can explain the dependent variable, which is 0.128 or 12.8%. Meanwhile, the 87.2% of the investment variable is influenced by other variables excluded in this research study.

5. CONCLUSIONS AND LIMITATIONS

5.1 Conclusions

1. Risk perception has a significant and positive influence on investment decision, which means the higher the risk perception, the larger they invested in the capital market.
2. Overconfidence has a significant and positive influence on investment decision, which means the higher the overconfidence, the larger they invested in the capital market.
3. Regret aversion bias perception does not have an influence on the investment decision, which means the respondents had no such a regret feeling over the losses experience in the past and remained to invest in the capital market.

5.2 Limitations and Suggestions

The determination coefficient obtained in this research is 12.8%. This indicates that there are other factors excluded in this study that affect investment decision making. Therefore, in future studies it is suggested that: 1) the number of respondents be added, 2) other variables be added, especially those that can affect investment decision, such as herding, risk tolerance, status quo bias.

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