

## How do Behavioral Factors Affect Stock Market Participation in Pakistan?

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### Abstract

This study investigates the impact of behavioral factors on the stock market participation in the Pakistan stock market using Prospect theory. It is a cross sectional study and used a structured questionnaire to collect data from 406 actual individual investors during Sep/2023 – Jan/2024. The data was analyzed and hypotheses were tested by using smart PLS 4. A statistical result reveals that elements of Prospect theory have a significant influence on the stock market participation. The findings show that disposition, herding, cognitive dissonance and other heuristic biases have a significant impact on the investors' decision to participate in the stock market. The study finding shows an important insight of the prospect factors i.e. most of the prospect factors show a positive relationship with the stock market participation due to the daily growth in the KSE-100 index during the study period. This study is one of the initial attempts on the Pakistan stock market, and the findings highlight how prospect factors influence investors' decisions. On the basis of these findings, Authors suggest that Security & Exchange Commission should promote investment educations and introduce access of individuals' investors to institutional advisory services for guarding their principal investment from possible negative effects which are likely to be existed in the stock market outside of the boundaries of stock market regulations.

**Key words:** Prospect theory, Pakistan stock market, disposition effect, cognitive dissonance, herding, heuristic biases, KSE-100 index

### Introduction

Stock market is a network where companies, traders, and investors buy and sell shares. It help companies to generate funds for their businesses on one hand and on the other, it help the general public to make their surplus amount invested in profit making activities. Literature on

economics and finance shows that participation of the public in the stock market is good for the well-being of individuals as well the country itself (Taylor, 2020). According to Xia et al., (2014), individuals' investment in the stock market creates wealth, regular income, and help in the country economic development. According to Aldoghan et al., (2022), the growth of stock market is directly proportional to the numbers of participants in the stock market. Due to these benefits, Bekaert and Harvey (1998) highlights the needs for the policy makers to understand factors that affect the individuals stock market participation.

The low participation of the general public in the stock market is a global phenomenon as revealed by the studies of (Adil et al., 2022) and (Guiso et al., 2008) and Gardini et al., (2022) called this as a puzzle of macroeconomics and finance. Unlike other countries, participation of the general public in the Pakistan stock market exchange is the weakest compared to other countries. As per NCCPL's reports (2023), 267,136 people have invested in the PSX in a population of 231 million i.e. 0.13%, which is very weak compared to 35.50% in China, 6.13% in India, 13.65% in Iran, 35.50% in UK, and 45.19% in the United State (Shahid et al., 2022; Adil et al., 2023).

Exact reasons of individuals non participation in the stock market is not well known, (Gumbo et al., 2018), and this non-participation is pervasive across demographics including age, literacy, wealth level, gender, and finance knowledge (Sabiran et al., 2023). Yang et al., (2021) categorize the research on the non-participation into (a) based on conventional finance theories (b) behavioral finance theories. Xia et al., (2014) are of the view that non-participation is caused by psychological, emotional and utilities seeking rationalities. Due to non-pragmatic assumptions of the conventional finance theories i.e. investors are always rational, stock prices represent true value, and market remain in the equilibrium (Gumbo et al., 2018), it could not explain the dotcom bubble in 2001, and financial crises 2008 (Gul et al., 2015).

Most of the research on the non-participation is now based on behavioral finance (Sabiran et al., 2023). According to Sabiran et al., (2023), investors in the stock market are prone to the mistakes of disposition effect, herding, heuristics biases and cognitive dissonance. According to Gul et al., (2015), Investors frequently make irrational decisions that are neither good for their wealth nor for their well-being. Though a lot of research is available globally on

behavioral factors affecting non-participation in the stock market, there is no detailed study on the Pakistan stock market, hence there is a need for a study that specifically focus on the Pakistan stock exchange and is based on the input of investors who exists on the platform of the PSX. This study is meant to explore following research questions.

- RQ1. Does disposition effect affect the participation of individuals' investors in the Pakistan Stock Market?
- RQ2. Does herding behavior affect the participation of individuals' investors in the Pakistan Stock Market?
- RQ3. Does cognitive dissonance affect the participation of individuals' investors in the Pakistan Stock Market?
- RQ4. Do heuristic biases affect the participation of individuals' investors in the Pakistan Stock Market?

#### **Review of literature and hypotheses development**

A lot of research has been conducted on the non-participation in the stock market during the past few decades investigated different variables (Sivaramakrishnan & Srivastava, 2019). Lai (2019) conducted a study on herding, cognitive dissonance, overconfidence and other behavioral biases and found that these variables have a significant effect on the stock market participation. A similar study conducted by Shehata et al. (2021) confirmed the findings of the study of Lai (2019). Sabiran et al. (2023) investigated the impact of cognitive dissonance, herd behavior and other heuristic biases and found that its predictability impact on stock market participation is significant. Gul et al., (2015) are of the view that investors make irrational investment decisions in the stock market, which make them net loser and discourage them to continue or maintain their investment. According to them, investor's irrational decisions are explained by Prospect theory which explains how investors make decisions under uncertainty. Prospect theory was suggested by Kahneman and Tversky (1979), and the theory that investors make choices with intention to minimize losses instead of maximizes gain. Investors are risk seekers when their stakes are low and risk avoiders when their stakes are high. The theory further states that investors' magnitudes of losses are more than the magnitude of gain. Due to these characteristics, investors resort to herding, cognitive dissonance, disposition effect and other heuristics biases.

### Stock Market Participation (SMP)

Stock market participation is the dependent variable of this study. By following past study of Sivaramakrishnan & Srivastava, (2019), the construct is used to represent participation in the stock market through selling, and buying of share. A five point Likert scale has been used to measure it different elements. All elements have been adopted from past studies conducted by Lai, (2019), Sabiran et al. (2023) Jain et al. (2023).

### Disposition effect

Disposition effect is the anomaly in the investors' behavior where they tend to sell shares which have increased in value while keeping those shares which decreased its value (Parveen et al., 2021). Investors do so as enjoy profit and they do not like losses Shefrin and Statmen 1985). The disposition effect is explained by the Prospect theory, according to Jain et al. (2023), investors when faced with options of gain and losses of equal yield, investors are more likely will opt for the option of gain though both options have the same and equal financial yield. According to Shefrin and Statemen (1985), investors are more conscious about their wealth and they prefer to avoid losses. This study examined the impact of disposition effect on the stock market participation by testing the following hypothesis.

$H_1$  : Disposition effect affects the investors' stock market participation in the Pakistan stock market.

### Herding

Herding behavior is the following of crowd in investment decisions in the stock market without doing any evaluation exercise involving technical or fundamental analysis Yang et al., 2021). Herding causes market inefficiencies, deviate stock prices from fair values and generate artificial market bubbles (Sias, 2004). Investors resort to herding by falling prey to the greed of earning quick money, or avoid losses (Gul et al., 2015). It distorts the stock prices from their intrinsic fair value either by increasing it too much or decreasing it (Spyrou et al., 2013). Past studies have shown significant effect of herding on stock investment participation (Yang et al. (2021). This study has investigated the impact of herding the stock market participation in the Pakistan stock market and tested the following hypothesis.

$H_2$ : Herding affects the stock market participation in the Pakistan stock market.

### Cognitive dissonance

Leon Festinger was the first person to introduce this concept in the 1950s. It was used for a mental conflict of simultaneously holding inharmonious belief and attitude (Chandra, 2010). According to Gupta et al., (2017), it affects investors' attitude when they realize that they made mistakes. Jain et al., (2023) argue, that cognitive dissonance causes anxious feelings in investors' minds when their investments do not fall in reconciliation with their belief. Prices in the stock market are continuously changing, the arrival of new information about a share generally negate investors assumptions which causes cognitive dissonance in the investors' minds (Chandra, 2010). The uneasy feeling of cognitive dissonance causes investors to take wrong decision for avoiding internal mental inharmonic feelings (Gupta et al., 2017). The more un-easy feelings of individuals before decisions, the more regret they will have after decisions (Javed, 2021). This study has examined the impact of cognitive dissonance on the stock market participation by testing the following hypothesis.

$H_3$  : Cognitive dissonance affects the stock market participation in the Pakistan stock market.

### Overconfidence bias

Overconfidence is an heuristic bias, where investors feel extraordinary ability of making good investments (Russo & Schoemaker, 1992). It is based on self-appraisal, self-judgment, and thoughts of having best and up-to-date information about the stock market or a particular share, however, actual outcome of their decisions are usually different than the overconfident investors (Jokar & Daneshi, 2018). Moore et al. (2018) argues that it is the overestimation of investors regarding their abilities, performance, and success-abilities. Overconfidence causes irrational investment decisions and generates negative effect on investment return (Shin & Hanks, 2018). In a growing market condition, overconfidence generates positive result with a favorable impact on the stock market participation (Shah et al., 2018). It has been tested by applying following hypotheses:

$H_4$  : Overconfidence bias affects the stock market participation in the Pakistan stock market.

### Representative bias

Representative bias is wrong comparison of a market conditions on the basis of few similarities though it may actually not be similar (Busenitz & Barney, 1994). Antony et al., (2017) called it familiarity bias, where investments decisions are based on a few samples in an uncertain

situation. According to Jain et al., (2023), it is the investor’s short-cut who evaluate market conditions on the basis of their past experience. Representative bias causes investors to make irrational decisions that may be buying volume leading shares, overreaction to a small event, or not investing in shares whose past performance are not good (Parveen et al., 2021). The effect of Representative bias has been examined by testing following hypothesis:

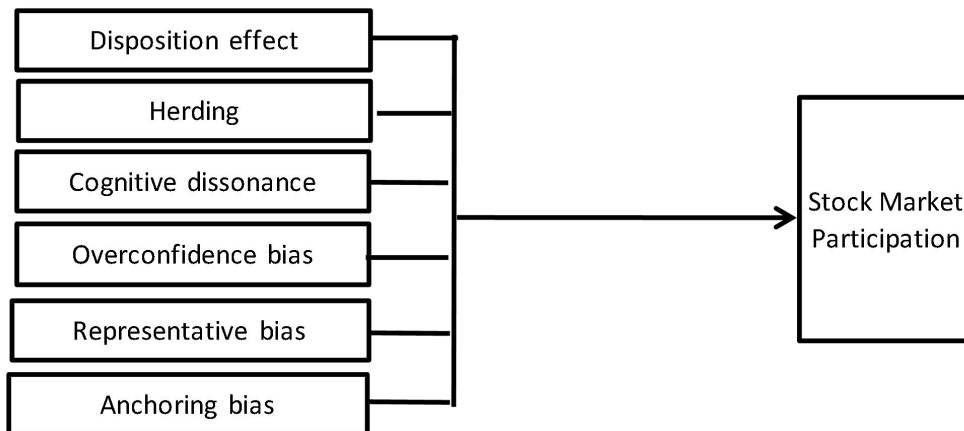
$H_5$  : Representative bias affects the stock market participation in the Pakistan stock market.

**Anchoring bias**

Anchoring bias is the investors too much reliance on a piece of information which is used as a reference in irrational investment decisions (Jain et al., 2023). According to Andersen and Nielsen (2010), it is the investors’ tendency to make investment on a piece of information without doing detailed analysis or cross check on its accuracy. The anchor may be an information on a news item, jump in a price or increase in trading volume of a share (Chandra, 2010). Following anchoring bias, investors either buy a share on a very high price or sell on a very low price (Parveen et al., 2021). Anchoring bias has been tested by applying following hypothesis:

$H_6$  : Anchoring bias affects the stock market participation in the Pakistan stock market.

**Theoretical framework**



**Research methodology**

This research is based on survey involving self-administered questionnaire being the most suitable method of quantitative data collection for studying investors' behavior by following Newsted et al. (1998), and Katona (1975). The study total population is 267,136 account holders registered on the platform of NCCPS, out of 485 respondents were selected through convenience sampling with the help of sampling formula of Cochran (1977). Respondents data were collected from securities brokers i.e. AKD securities, Standard capital securities, Millennium securities, and foundation securities. Respondents were approached through email followed by phonic calls. Total account holders data downloaded from www.nccple.com.pk. A total of 442 questionnaires received, out of which 36 questionnaires were incomplete, hence it was canceled, and remaining 406 responses were considered for the validation of the smart PLS 4 model. The questionnaire was reviewed from subject experts and pilot study before the start of normal data collection. The suggestions of Kline & Santor (1999) and Anderson & Gerbing (1988) were followed and all factors did not generate any normality issues. Confirmatory factors analyses were made to verify the structural model and the factors relationship with the latent variables.

### Results & discussion

Convergent validity was checked by following suggestions of Hair et al., 2006 and the test results show that all factors loading is above 0.70, the average variance extracted above 0.50, and Cronback's alpha above > 0.70 as shown in Table-1 and Table-3. For divergent validity, suggestions of Fornell & Larcker, 1981, Fornell-Larcker criteria (FLC) and Heterotrait-Monotrait Ratio (HTMT) was used and each latent variable shows value in the acceptable range as shown in Table-2.

**Table-1: Reliability and Validity**

Variable	Number of Items	Cronbach's alpha	Composite reliability (rho_a)	Average variance extracted (AVE)
DE	4	0.813	0.937	0.804
HRD	3	0.813	0.835	0.727
CD	4	0.929	0.931	0.829
OCB	4	0.909	0.921	0.787
RPB	4	0.937	0.945	0.852
ACB	5	0.982	1.015	0.931

**Table-2: Discriminant Validity**

	DE	HRD	CD	OCB	RPB	ACB
DE	0.955					
HRD	0.446	0.959				
CD	0.44	0.187	0.979			
OCB	0.573	0.341	0.327	0.877		
RPB	0.288	0.48	0.415	0.46	0.989	
ACB	0.48	0.191	0.244	0.321	0.352	0.93

**Table-3- Factor loading**

	DE	HRD	CD	OCB	RPB	ACB
DE1	0.803					
DE2	0.846					
DE3	0.729					
DE5	0.726					
HRD1		0.795				
HRD2		0.889				
HRD3		0.871				
CD1			0.958			
CD2			0.959			
CD3			0.955			
CD4			0.754			
OCB1				0.882		
OCB4				0.942		
OCB6				0.803		
OCB7				0.917		
RPB1					0.737	
RPB2					0.979	
RPB3					0.978	
RPB4					0.974	
ACB1						0.984
ACB3						0.946
ACB5						0.926
ACB6						0.985
ACB7						0.982

Data analysis of the 406 questionnaires shows the diversity of the data collected represented different dimensions of the demographic. Gender variable shows 374 Male (92.12%) and 32



Female (7.88%), marital status shows 345 (84.98%) married, and 61 (15.02) un-married, age shows 162 (39.90%) in the 50s, 110 (27.09%) between 41-50 years, 21 (5.17%) in the age bracket below 30 years, 50 (12.32%) between 30-40 years, and 63 (15.52%) in the age bracket above 60 years. Education variable shows 138 (33.99%) having Bachelor degree, 133 (32.76%) having Master degree, 32 (7.88%) having MS/MPhil/PhD, 91 (22.41%) having FA/FSc/ICom and 12 (2.96%) having Matric/Below matric education. Income variable shows that 161 (39.66%) having income between PKR 50k -100k, 104 (25.62%) having income below PKR 50k, 91 (22.41%) having income between 100k - 150k, 28 (6.90%) having income between PKR 150k -200k, and 22 (5.42%) having income above PKR 200k. Variable on investment experience shows that 14 (3.45%) have experience below a year, 56 (13.79%) having 1-5 years, 77 (18.97%) having 6-10 years, 147 (36.21%) having 11-15 years, and 112 (27.59%) have greater than 15 years' experience in the stock market. Variable on portfolio size shows, that 104 (25.62%) respondents have investment between PKR 1- 1.50 million, 84 (20.69%) have PKR 500k or below, 63 (15.52%) between PKR 500k - 1 million, 84 (20.69%) between PKR 1.50 - 2 million, 38 (9.36%) between PKR 2 - 2.50 million, and 33 (8.13%) have a portfolio size higher than PKR 2.50 million. Table-4 shows the detail of all demographic variables.

Figure-1: PLS Structural Model

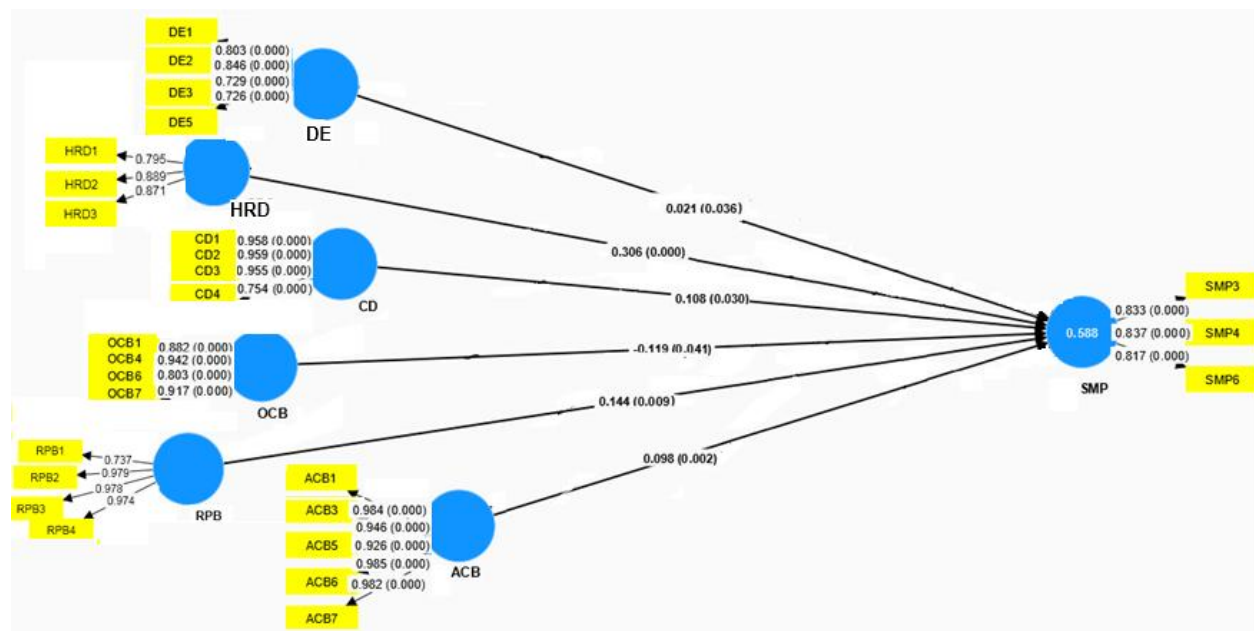


Table 4. Demographic profile of respondents

Variable	Category	Frequency	Percentage
Gender	Male	374	92.12
	Female	32	7.88
	<b>Total</b>	<b>406</b>	<b>100.00</b>
Marital Status	Married	345	84.98
	Single	61	15.02
	<b>Total</b>	<b>406</b>	<b>100.00</b>
Age	Below 30 years	21	5.17
	30-40 years	50	12.32
	41-50 years	110	27.09
	51-60 years	162	39.9
	Above 60 years	63	15.52
	<b>Total</b>	<b>406</b>	<b>100.00</b>
Education	Metric/Below Metric	12	2.96
	Intermediate	91	22.41
	Bachelor	138	33.99
	Master	133	32.76
	MS/MPhil/PhD	32	7.88
	<b>Total</b>	<b>406</b>	<b>100.00</b>
Monthly Income (PKR)	Below 50,000	104	25.62
	50,001 - 100,000	161	39.66
	100,001 - 150,000	91	22.41
	150,001 - 200,000	28	6.9
	200,001 - above	22	5.42
	<b>Total</b>	<b>406</b>	<b>100.00</b>
Investment Experience	Less than 1 year	14	3.45
	1 -5 years	56	13.79
	6 - 10 years	77	18.97
	11 - 15 years	147	36.21
	15 years or more	112	27.59
	<b>Total</b>	<b>406</b>	<b>100.00</b>

Investment Amount (PKR)			
Below 500,000	84	20.69	
500,001 - 1000,000	63	15.52	
1000,001 - 1500,000	104	25.62	
1500,001 - 2000,000	84	20.69	
2000,001 - 2500,000	38	9.36	
2500,001 and above	33	8.13	
<b>Total</b>	<b>406</b>	<b>100.00</b>	

Table-5: SEM Results

Path	Path Coefficient	Original sample (O)	Sample mean (M)	Standard deviation	T statistics ( O/STDEV )	P values	Decision
DE → SMP	0.021	0.084	0.082	0.039	2.172	0.036	Accepted
HRD → SMP	0.306	0.126	-0.124	0.06	2.101	0.000	Accepted
CD → SMP	0.106	0.105	-0.105	0.052	2.045	0.030	Accepted
OCB → SMP	-0.119	-0.213	-0.201	0.076	2.615	0.041	Accepted
RPB → SMP	0.144	0.111	0.106	0.044	2.496	0.009	Accepted
ACB → SMP	0.098	0.115	-0.113	0.038	3.07	0.002	Accepted

Table-5 shows the statistical results of the SEM model. The path co-efficient of the disposition effect is 0.021, T statistics 2.172, and p value 0.036, which shows that disposition effect has a significant effects on the stock market participation in the Pakistan stock market. As shown in detail in the literature section, that disposition effect is the investors' tendency to sell the winning stock and retain the losing value stock (Shefrin & Statman, 1985). According to Nofsinger (2005), investors do so to satisfy themselves that their purchase decisions is correct (feeling happiness) while the retaining of losing stock encourage the feeling of regret avoidance.

As the p-value is below 0.05, hence  $H_1$  is accepted because disposition effect affects the stock market participation in the Pakistan stock market. A statistical result of Herding shows path coefficient of 0.306, T statistics 2.101 and p value 0.000. As discussed in the literature

section, herding is following the herd blindly without doing self-analysis. According to Christie & Huan, (1995), herding is usually noted in market where prices are falling or rising. The study of Devenow & Welch (1996) found that herding is a major behavioral factor affecting investors' decisions in the stock market. It has a positive impact when prices are rising and negative when prices are falling (Christie and Huan, 1995). During data collection of the study (July/2023 – Jan/2024), KSE-100 index rises from 48000 to 67000. That is the main reason that herding shows positive and significant effect on the stock market participation in the Pakistan stock market. The p-value is below 0.05, hence herding affects the stock market participation and hence  $H_2$  is accepted. Cognitive dissonance shows path coefficient value of 0.106, T statistic 2.045 and P value 0.03 which shows the significant of the construct.

Past studies on the construct conducted by Gupta et al. (2017) and Gul et al., (2015) found that cognitive dissonance has a significant impact on investors' decisions. The p value of this study is below alpha (0.05), showing that cognitive dissonance affects the stock market participation in the Pakistan stock market, hence  $H_3$  is accepted. The result of overconfidence bias as shown in table-5 reveal that it affect the stock market participation, with path coefficient of 0.119, T-statistic of 2.615 and a p value of 0.041. As discussed in the literature section, overconfidence is the investors own overvaluation of their ability, skill and knowledge (Gervais & Odean, 2001), which render them to make high trade, risky investment. Past studies conducted by Gul et al., (2015) shows significant effect of the construct on the stock market participation. Due to the p-value below 0.05,  $H_4$  is accepted. Representative and Anchoring bias as shown in table-5 reveal that both these construct have a significant effect on the stock market participation with p-value of both construct below alpha, hence  $H_5$  and  $H_6$  are accepted. These findings match findings of past studies conducted by Liang et al. (2015) and Nyakurukwa et al. (2022).

### Conclusion

This study examined the effect of behavioral factor on the stock market participation in Pakistan on the basis of prospect theory. It has been empirically found that disposition effect, cognitive dissonance, herding, overconfidence, representative, and anchoring bias significantly affect the stock market participation. These findings on the first on the Pakistan stock market and contribute to existing literature. These findings will help investors to improve their decision

making, and will help policy makers to review the existing policies particularly revision to the relevant clauses of the Securities Act 2015. It will also be helpful for the Securities and Exchange Commission of Pakistan in the identification of the knowledge gaps of the individuals' investors so as to devise appropriate learning programs and universities to design courses.

It is necessary to mention the limitations of this study. First, this research applies a cross sectional to the data collected from Sep/2023-Jan/2024. KSE-100 showed a gigantic growth during this period, it might be possible that it may cause bias in the responses of investors as they get daily growth in their investment. Secondly, the research instrument uses English, though, majority of investors in the stock market understand this language, however, being non-native language, there is possibilities that respondents may have interpreted the concepts differently than its intended uses. Sample size, though carefully calculated, still there is the possibility that it may not represent some type of investors. There is a need for further research to cover the limitations and confirm the findings of this study. The total population of the study is based on NCCPL report that includes individuals who have more than one account; future research should address these issues on finding the accurate numbers of investors on the basis of national identity card. Majority of individuals investors do not earn in the stock market, research is needed to calculate their annualize earning/losses.

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