

## FINANCIAL LITERACY AND COGNITIVE BIASES OF INDIVIDUAL INVESTORS: EMPIRICAL EVIDENCE OF COLOMBO STOCK EXCHANGE

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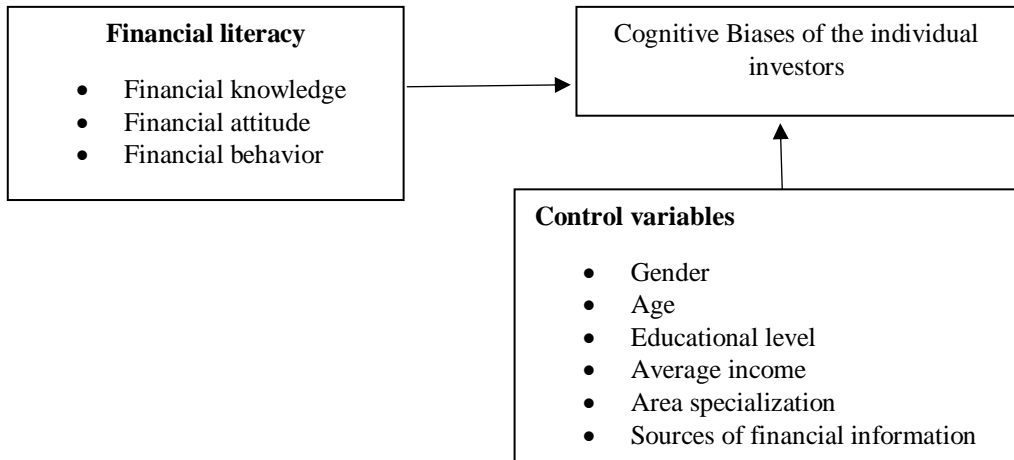
### INTRODUCTION

Financial knowledge (FKn) has become a critical skill for individuals in today's rapidly changing and complex global markets. The instability of global markets, uneven information, the increasing complexity of financial products, and the rapid growth of financial technology have heightened financial literacy's importance (Tzora et al., 2023). Financial literacy refers to understanding and effectively managing financial resources throughout one's lifetime (Paoletta & Vajro, 2016). Particularly in the context of individual investment choices in the stock market, investors face the challenge of making informed decisions when buying and selling stocks (Sari et al., 2022). Individual investors in the stock market are constantly exposed to the volatility and uncertainty of financial markets. The potential for significant gains and losses makes stock market investing inherently risky, and investors often exhibit risk-taking characteristics. However, behavioural finance contends that technological, sociological, and psychological elements and rational factors also impact an individual's economic decisions (Özen & Ersoy, 2019). Cognitive Biases (CBs), which are systematic errors in thinking and decision-making, can significantly impact investors' financial choices (Okai et al., 2015). Investors often rely on simplified decision-making strategies known as heuristics, which can lead to predictable CBs and errors in judgment (Fiske & Taylor, 2020). These biases can affect decision-making skills, problem-solving abilities, memory reliability, response to crises, and overall emotional well-being. Recognizing the influence of CBs and promoting financial literacy can help individual investors make more rational and informed investment decisions, leading to a more efficient marketplace. While extensive research has been conducted on financial literacy and CBs in developed markets, limited studies have been conducted in developing markets like Sri Lanka (Baker et al., 2019). Gupta and Thomas (2021) noted that extensive research has been conducted on financial literacy and CBs in developed markets, while limited studies have been conducted in developing markets. Consequently, this research aims to fill this gap by examining financial literacy's impact on individual investors' CBs in the Colombo Stock Exchange (CSE). The unique market dynamics and investor behaviour in developing countries necessitate examining how financial literacy influences CBs in these contexts. Thus, the findings of this study will contribute to the understanding of individual investors' decision-making processes, benefiting investors, policymakers, equity analysts, companies, students, and future researchers in Sri Lanka's financial market.

### METHODOLOGY

The conceptual framework presented in Figure 1 indicates the relationship between the dependent and independent variables proposed.

**Figure 1**  
Conceptual Framework of the Study



Accordingly, study utilized a deductive research approach focusing on quantitative analysis to investigate the impact of financial literacy on the CBs of individual investors in the CSE. The research design was guided by the research onion framework, which provided a comprehensive structure for conducting the study. The positivist research philosophy was adopted, considering reality's stable and objective nature, and the deductive research approach was chosen based on established theories. A survey method was employed as the research strategy, utilizing a questionnaire to collect data. The population consisted of registered individual investors in the CSE, estimated to be 675,309. A sample size of 384 investors was determined using the Krejcie and Morgan method, selected through convenience sampling. The study's dependent variable is individual investors' CBs. In contrast, the independent variable is financial literacy, comprising three measures: financial knowledge (FKn), financial attitude (FA), and financial behaviour (FB). The following three hypotheses were developed based on the existing literature and tested during the present study, aligning with the study's objective.

*H<sub>1</sub>*: Financial knowledge has a significant impact on cognitive biases of individual investors in CSE.

*H<sub>2</sub>*: Financial attitude has a significant impact on cognitive biases of individual investors in CSE.

*H<sub>3</sub>*: Financial behavior has a significant impact on cognitive biases of individual investors in CSE.

The study includes the operationalization of variables to define and quantify the selected factors, with measurement sources indicated. A structured questionnaire that included demographic questions, inquiries on financial literacy, and a test of CBs was used to gather primary data. Respondents could rate their agreement with each measurement on a five-point Likert scale in the survey. Data analysis was conducted using SPSS version 25, employing reliability test, descriptive statistics, correlation analysis, and regression analysis techniques. The reliability of the research instrument was assessed using Cronbach's Alpha test. The Kaiser-Meyer-Olkin (KMO) test yielded a value of 0.832, indicating a good level of validity for the research.

## RESULT AND DISCUSSION

After completing the normality and reliability tests, the gathered data was deemed appropriate to proceed with the main analyses. Consequently, the primary analyses were conducted, and the results were succinctly summarized in subsequent sections.

**Table 1**

*Results of Descriptive Analysis*

Variable	Mean	SD	Skewness
FKn	4.219	0.642	-1.739
FA	4.294	0.600	-1.750
FB	4.259	0.671	-1.800
CBs	1.808	0.588	1.803

Descriptive analysis, as shown in Table 1, provides a crucial understanding of the studied variables. The skewness values are relevant as they indicate the distributional properties of the data. A negative skewness, as observed in variables FKn, FA, and FB, suggests that the data are skewed to the left, indicating that the majority of respondents tend to rate higher on these measures. In contrast, the positive skewness in the CBs variable indicates that respondents tend to rate lower on cognitive biases, although there is considerable variability within this measure. These findings shed light on the central tendencies and dispersion of the data, providing a foundation for further analysis.

Moving on to the correlation analysis presented in Table 2, it measures the strength of the linear relationship between the variables.

**Table 2**

*Results of Correlation Analysis*

		FKn	FA	FB	CBs
FKn	Pearson Correlation	1			
FA	Pearson Correlation	0.847**	1		
FB	Pearson Correlation	0.818**	0.858**	1	
CBs	Pearson Correlation	-0.643**	-0.645**	-0.580**	1

N= 384, \*\*. Correlation is significant at the 0.01 level (2-tailed).

The correlation analysis reveals significant relationships between the variables. FKn positively correlates with FA ( $r = 0.847$ ,  $p < 0.01$ ) and FB ( $r = 0.818$ ,  $p < 0.01$ ). At the same time, CBs show a negative correlation with FKn ( $r = -0.643$ ,  $p < 0.01$ ), FA ( $r = -0.645$ ,  $p < 0.01$ ), and FB ( $r = -0.580$ ,  $p < 0.01$ ). The higher levels of financial literacy, represented by FKn, positive attitudes, and responsible FB, are associated with lower CBs among individual investors.

Table 3 presents the results of the regression analysis, allowing to test the hypotheses rigorously. The coefficients in the regression models represent the strength and direction of the relationship between the independent and dependent variables.

**Table 3**  
*Results of Regression Analysis*

Variable	Model 01		Model 02	
	Coefficient	P-value	Coefficient	P-value
FKn	-0.321	0.000	-0.332	0.000
FA	-0.360	0.000	-0.366	0.000
FB	0.019	0.786	0.019	0.710
Gender	-	-	0.052	0.182
Age category	-	-	0.008	0.872
Educational level	-	-	0.050	0.254
Average income	-	-	-0.017	0.750
Specialization	-	-	0.031	0.553
Sources of information	-	-	0.022	0.631
Constant	4.629	0.000	4.445	23.901
R	0.671		0.676	
R Square	0.450		0.457	
Adj. R Square	0.445		0.444	
F	103.549		35.044	
Std. Err.	0.438		0.438	
P-value	0.000		0.000	

First hypothesis (H1) posited that FK has a significant impact on cognitive biases. The regression analysis confirms this hypothesis with a negative coefficient for FK<sub>n</sub> (-0.321,  $p < 0.001$ ). Similarly, second hypothesis (H2), which suggested that FA has a significant impact on cognitive biases, is supported by the regression results with a negative coefficient for FA (-0.360,  $p < 0.001$ ). However, third hypothesis (H3), which proposed that FB has a significant impact on cognitive biases, was not supported, as indicated by the insignificant coefficient for FB (0.019,  $p = 0.786$ ). Additionally, the control variables, age category and specialization had significant associations with CBs, indicating that these factors also influence the cognitive biases of investors.

The present findings align with the studies conducted by Stenfors et al. (2019) and Thomas and Gupta (2021). The results demonstrated a significant negative relationship between FK<sub>n</sub> and the dependent variable. Similarly, the research by Martin et al. (2018) and Fernandes et al. (2014) supported the negative association between FA and the dependent variable. However, contrary to the findings of Mataix et al. (2017) and Surucu and Maslakci (2020), FB yielded an insignificant relationship with the dependent variable. As indicated by previous research by Yeung et al. (2016) and Okal et al. (2015), age category and specialization emerged as significant control variables. The models exhibited a moderate fit, and the overall model was statistically significant, consistent with the works of Okai et al. (2015) and Fiske and Taylor (2020).

## CONCLUSION AND IMPLICATIONS

The study concludes that higher levels of financial literacy significantly negatively impact CBs among individual investors in the CSE, leading to improved investment decision-making. The findings suggest that higher levels of FK<sub>n</sub> and positive FA are associated with lower CBs in investment decision-making. However, financial behavior FB did not exhibit a significant impact on CBs. These results emphasize the importance of enhancing financial literacy and

cultivating positive financial attitudes among individual investors to mitigate cognitive biases and make more informed investment decisions. Furthermore, the inclusion of control variables such as age category and specialization underscore their significance in influencing cognitive biases. These control variables contribute to a more comprehensive understanding of the factors affecting investor behavior.

These findings have important implications for various stakeholders, including government authorities, policymakers, and professionals in the stock market, emphasizing the need for investor education and awareness programs. However, it is essential to acknowledge the study's limitations, such as the restricted sample size, reliance on self-reported data, subjective measurement of variables, and the inability to establish causality. Additionally, the cross-sectional design and cultural context limit the generalizability of the findings. Despite these limitations, the study contributes to the existing knowledge by shedding light on the relationship between financial literacy and CBs, underscoring the significance of addressing biases through education and enhancing decision-making processes in the stock market.

**Keywords:** Cognitive biases, colombo stock exchange, financial literacy, individual investors.

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