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Determinants of investment decisions by Sacco members: A case of Imarisha Sacco, Kenya

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Abstract
Background: Investment decision by SACCO members is influenced significantly by many variables; Arbitrary or well-founded. It is not known to what extent emotional biases and financial literacy influence such decisions. In this paper, we seek to empirically estimate the contribution of emotional biases and financial literacy to financial decisions.
Objective: To empirically evaluate the influence of financial literacy and emotional biases on investment decisions by SACCO members.
Method: Data was collected from July 28th to 31st 2025 among 284 Imarisha SACCO members in Kericho Couty, Kenya. The data was cleaned, coded, tested for normality before analysis. To estimate the influence of financial literacy, herd behavior bias, overconfidence bias, loss aversion bias and investment decisions, a multiple linear regression followed by multiple logistic regression are estimated. The models were evaluated for validity. Then, results were obtained and interpreted.
Results: The findings from both multiple linear and logistic regression analyses demonstrate that emotional biases and financial literacy significantly shape SACCO members' investment decisions. In this regard, the linear regression results indicates that investment decisions increase by 28.6% when emotional biases and financial literacy are held constant. A unit increase in emotional biases and financial literacy enhances investment decisions by 51% and 38.2%, respectively. Confirmatory analysis using logistic regression model corroborate the joint influence of emotional biases (overconfidence, loss aversion, and herd behavior) and financial literacy, with the latter contributing an additional 16.1% improvement in investment outcomes.
Conclusions: Both emotional biases and financial literacy influence investment decisions. There is both tradeoff and synergies in the influence of the considered variables.

Keywords: Emotional biases, financial literacy, investment decisions

Introduction

Settling on an investment decision is inherently a complex process that extends beyond the mere evaluation of financial data and market forces (Aanchal Sharma1, 2024). One source of the complexity is the existence of behavioral biases, which may lead investors to deviate from rational decision-making and instead exhibit illogical tendencies when deciding (Kasoga, 2021) [11].

Behavioral biases are broadly classified into emotional and cognitive (Bashar Yaser Almansour, 2023) [6]. Emotional biases arise spontaneously from personal feelings and are difficult to correct since they stem from intuition or impulse, which are often beyond conscious control. (Ebenezer Y. Akinkoye, 2020) [7]. Scholars have discussed the different emotional biases: overconfidence bias, herd behavior bias, and loss aversion bias (Bashar Yaser Almansour, 2023; Ebenezer Y. Akinkoye, 2020; Sapkota, 2023) [6, 7, 13]. Overconfidence is the tendency of an investor believing in his or her own knowledge and abilities more than is deserved or justified (Kartini, 2021) [10]. These investors give advantage to their own information compared to the general knowledge available in the public.

Loss aversion is the tendency of investors to fear losses; thus, they focus more on avoidance of loss than making profits (Ahmed Bouteska, 2020) [3]. The more one experiences losses the more the likelihood of predisposition to loss aversion. Scholars have argued that the feeling of loss outweighs enjoyment in making a gain (Kartini, 2021) [10]. Herd behavior is the

tendency of investors to follow the investment choices of a larger group without independent consideration (Adik Duwi Rahayu, 2020) [2]. It is regarded as an irrational behavior as people make decisions prompted by choices of others whose financial context might be different.

Lastly, financial literacy is the ability to understand and manage money effectively by making informed decisions about earning, spending, saving, borrowing, and investing (Annamaria Lusardi, 2023) [5]. Scholars observe that financial literacy is a critical determinant of rational economic decision-making, as it equips individuals with the knowledge and skills necessary to evaluate financial alternatives effectively. This, in turn, promotes long-term financial stability and contributes to the enhancement of overall socio-economic well-being (Ibid,2). Financial literacy, through mastery of key concepts, enables individuals to pursue coherent investment objectives, allocate resources efficiently, and avoid financial vulnerabilities such as excessive debt and poor investment choices, thereby enhancing long-term financial stability (Andhi Wijayanto, 2023) [4].

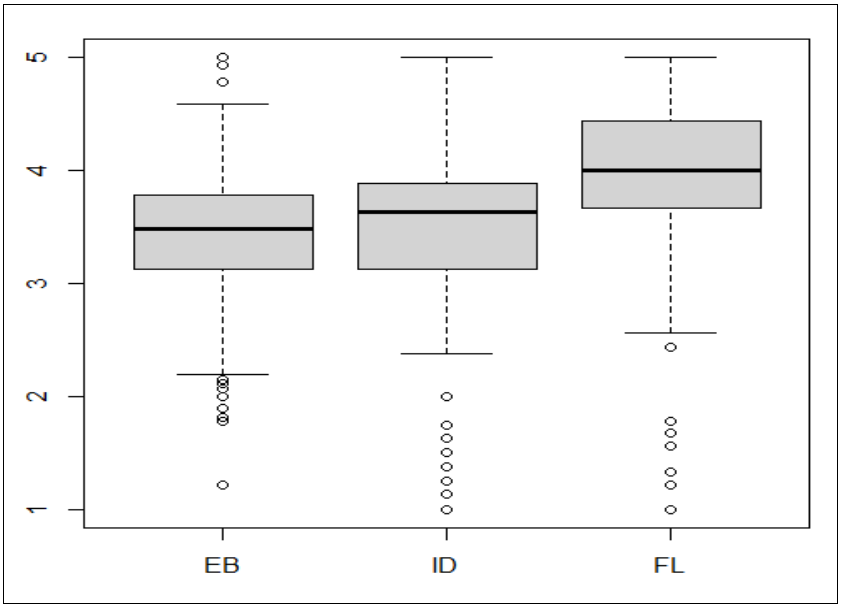
In this paper we seek to determine empirically to what extent do emotional biases and financial literacy influence investment decisions of SACCO members.

Method

Data was collected from Imarisha SACCO members with 284 out of 399 sampled completed self-administered questionnaires (71.2% response rate). This sample size met Central Limit Theorem requirements, and data was tested for normality prior to analysis. A multiple linear regression model was estimated to determine both the direction and magnitude of financial literacy and emotional biases as far as investment decisions is concerned. A multiple logistic regression model was employed to determine the likelihood of the respondents reporting higher levels of investment decisions. Data analysis was carried out using R 4.5.1, SPSS version 26, Gretl 2025b statistical software's interchangeably and the results interpreted accordingly.

Results

Normality Test



Variables: Emotional Biases (EB), Investment Decisions (ID) and Financial Literacy (FL).

Normality of data was assessed visually using boxplots which indicated the data of the three variables were normal. The assumption of normality was satisfied and therefore the data was appropriate for subsequent statistical analyses and generalization of findings.

Multiple Linear Regression

The model was estimated to determine both the direction and magnitude of emotional biases and financial literacy as far as investment decisions of SACCO members is concerned.

Table 1: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.728[a]	0.530	0.526	0.50194
a. Predictors: (Constant), Fin_L, Emot_Bias				

Variables: financial literacy (Fin _L), Emotional biases (Emot_Bias)

From table 1 above, 53% of variations in investment decisions by SACCO members is explained by emotional biases and financial literacy as presented by R square. Other unknown factors not captured in this analysis explains 47% of the variations.

Table 2: ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	79.749	2	39.874	158.269	.000[b]
	Residual	70.795	281	0.252		
	Total	150.544	283			
a. Dependent Variable: Invest_Dec						
b. Predictors: (Constant), Fin_L, Emot_Bias						

The ANOVA results in table 2 above shows that the overall multiple regression model is statistically significant (p<0.05).

Table 3: Regression Coefficients

	Variables	Estimates	Std. Error	Beta	Sig
1	(Constant)	0.286	0.187		0.128
	Emot_Bias	0.510	0.054	0.418	0.000
	Fin_L	0.382	0.038	0.452	0.000
a. Dependent Variable: Invest_Dec					

From the findings in table 4, 57.25% variations in investment decisions are accounted by the variables used (overconfidence bias, loss aversion bias, herd behavior bias, and financial literacy). The overall logistic regression model is statistically significant (p<0.05).
Based on the results the equation model is shown in equation (2 and 3) below:

$$InvestD = 0.286_{0.187} + 0.51\ EmotB_{0.054} + 0.382\ FinL_{0.038} \quad (1)$$

Interpretation

1. Adjusting for emotional biases and financial literacy, investment decisions increase by 28.6%.
2. A unit increase in emotional biases is associated with a 51% increase in investment decisions.
3. A unit increase in financial literacy leads to 38.2% improvement in investment decisions.

Multiple logistic regression

Using Gretl software, the model was estimated to determine the likelihood of respondents to make investment decisions based on the sub-variables of emotional biases and financial literacy.

Table 4: Logistics regression

Variable	Estimate	Std.error	t-ratio	p-value
Const	−4.51918	0.100444	−44.99	0.000
OB	0.0136804	0.0173350	0.7892	0.4307
LA	0.0770643	0.0187495	4.110	0.035
HB	0.0818016	0.0185053	4.420	0.001
FL	0.150814	0.0154601	9.755	0.000

Statistics based on the transferred data			
Sum squared resid	8.309596	S.E. of regression	0.172579
R-squared	0.572486	Adjusted R-squared	0.566357
F(4, 279)	47.30025	P-value(F)	0.000
Log-likelihood	98.50344	Akaike criterion	−187.0069

From the findings in table 4, 57.25% variations in investment decisions are accounted by the variables used (overconfidence bias, loss aversion bias, herd behavior bias, and financial literacy). The overall logistic regression model is statistically significant (p<0.05).

Based on the results the equation model is shown in equation (2 and 3) below:

$$ID = OB + LA + HB + FL$$

$$ID = e^{-4.51918_{0.1} + 0.0137OB_{0.017} + 0.078LA_{0.0187} + 0.08HB_{0.019} + 0.15FL_{0.0155}} \quad (2)$$

$$ID = 0.0109_{0.1} + 1.0138OB_{0.017} + 1.0811LA_{0.0187} + 1.0833HB_{0.019} + 1.1618FL_{0.0155} \quad (3)$$

Interpretation

1. Adjusting for all predictor variables, the likelihood of SACCO members making an investment decision increases by 1%.
2. Adjusting for loss aversion bias, herd behavior bias, and financial literacy, overconfidence bias is likely to increase investment decisions by [(1.0138-1)100%] 1.38%. However, the dimension is not statistically significant (p=0.4307).
3. Adjusting for overconfidence bias, herd behavior bias and financial literacy, loss aversion bias is likely to increase the likelihood of investment decisions of SACCO members by [(1.0811-1)100%] 8.1%. The dimension is statistically significant (p=0.035), indicating that members with higher loss aversion bias are actually more likely to make investment decisions, rather than being discouraged by the fear of loss.
4. Controlling for overconfidence bias, loss aversion bias, and financial literacy, herd behavior bias is likely to increase investment decisions by [(1.0833-1)100%] 8.33%. This dimension is also statistically significant (p=0.001), suggesting that members who follow herd tendencies are more likely to make investment decisions.
5. Adjusting for all aspects of emotional biases, financial literacy is likely to increase investment decisions by [(1.1618-1)100%] 16.1%. This effect is highly statistically significant (p<0.05) indicating that financial literacy plays a significant intervening role in the relationship between emotional biases and investment decisions.

Discussions

The analyses have established that all types emotional

biases and financial literacy are true determinants of investment decisions by SACCO members. From the multiple linear regression finding (Equation 1), we find that a unit increase in emotional biases and financial literacy increases investment decisions of SACCO members by 51% and 38.2% respectively. It is deduced that emotional biases exert a stronger influence on investment decisions compared to financial literacy, consistent with the observations of (G, 2021), and should not be underestimated.

From the logistic regression (Equation 3) provides pertinent insights into the determinants of investment decisions among SACCO members. The intercept indicates that, adjusting for all variables, the baseline likelihood of making an investment decision increases by approximately 1%. Likewise, adjusting for loss aversion bias, herd behavior bias, and financial literacy, overconfidence bias is estimated to increase the probability of SACCO members making an investment decision by 1.38% -though not statistically significant (p=0.4307) consistent with the observations of (Gede Adiputra, 2023; Wisnu Yuwono, 2021) [9, 14].

At the same time, adjusting for overconfidence bias, herd behavior bias, and financial literacy, loss aversion bias is found to significantly increase the likelihood of making investment decisions by SACCO members (8.1%, p=0.035). Indicating that members prone to loss averse only make investment decisions with the proof of surety of gains, in agreement with (Ebenezer Y. Akinkoye, 2020) [7].

In addition, adjusting for overconfidence bias, loss aversion bias and financial literacy, herd behavior bias is likely to significantly increase the likelihood of making investment decisions by SACCO members (8.33%, p=0.001), indicating that members are prompted to make investment decisions based on cues from others (Kartini, 2021) [10].

Moreover, in (Equation 3), controlling for all dimensions of emotional biases, financial literacy increases the likelihood of making investment decisions by 16.1%, a result that is highly statistically significant (p<0.05). This illustrates the strong intervening role of financial literacy (Mochammad Rizaldy Insan Baihaqqy, 2020) [12].

Lastly, based on both multiple linear regression and logistic regression, we find that emotional biases as strongly mediated by financial literacy such that the latter negates the probability of indecision in the case of loss aversion mentioned above.

Recommendation

We suggest a study to establish empirical tradeoff between emotional biases and financial literacy in investment decision-making.

At the institutional level, SACCO management is advised to play a proactive role in equipping members with the necessary tools for sound investment decision-making.

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