

Financial Literacy and Firm Performance: Mediation of Behavioral Financial Bias

Dony Oktariswan^{1*}, I Gusti Ketut Agung Ulupui², Unggul Purwohedhi³

^{1*} Doctoral Student, Postgraduate Management Science, The State University of Jakarta, <https://orcid.org/0009-0007-2414-2993>

² Professor, Postgraduate Management Science, The State University of Jakarta, <https://orcid.org/0000-0001-8597-6851>

³ Associate Professor Student, Postgraduate Management Science, The State University of Jakarta, <https://orcid.org/0000-0002-0955-7871>

Citation: Dony Oktariswan et al. (2024), Financial Literacy and Firm Performance: Mediation of Behavioral Financial Bias. *Educational Administration: Theory and Practice*, 30(5), 6888-6898
Doi: 10.53555/kuey.v30i5.4057

ARTICLE INFO

ABSTRACT

The purpose is to determine the influence of behavioral financial bias on firm performance and to find out if it is mediated by behavioral financial bias. Design a type of quantitative research with a positivism paradigm and develop research hypotheses related to financial literacy variables, behavioral financial bias, and firm performance variables. The research sample of owners, and general managers because they have adequate knowledge about the performance of the companies they lead is 245 samples. The unit of analysis is SME business actors who are members of the Indonesian Credit Guarantee and the research locations were carried out in DKI Jakarta, Bogor, Depok, Tangerang, and Bekasi. The result is a positive and significant influence of financial literacy on firm performance directly or mediated by financial behavior bias. The findings are novelty research, to improve firm performance by increasing financial literacy in financial knowledge and financial education. Meanwhile, financial behavior can be used to improve firm performance, which can reduce the influence of mental accounting to separate and group financial resources into different mental "accounts" and overconfidence due to the tendency of business actors to have excessive confidence.

Keywords: Financial Literacy, Behavioral Financial Bias, and Firm Performance:

1. Introduction

Small and Medium Enterprises (SMEs) make an extraordinary contribution to economic development in many countries so the performance and growth of these companies are of great concern to several stakeholders such as governments, policymakers, and financial institutions (Anshika et al., 2021), but Statistics the Small Business Administration shows 20% of small business fail in the first 2 years and 50% fail within 5 years (Snider & Davies, 2018). Small and medium businesses in Indonesia can be said to be sinking or being squeezed because their contribution to GDP (Gross Domestic Income) is very low compared to large businesses, the number of which is very small, but their contribution to GDP is very dominant, shown in the structure of national business actors which reaches 98% and the proportion of businesses only 0.01% can control national business processes with horizontal and vertical integration practices. This condition increasingly clearly shows the existence of a hollow middle which makes the capacity of the business world to build upstream-downstream linkages limited (Strategic Plan of the Secretariat of the Ministry of Cooperatives and Small and Medium Enterprises for 2021-2024-Kemenkop UKM, 2021).

SME performance issues are often ignored by MSME business actors, especially regarding financial management and the correct application of accounting because the knowledge and information of MSME actors about accounting are very limited, and the educational background and knowledge of MSME actors (Saraa et al., 2020). Apart from bookkeeping problems, SMEs in Indonesia also face small business margins, limited capital, limited managerial competence, small economic scale, marketing capabilities, and lack of access to financing are still challenges for SMEs in Indonesia so the role of government and stakeholders is supported. Another important thing is to improve the performance of MSMEs through various policies, programs, and empowerment activities (Aritonang et al., 2023).

Financial literacy is a problem for many small businesses which can be seen from the inability to prepare complete accounting reports (Yeboah, 2019). Lack of financial education is often considered a reason for low

financial decision-making abilities in society (Fan & Chatterjee, 2018). Financial management among SMEs is still low so financial literacy education among small business owners must be introduced (Mashizha et al., 2019). Low financial literacy is related to suboptimal financial behavior and will have long-term consequences (Stolper & Walter, 2017) so financial literacy practices and financial capabilities have a significant positive impact on the sustainability of small businesses (Babajide et al., 2021). SME owners who have a low level of financial literacy will be vulnerable to behavioral bias (Baker & Kumar, 2018).

Financial literacy causes differences in cognitive biases and the cognitive biases of individuals who do not receive financial education are different from individuals who receive financial and professional education in the business world (Özen & Ersoy, 2019). Entrepreneurs and managers do not exhibit behavioral biases, but the drivers of these biases vary (Nobre et al., 2022). SME entrepreneurs are usually overconfident when making financial decisions (Raveendra et al., 2018). The problem shows that behavioral financial bias can have a significant impact on SME decisions and performance because optimism, overconfidence, loss aversion, self-attribution, and confirmation bias can cause bad financial decisions (Nobre et al., 2022). Entrepreneurs may attribute success to internal factors, such as skills and abilities but are less likely to attribute failure to external factors, such as market conditions, leading to a lack of accountability and learning (Fiore & Lussier, 2015).

The behavior of SME business actors in financial management is based on derivatives of the grand theory of Planned Behavior (TPB) and Behavioral Finance Theory. The Theory of Planned Behavior (TPB) further develops the Theory of Reasoned Action (Ajzen & Fishbein, 1975). The Theory of Reasoned Action states that intentions determine behavior; therefore, individual behavior can be explained by intentions. However, according to Ajzen (1991), using perceived behavioral control to explain behavior cannot be completely controlled by the individual. Meanwhile, Behavioral Finance Theory is behavioral finance as a sub-discipline of behavioral economics, namely finance which combines findings from psychology and sociology into its theory (Glaser et al., 2004). This relationship shows that the Theory of Behavioral Finance is a theory that combines concepts from traditional financial science with psychological knowledge to understand individual financial behavior. This theory recognizes that individuals tend to make financial decisions based on emotions, cognitive biases, and other psychological factors. In the context of Financial Literacy, it refers to an individual's understanding of important financial concepts and skills, while Behavioral Financial Bias includes cognitive biases that influence financial decision-making.

Research gap, research by Baig et al., (2019) and Zia-ur-rehman et al., (2017) states that there is a relationship between behavioral biases and firm performance. This has been clarified in SMEs that there is a relationship between the level of cognitive bias and entrepreneurial behavior and performance (H. Zhang et al., 2020). Meanwhile, research by Lebdaoui et al., (2021) and Baradarani et al., (2021) explains that behavioral biases, such as overconfidence, anchoring, and availability bias, have a significant negative impact on company performance; Overconfidence bias hurts financial performance; and anchoring bias and availability bias hurt non-financial performance. Hameed et al., (2019) stated that behavioral biases, especially overconfidence, loss aversion, and confirmation bias, have a significant negative impact on company performance. The inconsistency of this research is explained by Lamptey et al., (2020) that behavioral biases can have a positive or negative impact on working capital management and performance. Even Bhutta & Shah, (2015) stated that behavioral biases have no impact on entrepreneurial performance, while Ezeaku (2020) stated that overconfidence does not have a significant influence on company performance.

Development of research from Aschenwald et al., (2023) on individual vulnerability to objective behavioral biases - namely the nature of human behavior that has been largely ignored in the financial literacy literature. This recent study focused on self-confidence bias in individuals' judgments of financial competence, suggesting that individuals tend to misjudge financial abilities. Sharma (2022) explains only the impact of behavioral biases on investment decisions that have been explored in most of the literature so this research can be extended to other areas of personal finance such as money management and debt management. Empirical evidence regarding the relationship between mental accounting and personality characteristics is still scarce because mental accounting has rarely been examined in previous research, and little is known about correlated variables and concepts (Muehlbacher & Kirchler, 2019). So this research focuses on the following questions: (1) Can behavioral finance influence firm performance? and (2) Can behavioral financial bias mediate the influence of financial literacy on firm performance?

2. Literature Review and Hypotheses

2.1. The Influence of Financial Literacy on Firm Performance

Financial literacy is a person's ability to understand and use financial concepts (Song et al., 2023). Buchdadi's research (2020) states that there is a positive influence of financial literacy on the performance of SMEs. Meanwhile, accounting is a key indicator of business performance, saying that good financial reporting provides understanding, verification, neutrality, unlimited time, cooperation, and completeness to support company performance (Purwanto et al., 2022). This shows that financial knowledge significantly contributes to improving individual economic performance (Hira, 2012). Apart from that, Shihadeh et al., (2020) and Naser & Alabassi, (2022) stated that there is a significant influence of financial literacy on performance but on banking performance. Financial Literacy is a set of skills and knowledge that allows an individual to make

decisions and be effective with all the financial resources they have which are supported by Financial Attitude, Financial Education, Financial Proficiency, and Financial Knowledge.

Gunawan et al., (2023) stated that MSME performance is the overall work results achieved compared to work targets or criteria that have been determined in advance and have been mutually agreed upon in a business entity with assets and income criteria that have been determined by law. Firm performance is the result of business management that shows the success of business actors in achieving business goals by using existing resources to achieve maximum profits in terms of achieving sales targets, speed of response to market demand, achieving profitability targets, and competitiveness.

Synthesis of the relationship between financial literacy and company performance because financial literacy plays an important role in improving company performance because having a high level of financial literacy tends to be more capable of managing finances well, making more informed decisions, accessing financial resources, and creating sustainable company business growth.

H1: Increasing Financial Literacy will increase Firm Performance.

2.2. Behavioral Financial Bias mediates the Effect of Financial Literacy on Firm Performance

Behavioral Financial Bias can be explained as behavioral bias which is purely based on a psychological background. Behavioral biases can be divided into decision, social, and error biases in a psychological context, whereas, biases related to a company's entrepreneurial orientation are decision biases. In addition, decision biases can be further divided into cognitive and emotional biases (Bhutta & Shah, 2015). Meanwhile, behavioral bias is a disproportionate weight that opposes or supports an idea, habit, or concept, and is irrational (Lebdaoui et al., 2021). Behavioral Financial Bias is an individual's attitude to make financial management decisions consistently following the information they receive, thereby forming a perception of views supported by Overconfidence, Mental Accounting, and Anchoring.

Financial literacy refers to an individual's understanding of financial concepts, including knowledge about money management, investments, and other financial decisions (Purwidiati et al., 2022). Baker et al., (2019) research only describes the relationship between financial literacy and demographic variations with behavioral biases. Meanwhile, research by Baig et al., (2019) suggests that financial literacy can act as a moderating variable in the relationship between behavioral bias and company performance. This has similarities with the research of Handayani et al., (2021) which explains that financial literacy and financial inclusion have a significant impact on financial behavior, and Purwidiati et al., (2022) that there is a positive influence of financial literacy on financial behavior and financial performance of SMEs. do not use biased financial behavior.

However, no research on financial behavior can mediate the influence of financial literacy on firm performance. This is why recent studies have explored the role of financial behavioral biases in mediating the influence of financial literacy on financial decisions and company performance (Purwidiati et al., 2022; Baker et al., 2019).

Synthesis of financial behavioral financial bias mediates the influence of financial literacy on firm performance because the positive influence of financial literacy and the reduction of biased financial behavior on company performance is reflected in more efficient financial management. Individuals who have a good understanding of finance will be able to manage finances and make the right decisions so they tend to avoid biased financial behavior, such as overconfidence or impulsive decisions that can be detrimental to the company.

H2: Reducing Behavioral Financial Bias mediation will increase the influence of Financial Literacy on Firm Performance

Based on the description of theoretical reconstruction and reconceptualization as well as research development, the research model below has been prepared:

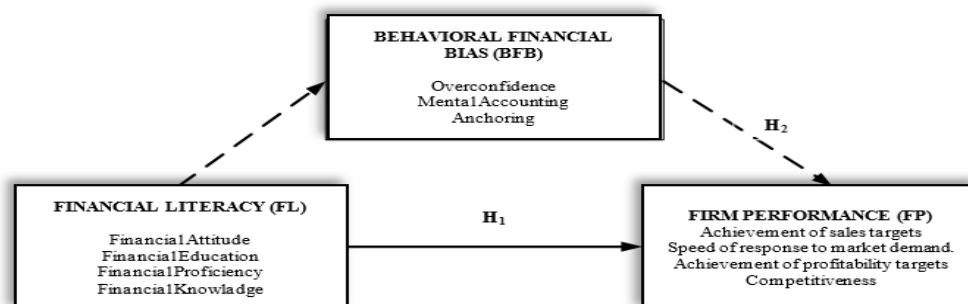


Figure 1. Thinking Framework

3. Methodology

3.1. Research Design

The type of research used is quantitative research with a positivist paradigm. The top-down positivism paradigm departs from the research belief that there is a single truth to understand phenomena. The research methodology in this paradigm is deductive which uses an a priori theory in the form of existing theory, results of previous research, and references which are the basis for testing the arguments put forward by researchers (Purwohedi, 2022). Based on the type of quantitative research with a positivism paradigm, the research objectives are to show relationships between variables, verify theories, make predictions, and generalize by formulating problems and developing research hypotheses related to financial literacy variables, behavioral financial bias, and firm performance variables.

3.2. Population and Sample

The research population is SME business actors located in the DKI Jakarta, Bogor, Depok, Tangerang, and Bekasi areas who are members of the Indonesian Credit Guarantee. Respondents in this study can represent SME problems such as the owner/main director/general manager because they are considered to have adequate knowledge about the performance of the company they lead (Purwohedi, 2022). The research population of SME business actors in DKI Jakarta, Bogor, Depok, Tangerang, and Bekasi in the Small and Medium Enterprise category totaled 745 business actors.

The research sample with the sample table from Krejcie and Morgan in Purwohedi (2022) obtained 245 samples. The unit of analysis is SME business actors. In this study, the number of indicators was 42. Referring to the information from Hair et al., the sample size of 254 samples/respondents has met the minimum sample size of SEM because the number of parameters estimated is $5 \times 42 = 210$ samples. The sampling technique uses random sampling. Data analysis uses SEM (Structural Equation Model Analysis) analysis with AMOS (Analysis of Moment Structure).

3.3. Data Collection Procedures

The research questionnaire aims to determine the tendency of respondents' assessments of research variable indicators using a Likert scale with five alternative answers Strongly Agree (5), Agree (4), Not Sure (4), Disagree (5), Strongly Disagree to answer statements about financial literacy and financial inclusion (Bongomin et al., 2018). An instrument is a tool for obtaining data or, like a measuring instrument in engineering work, certain conditions are required so that the data obtained from the measurement is valid and reliable. According to Purwohedi (2022), before using a set of statements with a certain measurement scale that will measure a construct, researchers must ensure that the instrument meets the elements of validity and reliability. This research instrument uses content validity (content validation) and construct validity (construct validation) so that content validity refers to the extent to which the instrument reflects content related to financial literacy (FL), behavioral financial bias (BFB), and firm performance (FP).

To test construct validation on the research instrument using Confirmatory Analysis (CFA), indicator items were obtained that were dropped on the latent variable financial literacy (FL): FL2, FL6, FL8, FL9, and FL11. Indicator items dropped on the behavioral financial bias (BFB) latent variable: BFB2, BFB2, and BFB9. The indicator items dropped on the latent variable behavioral financial bias (FP): FP3, FP5, FP9, FP10, and FP11.

4. Research Result

4.1. Normality

Structural Equation Modeling (SEM) in AMOS requires data normality to be in a multivariate normal distribution with a critical ratio (cr) range between -2.58 to 2.58. Non-normality of multivariate data can be seen from outlier data or data that deviates extremely from the average and will be dropped or not dropped. The solution to overcome unfulfilled multivariate normality is to use the bootstrap method, in AMOS 24 using the Bollen Stine Bootstrap. Bollen Stine Bootstrap with $p\text{-value} > 0.05$, then the structural hypothesis testing process can be continued. The results of multivariate normality in the critical ratio were 28.133, so it was declared that the data was not multivariate normal. Outlier data is not dropped if the Bollen Stine Bootstrap $p\text{-value}$ is > 0.05 . Bollen Stine Bootstrap results with $p\text{-value} > 0.060$. So it can be stated that the $p\text{-value}$ requirement is > 0.05 . The Bollen Stine Bootstrap results with $p\text{-value} > 0.060$ indicate that bootstrap testing for structural hypothesis testing can be carried out. The results of the Confirmatory Analysis (CFA) analysis can be seen in the image below:

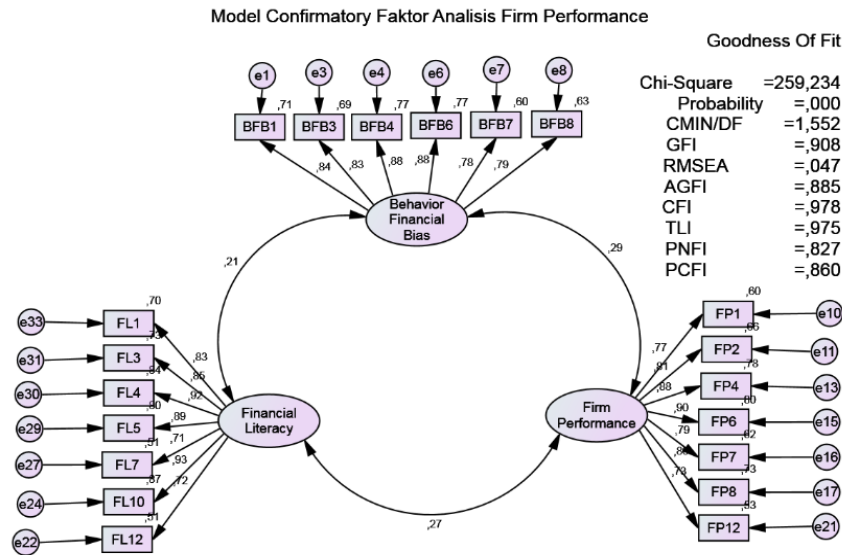


Figure 2. Confirmatory Analysis (CFA)

4.2. Validity

Validity testing uses convergent validity. Convergent validity measures the magnitude of the correlation between the construct and the latent variable. In evaluating convergent validity by examining individual item reliability, it can be seen from the standardized loading factor value. standardized loading factor describes the magnitude of the correlation between each measurement item (indicator) and the construct. A loading factor value ≥ 0.7 is said to be ideal, meaning that the indicator is valid to measure the construct it forms.

Table 1. Standardized Regression Weights:

Financial Literacy (FL)	Estimate	Behavior Financial Bias (BFB)	Estimate	Firm Performance (FP)	Estimate
FL12	,717	BFB1	,841	FP1	,772
FL10	,935	BFB3	,831	FP2	,814
FL7	,715	BFB4	,879	FP4	,881
FL5	,893	BFB6	,880	FP6	,897
FL4	,916	BFB7	,777	FP7	,786
FL3	,853	BFB8	,792	FP8	,855
FL1	,834			FP12	,730

Source: processed from research results, 2024

Based on the Table 1, all factor-loading items are valid > 0.7 . The loading value of the Behavioral Financial Bias factor is 0.880, meaning that every change in Behavioral Financial_Bias will be reflected in the BFB6 item in the amount of $(0.880 \times 0.880) \times 100\% = 77.44\%$. The loading value of the Firm Performance factor is 0.897, meaning that every change in Firm Performance will be reflected in the FP6 item in the amount of $(0.897 \times 0.897) \times 100\% = 80.46\%$. The loading value of the Financial Literacy factor is 0.935, meaning that every change in Financial Literacy will be reflected in the FL10 item of $(0.935 \times 0.935) \times 100\% = 84.42\%$.

4.3. Reliability

To assess the reliability test using Composite Reliability (CR). Composite Reliability (CR) > 0.7 and variance extracted (VE) > 0.5 . A summary of the CR, VE, and root VE results is shown in the table below.

Table 2. Summary of CR, VE and VE root results

Items	LF= λ	LF ² = λ^2	$\epsilon = 1 - \lambda^2$	CR = $(\sum \lambda^2) / (\sum \lambda^2 + \sum \epsilon)$	VE = $(\sum \lambda^2) / (\sum \lambda^2 + \sum \epsilon)$	Root VE			
BFB1	0,841	0,707	0,293	0,932	0,696	0,834			
BFB3	0,831	0,691	0,309						
BFB4	0,879	0,773	0,227						
BFB6	0,88	0,774	0,226						
BFB7	0,777	0,604	0,396						
BFB8	0,792	0,627	0,373						
FP1	0,772	0,596	0,404				0,935	0,674	0,821
FP2	0,814	0,663	0,337						
FP4	0,881	0,776	0,224						
FP6	0,897	0,805	0,195						

Items	LF= λ	LF ² = λ^2	$\epsilon=1-\lambda^2$	CR= $(\sum\lambda)^2/(\sum\lambda)^2+(\sum\epsilon)$	VE= $(\sum\lambda^2)/(\sum\lambda^2)+(\sum\epsilon)$	Root VE
FP7	0,786	0,618	0,382	0,944	0,708	0,842
FP8	0,855	0,731	0,269			
FP12	0,73	0,533	0,467			
FL12	0,717	0,514	0,486			
FL10	0,935	0,874	0,126			
FL7	0,715	0,511	0,489			
FL5	0,893	0,797	0,203			
FL4	0,916	0,839	0,161			
FL3	0,853	0,728	0,272			
FL1	0,834	0,696	0,304			

Source: processed from research results, 2024

Based on Table 2, all items are > 0.7 so they are declared reliable and all VE values are above 0.5 so they are also declared reliable. The Composite Reliability (CR) for Behavioral Financial Bias is 0.932, meaning that all items that measure Behavioral Financial Bias are consistently reliable in measuring Behavioral Financial Bias. The Variance Extracted (VE) for Behavioral Financial Bias is 0.696, meaning that the variation content of the BFB1, BFB3, BFB4, BFB6, BFB7, and BFB8 data contained by Behavioral Financial Bias is 69.6%. The Composite Reliability (CR) for Firm Performance is 0.935, meaning that all items that measure Firm Performance are consistently reliable in measuring Firm Performance.

Variance Extracted (VE) for Firm Performance is 0.674, meaning that the variation content of FP1, FP2, FP4, FP6, FP7, FP8 and FP12 data contained by Firm Performance is 67.4%. The Composite Reliability (CR) for Financial Literacy is 0.944, meaning that all items that measure Financial Literacy are consistently reliable in measuring Financial Literacy.

The Variance Extracted (VE) for Financial Literacy is 0.708, meaning that the variation in FL12, FL10, FL7, FL5, FL4, FL3 and FL1 data contained in Financial Literacy is 70.8%.

4.4. Discriminant Validity

The model has sufficient discriminant validity if the AVE root for each construct is greater than the correlation between the construct and other constructs in the model.

Table 3. Fornell Larcker Discriminant Validity Summary

Variable	Behavioral Financial Bias	Firm Performance	Financial Literacy
Behavioral Financial Bias	0,934		
Firm Performance	0,287	0,821	
Financial Literacy	0,211	0,270	0,842

Source: processed from research results, 2024

Based on the Table 3, Behavioral Financial Bias has a root value of VE = 0.934 which is greater than the correlation of other variables. Firm_Performance has a root value of VE = 0.821 which is greater than the correlation of other variables. Financial Literacy has a root value of VE = 0.821 which is greater than the correlation of other variables. Because each variable has a root VE value that is greater than the correlation with other variables, discriminant validity has been fulfilled.

4.5. Goodness of Fit

Confirmatory factor analysis evaluation also uses goodness of fit. The goodness of fit results in the table below.

Table 4. Goodness of Fit Results

No	Goodness of Fit	Result	Cut Off	Conclusion
1	Chi-Square	259,234	$< \chi^2$ tabel	Not Good
2	Probability	0,000	≥ 0.05	Not Good
3	CMIN/DF	1,552	≤ 2	Good
4	GFI	0,908	≥ 0.90	Good
5	RMSEA	0,047	≤ 0.08	Good
6	AGFI	0,885	≥ 0.90	Marginal
7	CFI	0,978	≥ 0.95	Good
8	TLI	0,975	≥ 0.95	Good
9	PNFI	0,827	> 0.6	Good
10	PCFI	0,860	> 0.6	Good

Source: processed from research results, 2024

Based on the Table 4, the goodness of fit results above, of the 10 goodness of fit criteria there are 3 goodness of fit criteria that are not fit, while 7 criteria for the goodness of fit category are concluded to be fit, meaning the model fits the data. The results of the 8 Goodness of Fit criteria are considered sufficient to assess the

suitability of a model, as long as each Goodness of Fit criterion, namely absolute fit indices, incremental fit indices, and parsimonious fit indices, is represented.

4.6. Structural Model Evaluation

Structural equation model (inner model) that explains the influence of independent latent variables on dependent latent variables. The structural model was evaluated with standard maximum likelihood regression to see the influence value. Meanwhile, to find out the significance of the influence of the independent latent variable on the dependent latent variable, it is significant if the p-value is <0.05 as a result of bootstrapping. The results of the structural model of firm performance are in the image below

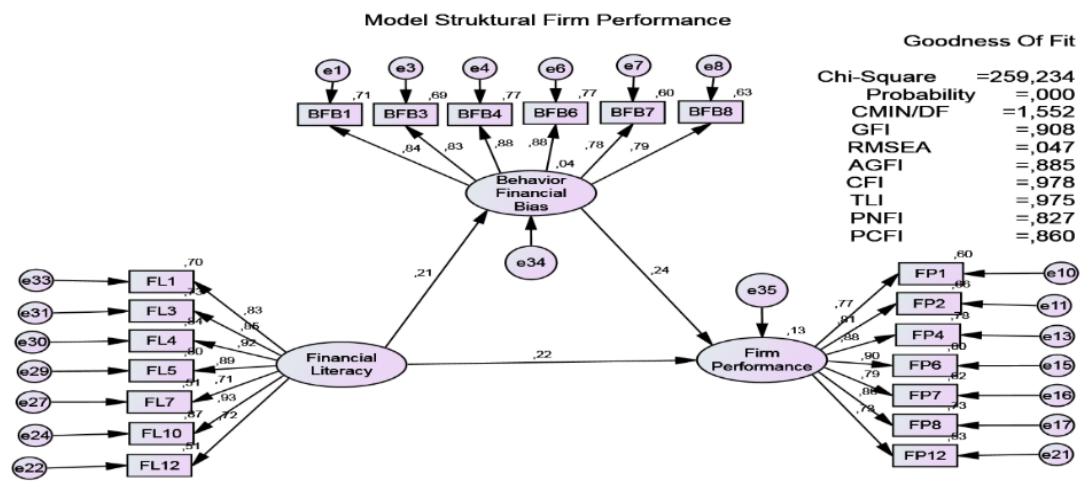


Figure 3. Image of the structural model of firm performance

Based on Figure 3, the influence between variables using the bootstrap method can be summarized in the table below.

Table 5. Influence between variables

Path Variable		Estimate	Lower	Upper	P
Behavioral_Financial_Bias	← Financial_Literacy	,211	,094	,447	,003
Firm_Performance	← Behavioral_Financial_Bias	,240	,099	,368	,001
Firm_Performance	← Financial_Literacy	,219	,072	,439	,009

Source: processed from research results, 2024

Based on Table 5, it is known: (1) The financial variable has a significant influence on Behavioral Financial Bias of 0.211 with a p-value of 0.003. By increasing financial literacy, Behavioral Financial Bias will increase. In the 95% confidence interval, the influence of Financial Literacy on Behavioral Financial Bias is between 0.094 and 0.447. (2) The Behavioral Financial Bias variable has a significant influence on Firm Performance of 0.240 with a p-value of 0.001. By increasing Behavioral Financial Bias, it will increase Firm Performance. In the 95% confidence interval, the influence of Behavioral Financial Bias on Firm Performance is between 0.099 and 0.368. (3) The Financial Literacy variable has a significant influence on Firm Performance of 0.219 with a p-value of 0.009. By increasing financial literacy, it will increase Firm Performance. In the 95% confidence interval, the influence of Financial Literacy on Firm Performance is between 0.072 and 0.439.

4.7. Mediation Test

The influence of Financial Literacy on Firm Performance through the mediation of Behavioral Financial Bias can be seen in the table below.

Table 6. Mediation Test Results

Path Variable	Estimate	p-value
Financial_Literacy → Behavioral_Financial_Bias → Firm_Performance	0,051	0.003

Source: processed from research results, 2024

Based on Table 6, there is a significant influence of Financial Literacy on Firm Performance through the mediation of Behavioral Financial Bias of 0.051 with a p-value of 0.003. In other words, Financial Literacy has an indirect influence on Firm Performance through the mediation of Behavioral Financial Bias of 0.051 and a significant p-value of 0.003 < 0.05. According to Hair et al., (2021), the results of this mediation are complementary mediation because the indirect influence and direct influence are significant and lead in the

same direction (positive). Complementary mediation is a Behavioral Financial Bias mediation variable that can explain the relationship between the Financial Literacy variable and the Firm Performance variable.

5. Discussion

5.1. The Influence of Financial Literacy on Firm Performance

The results of testing the first hypothesis empirically prove that financial literacy has a positive and significant effect on firm performance. These findings explain that financial literacy can support the skills and knowledge of individual business actors to make effective decisions in managing SME financial resources supported by financial knowledge and financial education. Financial knowledge in these findings prioritizes understanding of financial terms (0.935) as well as financial education on education about the basics of business financial management (0.916) and education for managing business resources (0.893).

Understanding the financial terms of business actors in financial literacy in SMEs because financial terms enable SME business actors to make wiser financial decisions. By understanding concepts such as income, costs, profits, and cash flow, business owners can manage their company's finances more efficiently to support optimizing firm performance.

Education about the basics of business financial management for business actors in financial literacy in SMEs because there is a better understanding of business actors' efforts to manage income and expenses. Apart from that, the basics of accounting and financial reports enable business actors to prepare accurate and understandable financial reports so that managing business finances based on financial literacy provides a strong foundation for SME business actors to manage finances in support of optimizing firm performance, speed of response to market demand and achieving profitability targets.

Education to manage business resources on financial literacy in SMEs because it provides SME actors with a deeper understanding of business actors' efforts to optimize the speed of response to market demand and achieve profitability targets. This shows the importance of education in managing business resources, providing a solid foundation for business actors because of financial literacy in the knowledge and skills obtained from financial education so that business actors can face business challenges with confidence and manage resources effectively to achieve success. firm performance

The relationship between research findings and grand theory is because financial knowledge and financial education in financial literacy have a positive effect on supporting firm performance because of the formation of business actors' understanding of financial terms related to SME business practices. This shows that there is a link between the Theory of Planned Behavior (Ajzen & Fishbein, 1975) and the Theory of Behavioral Finance (Glaser et al., 2004) on the influence of financial literacy on firm performance because financial literacy in an SME company can influence the attitudes and intentions of actors. efforts to adopt better financial practices. In addition, understanding the financial behavior that underlies business actors' decisions can help SMEs manage finances at a speed of response to market demand and achieve profitability targets.

The research findings that financial literacy has a positive and significant effect on firm performance are supported by research by Buchdadi (2020), Jemal (2019), and Purwanto et al., (2022)

5.2. Financial Behavior Bias mediates the influence of Financial Literacy on Firm Performance

The results of testing the second hypothesis empirically prove that financial behavior can mediate the influence of financial literacy on firm performance. This positive relationship shows that high financial literacy can influence positive financial behavior, reduce financial bias, and in turn increase firm performance. Financial literacy based on the findings can be the main driver for reducing biased financial behavior. When business actors have a good understanding of financial concepts, business actors tend to make more informed and measurable financial decisions. This can then minimize biased financial behavior in mental accounting in terms of making planned expenditures for business needs and not easily using money for purposes other than those planned as well as overconfidence in terms of daring to take business financial risks. This view shows the efforts of business actors to minimize biased financial behavior such as the tendency to take excessive risks or impulsive decisions in business management. By reducing biased financial behavior, business actors can achieve better financial stability and optimize the use of resources. This in turn can have a positive impact on overall firm performance. Therefore, strengthening positive financial literacy and reducing biased financial behavior can be key factors that support increased firm performance.

The importance of financial literacy in reducing biased financial behavior will reduce the mental accounting of business actors in the tendency of business actors to separate and group financial resources into different mental "accounts" and treat each account separately in making financial decisions such as accounts for operational costs and accounts. business opinions and accounts for business development. Apart from that, biased financial behavior will reduce the Mental Accounting of business actors towards overconfident business actors because there is a tendency for business actors to have excessive confidence in their ability to make excessive decisions or prospects for business success, thereby ignoring information that conflicts with their beliefs.

These findings show that financial behavior can mediate the influence of financial literacy on firm performance. However, no research on financial behavior can mediate the influence of financial literacy on firm performance. This is the latest study to explore the mediation of financial behavior which can be supported

by the influence of financial literacy on firm performance so the findings of this research become novelty research.

6. Conclusion

There is a positive and significant influence of financial literacy on firm performance directly or mediated by financial behavior bias. The findings are novelty research, to improve firm performance by increasing financial literacy in financial knowledge and financial education. Meanwhile, financial behavior can be used to improve firm performance, which can reduce the influence of mental accounting to separate and group financial resources into different mental "accounts" and overconfidence due to the tendency of business actors to have excessive confidence.

7. Implications

This study contributes to the literature on the Theory of Planned Behavior and the Theory of Behavioral Finance. First, the direct influence of financial literacy on firm performance provides a new concept about the importance of the concept of financial literacy in SMEs. The research results show that financial literacy improves firm performance in SME business actors. In this case, the Theory of Planned Behavior and the Theory of Behavioral Finance can explore new insights into the role of financial literacy in firm performance among SME business actors. The implication is for researchers to design by including the role of financial literacy when SME business actors attempt to improve firm performance. Second, researchers aim to reduce business actors' confidence in biased financial behavior by increasing the role of business actors' financial literacy. A new concept that puts forward the role of financial literacy can reduce biased financial behavior. The argument that financial behavior can mediate the influence of financial literacy on firm performance has not yet been widely explored in scientific studies. This research examines these arguments in less developed SMEs. Furthermore, researchers tested the role of financial literacy in reducing financial behavior bias toward firm performance. First, policymakers can pay greater attention not only to financial literacy but also concentrate on ways in which SMEs can manage finances and use resources flexibly. Second, business actors can develop financial literacy in financial knowledge and financial education. This means that business actors in supporting firm performance are trying to encourage financial literacy as the ultimate goal, but there is a belief that business actors still prioritize financial behavior bias so strengthening financial literacy is an effort to improve firm performance.

8. Limitations

This study has limitations that must be considered in interpreting its findings. First, this research focuses on Small and Medium Enterprises without involving micro-enterprises. Because Small and Medium Enterprises and Micro Enterprises have differences in Business Scale, Capital Ownership, and Economic Impact. Second, sample data on SME business actors in the DKI Jakarta, Bogor, Depok, Tangerang, and Bekasi areas who are members of the Indonesian Credit Guarantee (Jamkrindo).

Future research directions by adding financial inclusion to obtain an inclusive financial model for business actors and connecting it with the demographics of business actors for the government and financial institutions in designing economic policies that suit the special needs and characteristics of SME business actors.

References

9. Ajzen, I. (1991). The Theory of Planned Behavior The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179–211. [https://doi.org/10.1016/0749-5978\(91\)90020-T](https://doi.org/10.1016/0749-5978(91)90020-T)
10. Ajzen, I., & Fishbein, M. (1975). A Bayesian analysis of attribution processes. *Psychological Bulletin*, 82(2), 61–277. <https://doi.org/10.1037/h0076477>
11. Anshika, Singla, A., & Mallik, G. (2021). Determinants of financial literacy: Empirical evidence from micro and small enterprises in India. *Asia Pacific Management Review*, 26(4), 248–255. <https://doi.org/10.1016/j.apmr.2021.03.001>
12. Aritonang, M. P., Sadalia, I., & Muluk, C. (2023). The Effect of Financial Literacy and Financial Inclusion on MSMEs Performance (Case Study in MSMEs Assisted by SME & IKM DPW North. *INSYMA 2022*, 356–368. <https://doi.org/10.2991/978-94-6463-008-4>
13. Aschenwald, M., Holzknicht, A., Kichler, M., & Razen, M. (2023). Determinants of Financial Literacy and Behavioral Bias among Adolescents.
14. Babajide, A., Osabuohien, E., Tunji-Olayeni, P., Falola, H., Amodu, L., Olokoyo, F., Adegboye, F., & Ehikioya, B. (2021). Financial literacy, financial capabilities, and sustainable business model practice among small business owners in Nigeria. *Journal of Sustainable Finance & Investment*, 12(2). <https://doi.org/10.1080/20430795.2021.1962663>
15. Baig, S. A., Zia-ur-Rehman, M., Jamil, K., Hashim, M., & Iqbal, N. (2019). Impact of Behavioral Biases on

- Firm Performance: Mediating Role of Entrepreneurial Innovations. *Journal of Managerial Sciences*, 13(2), 1–12.
16. Baker, H. K., & Kumar, S. (2018). Behavioral biases among SME owners. *Int. J. Management Practice*, 11(3), 259–283.
 17. Baker, H. K., Kumar, S., Goyal, N., & Gaur, V. (2019). How financial literacy and demographic variables relate to behavioral biases. *Managerial Finance*, 45(1), 124–146. <https://doi.org/10.1108/MF-01-2018-0003>
 18. Baradarani, S., Ghaffari, A., & Kilic, H. (2021). The effect of behavioral biases on firm performance: Evidence from Iranian listed companies. *International Journal of Economics, Commerce and Management*, 9(6), 97–114.
 19. Bhutta, N. T., & Shah, S. Z. A. (2015). Do behavioral biases impact corporate entrepreneurship, agency cost, and firm performance : Evidence from developed and developing economies ? *Entrepreneurship, Agency Cost and Firm Performance : Evidence from Developed and Developing Economies ? Pakistan Journal of Commerce and Social Sciences*, 9(3), 761–798.
 20. Bongomin, G. O. C., Munene, J. C., Ntayi, J. M., & Malinga, C. A. (2018). Nexus between financial literacy and financial inclusion: Examining the moderating role of cognition from a developing country perspective. *International Journal of Bank Marketing*. <https://doi.org/10.1108/IJBM-08-2017-0175>
 21. Buchdadi, A. D. (2020). The Influence Of Financial Literacy On SMES Performance Through Access To Finance And Financial Risk Attitude As Mediation Variables. *Academy of Accounting and Financial Studies Journal*, 24(5).
 22. Ezeaku, M. (2020). Behavioral Biases and Firm Performance: A Study of Nigerian Listed Firms. *Journal of Business and Management*, 15, 98–107.
 23. Fan, L., & Chatterjee, S. (2018). Application of situational stimuli for examining the effectiveness of financial education: A behavioral finance perspective. *Journal of Behavioral and Experimental Finance*, 17, 68–75. <https://doi.org/10.1016/j.jbef.2017.12.009>
 24. Fiore, R. A., & Lussier, R. N. (2015). Measuring and testing general fundamental attribution error in entrepreneurship affecting public policy. *Journal of Entrepreneurship and Public Policy*, 4(2), 171–186.
 25. Glaser, M., Nöth, M., & Weber, M. (2004). Behavioral Finance. In *Blackwell Handbook of Judgment and Decision Making* (Derek J. K). Blackwell Publishing Ltd.
 26. Gunawan, A., Jufrizen, & Pulungan, D. R. (2023). Improving MSME performance through financial literacy, financial technology, and financial inclusion. *International Journal of Applied Economics, Finance and Accounting*, 15(1), 39–52. <https://doi.org/10.33094/ijaefa.v15i1.761>
 27. Hair, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., & Ray, S. (2021). *Partial Least Squares Structural Equation Modeling (PLS-SEM) Using R*. Springer.
 28. Hameed, S., Zafar, N., & Faisal, M. N. (2019). Behavioral biases and firm performance: Evidence from Pakistan. *Journal of Business Research*, 103, 113–124.
 29. Handayani, L., Ainun, B., & Fahmi, Y. (2021). The Effect of Islamic Financial Literacy and Financial Inclusion Toward Financial Planning among Millennials : Financial Behaviour as an Intervening Variable. *International Journal of Emerging Issues in Islamic Studies (IJEIIS)*, 1(2).
 30. Hira, T. K. (2012). Promoting sustainable financial behavior : implications for education and research. *International Journal of Consumer Studies*, 36, 502–507. <https://doi.org/10.1111/j.1470-6431.2012.01115.x>
 31. Jemal, L. (2019). Effect of Financial Literacy on Financial Performance of Medium Scale Enterprise ; Case Study in Hawassa City ., *International Journal of Research in Business Studies and Management*, 6(11), 33–39.
 32. Kemenkop UKM. (2021). *Rencana Strategis Sekretariat Kementerian Koperasi dan Usaha Kecil dan Menengah Tahun 2021–2024*.
 33. Lamptey, J., Marsidi, A. Bin, Usman, B., & Ali, A. B. (2020). Over Confidence Behavioral Bias in Working Capital Management and Performance of Small and Medium Enterprise in Ghana : A Conceptual Paper Literature Review. *Malaysian Journal of Social Sciences and Humanities (MJSSH)*, 5(7), 124–129.
 34. Lebdaoui, H., Chetoui, Y., & Ghechi, E. (2021). The Impact of Behavioral Biases on Investment Performance : Does Financial Literacy Matter ? *International Journal of Economics and Financial Issues*, 11(3), 13–21.
 35. Mashizha, M., Sibanda, M., & Maumbe, B. (2019). Financial literacy among small and medium enterprises in Zimbabwe. *The Southern African Journal of Entrepreneurship and Small Business Management*, 11(1), 1–10. <https://doi.org/10.4102/sajesbm.v11i1.241>
 36. Muehlbacher, S., & Kirchler, E. (2019). Individual Differences in Mental Accounting. *Frontiers in Psychology*, 10(December), 1–15. <https://doi.org/10.3389/fpsyg.2019.02866>
 37. Naser, H., & Alabassi, Z. M. (2022). The Effect of Financial Inclusion on Financial Performance - Analytical study of a sample of banks listed on the Iraq Stock Exchange -. *International Journal Of Research In Social Sciences & Humanities*, 12(2).
 38. Nobre, F. C., Machado, M. J. de C., & Nobre, L. H. N. (2022). Behavioral Biases and the Decision-Making in Entrepreneurs and Managers. *Journal of Contemporary Administration*, 26(1), 1–13.
 39. Purwanto, A. H. D., Nashar, M., Jumaryadi, Y., Wibowo, W., & Mekaniwati, A. (2022). Improving

- medium-small micro-enterprise (MSME) performance. *International Journal of Advanced and Applied Sciences*, 9(5), 37–46.
40. Purwidiyanti, W., Tubastuvi, N., Darmawan, A., & Rahmawati, I. Y. (2022). Does Financial Behavior Mediate The Relationship Between Financial Literacy and Financial Experience Towards Financial Performance of Small Businesses? *Advances in Economics, Business and Management Research*, 201(Icosiams 2021), 235–241.
 41. Purwohedi, U. (2022). *Metode Penelitian: Prinsip dan Praktek. Raih Asa Sukses*.
 42. Raveendra, P. V., Singh, J. E., Singh, P., & S., S. K. (2018). Behavioral Finance and its Impact on Poor Financial Performance of SMEs: A Review. *International Journal of Mechanical Engineering and Technology*, 9(5), 341–348.
 43. Saraa, I. M., Adi, K., Saputra, K., Kartika, I. W., & Utama, J. (2020). Financial Statements of Micro, Small and Medium Enterprises Based on the Concept of an Economic Entity Literature Review. *Journal of Hunan University Natural Sciences*, 47(12), 125–132.
 44. Sharma, V. (2022). Examining the Role of Behavioural Biases in Financial Decisions : A Literature Review. *Journal of Positive School Psychology*, 6(3), 6685–6697.
 45. Shihadeh, F., Mohammed, A., Hannon, T., & Guan, J. (2020). Does Financial Inclusion Improve the Banks ' Performance? Evidence from Article information : *Global Tensions in Financial Markets*, 117–138. <https://doi.org/10.1108/S0196-382120170000034005>
 46. Snider, J. H., & Davies, K. J. (2018). Success Strategies for Small Financial Planning Firms. *International Journal of Applied Management and Technology*, 17(1), 22–34. <https://doi.org/10.5590/ijamt.2018.17.1.02>
 47. Song, C. L., Pan, D., Ayub, A., & Cai, B. (2023). The Interplay Between Financial Literacy, Financial Risk Tolerance, and Financial Behaviour: The Moderator Effect of Emotional Intelligence. *Psychology Research and Behavior Management*, 16.
 48. Stolper, O. A., & Walter, A. (2017). Financial literacy, financial advice, and financial behavior. *Journal of Business Economics*, 87(581–643). <https://doi.org/10.1007/s11573-017-0853-9>
 49. Yeboah, G. (2019). The Effects of Financial Literacy on the Financial Performance of Small-Scale Enterprise. (The Case of Makola Market). *Texila International Journal of Management*, 1–10. <https://doi.org/10.21522/TIJMG.2015.SE.19.02.Art020>
 50. Zhang, H., Bij, H. van der, & Song, M. (2020). Can cognitive biases be good for entrepreneurs? entrepreneurs. *Can Cognitive Biases Be Good for Entrepreneurs?*, 26(4), 793–813. <https://doi.org/10.1108/IJEBR-03-2019-0173>
 51. Zia-ur-rehman, M., Rizwan, M. F., & Abbas, Z. (2017). Impact of Behavioral Biases on Long Term Financial Decisions and Corporate Performance : An Evidence from Non-Financial Sector of Pakistan. *NICE Research Journal*, 10, 1–28.