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Mediating effect of self-control on financial literacy and savings behaviour of rural women entrepreneurs

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Background: Savings behaviour is crucial for any economic and investment activity. The ability of rural enterprises to save is difficult because of their ignorance of the benefits of savings, low-income levels and inability to commit personal savings, which falls to certain factors that include financial literacy (financial knowledge, financial attitude) and self-control.

Aim: The article aims to examine the mediating effect of self-control on financial literacy (financial knowledge, financial attitude) and savings behaviour of rural women entrepreneurs in Mokwa Local Government, Niger State, Nigeria.

Setting: The population comprised 340 rural women trained by the Department of Commerce on financial literacy applications in the 11 wards of Mokwa Local Government. A total of 175 respondents were identified using the Krejcie and Morgan sample size table.

Methods: Primary quantitative data were collected using structured questionnaires and analysed using partial least square (PLS) path modelling.

Results: The empirical results revealed that financial knowledge and financial attitude exerted a positive effect on the savings behaviour of rural women entrepreneurs.

Conclusion: The conclusion drawn from the study is that the financial literacy of rural women entrepreneurs is empirically related to how they save.

Contribution: Based on the research findings, the study recommends that government agencies supervising and coordinating the activities of entrepreneurs like SMEDAN and also financial institutions like Microfinance Banks should facilitate flexible, understandable and acceptable programmes that will enlighten rural entrepreneurs on the importance of savings for investment and the nation at large.

Keywords: financial literacy; financial attitude; financial knowledge; self-control; savings behaviour.

Introduction

Globally, economic agents, be they people, enterprises, institutions or governments, save for a variety of purposes. Savings are usually for purposes like investment, consumption, retirement, education, insurance, etc. Savings are an important financial tool, especially for small and medium enterprises (SMEs), with limited access to credit as they can be used to boost growth (Abebe, Tekle & Mano 2016).

Studies have shown that savings are one of the important financial needs of SMEs (Mpaata, Koske & Saina 2021; Komen 2022). Small and medium enterprises whose owners do not cultivate a savings behaviour by reinvesting retained earnings are less likely to expand than those whose owners reinvest capital and have a higher growth potential (Woldehanna, Amha & Yonis 2018). Globally, household savings have risen in high-income countries despite widespread declines in wages and another private income stream (Komen 2022). Important to note is that the economic growth of nations with higher savings rates has outpaced that of nations with lower savings rates (Ribaj & Mexhuani 2021).

Compared to other continents, Africa has consistently had the lowest savings rate (Komen 2022) and has pointed out that savings is 'the forgotten half' of finance. Additionally, the continent has severe credit restrictions, which, when combined with low income, substantially reduces any motivation to save (Kibet et al. 2009). Owing to knowledge gaps, and poor saving and investment behaviour, the majority of SMEs are unable to thrive. This has led to the closing of most of these SMEs, which reportedly make a significant contribution to the gross domestic product (GDP) of countries (Abebe et al. 2016). Arinaitwe and Mwesigwa (2015) in Komen (2022) have also shown that three out of every five SMEs fail during the first few months of operation, while 80% fail before their fifth year. This risk is attributable to small business owners' poor saving practices, which limit their ability to seek external financing and restrict operations and expansion (Komen 2022).

In Nigeria, the savings ratio as a percentage of GDP, which is assumed to be savings per head, has declined from 23.25 billion Naira in 2009 to 12.3 billion Naira in 2015 (Central Bank of Nigeria [CBN] 2015). This is despite that improving the financial system that mobilises the SME's savings is necessary to boost its growth and development. Through savings behaviour, SMEs may accumulate wealth and gain financial independence (Athukorala 2003).

Saving behaviour has been associated with several sociodemographic factors, including gender. Women typically save less and score lower than men on risk tolerance measures (Fisher, Hayhoe & Lown 2015). Nigerian culture, religion and family systems generally assume that women are subordinate to men (Ojediran & Anderson 2020). While Nigerian women progress towards economic empowerment and gender parity through entrepreneurship, their autonomy on the income generated through their entrepreneurship remains restricted (Ujah 2023; Yousafzai et al. 2022).

Women play a crucial role in economic growth and development in rural areas. However, studies have shown that women in rural areas often face significant financial constraints that limit their savings and investment options (Ujah 2023). Some of these constraints are related to knowledge gaps and behavioural-based factors (Abebe et al. 2016). Knowledge gaps include factors like financial literacy, while behavioural factors include a lack of individual self-control.

Financial literacy, or financial awareness, is an essential aspect of individuals' financial well-being and financial empowerment (Ali et al. 2021). Financial literacy has been described as the ability to use financial knowledge and skills to efficiently use resources that affect a person's finances (Mpaata et al. 2021).

Several studies have highlighted that saving behaviour is influenced positively by financial literacy (Delafrooz & Laily 2011; Lusardi & Olivia 2006; Sabri & MacDonald 2010; Yadav, Prasad & Singh 2021). This means that the greater one's financial literacy, the greater one's level of savings and the greater one's financial well-being (Gilenko & Chernova 2021). However, most of these studies were focussed on macro-level businesses (Asare et al. 2018). Research on saving behaviour at the micro-level in sub-Saharan African countries has been minimal (Asare et al. 2018). This study examined the financial literacy and savings behaviour of rural women entrepreneurs at the micro-level of society, namely those in Mokwa, a local government area in Niger State, Nigeria.

Correspondingly, there are a plethora of studies on self-control and savings behaviour (Esenvalde 2011; Kim & Hanna 2017; Mpaata et al. 2021; Sia, Lim & Gan 2011; Strömbäck et al. 2017). These studies, however, focussed on the personality trait of self-control. Mpaata et al. (2021) advocated for studies that looked at personality as it relates to personal finances. The present study thus utilised psychological factors as identified by Rha, Montalto and Hanna (2006), to mediate the role of self-control, in saving behaviour. This decision was prompted by Griesdorn et al. (2014) who claimed: 'Some of the strongest evidence on self-control and savings comes from a pioneering study by Rha et al. (2006), which demonstrated the strong link between savings and self-control'.

Important to note is that there exists a plethora of studies on financial literacy and self-control on savings behaviour. However, these studies examined the relationship between these variables independently. The present study combined financial literacy variables (financial knowledge and financial attitude) as the independent variables and savings behaviour of rural women-owned SMEs in Mokwa Local Government as the dependent variable, mediated by self-control. More so, the present study made use of financial literacy dimensions as it has been attested that financial literacy cannot be measured directly (Menike 2017).

Purpose of the study

The present study examines the mediating effect of self-control in the relationship between financial literacy, the independent variable proxied by financial knowledge and financial attitude, which are the pillars of financial literacy (Fatoki 2014). The dependent variable is represented as savings behaviour with measures adopted from Chowa and Despard (2014) and Dangol and Maharjan (2018).

Literature review

Various relevant literature sources on the constructs used to measure the independent, mediating and dependent variables by different scholars were consulted. This section discusses the concept of savings behaviour, financial literacy, financial knowledge, financial attitude and self-control, as well as the underpinning theory used for the study.

Savings behaviour

Savings play an important role in maintaining economic growth, and savings behaviour is important at different levels, namely households, enterprises and government. However, these three entities are closely interlinked. For instance, if enterprises save too little, they might face financial difficulties in addition to having deficient emergency savings, which, in turn, will increase anxiety and lead to the collapse of their business enterprises (Prawitz et al. 2006).

According to Denton, Fretz and Spencer (2011), savings behaviour is a mixture of expectations of potential needs, saving choices and behaviours that result in wealth formation (source). Savings behaviour occurs when current income exceeds current consumption and total resources increase (Wong 2013). Importantly, Harper (2003) says domestic savings provide the assets for the economy's investment in future production.

Financial literacy

The most used explicit definitions found for the concept of financial literacy include the following: 'the ability to read, analyse, manage and communicate about the personal financial conditions that affect material well-being' (Cude et al. 2006; Huston 2010; Vitell et al. 2009); 'basic knowledge necessary for people to survive in the modern society' (Kim, Kratze & Leech 2001); 'capability to understand key financial concepts necessary to function in the normal society' (Bowen 2002); 'the ability to manage the situation of cash and payments, knowledge about opening a saving account and obtaining a credit, basic understanding of health and life insurance, ability to compare offers and plan for future financial needs' (Emmons 2005); 'the ability to use knowledge and manage financial resources for a good financial well-being throughout the whole life' (Huston 2010) and 'a measure of the degree to which a person understands key financial concepts and has the necessary ability and confidence to manage own finances through short term decisions and long-term planning, taking into consideration the economic events and changing conditions' (Remund 2010).

Financial knowledge

Financial knowledge is about understanding how business performance and condition are measured using the mental model to facilitate, support or enrich decision-making (Lusardi & Olivia 2006; Moore 2003). Lusardi and Olivia (2006) suggested that financial literacy is needed to measure financial competence, in essence, to stay knowledgeable about financial matters. Such literate people are participating more and better in financial markets because they understand financial matters.

Financial knowledge would affect and increase a firm's total sources of financing (Marcolin & Abraham 2006). Moore (2003) elucidated that literacy or knowledge is gained via practical experience and active integration of knowledge. In other words, people will become more sophisticated in terms of finance when they are more financially literate (Menike 2017).

Financial attitude

Financial attitude can be defined as applying financial principles to create and maintain value through decision-making and proper resource management (Latif, Razak & Lumpur 2011). Financial attitude is one of the factors that impact significantly on financial management practice. Eagly and Chaiken (1993) define it as a psychological tendency expressed by evaluating a particular entity with some degree of favour or disfavour. Financial attitude thus constitutes a psychological predisposition when agreeing or disagreeing with certain financial management practices. Latif et al. (2011) defined financial attitude as the creation of value in decision-making and resource management through the application of financial principles. Financial attitude can be improved through the procurement of adequate information (Abiodun 2016).

Self-control

Self-control is the ability to control one's urges, thoughts, desires and behaviour or avoid the temptation of spending money on non-essential items (Mpaata et al. 2021). People with greater self-control are more likely to accomplish their goals and be more competitive in all domains of life (De Ridder et al. 2012).

Self-control is the method of controlling one's actions when there is a straightforward trade-off between long-term objectives and immediate gratification (Bernheim, Ray & Yeltekin 2015). Abdel-Khalek (2016) describes it as the degree to which a person's self-confidence controls events and ongoing situations and represents their sense of their ability to handle them. According to Vitell et al. (2009), self-control is intentional self-regulation providing a person with the capacity to act responsibly by overriding one's propensity to behave poorly. Usually, self-control is expressed as one's ability to break bad habits, resist temptations and resist first desires (Fujita & Han 2009; Mpaata et al. 2021).

Review of related studies

Mpaata et al. (2021) investigated whether self-control mediates financial literacy and savings behaviour among micro and small enterprise owners. A quantitative, positivist research approach was employed. Process Macro SPSS was used as a statistical tool for analysing questionnaire data guided by social cognitivist theory for interpretation. Their results indicate that both financial literacy and self-control significantly predict saving behaviour. In addition, the relationship between financial literacy and saving behaviour was mediated by self-control.

Shaheen (2023) examined unleashing financial fortitude by exploring the saving and investment habits of rural women in Bareilly, India. This study used a descriptive research design to collect primary data from 100 rural women by convenience sampling through a structured questionnaire. Frequency and percentage methods were used to analyse the data. The study identified the purpose of saving and factors that influence investment decisions among rural women, including family and social pressure, income, education and financial literacy related to investment patterns like savings accounts, gold and livestock.

Ameyaw (2022) examined the financial literacy and financial behaviour of micro and small enterprises in the Sunyani Municipality, Ghana. The study employed primary data and used a quantitative approach as well as a descriptive survey design to randomly sample 230 owners or managers from five categories of micro and small enterprises (MSEs) in the Sunyani Municipality. The findings revealed that owners or managers of MSEs who had high levels of financial knowledge exhibited good financial behaviour and demonstrated a good financial attitude as compared to those with lower levels of financial knowledge. The positive outcomes of being financially literate were driven by behaviour such as planning expenditures and building up a financial safety net (Ameyaw 2022, Kwigizile, Mahande & Msuya 2022).

Sadalia and Butar-Butar (2017) examined SMEs' financial behaviour and performance in the coastal area of Medan City, Indonesia. The study involved 60 respondents to determine the effect of the behaviour of financial management such as habits, field and capital on financial performance. This research used a dummy variable to find the level of financial performance between men and women, employing descriptive and regression analysis as research methods and SPSS analytics. The result showed that habits, fields, capital and gender simultaneously have significant effects on financial performance. Partially, habits have a significantly positive effect on financial performance. The field and capital were both found not to have a significant effect on financial performance. At the same time, the dummy variable explained that men have shown weaker financial performance than women (Sadalia & Butar-Butar 2017).

From the earlier reviews, it can be concluded that most relevant studies examined why entrepreneurs do not save and that some examined the socioeconomic determinants of savings. The present study differs in that it examined the mediating role of self-control, which is a behavioural construct (Strömbäck et al. 2017), on the relationship between financial literacy dimensions (financial knowledge and financial attitude) and savings behaviour.

Although the study of Mpaata et al. (2021) examined the mediating role of self-control on savings behaviour, the present study focussed on personality traits of self-control. The authors advocated for a more detailed definition of self-control dimensions as it relates to finance, making the present study timely and contributing to a better understanding of the mediating effect of self-control on financial literacy and savings behaviour of rural women entrepreneurs.

Theoretical framework

This study is underpinned by Ajzen's theory of planned behaviour (TPB). Ajzen (1991) had shown that people adopt and perform certain behaviours because they form an intention to do so. In TPB, the three concepts that determine the intention are attitude towards the behaviour, subjective norm and perceived behavioural control. Firstly, attitude towards the behaviour refers to the degree to which a person forms a positive or negative evaluation towards the behaviour. Secondly, subjective norm refers to the perceived social pressure to perform or not to perform the behaviour. Social pressure is derived from salient referents such as parents, spouses, peers and colleagues. The third determinant of intention is perceived behavioural control, which refers to people's perception of their ability to perform a given behaviour. It implies that a person's intention to carry out specific actions is predicted by the perceived ease or difficulty of performing the behaviour. It is assumed to reflect experience as well as anticipated impediment. This was illustrated in a study by Furnham (1985) whereby the least well-educated people were found as determinants of saving behaviour among university students in Malaysia. Participants were not likely to practice saving as they were not convinced that saving would bring them wealth (Thung et al. 2012).

The present study uses attitude towards behaviour and perceived behavioural control to explain how financial literacy predicts SME saving behaviour. Typically, SMEs with more excellent financial knowledge will perceive the benefits of saving and the problems encountered if a savings account is not maintained. Hence, this behavioural belief will drive the SMEs to form a positive attitude towards saving behaviour. Furthermore, perceived behavioural control can be used to explain self-control as SME owners with high levels of self-control will perceive the ease of saving because they can regulate their desires, be self-disciplined and delay gratification. Meanwhile, the subjective norm is applied to explain how peer influence affects SMEs' saving behaviour. Social pressures are typically created by peers; therefore, their behaviours are deemed to affect an entrepreneur's intention to save. In conclusion, all the determinants (financial literacy, peer influence and self-control) can be explained well by the concepts of TPB in predicting students' saving behaviour (Thung et al. 2012).

The framework of the study

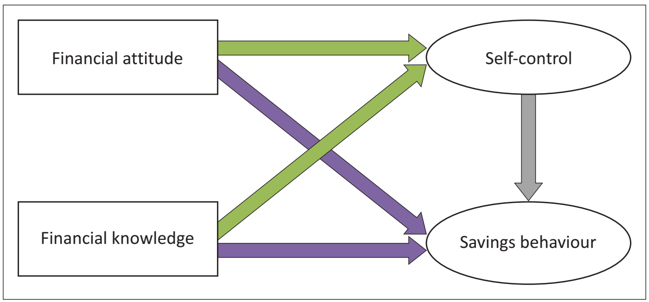
The framework presented in Figure 1 shows the hypothesised relationship for the present study between the independent variables (financial knowledge and financial attitude) and the dependent variable (savings behaviour) with the mediating variable (self-control).

The framework presented in Figure 1 is based on the literature overview and theoretical framework that links the independent variables to the mediating and dependent variables. Therefore, the following hypotheses were formulated from the study framework:

H01: Financial attitude does not significantly influence savings behaviour of rural women entrepreneurs in Nigeria.

H02: Financial knowledge does not significantly influence the savings behaviour of rural women entrepreneurs in Nigeria.

H03: Self-control does not have a significant relationship with the savings behaviour of rural women entrepreneurs in Nigeria.



Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

FIGURE 1: Framework of the study.

H04: Financial attitude does not significantly mediate the relationship between self-control and savings behaviour of rural women entrepreneurs in Nigeria.

H05: Financial knowledge does not significantly mediate the relationship between self-control and savings behaviour of rural women entrepreneurs in Nigeria.

Methodology

The methodology employed by the present study is explained as follows, including the research design, the study population and the sample drawn from the population. This section also justifies the approach used and finally explains the data analysis techniques used. The study is descriptive, testing the direct and the mediating relationship between financial attitude, financial knowledge, self-control and savings behaviour of rural women entrepreneurs in Mokwa Local Government Area of Niger State, Nigeria.

Research design

The study employed a cross-sectional survey research design. Primary data were collected using a structured questionnaire. Respondents were asked to indicate their degree of agreement or disagreement based on a 5-point Likert scale that ranged from strongly agree (5) to strongly disagree (1). The questionnaire was adapted from previous studies by other authors on the research topic.

Study population

The population of the study comprised 340 individual rural women entrepreneurs from 11 wards in Mokwa Local Government, in Niger state, Nigeria. The population figure was derived from the local government secretariat. The rural women were trained on financial literacy applications by the Mokwa Local Government Department of Commerce and Trade.

Research approach

The present study used a deductive research approach in testing an established theory that explains the independent and dependent variables of a given study. In this study, the TPB (Ajzen 1991) was adopted.

Sample size of the study

A sample containing 175 respondents was drawn using the Krejcie and Morgan (1970) sample size table. The questionnaires were distributed to the respondents based on stratified and simple random sampling techniques. Mokwa was stratified into 11 area or ward councils. A simple random technique was used to select women entrepreneurs from the 11 wards.

Data analysis

Collected data were processed using partial least square structural equation modelling (PLS-SEM) on Smart-PLS3. Preliminary data analysis indicated convergent validity, divergent validity and discriminant validity before running regression analysis. Multiple regression analysis was used to test the hypotheses of the study.

Ethical considerations

An application for full ethical approval was made to the Economic and Management Sciences Research Ethics Committee (EMS-REC) of North West University and ethics consent was received on 05/06/2023. The ethics approval number is NWU-00597-23-A4.

Results, findings and discussion

This section concerns with empirical results analysed using PLS-SEM path modelling. The section carries out the measurement model analysis and the structural model analysis, presenting its *t*-value, standard deviation and the R^2 and effect size. A discussion of the results then follows.

The measurement model was calculated using PLS-SEM path modelling to ascertain the reliability and validity of the instruments used for data collection. Table 1 represents the reliability and the validity of latent variables of the study (Taiwo & Olufunke 2018).

Table 1 shows the measurement model of this study. The researchers evaluated the reliability of the individual items of each potential construct, the reliability of internal consistency (i.e. composite reliability, Cronbach's alpha and discriminant validity) and convergence validity of each structure as recommended by Henseler, Ringle and Sinkovics (2009). However, Hair et al. (2017) proposed an indicator for the scale of development, an outer loading of 0.70, an AVE of 0.50, composite reliability/Cronbach's alpha and rho-A values of 0.70, which is reliable and acceptable. The validity and reliability results are presented in Table 1. Evidently, all the constructs of this study are reliable because their respective loadings, Cronbach's alpha and composite reliability values were above the threshold of 0.70. Again, all constructs had indicator reliability and convergence validity because the AVE level of each construct is higher than 0.50 (Sani, Auwal & Muhammad 2024).

Therefore, it is assumed that the items on Table 1 displayed reliability and convergent validity. The data were next subjected to discriminant validity test using heterotrait-monotrait ratio (HTMT). The result is presented in Table 2.

However, to achieve adequate discriminant validity of the constructs used in this study, the HTMT approach was used. Heterotrait-monotrait ratio refers to the ratio of correlations within the constructs to correlations between the constructs. Kline (2011) recommended HTMT standard of 0.85 or less. However, Gold, Malhotra and Segars (2001) suggested that the value must not be greater than 0.90.

Thus, the result of HTMT in Table 2 revealed that all the constructs used in this study satisfy the condition of Kline (2011), as the coefficient of the intercorrelations is less than 0.85. This further confirmed the validity of the measures employed in the study.

Furthermore, after the study evaluates the conditions of the measurement model, the subsequent step is the assessment of the structural model. The initial phase of the structural model evaluation focussed on analysing theoretical relationships. Specifically, a standard bootstrap approach was employed on a sample size of 175 rural women utilising 5000 bootstrap samples to gauge the significance of path coefficients for the relationships, aligning with the guidance provided by Hair et al. (2017). Thus, Hair et al. (2017) identified three critical criteria for assessing the structural model in PLS-SEM when using Smart-PLS4. These criteria include assessments of the significance of the path coefficients, coefficient of determination (R^2) and the effect size (f^2). Therefore, Table 3 presents the test of hypotheses.

TABLE 1: Construct reliability and validity (measurement model) N = 175.

Construct	Items	Loadings	CA	CR	AVE
Financial attitude	FIA1_1	0.84	0.90	0.92	0.71
	FIA2_1	0.88	-	-	-
	FIA3_1	0.87	-	-	-
	FIA4_1	0.84	-	-	-
Financial knowledge	FIK1_1	0.89	0.90	0.92	0.70
	FIK2_1	0.80	-	-	-
	FIK3_1	0.82	-	-	-
	FIK4_1	0.57	-	-	-
	FIK5_1	0.91	-	-	-
Self-control	SFC1_1	0.80	0.89	0.91	0.69
	SFC2_1	0.78	-	-	-
	SFC3_1	0.86	-	-	-
	SFC4_1	0.86	-	-	-
	SFC5_1	0.84	-	-	-
Saving behaviour	SVB1_1	0.90	0.94	0.95	0.78
	SVB2_1	0.91	-	-	-
	SVB3_1	0.92	-	-	-
	SVB4_1	0.92	-	-	-
	SVB5_1	0.76	-	-	-
	SVB6_1	0.87	-	-	-

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

AVE, average variance extracted; CR, composite reliability; CA, Cronbach's alpha.

Table 3 shows that financial attitude has a positive and significant effect on savings behaviour (β = 0.38, standard deviation [SD] = 0.049, t-value = 7.554 and p-value = 0.000) that as financial attitude increases by one unit, rural women's savings behaviour is likely to increase by 38%. Hence, the study failed to reject H01, which implied that financial attitude does not significantly influence the savings behaviour of rural women entrepreneurs in Nigeria. Similarly, financial knowledge has a significant positive influence with savings behaviour (β = 0.081, SD = 0.036, t-value = 2.215, p-value = 0.027). This implied that financial knowledge could improve the savings behaviour of rural women by up to 81% (β = 0.081). Thus, the study also failed to reject H02, which states that financial knowledge does not significantly influence the savings behaviour of rural women entrepreneurs in Nigeria. Likewise, the result of the study reported that self-control has a significant positive relationship with savings behaviour (β = 0.25, SD = 0.050, t-value = 4.913, p-value = 0.000). This implied that self-control improved the savings behaviour of rural women by up to 25% (β = 0.25). Therefore, the study also failed to reject the third hypothesis (H03) that states self-control does not have a significant relationship with the savings behaviour of rural women entrepreneurs in Nigeria.

Moreover, regarding the mediating relationship, there exists a positive mediating relationship of financial attitude between self-control and savings behaviour (β = 0.13, SD = 0.028, t-value = 4.808, p-value = 0.000). This implied that financial attitude improved the relationship between self-control and savings behaviour by up to 13% (β = 0.13). Therefore, the study also failed to reject H04, which states that financial attitude does not significantly mediate the relationship between self-control and savings behaviour of rural women entrepreneurs in Nigeria.

TABLE 2: Discriminant validity using heterotrait-monotrait ratio (HTMT) matrix.

Constructs	FIA	FIK	SFC	SVB
Financial attitude	-	-	-	-
Financial knowledge	0.23	-	-	-
Self-control	0.65	0.30	-	-
Saving behaviour	0.57	0.24	0.52	-

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

FIA, financial attitude; FIK, financial knowledge; SFC, self-control; SVB, saving behaviour.

TABLE 3: Hypotheses testing.

Relationship	O	SD	T statistics (|O/STDEV|)	p	Decision
FIA -> SVB	0.38	0.05	7.55	0.00	Failed to reject
FIK -> SVB	0.08	0.04	2.21	0.03	Failed to reject
SFC -> SVB	0.25	0.05	4.91	0.00	Failed to reject
FIA -> SFC -> SVB	0.13	0.03	4.81	0.00	Failed to reject
FIK -> SFC -> SVB	0.04	0.01	3.34	0.00	Failed to reject

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

FIA, financial attitude; FIK, financial knowledge; SFC, self-control; SVB, savings behaviour; O, original sample; SD, standard deviation; STDEV, standard deviation.

Similarly, H05, the second mediating relationship in this study, indicated that a positive and significant mediating relationship of financial knowledge exists between self-control and savings behaviour (β = 0.038, SD = 0.011, t-value = 3.339, p-value = 0.001). This implied that the interaction of financial knowledge with self-control likely led to changes in rural women's willingness to savings behaviour with 0.38% (β = 0.038). Hence, the study also failed to reject H05, which states that financial knowledge does not significantly mediate the relationship between self-control and savings behaviour of rural women entrepreneurs in Nigeria.

After the assessments of significance of the path coefficients, the next is the assessments of coefficient of determinant (R^2 value). In assessing the coefficient of determinant (R^2 value), Cohen (1988) proposed R^2 values for dependent latent variables as follows: 0.26 for substantial, 0.13 for moderate and 0.02 for weak when using PLS-SEM path modelling. Hence, the R^2 value explains by financial attitude, and financial knowledge, shows a variance of self-control (37%) and saving behaviour (36%) as moderate. Therefore, the result of R^2 of this study is presented in Table 4:

Table 4 displays the variance explained of the first model (measurement model). Based on the criterion for assessing R^2 (Cohen 1988), all the independent variables explained 73% variance in self-control and savings behaviour, thus suggesting that financial attitude and financial knowledge explained a moderate variance in self-control and savings behaviour.

Having assessed the significance of the path coefficients, the coefficient of determinant (R^2 value), the next is the assessments of the effect size, f^2. To assess the effect size, f^2 values, Cohen (1988) proposes that 0.02, 0.15 and 0.35 constitute more realistic standards for small, medium and large effect sizes, respectively. Table 5 presents the result of the effect size of the constructs used in this study.

The study further tested for the effect size of the exogenous variables on the endogenous variable of this study using f^2. According to Cohen (1988), f^2 values of 0.02, 0.15 and 0.35 represents small, medium and large effects, respectively. Table 5 shows the effect size of each of the exogenous variables in the present study (Taiwo & Olufunke 2018). The effect size of financial attitude on saving behaviour is 0.593; this means financial attitude has large influence on the saving behaviour of rural women. Financial knowledge has small influence on the savings behaviour of rural women, with an f^2 value of 0.045. Finally, self-control has small influence on the savings behaviour of rural women, as it has f^2 value of 0.058. Therefore, it is concluded that financial attitude exerts a large influence on the saving behaviour of rural women entrepreneurs in Mokwa Local Government in Nigeria as against financial knowledge and self-control, with a small effect on saving behaviour.

The Stone-Gleisser Q^2 value was used to the predictive relevance of the model. A Q^2 value of 0.02 represents a small effect size, 0.15 represents a medium effect size and 0.35 represents a high effect size (Cohen 1988). From Table 6, it is seen that the Q^2 value of self-control, and saving behaviour is above 0. More precisely, the Q^2 value of self-control, and saving behaviour is 0.246 and 0.256, respectively; this means the independent variables of this study has a medium degree of predictive relevance with regard to self-control and savings behaviour.

TABLE 4: Coefficient of determinant (R^2).

Construct	R^2	Assessment criterion by Cohen (1988)
Self-control	0.37	Moderate
Saving behaviour	0.36	Moderate

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

Note: Please see the full reference list of the article: https://doi.org/10.4102/sajesbm.v16i1.961 for more information.

TABLE 5: Effect size of exogenous variables.

Construct	f^2	Decision
Financial attitude	0.59	Large
Financial knowledge	0.04	Small
Self-control	0.06	Small

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

TABLE 6: Construct cross-validated redundancy (Q^2).

Construct	SSO	SSE	Q^2 (= 1-SSE/SSO)
FIA	3300.00	3300.00	-
FIK	3300.00	3300.00	-
SFC	3300.00	2489.16	0.25
SVB	3960.00	2945.67	0.26

Source: Ogundare, J.A. & Van der Merwe, S., 2024, 'The role of competitor orientation and proactiveness in competitive advantage for small- and medium-sized enterprises performance', *The Southern African Journal of Entrepreneurship and Small Business Management* 16(1), a786. https://doi.org/10.4102/sajesbm.v16i1.786

FIA, financial attitude; FIK, financial knowledge; SFC, self-control; SVB, savings behavior; SSO, Sum of squared of observed omitted values; SSE, Sum of Squared Error.

Discussion of findings

The findings of this study offer valuable insights for saving behaviour of rural women entrepreneurs in Nigeria and their financial decision-making process as discussed below.

Financial attitude

Based on the result of the study, financial attitude has a positive and significant effect on the savings behaviour of rural women entrepreneurs in Nigeria. Thus, rural women entrepreneurs with positive financial attitudes may exhibit a greater propensity to save, as they likely perceive saving as a favourable financial behavior; this attitude could directly influence their savings behaviour.

Financial knowledge

Also, the result of the study reported a positive and significant effect of financial knowledge and savings behaviour of rural women entrepreneurs in Nigeria. Therefore, higher financial knowledge could empower rural women entrepreneurs to make informed financial decisions, including saving strategies. Their understanding of financial concepts and tools might directly impact their savings behaviour.

Self-control

Based on the results, self-control was found to have a positive and significant effect on savings behaviour, as well as a positive and significant mediating effect on financial attitude, financial knowledge and savings behaviour of rural women entrepreneurs in Nigeria. Thus, self-control plays a pivotal role as a mediating factor. It likely moderates the relationship between financial attitude, financial knowledge and savings behaviour. Individuals with stronger self-control are better equipped to resist impulsive spending tendencies and adhere to their savings goals, even in the face of financial challenges or temptations.

By examining the mediating effect of self-control, the study revealed that self-control acts as a mechanism through which financial attitude and knowledge translate into actual savings behaviour. This implies that interventions targeting self-control enhancement could be effective in promoting positive savings behaviour among rural women entrepreneurs, regardless of their initial levels of financial attitude and knowledge. Thus, these findings inform the development of tailored financial education programmes and interventions aimed at empowering rural women entrepreneurs in Nigeria to improve their financial well-being and achieve their savings goals.

Recommendation

The study offers the following recommendations:

Financial intermediates like commercial banks and microfinance banks should introduce innovative savings schemes tailored for rural entrepreneurial activities; this will enhance their behaviour towards savings.

The Nigerian government should develop awareness programmes for rural enterprises on the importance of saving for them and the nation. This could be achieved through sensitisation and advocacy programmes on the importance of savings.

Finally, agencies responsible for guiding rural business activities should articulate strategies that will reach out to these enterprises on educating them on the importance of financial literacy. This will enhance their behaviour to save.

Conclusion

This study has achieved its stated purpose, namely narrowing a knowledge gap by examining the relationship between financial literacy factors (financial knowledge, financial attitude) and savings behaviour of rural women entrepreneurs using self-control as mediating the relationship between the independent and the dependent variables in Mokwa Local Government, Nigeria. Overall, the study's main conclusion is that rural women entrepreneurs' financial literacy is empirically related to how they save. Also, the study concludes that self-control seems to mediate the relationship between financial literacy factors and the savings behaviour of rural women entrepreneurs in Nigeria.

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Competing interests

The authors declare that they have no financial or personal relationship(s) that may have inappropriately influenced them in writing this article.

Authors' contributions

D.D.Z. carried out the formulation of the topic as well as conceptualisation of the variables. J.A.O. carried out the original draft preparation of the study as well as interpreting the results and discussion. S.v.d.M provided input and guidance in the structuring and writing of the article. P.K.O provided with gathering the data of the study. S.A.A. provided with analysing the data gathered from the field of study.

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Data availability

The authors confirm that the data supporting the findings of this study are available within the article.

Disclaimer

The views and opinions expressed in this article are those of the authors and are the product of professional research. It does not necessarily reflect the official policy or position of any affiliated institution, funder, agency or that of the publisher. The authors are responsible for this article's results, findings and content.

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