Financial Literacy Operationalization Model For Agribusiness Entrepreneurs In Zimbabwe

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Abstract

Agribusiness is the cornerstone of the Zimbabwean economy as most people survive on agricultural related activities and it is regarded as the first step to fighting poverty among the rural population. However, the sector has not been performing well in terms of productivity due to various factors, which include poor management of borrowed funds, higher loan defaults and financial exclusion. The study sought to assess the level of financial knowledge, financial behaviours, and financial attitudes of agribusiness entrepreneurs and to develop an operationalisation model for improving financial literacy. Pragmatism research philosophy guided this research to use mixed method approaches and sequential mixed method research design. Quantitative data was first collected using a research questionnaire, followed by interviews that were conducted to build upon quantitative results. Multistage cluster sampling and convenience sampling was used to select research participants. Research findings established that agribusiness entrepreneurs: (1) have low financial knowledge, (2) exhibit poor financial behaviours (3) have good financial attitudes except for diverting a portion of business loans for personal use. The general level of financial literacy was very low among agribusiness entrepreneurs. Hence the study recommended a financial literacy operationalisation model for agribusiness entrepreneurs for consideration by policy makers.

Keywords: Financial Literacy; Financial Knowledge; Financial Behaviour; Financial Attitude.

1. INTRODUCTION

The past global financial crisis which was characterised by the mortgage crisis, household bankruptcy, and over-indebtedness, provides evidence that supports the need for financial literacy to make better financial decisions (Bottazzi, 2021). Before the crisis, individuals purchased houses through subprime mortgages and continued to exhaust their credit card limits without a proper understanding of future obligations. Subprime mortgages were offered to individuals with poor repayment ability since they were not qualifying for a loan at the prime rate. Subsequently, widespread defaults on these subprime residential mortgages paralysed bank liquidity and led to bank runs that had contagion on the whole financial sector. The crisis became an agent wake for the need for financial literacy since financially illiterate consumers made financial mistakes that destabilised financial markets through irrational financial behaviours (Ameliawati & Setiyani, 2018). Global leaders realised the dangers of a financially illiterate population and stimulated policies like innovative financial inclusion, national strategies for financial education and financial consumer protection policies that could improve human financial capabilities across the globe (Atkinson et al., 2016).

Secondly, globally financial markets have become complex, and individuals are faced with complex financial decisions with economic repercussions (Lusardi, 2019). For instance,

pension plans shifted from defined benefits to defined contribution plans. Defined benefit plans promise to pay retirees a definite income stream after retirement (Lusardi & Mitchell, 2014). The employer carries the risk of paying the future pension benefit to retirees should investment performance be poor, or should the employee be unable to make adequate contributions to the plan. However, defined contribution pension plans do not promise set benefits but employees' benefits depend on the size of the contributions made to the pension fund and the returns earned on the fund's investments (Mitchell & Lusardi, 2015). That is the plan's risk is borne by the employees, unlike a defined benefit plan. Individuals need financial literacy to make such retirement decisions (Hastings & Mitchell, 2020).

Moreover, recent financial innovations associated with the COVID-19 pandemic new normal, demands more financial expertise, otherwise, individuals can lose lifetime investments through cyber-attacks (Fessler et al., 2020). Most banks have restructured their operations from traditional physical ways of delivering financial services to virtual banking and digitalised ways of providing financial services (Rahman, 2022). Yet, users of these virtual platforms need to be aware of security issues associated with these platforms. Apart from technological innovations the pandemic also revealed the need for financial literacy and financial resilience during periods of a pandemic (Akinleye et al., 2020; Chhatwani & Mishra, 2021; Sampson et al., 2021). Chhatwani and Mishra (2021) established that individuals and households were not financially prepared for the adverse effects caused by the pandemic due to a lack of savings for emergencies and low financial literacy. Resultantly, most households failed to meet basic needs like food and medical expenses (Akinleye et al., 2020).

Literature documented financial literacy as one of the most crucial competencies vital for the creation and development of entrepreneurship endeavours (Bongomin et al., 2017; Mutengezanwa, 2018; Thomas & Subhashree, 2020). Thomas and Subhashree (2020) argued that financial literacy promotes the general entrepreneurial culture and entrepreneurial activities by promoting confidence in making financial transactions. Specifically financial literacy promotes good financial management skills of entrepreneurs and improves the adoption of financial services (Cole et al., 2009; Morgan & Long, 2020; Priyadarshini et al., 2017). Financial literacy competences like financial planning, saving, budgeting, debt management, money management and fund mobilisation are vital entrepreneurial skills that cannot be ignored (Bayar et al., 2017; Fairfax, 2018; Morgan & Long, 2020). Poor financial decisions by agribusiness entrepreneurs in Zimbabwe like diversion of business loan funds to personal use, reluctance/ unwillingness to honour debt observed by (Masiyandima et al., 2011) could be a signal that agribusiness entrepreneurs lack the basic financial literacy competences vital for the growth of their entrepreneurial endeavours.

There exists a remarkable increase in government spending to support agriculture in Zimbabwe amidst various macro-economic challenges and budget deficit. The Zimbabwe Democratic Institute (2019) documented an increase in government funding to agriculture from USD105 million availed in 2016, USD439 million availed in 2017 to 238 million availed in 2018. Of the total funding allocated non-payment rates by agribusiness entrepreneurs increased from 54% in 2017 to 81% in 2018.

Despite the huge sum of money used for the development of agribusiness there is low agricultural productivity, and a growing number of individuals are placing increasing demand for food assistance. The 2020 national budget indicated that more than six (6) million people needed food assistance in rural areas and an additional two million (2) in urban areas (Ministry of finance, 2020). Zimbabwe used to be the breadbasket of Southern Africa. However, despite

various government efforts to resuscitate the agribusiness sector and ensure food security in the country, farmers produce below national requirement and the country rely on imported food which contributes to balance of payment deficit.

The current literature does identify high default rates, a lack of faithfulness in loan repayment diversion of business loans for personal use and reluctant to participate in formal financial systems by agribusiness farmers but does not investigate the major causes of such financial behaviours. There are very few efforts by government and other supporting organisations to investigate financial literacy competences of agribusiness farmers or to develop financial education programmes. Global empirical studies posit that without proper financial literacy skills, the rewards of financial access cannot be realised leading to financial mistakes that will negatively affect individuals' well-being (Nanziri & Leibbrandt, 2018). Thus continual provision of financial assistance to individuals without the proper skill of utilising the money can increase an individual's indebtedness (Amoah, 2016). Therefore, the purpose of this study to assess the level of financial literacy of agribusiness entrepreneurs and to investigate their financial needs. Based on the finding of the research and to fill the identified literature gap the study developed an agribusiness financial literacy operationalisation model, which can improve agribusiness entrepreneurs' financial literacy capabilities if implemented effectively.

2. LITERATURE REVIEW

Financial literacy was first defined as a form of financial knowledge required in making informed decision-making (Braunstein & Welch, 2002). Authors like Braunstein and Welch (2002), Vitt et al. (2010) defined and measured financial literacy as financial knowledge and used the terms interchangeable (Huston, 2010). Defining financial literacy as financial knowledge was quite misleading as various studies failed to associate this financial literacy to good financial behaviours (Kawamura et al., 2021). Knowledgeable individuals who scored high financial literacy scores exhibited financial illiteracy behaviours like excessive borrowing, overspending and poor financial planning, which showed lack of financial capability (Kawamura et al., 2021).

Financial literacy was later defined as the ability to use/apply financial knowledge and skills to manage financial resources effectively and attain financial wellbeing (Amoah, 2016; Lusardi, 2019; Lusardi & Mitchell, 2014; Norman, 2010). This definition considered financial knowledge and resulting financial behaviour as proxies of financial literacy. However, literature documented some individual attitudes and personality traits as inherent influencers of financial decision-making. Independent of financial knowledge, some individuals exhibited irrational investment and financial decision-making decisions that was usually associated with certain groups of people. People living in similar communities, families and cultures exhibited similar financial behaviour which resulted in recognising individual and societal attitudes towards financial concepts. (OECD, 2018) added the concept of financial attitude to the definition of financial literacy by defining financial literacy as a combination of awareness, knowledge, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve financial wellbeing. This definition was widely acknowledged and was accepted by the G20 countries (Potrich et al., 2016).

Recent literature suggests that financial literacy is not a constant phenomenon but rather a continuum of abilities depending on demographic variables like gender, age, culture, family and residence (Mandell, 2008). Financial literacy is an evolving state of competency that enables each individual to respond effectively to ever-changing personal and economic circumstances (Kadoya & Khan, 2017). During the current covid-19 pandemic, financial

institutions were digitalising their services and operations, leading to the introduction of more complex financial services and a change in the financial landscape to suite the new normal (Fessler et al., 2020). Consequently, the need for acquiring of new financial competences and recognising financial literacy as an evolving and ever-changing financial capability. This study recognises financial literacy as an evolving concept which should be linked to individuals' daily lives and associated financial services. This definition recognises the need to tailor financial literacy measuring instruments to specific groups and specific financial economies.

Operationalisation of the concept of financial literacy converts the abstract concept of financial literacy into a measurable phenomenon. Based on the conceptual definitions of financial literacy, financial literacy operational definitions fall under the dimensions of financial knowledge, financial behaviour, and financial attitude (Bhushan & Medury, 2014; Fessler et al., 2020; Kadoya & Khan, 2017). However, researchers differ in their selection of operational definition and focus on one or two categories. Lusardi (2011, 2016, 2018 and 2019) operationalised financial literacy as a form of financial knowledge, although the author defined financial literacy as the ability to apply financial knowledge in decision-making, knowledge of interest compounding, inflation and diversification were used as basic operational variables. OECD (2015, 2016, 2018 and 2020) added budgeting, saving, debt management, financial decision-making, financial resilience, and attitude toward long-term saving as crucial operational variables of financial literacy. Financial literacy in this study is defined as a combination of financial knowledge, attitude and behaviour necessary to make sound financial decisions (OECD, 2020). The level of financial literacy in this study, relates to a numeric score assigned to an individual financial knowledge, financial attitude, and financial behaviour competences.

2.1 Theoretical framework

Generally, all financial matters involve decision-making. Financial decisions ranges from simple matters like allocating income to different expenses to complex decisions like investing company shares and money market instruments. These decisions demand application of simple to complex financial knowledge. Modigliani and Brumberg in the early 1950s developed the theory of lifecycle hypothesis. The theory posited that individuals generally maximise utility subject to available income and resources. This individual utility was assumed to be a function of aggregate consumption in current and future periods whilst consumption of an individual was expressed as a function of resources earned during an individual's entire life depending on age (Modigliani & Brumberg, 1954). The life cycle hypothesis was aggregated in three stages. First, a negative net saving in early childhood, second positive net saving in working years and lastly dissaving in retirement age. The theory assumed that the utility function was homogeneous with respect to consumption at different points in time, and that individual neither expects to receive nor desires to leave any inheritance(Modigliani & Brumberg, 1954).

Saving and investing blended in the life cycle hypothesis theory are core competences of financial literacy as individual are expected to save for retirement during their working lives (Lusardi & Mitchell, 2014). Wealth accumulation is also considered vital for a sustained financial wellbeing whilst accumulating saving is vital for emergencies and unexpected expenditures (Atkinson et al., 2016). Individual financial goals tend to follow the proposed life cycle hypothesis proposed by Modigliani and Brumberg. Financial goals for a young and single person are commonly related to personal growth, the middle aged are more concerned with maintaining a family, accumulating assets and saving for retirement whilst the retired old population are more concerned with maintaining a secure and enjoyable lifestyle (Madura et al., 2014).

The life cycle hypothesis was widely accepted in the field of finance and various authors have applied, developed, and modified the theory. Reilly and Brown (2011) applied the theory to investors in the financial system. The authors aggregated the life cycle hypothesis into three phases (1) the accumulation phase, (2) consolidation phase, (3) spending and gifting phase and posited that individual investment behaviour changes over lifetime depending on age and state in the life cycle. Reilly and Brown (2011) postulated that individuals in their early to middle years move from a transition of dissaving to accumulation of assets usually for immediate needs, like buying a car, a house or paying school fees. Due to the financial burdens and financial responsibilities related to this group, their net worth is small. This proposition is applicable to young adults and young couples who have just graduated from tertiary institutions. Their priority involves buying household materials, property, a vehicle, and a house for immediate use. The proposed life cycle is generally the life cycle investment pattern of individuals across nations globally. Individuals from the age of 35 to retirement age were posited to be in the consolidation stage, where earnings exceed expenses, and the funds are invested for future financial needs. Individuals in this stage take moderate to low risk in order to preserve capital (Reilly & Brown, 2011).

3. METHODOLOGY

The study adopted mixed methods research design guided by the philosophical lens of pragmatism. Mixed methods research approach relates to the collection and analysis of both qualitative and quantitative data. The study adopted this philosophy as it encourages the application of multiple data collection approaches, considering the weaknesses of using one method.

3.1 Study Design

The researcher employed the explanatory sequential research design. First quantitative data was collected using a structured questionnaire among agribusiness entrepreneurs. The questionnaire collected data relating to all the research questions understudy and this data from the questionnaire had more weighting in the study. The level of financial knowledge, financial attitude, financial behaviours, financial literacy, and the factors affecting the level of financial literacy of agribusiness entrepreneurs was determined from closed-ended questions in a questionnaire however, a few open-ended questions were added to ensure the validity of selected options to avoid guessing of answers. Second, the researcher conducted semi-structured face to face interviews with six extension officers. Interviews were conducted to confirm and explain quantitative research finding results. Triangulating data sources resulted in merging database to reinforce each other. The researcher gave more weighting to quantitative data in terms of weighting and mixing. Data was collected and analysed independently and mixed in the interpretation of results.

3.2 Setting

The study targeted agribusiness farmers from five districts selected through multistage random sampling namely Mutare, Mt Darwin, Mutoko, Gweru and Masvingo. The available updated sampling frame from AGRITEX had 28707 farmers in Mutare, 25704 farmers in Mt Darwin, 39310 farmers in Mutoko, 29600 farmers in Gweru and 48900 farmers in Masvingo.

3.3 Study Population

There was no comprehensive database for farmers at the Ministry of Lands, and the approximate population of farmers was obtained from Ministry of Lands, Agriculture, and the

rural settlement (2018) policy document and the survey of (Scoones et al., 2011). According to Scoones et al. (2011) there are 1 304 500 large, medium and small-scale registered farmers in Zimbabwe. The Ministry of Lands, Agriculture and the rural settlement is currently conducting a land audit of land ownership and distribution in the country to determine an accurate and recent statistics about farmers in Zimbabwe. However, by the time this research was being conducted, the audit was still in progress, and the data was not yet available. The population of the study was determined by combining districts statistics at AGRITEX offices. The total population from the five selected districts was 172221 (28707+25704+39310+29600+48900) and a sample size of 623 was calculated using the Slovin (1960) sample size formulae.

3.4 Data collection

There are five (5) agricultural regions and sixty-two (62) agricultural districts in Zimbabwe. First simple random sampling was used to select one agricultural district from each region. Then the number of questionnaires to be distributed in each selected agricultural district was calculated as a proportion of the population in the district to total sample size population. Quota sampling was then used in the selection of the actual research population considering a fair representation of every district. The researcher also sampled AGRITEX extension officers to be considered for interviews. The target population for the interviews were field officers involved in the daily operations of farmers. There were 69 AGRITEX field officers in Gweru district during the time of the study. Purposive and convenience sampling were used to select 6 field officers for interviews. The respondents were selected using purposive and convenience sampling. AGRITEX is an arm of the government that provides extension services to farmers across the country. The organisation's agricultural specialist officers distributed across the country have direct daily interaction with farmers in their districts, and their farmer's databases were well updated.

3.5 Financial literacy score

The financial literacy score was derived from questions that measured three key financial literacy concepts discussed in the sections above, namely, (1) Financial knowledge, (2) Financial behaviour and (3) Financial attitude. The financial literacy score was computed as the sum of all scores divided by the total score and weighted as a percentage as shown in the equation below. Ten (10) scores were assigned to ten (10) questions that tested financial knowledge, eight (8) scores were awarded to financial behaviour eight questions and five (5) scores were awarded to questions that test financial attitude. However, 2 financial attitude questions were removed from the financial attitude construct due to low factor loading. The scores were calculated using the methodology explained OECD (2016, 2018, 2020) and Lusardi and Mitchell (2014).

Financial knowledge score in this study takes a arrange of 0 to 10,

Financial behaviour (takes a range of 0 to 8)

Financial attitude (takes a range of 0 to 5)

Total score (takes range of 0 to 23)

$$FLS = \frac{\text{Financial knowledge+Financial behaviour+Financial attitude}}{\text{Total score}} * 100$$

3.6 Validity and reliability

The reliability of the financial attitude scale was measured by the Cronbach alpha. The financial attitude scale was adopted from OECD (2016, 2018, 2020), the scale mainly measured attitude toward long term financial planning compared to living for today and spending money. The researcher added two more questions which measure the existence of financial illiteracy attitudes that has been observed and posited by various authors in Zimbabwe. The Cronbach

alpha for the financial literacy scale with 5 items (FATT1, FATT2, FATT3, FATT4 and FATT5) was 0.572, which was lower than the recommended 0.7 (Pallant, 2020). Though analysis of the component's correlations and factor analysis, components with low factor loadings were dropped from the analysis. The scale retained only 3 items in the financial attitude scale with a Cronbach alpha of 0.703. A Cronbach alpha of 0.7 and above is generally acceptable (Pallant, 2014). Five items of the financial attitude scale were subjected to principal components analysis (PCA) to check if all the five items were measuring the concept of financial attitude. Prior to conducting PCA, the suitability of the data for factor analysis was assessed using by the Kaiser-Meyer-Olkin and the Bartlett's Test of Sphericity and the correlation matrix. The inspection of the correlation matrix revealed the presence of many coefficients of 0.3 and above whilst the Kaiser-Meyer-Olkin value was 0.69, exceeding the recommended value of 0.6 (Kaiser 1970, 1974). The Bartlett's Test of Sphericity (Tobias & Carlson, 1969) reached statistical significance of less than 0.05. Table 1 below show the principal component analysis results.

Table 1: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings	
	Total	% of Variance	Cumulative %	Total	% of Variance
1	2.031	40.610	40.610	2.031	40.610
2	1.119	22.378	62.988	1.119	22.378
3	.753	15.063	78.051		
4	.583	11.665	89.716		
5	.514	10.284	100.000		

Principal component analysis revealed the presence of two components with eigenvalues exceeding 1, explaining 40.610% and 22.378% of the variance respectively as shown in the table. According to Kaiser-Guttman rule-of-thumb, Eigenvalues greater than one (1) has the potential to form a unique factor. Hence component one and component two have the greatest significant in measuring the financial attitude. The study thus adopted the first two items with eagles' values above one in the construct of financial attitude. However, an inspection of the scree plot revealed, there was no clear break after the second component as shown in Figure 1 below. Hence the study also adopted component 3.
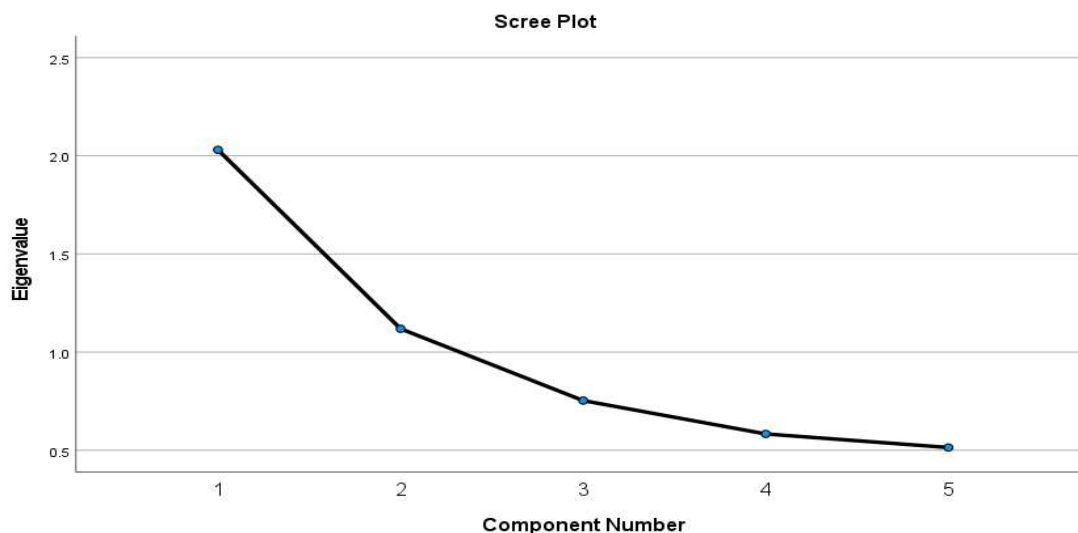
Figure 1: Scree Plot

119

Thus using the Cattell (1988) scree test shown in figure 1 above, the study retained the first three components with eigenvalues greater than 1 and the third component with an eigenvalue of 0.753 components for further investigation as there is no clear elbow on the scree plot after component 2.

4. RESULTS AND DISCUSSIONS

The study sought to develop a financial literacy operationalisation model of agribusiness entrepreneurs in Zimbabwe. Financial literacy was operationalised by the three major dimensions of financial literacy namely financial attitude, financial behaviour, and financial knowledge. Out of the 623 questionnaires distributed, 440 questionnaires were completed and returned, and only 433 were viable for use, giving a response rate of 70%. A response rate of 60% and above is usually considered adequate for surveys (Baruch, 1999).

4.1 Socio-demographic characteristics of respondents

Table 2 shows socio demographic characteristics of the respondents of this study. Specifically, the table indicates the gender, age, income, level of income and family composition of the surveyed population.

Table 2: Socio-demographics characteristics.

Variable	Classification	Frequency	Percentage
Gender	Male	217	50.1%
	Female	216	49.9%
	Total	433	100%
Age	25-34	38	8.8%
	35-44	74	17.1%
	45-59	171	39.5%
	60 and above	150	34.6%
	Total	433	100%
Marital status	Married	301	69.5%
	Single	13	3.0%
	Divorced	40	9.2%
	Widowed	77	17.8%
	Other	2	0.5%
	Total	433	100%
Level of education	Did not go to school	8	1.8%
	Did not finish primary level	25	5.8%
	Primary level	74	17.1%
	'O' level	118	27.3%
	'A' level	15	3.5%
	Certificate	37	8.5%
	Diploma	81	18.7%
	Bachelor's degree	61	14.1%
	Master's degree	13	3.0%
	Doctoral degree	1	0.2%
	Total	433	100%

Monthly Income (monthly income was denominated in united states dollars)	Less than $500	162	37.4%
	$501-1500	74	17.1%
	$1501-2500	33	7.6%
	$2501-3500	14	3.2%
	$3501-4500	10	2.3%
	$4501-5500	23	5.3%
	$5500-6500	13	3.0%
	$6500-7500	16	3.7%
	$7501-8500	33	7.6%
	Above $8500	55	12.7%
	Total	433	100%
Nature of business	A combination of various farming activities	198	45.7%
	Cereals	80	18.5%
	Animal husbandry	52	12.0%
	Poultry	30	6.9%
	Tobacco/ Cotton	41	9.5%
	Horticulture and vegetables	29	6.7%
	Aquaculture	3	0.7%
	Total	433	100%
Farm size	Small scale farm	266	61.4%
	Medium scale farm	102	23.6%
	Large scale farm	65	15.0%
	Total	433	100%

Gender composition of respondents was balanced, as the sample comprised 50.1% males. Majority of the surveyed population were married (69.5%), followed by the widowed (17.5%) and the divorced (9.2%). Two individuals mentioned that they separated from their partners. Bucher-koenen, Lusardi and Van Rooij (2016) documented that single woman, like widows, exhibited low financial literacy of basic concepts relevant to their day-to-day financial decisions. Only 36% of the surveyed population had professional education, a certificate, a bachelor's degree, a master's degree, and a Doctorate degree. Most of the population only attained ordinary level and primary level. Literature documents a positive relationship between education and financial literature. Majority (37.4%), of the small-scale farmers earn an income of less than 500 USD per month or 6000 USD per annum followed by (17.1%) who earn 501-1500 per month. However, majority of surveyed large-scale farmers earn more than 8500 USD per month. Income is generally considered a major determinant of financial literacy.

The majority (45.7%) of agribusiness entrepreneurs were involved in a combination of various farming activities at their farms to match the demands of agricultural seasons. About 61.7% of the surveyed agribusiness entrepreneurs were small-scale farmers, followed by 23.6% medium scale farmers and 15% large-scale farmers. The population was a true reflection of the structure of agribusiness entrepreneurs in Zimbabwe where the majority (60%) are small scale farmers. Agribusiness farmers who conducted farming activities at their homesteads were not included in the study.

4.3. Measuring financial Knowledge
This section measures the level of financial knowledge of agribusiness entrepreneurs focusing on 10 questions designed to measure various aspects of financial knowledge that are widely considered to be useful to individuals when making financial decisions in their daily lives.

Table 3: Financial knowledge number of correct and incorrect responses weighted data

Score of responses	0	1
Interest compounding	23.60%	76.40%
Inflation	30.70%	69.30%
Stock risk	82.90%	17.10%
Farming risk	9.00%	91.00%
Risk & return	32.10%	67.90%
Asset pricing	91.90%	8.10%
Loan interest	26.30%	73.70%
Tax collection	51.30%	48.70%
Hyper inflation	57.00%	43.00%
Time value of money	55.70%	44.30%

Most agribusiness entrepreneurs (76.4%) answered the question on interest compounding correctly and were aware that money deposited in a bank, if left to grow it will earn an interest, and the depositor will receive more. The majority (69.3%) of agribusiness entrepreneurs had knowledge of the effect of inflation on savings, specifically when the interest offered by banks is lower than the rate of inflation. However, most of the surveyed population (82.9%) answered the question on risk and diversification incorrectly and had no idea about investing in company shares. Investing in shares is quite low in Zimbabwe and most of the population are not fully aware of the investment avenue. Understanding of asset pricing was very challenging as 91.9% of the entire sample failed to show an understanding of the concept. Only a few educated entrepreneurs have knowledge on company bonds and how they are priced. Similar results were also noted by Lusardi (2017). Around 73.7% of the surveyed population were able to show an understanding of loan interest by choosing the loan which provided low interest payments for the same principal amount. The results are similar to OECD (2020) results which showed that the majority of people understand simple interest charged on a loan.

4.3.11 Financial knowledge score

Financial knowledge is defined as the theoretical understanding of financial concepts (Binoy and Subhashree 2019). It relates to an individual basic knowledge of financial concepts and the capability to apply numeracy skills in a financial setting (Lusardi et al., 2017). The minimum financial knowledge score was seven (Lusardi & Mitchell, 2014), constituting 70% of the financial knowledge questions (OECD, 2020). About 59% of agribusiness entrepreneurs were financial knowledge illiterate as they failed to score the minimum score. This implies that there is need for conducting training programs, seminars, or workshops to equip agribusiness entrepreneurs with the required financial knowledge. Financial knowledge is the foundation of financial literacy however it does not imply financial literacy as the information will need to be processed and applied effectively into practical financial behaviours. Figure 2 shows the financial knowledge score of agribusiness entrepreneurs.

Figure 2: Financial knowledge score

Most agribusiness entrepreneurs scored below the minimum score of 7 (70%) and this implies that agribusiness entrepreneurs have low levels of financial knowledge. There was consensus among extension officers that agribusiness entrepreneurs have lower financial knowledge. The officers suggested that when offering loans, banks should educate farmers on how to manage the money and monitor the progress of the farmers until their loans are paid back. Mrs Vee, one of the extension officers, said "*We encourage them to do mukando amongst themselves and avoid bank loans which are currently changing higher prices. If they take these loans, they will fail to pay due to poor management and lower yields.*" Due to previous loan defaults, and the consequences associated with loan defaults, extension officers encouraged agribusiness entrepreneurs have rotational savings (mukando) amongst themselves. Rotational savings involve a group of people who take turns to give a significant lump sum of money to one or two group members and rotate until everyone benefits. The interviews reviewed that the yields in farms were very low so agribusiness entrepreneurs cannot afford to pay higher interest rates. The results concur with Chiromo (2019) who reported that more than 76% of smallholder farmers in Zimbabwe lived in poverty despite having access to land.

4.4 Measuring financial behaviour

A person's actions and financial habits like actively saving money, paying bills on time, budgeting and financial planning may have an impact on an individual financial wellbeing (Atkinson et al., 2016). The financial behaviour score was calculated from several questions related to financial decision making, saving, budgeting, long term planning and avoiding indebtedness. Table 4 show the frequencies of respondents who answered correctly and incorrectly to the eight behavioural questions. Budgeting has the least scores whilst financial decision making has the highest scores.

Table 4: Financial behaviour number of correct and incorrect responses weighted data

Scores of responses	0	1
Financial decisions	5.10%	94.90%
Budgeting	70.90%	29.10%
Saving	61.90%	38.10%
Debts	35.10%	64.90%
Emergency preparedness	64.40%	35.60%
Financial goals	10.60%	89.40%
Retirement	67.20%	32.80%
Financial resilience after a bad farming season	67.00%	33.00%

The first question in measuring financial behaviour was determining the ability of an individual to manage finances personally. Almost the entire sample indicated that they manage their finances either personally, with their partners or with another family member.
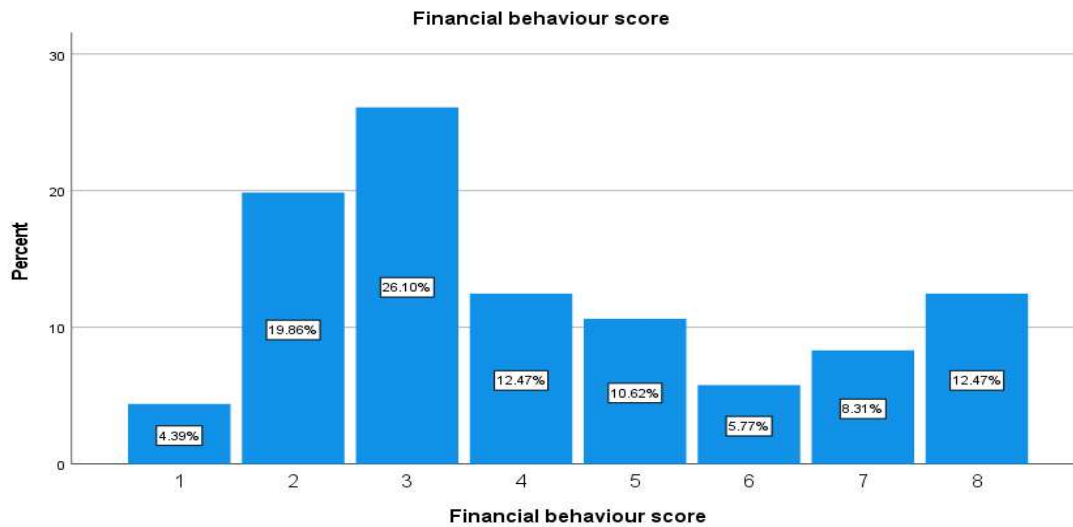
Most of the surveyed population (70.9%) do not prepare a budget or keep records of income and expenditures. This implies that agribusiness entrepreneurs spend their incomes without proper apportionment of earned income to related expenditures. Madura et al. (2014) argued that money should be allocated to savings first before apportioning to current expenditure. Most of the population (61.9%) did not manage to save any money during the past two years, mainly due to the challenges posed by the Covid-19 pandemic. Business was low due to travel restrictions, and most respondents survived on previous savings. However, some women agribusiness entrepreneurs indicated that they save through rotational savings (Mukando), where they take turns to give each other money, and after receiving a lump sum, they invest in their business, buy farm equipment or buy livestock. In case of an emergency, the order of the rotation is changed to benefit the member-facing financial challenges. This study recognised rotational savings as a vital way of saving money, therefore, members who indicated that they save money through the rotational savings were awarded a score.

Around 64.9% of the surveyed population indicated that they do not have outstanding debts that they are failing to pay on time. Due to poor budgeting and saving behaviour among agribusiness entrepreneurs 64.4% of the sampled population indicated that they were not prepared to cover an emergency worth one month income without borrowing. Financially literate individuals are expected to save for both known and unknown expenditures. Majority (89.4%) of agribusiness entrepreneurs have financial goals that they what to achieve in the future. Existence of financial goals reflects an individual financial planning towards long term goals. Styles (2018) argued that purchasing of physical assets require deliberate financial planning and active saving since purchase of such assets entails a significant outlay and cannot be bought through impulse buying. The majority (67.2%) of agribusiness entrepreneurs had no retirement plan and were not aware of the importance of a retirement plan. A follow up open-ended question was posed to allow respondents to explain how they plan to retire from daily farming business. However, most entrepreneurs believe that they do not need a retirement plan as they will continue with their daily farming business even if they are old. Others plan to leave the business to a family member especially a son. Transferring a business to a son or a family member does not imply that the family member will provide all the financial needs of a relative. Guided by literature, the study recognised a formal retirement scheme as a good retirement plan. However, considering hyperinflation and the failure of formal retirement schemes in the country to remittee significant retirement pay-outs to retirees the study contributed by

recognising investment in capital assets like real estate and shares as crucial retirement schemes to be awarded a score.

4.4.9 Financial behaviour total score

Financial behaviour was measured by eight questions which measured a variety of practical financial concepts related to an agribusiness daily financial decision making. Hence, the maximum behavioural score for this study was eight (8) scores from the eight measured concepts. The minimum score expected from a behaviour literate individual was calculated as 70% of the total score (OECD 2020) which is six (6). Hence the minimum expected score was six (6). Figure 3 shows financial behaviour scores of agribusiness entrepreneurs. Most individuals exhibited the presence of only two to three financial behaviours.

Figure 3: Financial behaviour total score

Only 26.55% of the surveyed population scored the minimum behavioural score of 6 scores and above whilst the majority scored 3 (26.10%) and 2 scores (19.86%). Most agribusiness entrepreneurs do not have household or personal budgets, have no savings and borrow to cover any financial emergencies, have no retirement plan and were not financially prepared to cushion themselves if they experience a bad farming season. Hence this study established that financial behaviour literacy of agribusiness entrepreneurs in Zimbabwe was very low. Agribusiness entrepreneurs in Zimbabwe have lower levels of financial behavioural literacy and hence do not practise financial savvy behaviours. Budgeting and savings are crucial financial behaviours and the foundation of wealth accumulation and financial wellbeing (Styles 2018). Considering that the majority of agribusiness entrepreneurs in Zimbabwe are aged and close to retirement age, lack of savings and emergency preparedness shows that these entrepreneurs have failed to save and accumulate wealth for the largest part of their life. Lack of savings and wealth during old age results in financial poverty at old age. Hence the reason why these entrepreneurs mainly depend on family and friends to make ends meet

These results imply the need for agribusiness entrepreneurs to improve their financial behaviours. However, literature has documented that financial behaviour of individuals was difficult to change. Binoy and Subhashree (2019) argued that financial behaviours could not be easily influenced by theoretical training programs but however advocated for financial

socialization, mock sessions and workshops can be conducted to give first-hand experience on various methods to finance the entrepreneurial technical endeavours. Binoy and Subhashree (2019) further argued that financial literacy was a great influencer of entrepreneurship and hence poor financial behaviours of agribusiness entrepreneurs in Zimbabwe also translates into poor entrepreneurial development in the sector.

There is an urgent need for improving financial behaviours of agribusiness entrepreneurs. However, considering literature, educational programs should entail practical sessions and financial socialisation with expects. Extension officers advocated for exchange visits with financial experts. "*Financial experts should visit farmers and share their knowledge and experiences and they should also allow farmers to visit the banks for financial advice, the continuous visits and relationship between the financial experts and the farmers will improve their financial literacy and thus improve loan repayment*." The need for exchange visits concurs with the financial socialisation theory which posited that financial behaviour of individuals develop through socialising with family, friends or experts. Johan, Rowlingson and Appleyard (2020) further argued that financial behaviour and financial attitudes were mainly influenced by income, work experience, family financial socialisation and discussing money issues with friends. Hence the need for policy makers to schedule workshops and experience sharing seminars in their financial education programs.

4.5 Measuring financial attitude

Binoy and Subhashree (2019) defined financial attitude as the mental and psychological judgement of an individual in financial matters. The OECD (2020) argued that even if a person has sufficient financial knowledge and ability to act in a particular way, their financial attitude will influence their decision of whether to act. OECD (2018) financial attitude questions focused only on attitudes toward long term financial planning and use of money over preferences for the short-term living for today and spending money. This study added two more questions which measured financial illiteracy behaviors that have been noted among agribusiness entrepreneurs. However, the questions were dropped due to factor analysis and reliability analysis results.

Table 5: Financial attitude number of correct and incorrect responses weighted data

| Scores of responses	Financial attitude 1	Financial attitude 2	Financial attitude 3	Financial attitude 4	Financial attitude 5
0	11.1%	22.9%	16.9%	21.2%	49.9%
1	88.9%	77.1%	83.1%	78.8%	50.1%
Total	100%	100%	100%	100%	100%

Financial attitudes related to an individual's preference of long-term financial planning to spending the money for current use. Table 5 shows the financial attitude of agribusiness entrepreneurs is quite good, with the majority of entrepreneurs disagreeing with the statement that they find it more satisfying to spend money than to save it for the long term. Most agribusiness entrepreneurs disagreed with the notion that government loans should not be paid back because it is the government's responsibility to support agribusiness. Reports and literature have documented Agribusiness entrepreneurs' default and fail to honor debts to both government and financial institutions (Masiyandima 2011). Zimbabwe Democratic Institute (2019) established that more than 55% of farmers who benefitted from the command agriculture scheme defaulted. To investigate if agribusiness entrepreneurs were intentionally defaulting to pay loan, this study contributed by adding two questions which enquired on observed agribusiness entrepreneurs' behaviors and attitudes. Information from interviews revealed that farmers have challenges paying back loans due to incapacity to pay back and not unwillingness

to payback. Mrs Nee suggested that "*Banks should consider lowering their interest rates when offering loans because if farmers take these loans, they will definitely fail to pay. However, there is a need for serious farmer training on the benefits of being faithful in loan repayments regardless of financial challenges*". This study posits that agribusiness entrepreneurs are willing to pay back government loans availed to them, however low productivity and other factors hindered them to fully owner their debts. Qualitative data from interviews also revealed that the prices pegged by government also hinder farmers to honor their obligation to deliver farm produce to the Grain marketing Board. Grain Marketing Board prices were generally lower than the prevailing market prices. Thus, agribusiness entrepreneurs end up selling their farm produce directly to the market and failing to deliver farm produce to the Grain Marketing Board.

Almost half of the surveyed population strongly agreed that they divert a portion of business loans for personal use. Funds intended for business purposes is diverted for consumption purposes which do not generate any income and thus cause failure to payback loan interest and principal amount. Although other attitudes reflect appositive attitude to long term saving, diversion of business-related loans for personal use aggravates the challenge of loan defaults. Among all the financial attitudes examined in this study. This attitude concerning diversion of funds should gain more emphasis in financial educational programs. Agribusiness farmers should be trained to separate household consumption funds from business funds if they want their business endeavors to grow. This study contributes to literature by documenting that most agribusiness entrepreneurs divert agribusiness loans to personal use. Hence the reason why there is an observable inverse relationship between the increase in government expenditure and farm productivity. The diversion shows higher levels of financial illiteracy and in cases where the government protects the agribusiness entrepreneurs, the defaults increases.

4.5.6 Financial attitude total score

Figure 26 shows total scores of financial attitudes. Financial attitude total score was measured by the first three attitudes (attitude 1, attitude 2, and attitude 3). Attitudes 4 and 5 although there were crucial were excluded from calculating attitude and the level of financial literacy score due to their low factor loadings. Agribusiness entrepreneurs have good financial attitudes towards long term financial planning as shown by high scores. Considering the average age of these entrepreneurs of 52 years, and the vast experience of mean 13 years, these entrepreneurs have been developing good financial attitudes. However due to low yields, low income and low financial literacy the majority of these entrepreneurs have not been practically saving.
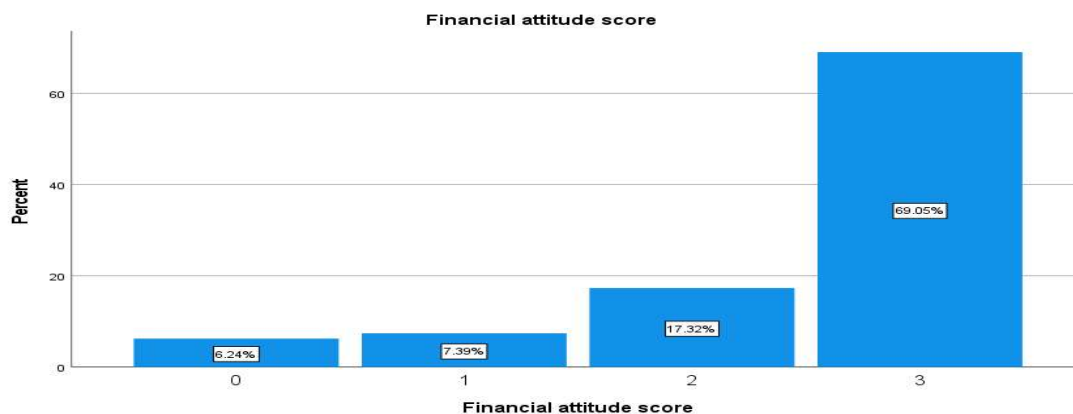

Figure 4: Financial attitude score

The majority (69.05) of agribusiness entrepreneurs scored 3 scores (out of 3) by disagreeing to

statements that favored current use of money rather than long term financial planning. Agribusiness entrepreneurs have generally good financial attitudes toward use of money. However, 0.24% or one individual failed all the three questions and thus exhibiting low financial attitude literacy. The individual was an outlier as generally all the other entrepreneurs exhibited two to three attitudes.

4.6 The level of financial literacy of agribusiness entrepreneurs

The study sought to determine the level of financial literacy of agribusiness entrepreneurs. Financial literacy was operationalized into three dimensions namely financial knowledge, financial behavior, and financial attitude. After measuring the elements of the three dimensions of financial literacy, a financial literacy score was computed by summing up all the scores answered correctly. The scores were then normalized to 100. Figure 5 represents the composite financial literacy score.
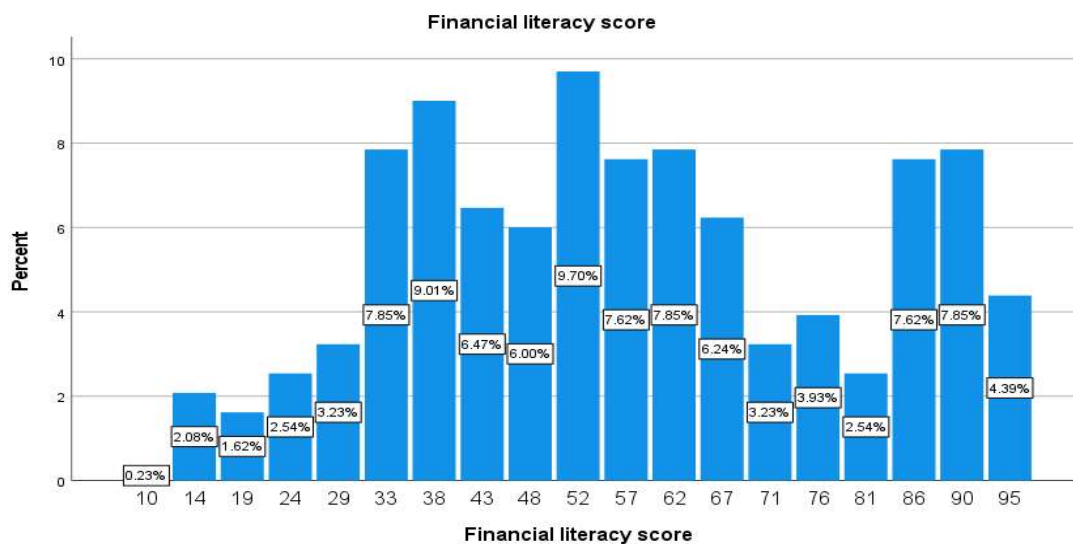
Figure 5: Financial literacy score normalized to 100 (21=100)

The minimum score for financial literacy was pegged at 70 % according to OECD (2020) methodology. Only 29.56% (3.23,3.93,2.54,7.62,7.85,4.39) of the surveyed population attained the minimum financial literacy score, with the majority scoring below 70%. This research thus established that the level of financial literacy of agribusiness entrepreneurs was generally low. All the concepts measured in this research were basic to an individual's daily financial decisions. Lack of some of the concepts could ultimately lead to financial illiteracy consequences. The maximum score was 95%, whilst the minimum score was 10%. The majority of the surveyed population attained 33%-67%. There was, however, variability in the total scores of financial literacies due to various demographic factors which should be analyzed by further studies. The results of the study were consisted with various authors in literacy who has documented lower levels of financial literacy. Lusardi and Mitchell (2011) and Lusardi (2014) established that the world was flat with lower level of financial literacy across the world. Cossa, Madaleno, Mota (2021) also established that financial literacy was very low in Mozambique to an extend that individuals were not qualified to make the most appropriate financial decisions. Financial literacy was considered low for both developed and developing nations alike and thus the reason various nations in developing countries are working on developing financial literacy capabilities (Lusardi 2019).

Agribusiness entrepreneurs in Zimbabwe exhibited lower levels of financial knowledge and financial behaviours and hence do not understand the basic concepts of financial markets and do not practise fundamental financial savvy behaviours like budgeting, saving and retirement planning. Table 6 show financial literacy descriptive statistics which further explain level of financial literacy of the surveyed population.

Table 6: Financial literacy descriptive statistics

Financial literacy dimension	N	Minimum	Maximum	Mean	Std. Deviation	Skewness	Kurtosis
Financial knowledge score	433	0	10	5.39	2.566	-.291	-1.136
Financial behaviour score	433	1	8	4.18	2.123	.560	-.923
Financial attitude score	433	0	3	2.49	.880	-1.687	1.779
Financial literacy score	433	10	95	57.46	21.825	.099	-.947

The average financial knowledge score of agribusiness entrepreneurs was 5.39 out of 10 questions. Which was lower than the minimum score of 70%, hence indicate low levels of financial knowledge. The financial knowledge scores were negatively skewed, reflecting that most respondents failed to answer the questions correctly. The minimum score attained was 0 whilst the maximum score was 10 (out of 10). This study recommends the investigation of the major socio-demographic factors which affected the financial literacy scores among agribusiness entrepreneurs. The average score for financial behavior was 4.18 (out of 8). The minimum expected score was six (6), hence agribusiness entrepreneurs have low levels of financial behavior literacy. All the sampled respondents scored at least one financial behavior score, with most respondents indicating that they were responsible for their daily management of personal or household finances. However, most agribusiness entrepreneurs were not practicing basic financial behaviors like budgeting, saving and retirement planning which indicate low behavior literacy. The average score for financial attitude was 2.49 (out of 3), indicating that the majority of agribusiness entrepreneurs have positive attitudes towards longer-term financial planning rather than short term satisfaction and use of money. The total financial literacy score is a summation of the financial knowledge, behavior and attitude scores and ranges between 0-23. The average financial literacy score is 57.46% which is far below the minimum score of 70%. That is, the majority of agribusiness entrepreneurs are financially illiterate. The scores ranged from a minimum score of 10% to a maximum of 95%.

4.7 Financial products held

Table 7 below shows the financial products held by agribusiness entrepreneurs. Financial products were categorized into payment products, savings products, investment and retirement products, credit products and insurance products. The variable was coded depending on the categories of financial product held.

Table 7: Financial products held

	Frequency	Valid percent
Holds no product	9	2.1%
Holds one form of financial product/ payment product	223	51.5%
Hold more than one form of financial products	201	46.4%

Most agribusiness entrepreneurs hold one form of financial product. Around 51.5% of the surveyed Agribusiness farmers only hold payment products to make transactional payments

and receive money. These financial products include mobile money like Eco cash and bank current account. Around 46.4% hold various forms of financial products other than payment products and 2.1% of the sample holds no financial product at all. Majority of Agribusiness entrepreneurs use mobile money like Eco cash and one money to conduct their financial transactions. This implies that most agribusiness entrepreneurs do not have bank accounts and have no access to services offered by financial institutions. Access to credit is crucial to the success of agribusiness considering the time between the time cost are incurred during the planting season and the period of harvest (Ugwu, 2019). Bearing in mind the high cost of seed and fertilisers in the open market and the delay of government aided inputs, there is need to improve access to credit among agribusiness entrepreneurs. The high level of financial exclusion in the sector is a result of low levels of financial literacy among agribusiness entrepreneurs.

5. CONCLUSIONS

The study added new knowledge to the existing body of knowledge through the following study conclusion. Knowledge of financial concepts is still low among agribusiness entrepreneurs. Hence the need for educational programs to equip agribusiness entrepreneurs with adequate knowledge. Financial behaviours like budgeting, saving and retirement planning were not practised among agribusiness farmers. Resulting in agribusiness farmers spending income without careful planning and allocation of income to expenditure. Consequently, nothing is saved for emergencies and for planned financial goals. Most agribusiness entrepreneurs are financially illiterate. This justifies the consistent low productivity amid increase in government funding, high levels of food sufficiency amount the owns of land and the diversion of agricultural loans to household use. Agribusiness entrepreneurs have a good financial attitude towards long term planning. Educational programs should use these positive attitudes as a foundation for teaching new concepts. However, Agribusiness entrepreneurs divert a portion of agribusiness loans to consumption purposes. This explains the consistent loan defaults documented by literature in the sector and low productivity amid government support.

5.2 Recommendations

Considering the findings of this research, the study developed and recommended a financial literacy operationalisation model for agribusiness entrepreneurs in Zimbabwe. The model provides operational definitions of the dimensions of financial literacy and provide recommendations to policy makers, financial institutions, agribusiness entrepreneurs and parents among other stakeholders.

5.2.1 Financial literacy operationalization model for agribusiness entrepreneurs in Zimbabwe

The abstract concept of financial literacy in this study was operationalised by using observable and measurable elements related to three dimensions of financial literacy namely (1) financial knowledge (2) financial attitude and (3) financial behaviour. Literature has documented that the three dimensions of financial literacy cannot be separated or ignored and a scale that will include only one or two dimensions would not be a valid scale for financial literacy (OECD, 2020). Sekaran and Bougue (2014) argued that a valid operational scale of an abstract construct should include quantitatively measurable questions/elements/items that adequately represent the universe of the construct and its dimensions. The financial literacy operationalisation model of financial literacy of this study assessed financial literacy by measuring behavioural dimensions and characteristics one would expect to find in a financially literate agribusiness entrepreneur. Table: 8 below represents the financial literacy operationalisation model for agribusiness entrepreneurs in Zimbabwe.

Table 8: Financial literacy operationalisation model for agribusiness entrepreneurs in Zimbabwe

Operational variable	Operational description and measurement	Research findings	Operationalisation strategy
Financial behaviour	1.Taking an individual control of financial decision-making.	Entrepreneurs were involved in the day-to-day management of their finances	Experience sharing platforms for farmers to allow farmers to meet financial institutions and other participants along the value chain
	2. Budgeting and keeping track of cash flows	The majority of these entrepreneurs do not have a budget	Financial education programs on key financial behaviour competences like budgeting, saving and retirement planning.
	3. Active saving	Have not been saving in the past however some women saved through rotational savings and burial societies savings	Adopting group rotational savings (mukando), in the formal market
	4. Paying debts on time	They do not have outstanding debts they are failing to pay back	Financial innovation and serious farmer training on the benefits of being faithful in loan repayment and creating a good loan record
	5.Avoiding borrowing to make ends meet	Borrow from family and friends	Creating awareness among agribusiness farmers about various savings services offered by financial institutions.
	6. Planning for long term goals	Have financial goals they plan to achieve in the future.	Exchange visits between financial institutions and agribusiness farmer groups who would have received financial loans
	7. Retirement planning	Do not have a retirement plan and were not prepared financially to cover emergencies	Developing defined benefit pension schemes for farmers who deliver farm produce to the Grain Marketing Board
	8. Financial resilience	Agribusiness entrepreneurs were not financially resilient to a bad farming season	Offering government inputs after extensive financial literacy training
	Financial Behaviour Score	Majority (73.44%) failed to score the minimum behavioural score reflecting lower levels of behavioural literacy	Innovation platforms for agribusiness entrepreneurs
	Determinants of financial literacy	Wide and worrisome financial behaviour gap between woman and man exist. High income earners were more financially literate than low-income earners	Priority of women and low-income earners in financial education programmes enrolment

Financial knowledge	1. Interest compounding	Have knowledge of interest compounding, inflation, farming diversification, risk and return and loan interest.	Development of financial education programs that equip agribusiness entrepreneurs with knowledge of financial concepts
	2. Inflation	Have knowledge of the effect of inflation on savings	Parent financial socialisation with children who will be successors of the business.
	3. Financial assets risk and diversification	Lack basic knowledge of share investment risk, financial bond asset	Exchange visits between financial institutions and agribusiness farmer groups
	4. Farming risk diversification	Exhibited knowledge of farming risk diversification	
	5. Risk and return	Have knowledge of risk and return trade off	
	6. Asset pricing	Lack basic knowledge of financial bond asset pricing	Study circles
	7. Interest on loan	Have knowledge on choosing loan options	
	8. Tax collection	Lack basic knowledge on tax collection	Creating awareness among agribusiness farmers about tax
	9. Hyperinflation	Lack basic knowledge on hyperinflation	Experience sharing platforms for farmers, bankers and other stakeholders along the value chain
	10. Time value of money	Lack basic knowledge on time value of money	Study circles
	Financial knowledge score	Most agribusiness entrepreneurs (58.9) scored below the minimum 70% financial literacy score, reflecting low levels of financial knowledge	Financial education
	Determinants	Education: those without tertiary education lack knowledge of basic financial literacy concepts. Gender: agribusiness women have lower levels of financial knowledge than their male counterparts	Government should consider introducing a finance related course from primary to ordinary level
Financial attitude	1-3 Attitude towards saving and long-term use of money	Most agribusiness entrepreneurs exhibited good financial attitudes	Banks should consider lowering their interest rates when offering loans to farmers
	4. Attitude towards paying back government loans	The majority disagreed with the notion that government loans should not be paid back but indicated that they fail to repay back loan due to	Loan processing time should be adjusted, taking into consideration the constant increase of prices of farm inputs and machinery. Banks should consider offering structured financing options to agribusiness

	5. Divert a portion of business loans for personal use	However, most agribusiness entrepreneurs indicated that they divert a portion of business loans for personal use.	Loans can be provided in form of inputs or farm equipment's rather than money. After disbursing a loan bank should monitor farm related activities and use of funds until the produce is sold. Training on how to separate household consumption funds from business funds

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