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Lending terms, financial literacy and formal credit accessibility

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Abstract
Purpose – The purpose of this paper is to investigate the relationship between commercial bank lending terms, financial literacy and access to formal credit by small and medium enterprises (SMEs).
Design/methodology/approach – In this cross-sectional study, the authors surveyed 384 business owners or managers of SMEs in Uganda. The authors applied confirmatory factor analysis to reduce the number of factors and identify the important elements that capture commercial lending terms, financial literacy and access to formal credit. The authors put forward and tested two hypotheses relating to the significance of the relationship between perceived commercial bank lending terms, financial literacy and access to formal credit using structural equation modelling with analysis of moment structures 18.
Findings – The results suggest a positive and significant relationship between perceived commercial bank lending terms, financial literacy and access to formal credit. Moreover, the ANOVA results serendipitously show that access to formal credit varies with type of business and turnover. However, collateral and loan repayment periods are not observed variables for commercial bank lending terms. The most significant observed variable for commercial bank lending terms is interest rates. This, together with financial literacy, explains 31 per cent of the variances in access to formal credit by SMEs in Uganda.
Research limitations/implications – The study is limited to the SME firms registered and operating in Kampala, Uganda and it is possible that the results are only applicable to these firms in Uganda. Nevertheless, the findings have implications to commercial banks wishing to improve the turnover of their micro-lending schemes.
Practical implications – Efforts by the stakeholders to improve financial literacy of SMEs owners and managers must be matched with favourable interest rates if access to formal credit is to be enhanced.
Social implications – The findings also have implications for governments aiming at improving access to finance to overcome income inequality problems, and also improve their growth.
Originality/value – The results provide initial evidence of the aggregate explanatory power of interest rates and financial literacy for the criterion variable, access to formal credit by SMEs.

Keywords Development, SMEs, Uganda, Literacy, Access to formal credit, Lending terms
Paper type Research paper

Introduction
Development theory emphasises the importance of access to finance in overcoming income inequality and achievement of growth (Pande *et al.*, 2012). According to Pande *et al.* (2012) the inability to access financial services prevents consumption and investments thus limiting growth opportunities. By having access to finance poor people can get out of the poverty cycle. The financial inclusion of the poor will ultimately lead to higher incomes hence removing inequalities. Prior studies also indicate a positive relationship between the availability of finance and economic

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growth. For example, Butkiewicz and Yanikkaya (2005) in a study of the effects of IMF lending indicate that IMF lending stimulates growth in primarily by increasing investment. Economic models by Bencivenga and Smith (1991) and Greenwood and Jovanovic (1990) also suggest a positive relationship between financial intermediation and economic growth. In this paper, we investigate the relationship between commercial bank lending terms, financial literacy and access to formal credit by small and medium enterprises (SMEs). In the quest to improve access to formal credit by SMEs, most commercial banks have recently included SMEs in their portfolios through their micro lending schemes (Kakuru, 2008). In spite of this initiative, SMEs continue to borrow less often from commercial banks. According to Heikkila *et al.* (2009) out of 1,128 SMEs in Uganda that applied for loans, only 179 SMEs were successful. Moreover, the World Bank investment climate survey (2007) cited in Kakuru (2008) revealed that 41.2 per cent of small enterprises were credit constrained and only 24.8 per cent received loans from banks. The survey also indicated that 28.2 per cent of medium enterprises were credit constrained and only 32 per cent had received loans from banks. Ironically, evidence suggests that most SMEs in Uganda rely more on the informal credit than the formal and yet the informal sources have left them with insufficient capital to grow and expand (Mutesasira *et al.*, 2001; Uganda Bureau of Statistics, 2007; Stevenson and St-Onge, 2005; Aryeetey, 2008).

Literature indicates that there are two constructs that might explain variances in SMEs' access to credit: lending terms which include collateral, loan repayment periods and interest rates (Yehuala, 2008; Stiglitz and Weiss, 1981; Atieno, 2001; Aryeetey *et al.*, 1994; Safavian *et al.*, 2006) and financial literacy (Cole *et al.*, 2009; Hilgert *et al.*, 2003; Chen and Volpe, 1998). Financial literacy is defined as the ability to make informed judgments and to take effective decisions regarding the use and management of money (Noctor *et al.*, 1992; Beal and Delpachitra, 2003; ANZ Report, 2003). Research evidence suggests that SMEs borrowers who lack collateral to support their borrowing usually have limited access to credit (Tucker and Lean, 2000; Mason and Stark, 2004). In most cases, SMEs are required to present collateral of at least 150 per cent of the loan amount and are usually given short repayment periods normally not exceeding 24 months with interest rates ranging from 23 to 30 per cent per month (Kakuru, 2008; Seibel, 2003).

Moreover, evidence also indicates that the national financial education levels in Uganda are very low at all ages and social groups which explains their low levels of financial inclusion and low-saving rates. Hatega (2007) found that many SMEs owners/managers have limited information on financing products, personal financial management and lack financial knowledge, skills and abilities to carry out budgeting, proper book-keeping and financial planning. More so, Bitature (2010) observed that many citizens of developing nations including Uganda lack financial literacy and management skills and this accounts for low levels of wealth creation. Beck *et al.* (2007) argue that when individuals are financially illiterate, they will not be familiar or comfortable with financial products and will not demand for them.

While commercial lending terms and financial literacy are important to access formal credit, there are reasons that limit the value of previous empirical studies results to developing countries. First, previous studies that explain variances in access to formal credit by SMEs use financial literacy (Beck *et al.*, 2007) and lending terms (Stiglitz and Weiss, 1981; Schmidt and Kropp, 1987) independently of each other. Yet factors related to the participation of credit users in the credits market can be divided into borrowers characteristics, and the loan terms and conditions imposed by lenders (Kashuliza and Kydd, 1996; Zeller, 1994). We argue that the effect of these factors on access to formal credit should be investigated simultaneously. Second, it is emphasised by development theory that one of the crucial functions of a financial system is to allocate resources to most productive uses, thus boosting economic growth, improving opportunities and income distribution, and reducing poverty. Accessing finance for firms with growth opportunities and entrepreneurs with ideas helps improve income distribution and promotes growth. However, measures of financial development that are commonly employed in the empirical literature do not reflect this access dimension that is emphasised in theory (Demirgüç-Kunt and Levine, 2008). Our study therefore contributes to extant literature by investigating two explanatory factors for access to formal credit in a single study.

The results of this study are particularly noteworthy because commercial banks and other formal lending institutions might wish to improve on their lending terms to increase credit accessibility and returns from a wider clientele particularly to identify innovative options and institutional arrangements that would serve as an input for lending institutions and policy makers in formulating lending terms. We believe that because of the lack of access to credit in the formal sector, productive assets of SMEs can be depleted and assets used as collateral transferred from the poor to wealthier informal lenders.

The rest of the paper proceeds as follows: the next section is literature review and hypotheses development. This is followed by the research methodology. The penultimate section is the results and discussion. The final section is the conclusion, implications and areas of further research.

Literature review and hypotheses development

Definition of terms

Lending terms have been understood to mean collateral, repayment periods and lending interest rate (Atieno, 2001). Collateral is the security given by a borrower to a lender as a pledge for the repayment of a loan (Atieno, 2001) and operates as broad insurance against uninsurable risk or intentional default leading to non-payment of the loan (Ayyagari *et al.*, 2003). Loan repayment period is the time in which the borrower should repay the loan (Atieno, 2001; Yehuala, 2008). Lending interest rate is the rate which is charged or paid for the use of money (Cowling and Westhead, 1996) and is used as a means of compensating banks for taking risk (Smith and Smith, 2000). Noctor *et al.* (1992) define financial literacy as the ability to make informed judgements and to take effective decisions regarding the use and management of money. Later, Schagen and Lines (1996) added that such a person also possess a facilitating attitude to the effective and responsible management of financial affairs. Orton (2007) describes a financially literate person as one who must read, analyse, manage and communicate personal financial conditions that affect his material well-being and should be able to discern financial choices, discuss money and financial issues without discomfort. Claessens (2006) defines credit accessibility as the availability of a supply of reasonable quality financial services at reasonable costs. However, Akudugu *et al.* (2009) define access to credit as a situation in which an individual has the right, makes an attempt to possess and makes decisions regarding the use of funds in the short term and to repay with interest at a time schedule that is convenient to both the borrower and lender. According to Akudugu *et al.* (2009) a person lacks access to credit if such a person makes efforts to acquire it and fails.

Lending terms

There is a myriad of studies that have investigated the relationship between lending terms and access to credit (Mann, 1997; Ang *et al.*, 1995; Avery *et al.*, 1998; Hernández and Martínez-Solano, 2006; Yehuala, 2008; Kakuru, 2008; Mutesasira *et al.*, 2001; Chan and Kanatas, 1985; Bester, 1987; Besanko and Thakor, 1987; Lehmann and Neuberger, 2001; Shen, 2002; Atanasova and Wilson, 2004; Zeller, 1994; Stiglitz and Weiss, 1981; Atieno, 2001; Kimuyu and Omiti, 2000; Besley, 1995). The findings, reasoning and arguments made by these studies/writers indicate that stringent lending terms discourage borrowers to apply for bank debt even when they are searching for finance to execute valuable investment projects.

For example, pledging business collateral limits the firms' ability to obtain future loans from other lenders which creates a position of power for the lending bank (Mann, 1997). According to Zeller (1994) collateral value requirements deter SME borrowers from seeking credit. Stiglitz and Weiss (1981) found out that SMEs hesitate to seek credit when they do not understand why requirements like collateral are imposed on them. Banks, however, prefer borrowers with collateral. For example, Safavian *et al.* (2006) observed that commercial banks usually provide larger loans, longer repayment periods and lower interest rates when borrowers offer collateral. This means that a borrower who cannot provide the type of assets lenders require as collateral often gets worse loan terms than otherwise. Indeed Lehmann and Neuberger (2001) notes that borrowers who provide more collateral receive a better rating. Access to finance is particularly difficult for SMEs with insufficient collateral that do not have any established track record or credit history. But other findings (Chan and Kanatas, 1985; Bester, 1987; Besanko and Thakor, 1987) show that low-risk borrowers pledge more collateral than high-risk borrowers. Nevertheless, some studies (Shen, 2002; Atanasova and Wilson, 2004) indicate that higher availability of collateral is expected to increase the supply of bank debt as collateral can mitigate the informational asymmetries between the borrower and lender. This foregoing paragraph concludes that commercial banks' requirement for collateral positively affects access to formal credit where collateral is readily available. Contrarily, where collateral is not readily available, the demand for it will negatively affect access to formal credit. In the majority of studies, this distinction has not always been made explicit.

Loan repayment period has also been found to be critical for access to formal credit. Yehuala (2008) found that loan repayment period negatively influences access to credit as it has a major bearing on the total amount to be repaid. Specifically, longer repayment period increases interest to be paid in the long run. Kakuru (2008) found that when SMEs perceive repayment period as inflexible, they will not apply for the loans. Mutesasira *et al.* (2001) also found out that short repayment periods do not meet SMEs long-term credit needs and as a result, SMEs take any amount of loan that the banks are willing to offer them. From the discussions in this paragraph, it can be concluded that the variability in access to formal credit caused directly by loan repayment period should be insignificant. This conclusion draws from the fact that loan repayment period has its own antecedents such as individual's capacity and financial institution's ability to collect and ensure repayments.

The other construct that has been found to be crucial for access to formal credit is interest rates charged for loans. If the interest rates are perceived to be unfair or their rationale is not understood, SMEs will not apply for credit from banks (Aryeetey *et al.*, 1994, Stiglitz and Weiss, 1981). Kimuyu and Omiti (2000) point out that high-interest rates not only transfer incomes from borrowers to lenders but also occasion a debt burden on borrowers reducing borrowers' stakes in solvency and increasing the risk for default. But Besley (1994) indicates that interest rates play the allocative role of equating demand and supply for loanable funds, and will also affect the average quality of lenders' loan portfolios. Consistent with the observation of Zeller (1994) we conclude that when SMEs experience easy access to credit they will seek further credit rather than feel that they are not efficiently served which may lead them to abandon their quest for credit.

The conclusions that: first, commercial banks' requirement for collateral positively affects access to formal credit where collateral is readily available; second, the variability in access to formal credit caused directly by loan repayment period should be insignificant; and third, where SMEs experience easy access to credit, they are motivated to seek further credit; lead us to state the following hypothesis:

H1. Favourable commercial lending terms have a significant and positive effect on access to formal credit by SMEs.

Financial literacy

According to Wachira and Kihiu (2012) financial literacy remains an interesting issue in both developed and developing economies, and has elicited much interest in the recent past with the rapid change in the finance landscape. Mounting evidence indicates that the less financially literate are likely to face more challenges with regard to debt management, savings and credit, and are less likely to plan for the future. Such evidence suggests that there is a certain relationship between financial literacy and access to formal credit. For example, the study by Miller *et al.* (2009) indicates that lack of financial literacy is often tied to lack of access to financial products including credit or failure to use them even when they are available. Beck *et al.* (2007) argued that if individuals are not familiar or comfortable with products, they will not demand them. Calvert *et al.* (2005) also argue that households with high-financial literacy and greater financial sophistication are more likely to participate in risky assets' markets and invest more efficiently. Other studies (Association of Chartered Certified Accountants, 2006, Johnson, 2004; Kidwell and Turrisi, 2004) confirm the view that financial literacy explains variances in access to credit by borrowers. Moreover, Lusardi and Tufano (2008) and Stango and Zinman (2009) also state that households with low levels of financial literacy tend to borrow at higher interest rates and participate less in the formal financial system relative to their more financially literate counterparts. Kimuyu and Omiti (2000) indicate that expansion of educational opportunities including promotion of self-financing adult literacy classes in trading centres increase access to credit. Cole *et al.* (2009) found that higher financial literacy is significantly associated with greater use of bank services suggesting that financial literacy strongly influences banking behaviour. Cole *et al.* (2009) reinforce earlier findings of Hilgert *et al.* (2003) that a strong link between financial knowledge and financial behaviour subsists. Hilgert *et al.* (2003) aver that individuals with lower levels of financial literacy may have lower levels of education, be less interested in financial matters, be poorer, or have different discount rates. This implies that the level of an individual's financial knowledge tends to influence attitudes that in turn affect the individual's financial behaviours (Chen and Volpe, 1998). Kidwell and Turrisi (2004) study indicates that individuals with better financial knowledge keep detailed financial records and have more access to credit than their counter parts who do not keep financial records and are financially illiterate. Chen and Volpe (1998) found that groups who are more knowledgeable regulate their spending patterns and decisions by keeping detailed financial records. Also anecdotal evidence shows that banks will usually require financial statements from a borrower in order to make a decision on the borrower's loan application.

The evidence in literature indicates that individuals who are not educated or knowledgeable enough will not be able to make effective financial choices and this will limit their credit accessibility. Thus considerable efforts in education to improve financial literacy abound as experts agree that financial knowledge directly correlates with self-beneficial financial behaviour (Hilgert *et al.*, 2003). Hence even though questions exist concerning the effectiveness of financial education in improving financial literacy (Lyons *et al.*, 2006), there are consistent findings of a positive relationship between financial knowledge and access to credit. Having knowledge of the different sources from which one can borrow increases the chances of success in borrowing (Akudugu *et al.*, 2009). Accordingly, the following hypothesis is stated:

H2. Appropriate financial literacy positively and significantly affects access to formal credit.

Methodology

We utilised a sample of 384 SME owners or managers drawn from Kampala's five divisions proportionately. Kampala is the capital city of Uganda, East Africa. Most of the respondents (54 per cent) had at least a bachelor's degree. We measured lending terms using Atieno's (2001) measures that include collateral requirements, repayment periods and interest rates. Financial literacy was measured using financial knowledge, financial skills and abilities according to Sebstad *et al.* (2006), Schagenand Lines (1996). Both lending terms and financial literacy questions were anchored on a five-point Likert scale. Access to formal credit was measured using amount received and frequency of access (number of times) (Diagne and Zeller, 2001).

A Likert-scale questionnaire, designed to measure the opinion or attitude of a respondent (Burns and Grove, 2009), was utilised to obtain self-reported information. A survey was adopted as the most appropriate method of data collection and previous research supports the reliability and validity of the self-report measures (Brush and Vanderwerf, 1992; Lechner *et al.*, 2006). This approach consists of a selection of key information providers by virtue of their position, knowledge and information available (McEvily and Marcus, 2005). Data were cleaned according to recommendations by Field (2009) hence the use of owners or managers for SMEs in this study. A common concern when faced with multivariate data with missing values is whether the missing data are missing completely at random (MCAR); that is whether the missing data depends on the variables in the data set (Little, 1988). Using the Expectation – Maximisation, the MCAR, was not significant (Little's MCAR test: $\chi^2 = 213.138$, DF $= 244$, Sig. $= 0.924$). This meant that data was MCAR. Because structural equations modelling (SEM) deals with cases with complete data, we used linear interpolation technique to replace missing values for its simplicity. The results of the Content Validity Index returned validity indices of above 0.80. According to Nunnally (1978) these ratios are acceptable since they are above the cut-off point of 0.70. Regarding reliability, the Cronbach's α results were as follows: commercial bank lending terms, 0.828, financial Literacy, 0.585 and access to formal credit, 0.810. To reduce data to a manageable level consistent with Field (2009)'s recommendation, we performed a factor analysis. We did this using SPSS Version 19 with Varimax rotation and Kaiser normalisation and all component loadings of 0.50 were suppressed. The cut-off for the factors identified by was an eigenvalue of 1. The resulting observed variables were then subjected to a confirmatory factor analysis.

We estimated the model of commercial lending terms, financial literacy and formal access to credit by employing SEM. SEM helps in understanding the patterns of correlational/covariance among a set of variables and according to Kline (2011) explains as much variance as possible with the model specified. We used the estimation procedure in analysis of moment structures 18 (Arbuckle, 2009) to construct the models. The overall fit of our models were tested using the following fit criteria: The χ^2 test p-value should be <0.05; root mean square error of approximation (RMSEA) should be <0.06 and Tucker-Lewis Index (TLI) values of 0.95 or higher (Hu and Bentler, 1999). Others like Kim (2007) and Yang (2006) recommend goodness of fit (GFI) >0.90, Adjusted Goodness of Fit Index (AGFI) >0.85, TLI >0.95, CFI >0.90, RMSEA <0.08 as acceptable goodness-of-fit indices.

Results and discussion

We generated means and standard deviations to summarise the observed data. For simplicity we report the means of observed variables as fitted. We report the means because according to Field (2009), means represent a summary of the data while standard deviations show how well the means represent the data. The main purpose is to establish whether the statistical means were a good fit of the observed data (Field, 2009). Thus the means cross-validate the results of confirmatory factor analysis. The means and standard deviations of all the items are summarised in Table I.

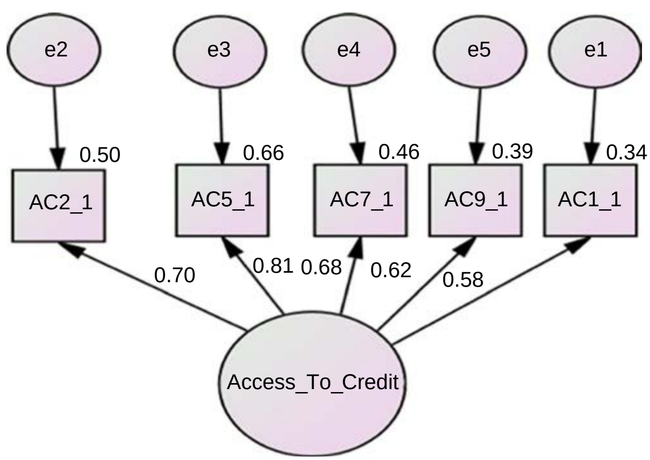
	Mean	SD	*n*
Commercial lending terms			
Interest rates charged by commercial banks are usually lower than those of other financial institutions (LT9)	2.57	1.228	382
My firm finds interest rates charged by commercial banks reasonable (LT10)	2.10	1.069	382
Interest rates of commercial bank loans are very attractive (LT11)	2.36	1.304	382
Financial literacy			
I know about managing personal finance (FL1)	4.38	0.628	382
Am aware of financial products and services provided by commercial banks (FL2)	4.09	0.921	382
My firm participates less in the formal financial system (FL3)	3.81	0.945	382
I know the different sources from which my firm can borrow from (FL5)	4.16	0.819	382
My firm makes effective financial choices (FL6)	4.09	0.730	382
I have a working knowledge of financial institutions (FL7)	4.07	0.901	382
I have adequate skills in financial management (FL8)	4.20	0.695	382
Am capable of discussing money and financial issues with comfort (FL9)	4.24	0.680	382
Am very confident when making financing decisions (FL10)	4.29	0.587	382
My firm has control over personal finance (FL11)	4.38	0.628	382
Access to formal credit			
My firm has ever acquired a loan from commercial banks (AC1)	4.32	0.895	382
My firm received the full amounts of loan facility applied for (AC2)	3.98	1.173	382
The loan amounts received satisfied my firm's credit needs (AC5)	3.81	1.087	382
My firm finds it easy to access credit from commercial banks (AC7)	3.59	1.058	382
My firm obtains loans more often from commercial banks (AC9)	3.26	1.132	382

Table I.
Descriptive statistics

Table I reveals that all mean scores of the items range from 2.10 to 4.38 with the standard deviations from 0.587 to 1.173. Because of small standard deviations compared to mean values, it is clear that the data points are close to the means and hence calculated means highly represented the observed data (Field, 2009; Saunders *et al.*, 2007). Graphs 1-6 also accord a visual understanding of the key indicators. The bar charts are a visual display of perceptions by gender and unit of enquiry (position in company – SME owners or managers) of commercial lending terms, financial literacy and formal credit accessibility. The bar graphs suggest business managers had higher perceived access to credit, commercial lending terms and financial literacy (on a scale of 1-5) than, business owners. Similarly the graphs suggest a small difference in perceived financial literacy, commercial lending terms and credit accessibility (on a scale of 1-5) than females.

According to results, commercial lending terms is defined by three observed variables: LT9, LT10 and LT11. This means that commercial lending terms causes the scores observed on LT9, LT10 and LT11. The resulting model of commercial lending terms fitted acceptably well in the population of interest (χ^2 value of 0.033 was non-significant ($p = 0.857$), RMSEA = 0.001, GFI = 1.000, AGFI = 1.000, NFI = 1.000). Similarly, financial literacy is defined by five observed variables: FL2, FL3, FL5, FL7 and FL10. This model fitted acceptably well: RMSEA = 0.001, GFI = 0.997, AGFI = 0.991 with an NFI of 0.976 indicating a strong convergent validity. Moreover, five observed variables define access to credit: AC1, AC2, AC5, AC7 and AC9. This model moderately fit: RMSEA = 0.099; GFI = 0.976; AGFI = 0.928 and an NFI of 0.996. These models are appended as Figures 1, 2 and 3.

In investigating the relationship between commercial bank lending terms, financial literacy and access to formal credit by SMEs, we use the critical ratios to denote significance. Table II shows that all the critical ratios are above 1.96 and p-values are smaller than 0.001 which connotes significance. In other words, all the regression coefficients in the model are significantly different from zero beyond the 0.01 level. All the unconstrained parameter estimates are significant at p (two-tailed) < 0.0001. Results indicate that there is significant and positive correlation between commercial



Notes: χ^2 = 24.609, p = 0.000, df = 5, RMESA = 0.099, NFI = 0.960, GFI = 0.976, AGFI = 0.928

Figure 1.
Access to formal credit

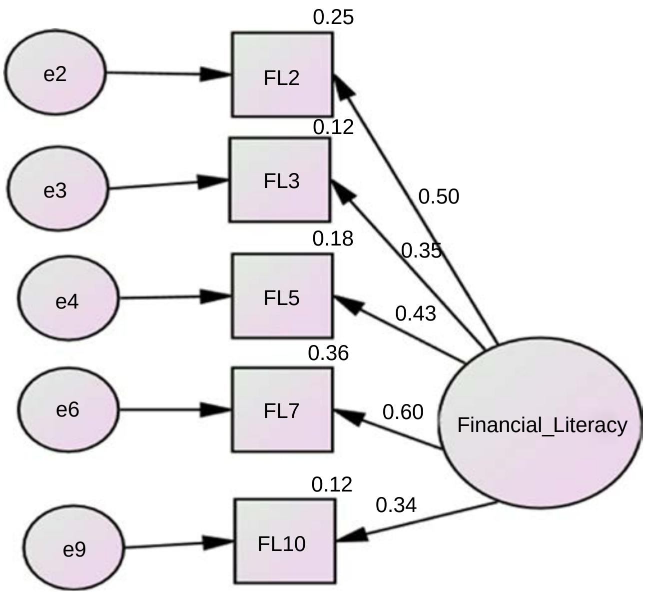


Figure 2.
Financial literacy

Notes: χ^2 = 2.946, *p* = 0.708, df = 5, RMESA = 0.000, NFI = 0.976

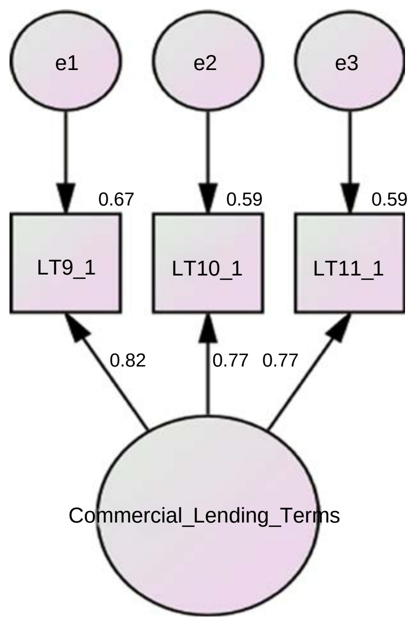


Figure 3.
Commercial lending terms

Notes: χ^2 = 0.033, *p* = 0.857, df = 1, RMESA = 0.000,
NFI = 1.000, GFI = 1.000, AGFI = 1.000

	UnStd. Est.	Std est.	SE	CR	p		SMR (R^2)
Access to credit ← commercial lending terms	0.197	0.225	0.056	3.537	***	Access to credit	0.311
Access to credit ← financial literacy	0.861	0.480	0.177	4.850	***		
FL2_1 ← financial literacy	1.000	0.529				FL2_1	0.280
FL3_1 ← financial literacy	0.818	0.421	0.162	5.056	***	FL3_1	0.177
FL5_1 ← financial literacy	0.651	0.387	0.135	4.814	***	FL5_1	0.150
FL7_1 ← financial literacy	1.005	0.543	0.180	5.589	***	FL7_1	0.294
AC5_1 ← access to credit	1.000	0.800				AC5_1	0.640
AC2_1 ← access to credit	1.011	0.753	0.132	7.679	***	AC2_1	0.567
LT11_1 ← commercial lending terms	1.000	0.761				LT11_1	0.580
LT10_1 ← commercial lending terms	0.817	0.768	0.059	13.923	***	LT10_1	0.590
LT9_1 ← commercial lending terms	1.032	0.828	0.073	14.220	***	LT9_1	0.685

Notes: UnStd. Est., unstandardised estimates; Std. est., standardised estimates; SE, standard error; CR, critical ratio, SMR, squared multiple regressions. *** $p < 0.001$

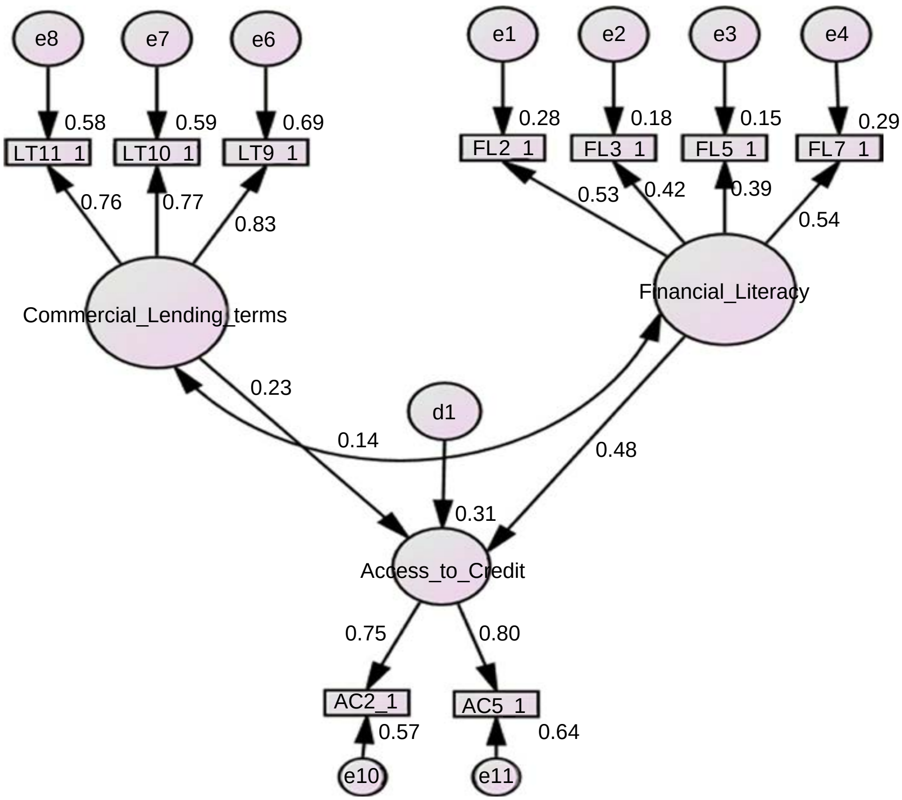
Table II.
Path coefficients

bank lending terms, financial literacy and access to formal credit ($p < 0.001$). This shows that an improvement of commercial bank lending terms leads to increased access to formal credit. Based on our findings, it is attractive interest rates that matter most for access to credit. In this analysis, Table II reveals that there is a significant regression between commercial lending terms and access to formal credit. One unit improvement in the attractiveness of interest rates leads to 0.225 positive changes in access to formal credit. The influence of financial literacy on access to credit is also significant and positive. A one-unit improvement in financial literacy leads to 0.480 positive changes in access to formal credit.

Our results thus provide support for *H1* which states that "favourable commercial lending terms have a significant and positive effect on access to formal credit by SMEs" and *H2* which states that "appropriate financial literacy positively and significantly affects access to formal credit". Figure 4 shows that overall, a combination of favourable interest rates (commercial lending terms) and financial literacy of current and potential SME borrowers explains 31 per cent of the variance in access to formal credit. In other words, the error variance is 69 per cent of access to formal credit itself.

While it is beyond the scope of this paper to investigate the other causes of the error variance reported in Figure 4, serendipitously the analysis of variance (see Table III) for the sample characteristics provided some useful insights. Results show significant differences among type of businesses in regard to access to formal credit ($F = 2.301$, sig < 0.05). This implies that access to formal credit varied with the type of business. It is further observed that there are significant differences with regard to access to formal credit from the point of view of annual sales turnover of businesses ($F = 1.936$, sig < 0.05) and this means that access to formal credit varies with the level of annual sales/turnover of businesses (Figures 5-10).

The results of this study are consistent with other studies (e.g. Hashi and Toci, 2010; Stephanou and Rodriguez, 2008; Mambula, 2002; Okpara and Wynn, 2007) in finding that high-interest rates are statistically significant to SMEs' financing obstacles. Because of measurement variance, the results of this study are inconsistent with previous studies (Gray *et al.*, 1997; Kiggundu, 2002; Trulsson, 1997; Van Dijk, 1995;



Notes: χ^2 = 74.127, p = 0.000, df = 24, RMESA = 0.072, NFI = 0.914, GFI = 0.961, AGFI = 0.927, TLI = 0.909, CFI = 0.940. LT11_1, Interest rates of commercial bank loans are very attractive; LT10_1, My firm finds interest rates charged by commercial banks reasonable; LT9_1, Interest rates charged by commercial banks are usually lower than those of other financial instituations; FL2_1, Am aware of financial products and services provided by commercial banks; FL3_1, My firm participates less in the formal financial system; FL5_1, I know the different sources from which my firm can borrow from; FL7_1, I have a working knowledge of financial institutions; AC2_1, My firm received the full amounts of loan facility applied for; AC5_1, The loan amounts received satisfed my firm's credit needs

Figure 4.
The SEM model showing the explanatory power of commercial lending terms and financial literacy to access to credit

Hashi and Toci, 2010; Stephanou and Rodriguez, 2008) which indicate that most SMEs cannot meet the requirements for commercial loans because they lack sufficient collateral. The finding that favourable interest rates explain significant variances in access to formal credit indicates that lending institutions in Uganda offer loans at unfavourable interest rates. The reasons for high-interest rates have typically included risks associated with SMEs (Hossain, 1988) and, small and younger firms with shorter banking relationships (Berger and Udell, 2005). Moreover, confirmatory factor analysis indicates that a loan repayment period is not an observed variable for the latent variable, commercial lending terms, in Uganda.

Earlier works by Mutesasira *et al.* (2001), Mugume (2003) and Kakuru (2008) had indicated that short repayment periods provided by commercial banks did not meet

	Sum of squares	df	Mean square	*F*	Sig.
Type of business					
Between groups	35.242	32	1.101	2.301	0.000
Within groups	166.527	348	0.479		
Total	201.769	380			
Location of business					
Between groups	60.189	32	1.881	1.070	0.369
Within groups	611.595	348	1.757		
Total	671.785	380			
Annual sales turnover in shillings					
Between groups	53.182	32	1.662	1.936	0.002
Within groups	298.770	348	0.859		
Total	351.953	380			
Number of employees					
Between groups	41.224	32	1.288	1.355	0.100
Within groups	329.923	347	0.951		
Total	371.147	379			
Length of business existence					
Between groups	21.508	32	0.672	1.278	0.149
Within groups	183.080	348	0.526		
Total	204.588	380			

Table III.
Analysis of variance (ANOVA)

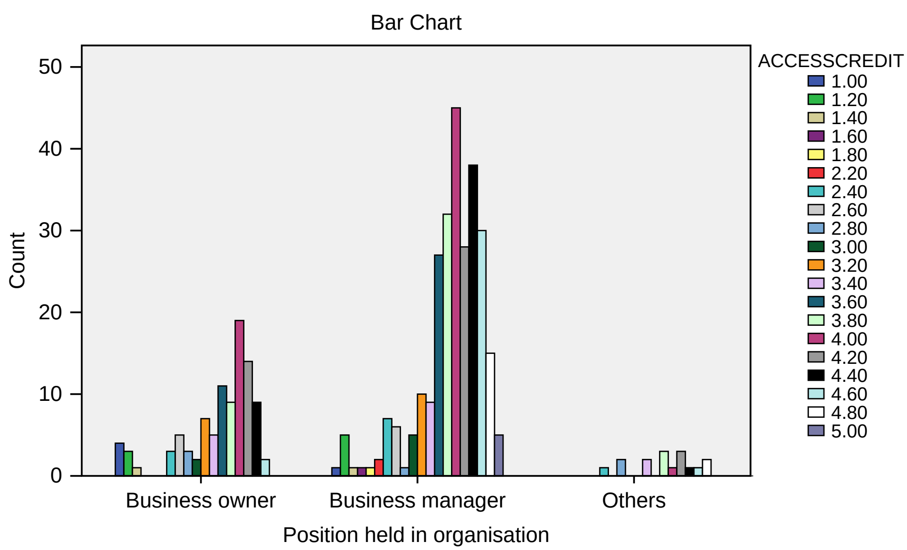


Figure 5.
Perceived access to credit (position in company by respondent)

SMEs long-term needs. More so, loan repayment period negatively influences the access to formal credit (Yehuala, 2008). The fact that this study does not show loan repayment period as an observed variable for commercial lending terms may suggest the possibility that interest rates may be the antecedent of loan repayment periods. The high means reported in this study for the latent variable, financial literacy, indicates that SMEs owners and managers in Kampala know how to manage their personal

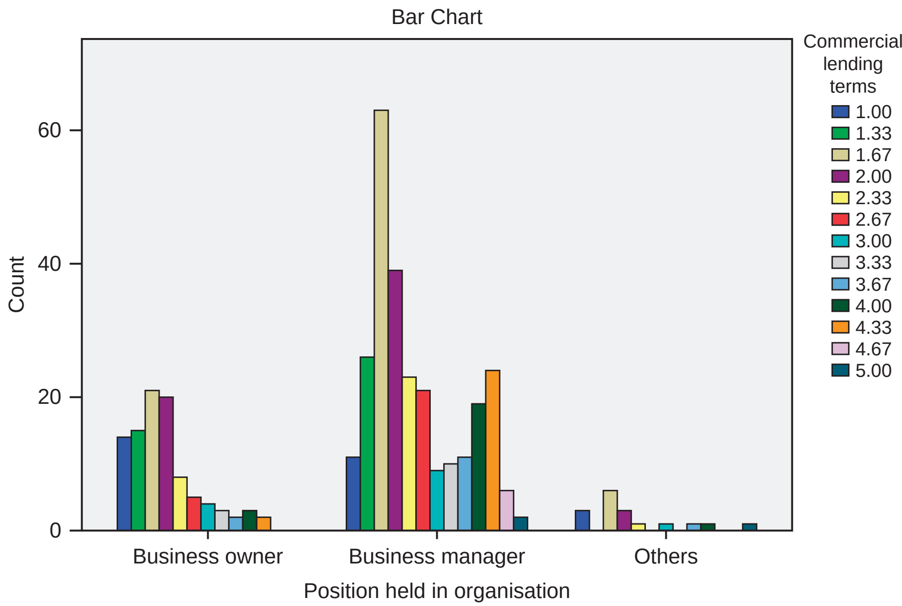


Figure 6.
Perceived commercial lending terms (position in company by respondent)

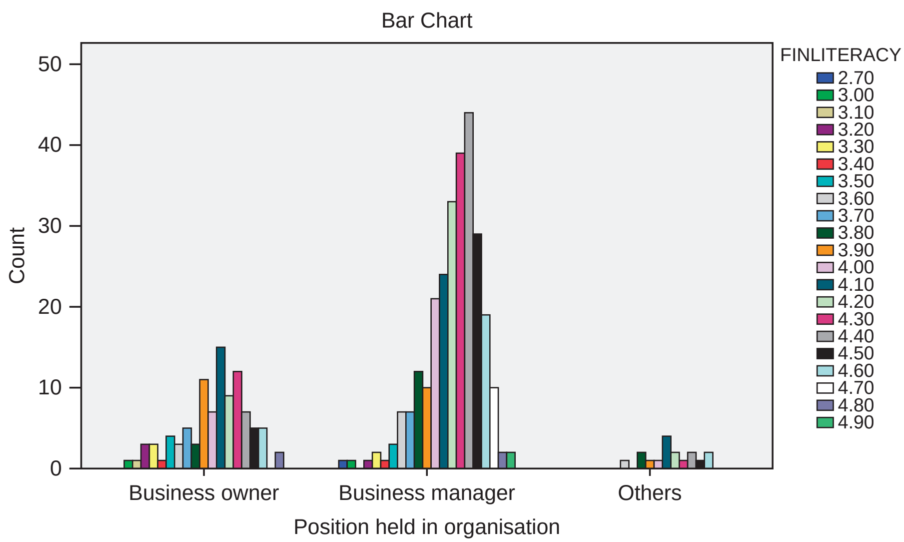


Figure 7.
Perceived financial literacy (position in company by respondent)

finances and are aware of financial products and services provided by lending institutions. Table I also shows that business managers and owners know the different lending firms (sources) and also make effective financial choices. Moreover, the table shows that business managers and owners know how financial institutions work and most of them have adequate financial management skills. This concludes that the owners and managers of SMEs are financially literate, a conclusion supported by the level of education percentage (54 per cent) of respondents who hold bachelor's

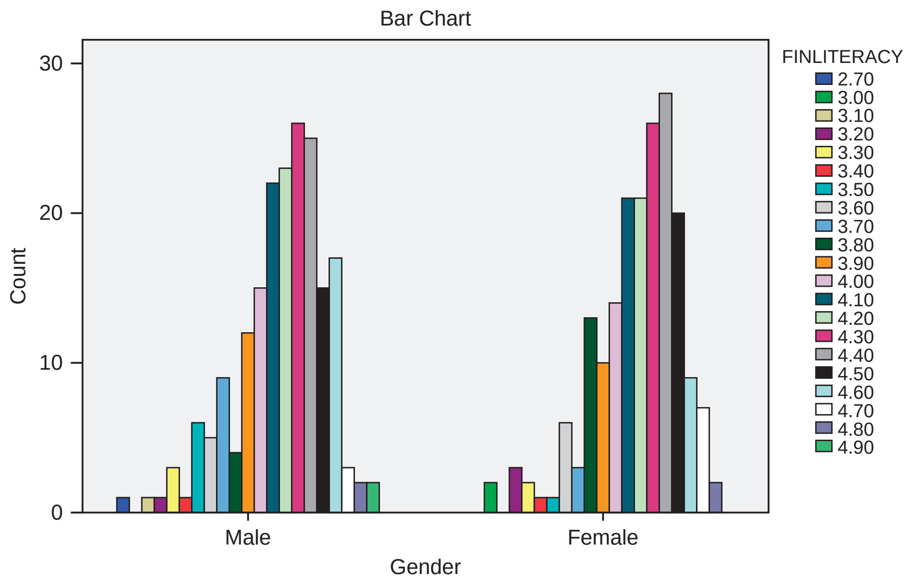


Figure 8.
Perceived financial literacy (gender of respondent)

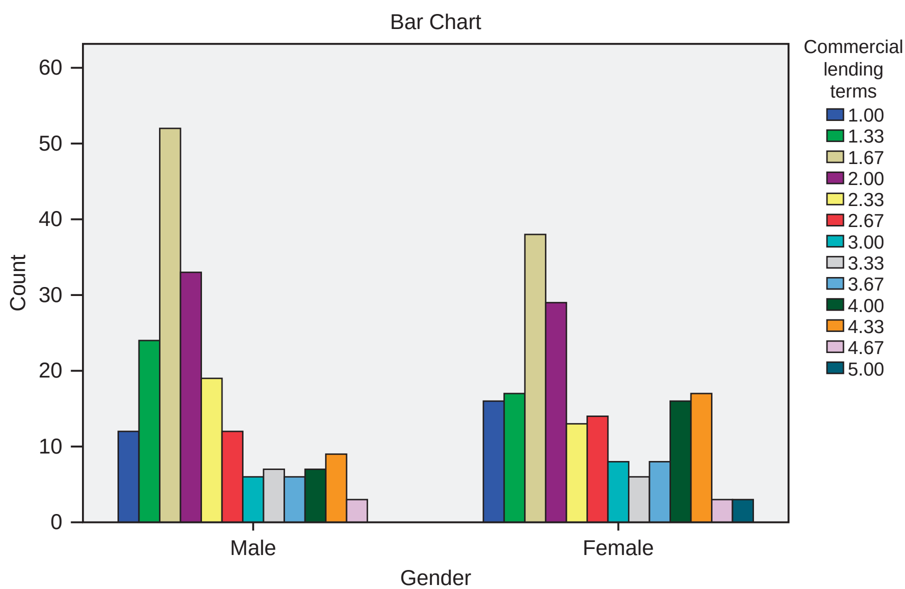


Figure 9.
Commercial lending terms (gender of respondent)

degrees. Previously, however, the works of Hatega (2007) indicated that many SMEs owners/managers had limited information on financing products, personal financial management and lacked financial knowledge, skills and abilities to carry out budgeting, and to keep proper book keeping and financial planning. It seems, with the passage of time, this handicap is gradually fading. Our results indicate that financial literacy positively affects access to formal credit consistent with the findings of

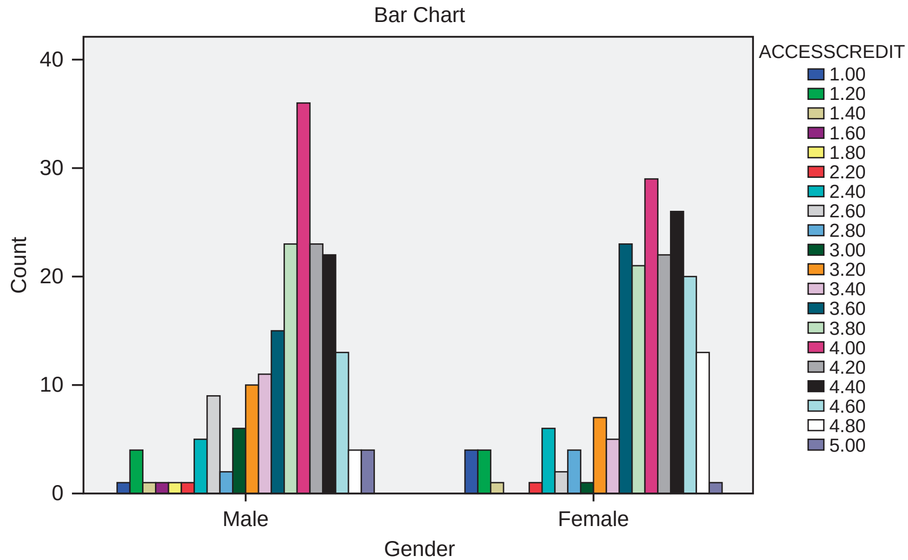


Figure 10.
Access to credit (gender of respondent)

(e.g. Cole *et al.*, 2009; Akudugu *et al.*, 2009; Lusardi and Tufano, 2008; Stango and Zinman (2009); Schagen and Lines, 1996). Indeed, Stiglitz and Weiss (1981) asserted that SMEs dither seeking credit when they do not understand why terms like interest rates, repayment period and other requirements like collateral are imposed on them.

Conclusion, implications and areas of further research

The objective of this paper was to investigate the relationship between commercial bank lending terms, financial literacy and access to formal credit by SMEs. The results suggest a positive and significant relationship between perceived commercial lending terms, financial literacy and access to formal credit. Moreover, the ANOVA results serendipitously show that access to formal credit varies with type of business and turnover. Contrary to expectations and previous thinking, however, collateral and loan repayment periods are not observed variables for the latent variable, commercial bank lending terms. The most important observed variable for commercial lending terms is interest rates. This, together with literacy levels, explains 31 per cent of the variances in access to formal credit by SMEs in Uganda. The results are important because they provide evidence of the aggregate explanatory power of interest rates and financial literacy for the criterion variable, access to formal credit by SMEs. As with any study, there are a number of limitations with the present paper. Although the questionnaire was self-administered, we did not undertake follow up interviews which would have informed us the reasons why the respondents held certain views. Our study was limited to the SME firms registered and operating in Kampala, Uganda and it is possible that our results are only applicable to these firms in Uganda. Finally, the present study is cross-sectional; it is possible that the views held by individuals may change over the years. In spite of the limitations, policy makers dealing with financial literacy, commercial banks, academicians, SME owners and managers and even general readers interested in the field of economic development and financial management might find this study insightful. Future research may wish to examine the predictive power of turnover and nature of business to access to formal credit.

Despite the limitations, our findings have a number of implications. First, our findings have implications to commercial banks wishing to improve the turnover of their micro-lending schemes. Second, the findings also have implications for governments aiming at improving access to finance to overcome income inequality problems, and also improve their growth prospects. As suggested before, improvement in access to finance means that more money will become available for SMEs which they can invest to create jobs. The availability of jobs means that people will have money to spend which will stimulate economic growth. Moreover, the availability of jobs means that the income inequality will begin to reduce as more people get out of the poverty cycle. Finally, the findings also imply that efforts by the stakeholders to improve financial literacy of SMEs owners and managers must be matched with favourable interest rates if access to formal credit is to be enhanced.

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