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Abstract

Purpose – The purpose of this paper is to examine the mediating role of social capital in financial literacy and financial inclusion relationship in rural Uganda. The major aim is to establish the role of social capital in the relationship between financial literacy and financial inclusion.

Design/methodology/approach – The paper adopts and uses MedGraph programme (Excel version 3.0), Sobel and Kenny and Baron tests to test the mediation effect of social capital in the relationship between financial literacy and financial inclusion.

Findings – The results reveals that social capital is a significant mediator in the relationship between financial literacy and financial inclusion of rural poor in Uganda. Financial literacy did not have a direct effect on financial inclusion, but through full mediation of social capital. Existence of social capital into the relationship boosts the relationship between financial literacy and financial inclusion by 61.6 per cent among rural poor households in Uganda. Thus, the finding suggests that with the absence of social capital, financial literacy may fail to enhance the level of financial inclusion among rural poor households in Uganda.

Research limitations/implications – This study adopted only single research approach using a questionnaire. However, future research through interview may be of importance. Besides, for the purpose of triangulation, a study involving financial institutions' staff may be viable. Moreover this study was limited by the fact that it was cross-sectional. Furthermore, a longitudinal study may be useful in future to investigate the mediating impact of social capital spanning over a long period of time.

Practical implications – Managers, policymakers and financial inclusion practitioners should advocate and embark on building social capital among rural communities, so as to improve on the level of financial inclusion.

Originality/value – While a large body of research has been carried out on financial literacy, this paper is the first to test the mediating role of social capital in the relationship between financial literacy and financial inclusion, especially in rural Uganda. This study generates evidence and contributes to the

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powerful influence of social capital in enhancing the level of financial inclusion based on financial literacy.

Keywords Microfinance, Uganda, Social capital, Financial inclusion/exclusion, Financial literacy/education, Poor households

Paper type Research paper

Introduction

According to FinScope study (2013), financial literacy impacts on the level of financial inclusion, especially among rural poor households in Uganda. A study by Jamison *et al.* (2014) found that financial literacy increases the level of savings among youth clubs in Uganda. However, these studies ignore the critical role of social capital in mediating the relationship between financial literacy and financial inclusion, especially among poor households in rural Uganda. Thus, this study intends to explore the mediating role of social capital in the relationship between financial literacy and financial inclusion.

Existing evidences have linked social capital and human capital inform of financial literacy to financial inclusion (OECD, 2009; Grootaert, 1998). According to Putnam (1993), social capital refers to networks, norms and trust that facilitate cooperation for mutual benefit, while Coleman (1988) referred it as a set of resources that inhere in family relations and in community social organisations that are useful for cognitive and social development. Thus, in this context, social capital involves human interaction with expectation of trust and reciprocity guided by norms to secure benefits. Indeed, scholars such as Grootaert and Bastealer (2002) and van Bastelaer (2000a, 2000b) argue that social capital through its structural and cognitive mechanisms facilitate information sharing, collective action and decision-making through established roles and networks supplemented by shared norms and trust within the social structures. Portes (1998) observed that for the poor, social capital creates opportunities and facilitates social exchange that would otherwise not be possible or would be more costly. Norms and trust emanating from social organisations serve to facilitate cooperation for mutual benefit of the group. This results from social sanction created by trust, which force people to behave cooperatively in the society (Coleman, 1990).

Durlauf and Fafchamps (2004) state that social capital achieved through shared trust, norms and values based on social networks and associations and their consequent effects on expectations and behaviour, generates (positive) externalities or beneficial outcomes for members. Social capital, which results in trust, promotes cooperation and collective action, and thus, contributes to success of contracts, which are risky. Besides, social capital inform of networks embedded in relationships facilitate access to resources including knowledge and skills. Thus, networks act as conduits for knowledge and information transfer among the poor (Reagans and McEvily, 2003). Therefore, the poor who lack collateral to be financially included, rely on trust and networks for social sanction derived from social capital, to secure and guarantee access to financial services (Khanh, 2011). Higher level of trust generated through social capital improves efficiency of financial contracts and increases their use (Ghatak and Guinnane, 1999). Indeed, social ties and resulting potential for sanctions between members help mitigate adverse selection and moral hazard problems in joint liability lending contracts.

Furthermore, drawing from social learning theory by Bandura (1986), people learn from one another through interaction within a social structure, which results from social capital. Cohen and Nelson (2011) revealed that poor households in associational networks may improve their financial knowledge and skills, which enable them to make wise financial decision and choices. Therefore, social capital facilitates learning through both knowledge and skills acquisition through interactions within networks, which play a critical role in enhancing financial inclusion.

Previous scholars such as Atkinson and Messy (2013), Xu and Zia (2012), Stango and Zinman (2009), Cole *et al.* (2009), van Rooij *et al.* (2011a, 2011b) have investigated the effect of financial literacy on financial inclusion. Studies by World Bank have also explored the impact of financial literacy on the level of financial inclusion among the unbanked communities. For example, World Bank Global Financial Development Report on Financial Inclusion (2014) observed that financial literacy delivery channels such as use of education entertainment had statistically and economically significant effects on the financial behaviour of those who participated in South Africa. Furthermore, Klapper *et al.* (2012) also revealed that the ability of consumers to make informed financial decisions improves their chances of having sound personal finance. In addition, a World Bank study on financial literacy around the world by Xu and Zia (2012) further revealed that financial literacy is correlated with having a bank account, especially in low-income countries. However, these studies ignore the role of social capital as a critical factor in mediating between financial literacy and financial inclusion, especially among rural poor households in Uganda.

According to World Bank (2006), "a person is considered poor if his or her consumption or income level falls below some minimum level necessary to meet basic needs". This minimum level is usually called the "poverty line". Thus, the poor are those persons who live in households whose consumption and income level falls below some minimum level necessary to meet basic needs. Indeed, existing evidence indicate that only 38 per cent of Ugandans receive financial services from both formal and informal sectors. Moreover, when drilled down further, only 20 per cent use formal sector financial institutions, i.e. commercial banks (Tier 1), credit institutions (Tier 2) and microfinance deposit taking institutions (Tier 3). This means that nationwide, 62 per cent of Ugandans are not served by any financial institution or groups (formal, semiformal or informal). Furthermore, the disparity between urban and rural access to financial services is wide with urban access at 48 per cent compared to rural access at 35 per cent. This suggests that more than 12 million adults in rural areas do not have access to financial services (Kasekende, 2013; FinScope, 2013). In addition, a similar study on financial inclusion using index of financial inclusion (IFI) by Sarma (2010) ranked Uganda second last after Madagascar (0.009 per cent) with an IFI of only 0.021 per cent compared to Namibia and Kenya with an IFI of 0.234 and 0.105, respectively. Therefore, the purpose of this study is to explore the mediating role of social capital in the relationship between financial literacy and financial inclusion of poor households in developing countries with a special focus on Uganda and provide data for policy-making.

Literature review

Financial literacy and social capital

Putnam (2000) suggests that social capital can positively influence educational outcomes and contribute to economic development. This is supported by Balatti and Falk (2002) who observed that learning process seen in terms of change in knowledge and identity resources depends on social capital in making socioeconomic contributions to communities. Indeed, evidence by Cohen and Nelson (2011) revealed that poor households can improve their financial knowledge and skills, which enable them to make wise financial decision and choices through associational networks.

Past studies have investigated the importance of social capital in relations to financial literacy (Falk and Kilpatrick, 2000; Nahapiet and Ghoshal, 1998; Schuller and Field, 1998). Falk and Kilpatrick (2000) observed that, social capital available to the participants lies within the knowledge resources and the identity resources that are brought to the interaction by the participants individually and collectively. The subset of these resources used to achieve the desired objective of any specific interaction that contributes to the common purpose constitutes social capital.

In contention, according to Bandura (1986), people learn from one another, through observation, imitation and modelling in social interaction. The social learning theory emphasises that people learn by observing other people (models) whom they believe are credible and knowledgeable within the social structure. Thus, social capital of relationships is a resource that can facilitate access to other resources by individuals or groups for a specific purpose (Balatti, 2006). The poor learn through social interaction by which they begin to understand and form values, knowledge and attitudes about financial products and services. Interactions by poor households in networks act as conduits for knowledge and information transfer among the poor (Reagans and McEvily, 2003). Thus, Cohen and Nelson (2011) revealed that poor households in associational networks may improve their financial knowledge and skills, which enable them to make wise financial decision and choices. Therefore, here we hypothesise that:

H1. Financial literacy and social capital are positively related among the poor.

Financial literacy and financial inclusion

World Bank (2008) observed that financial literacy helps to improve efficiency and quality of financial services. This is supported by Lusardi (2009) and Greenspan (2002) who suggests that financial literacy helps in empowering and educating the poor so that they are knowledgeable and capable of evaluating different financial products and services to make informed financial decisions, so as to derive maximum utility. Therefore, the poor more than ever need a certain level of financial understanding to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options and payment instruments. Scholars like Campbell (2006) and Grable and Joo (1998) argue that financial learning increases financial knowledge and affects financial decisions, choices, attitudes and behaviours of the poor. Indeed, OECD (2013a, 2013b) observed that financial literacy facilitate access and encourages widening use of relevant financial products and services for the benefit of poor individuals.

Furthermore, Braunstein and Welch (2002) also observed that financial literacy can offer a better understanding of mainstream financial services and encourages the unbanked to avoid non-standard services. Financial literacy facilitates decision making processes, which improve the savings rates, credit worthiness of potential borrowers, therefore resulting into improved access and use of financial services by the poor (World Bank, 2009; OECD, 2009). Therefore, financial literacy facilitates effective product use by helping poor households to develop skills to compare and select the best financial products, which suits their needs hence leading to increased financial inclusion. However, Atkinson and Messy (2013) argue that lack of knowledge, awareness, confidence and certain attitudes and behaviours that inhibit use of, and trust in, formal financial products creates barriers to access, by preventing poor individuals from making full use of existing products. Thus, the hypothesis below was derived:

H2. Financial literacy and financial inclusion are positively related among the poor.

Social capital and financial inclusion

A large body of research has documented the connection between social capital and financial inclusion. Putnam (2000) observed that a social capital interface with access to resources through bonding and bridging results into trust and collective action. Past scholarly work indicates that social capital generates information channels, facilitates transactions and reduces costs in accessing financial services such as credit (van Bastelaer, 2000a, 2000b; Woolcock, 1999). Indeed, social capital inform of networks and trust reduces opportunistic behaviour among the poor through peer pressure mechanism, which prevents default problems (Karlan, 2007; Armendariz and Morduch, 2005). Additionally, Aryeetey (2005) argued that group membership is an essential tool for screening microfinance loan applications and for ensuring that contracts are enforced among borrowers. This reduces transaction costs incurred while banking with the poor.

Indeed, financial inclusion initiatives such as the microfinance movements have predominantly relied on social capital to extend financial services to the poor. Their successes have greatly relied on network mechanisms, especially to monitor and sanction participants (Woolcock, 1999; Karlan, 2003). The microfinance schemes that operate with social capital provide substitutes in terms of social collateral and low-cost alternatives for lenders. Social ties and resulting potential for sanctions between poor households help mitigate adverse selection and moral hazard problems in joint liability lending contracts. Thus, social capital of the poor inform of trust and networks, acts as a substitute for lack of physical collateral in order to enable access to financial services (Woolcock, 2001, p. 193). Hence, the following hypothesis was formulated:

H3. Social capital mediates the relationship between financial literacy and financial inclusion.

Study design and methodology

The study adopted a cross-sectional research design to answer the hypotheses developed under this study. The population consisted of 17,464 poor households drawn from two sub-counties of Kyampisi and Goma in Mukono district (Uganda Bureau of Statistics, 2012). These sub-counties were selected because they have been earmarked for existence of many community based development projects towards poverty reduction compared to the other sub-counties (National Planning Authority-Mukono District Plan, 2010/2015). Therefore, a total sample size of 375 poor households arrived at using Krejcie and Morgan's (1970) table for determining sample size was used for this study. Two-stage sampling procedures were used to identify poor households for this study. Multi-stage sampling technique using two sub-counties and four villages was used to identify poor households to be sampled. The sampled poor households were identified based on UBOS enumeration maps used in 2002 Uganda Population and Housing Census. Stratified sampling was used to select four villages from each of the sub-counties. Two villages of Kasala and Lugali were selected from Kyampisi sub-county, while Budugala and Kyesereka villages were drawn from Goma sub-county. Furthermore, after identifying the villages, a simple random sampling technique was used to pick the required number of poor households from each village. The poor households were selected based on three poverty indicators of households' utilities, housing conditions and households' welfare according to UBOS (2012). The selected poor households for our study were assigned unique numbers for the purpose of proper identification until the required number was attained. The unit of analysis for the study was poor households, while the unit of inquiry composed of poor households' heads. Therefore, from our sample of 375 poor households, 53 per cent response rate was achieved, as only 200 questionnaires were usable. However, 175 questionnaires were eliminated because of incomplete questions.

The study used a questionnaire to elicit responses from the poor households selected for this study. The questionnaire had only closed-ended questions. This was to limit responses to alternative answers provided and to capture facts and specific information about the study variables. The questionnaire used in our study was first subjected to a pilot study before embarking on the final study. After the pilot study, all ambiguous questions, negatively worded questions and difficult questions were deleted to have a refined questionnaire for the final field study. Questions removed from financial literacy included: "members of this household are always not organised in regards to managing money"; "members of this household do not have good attitude towards saving money", while from social capital, questions removed included: "in this community, one has to be alert when dealing with others", and from financial inclusion questions removed included: "members of my household travel very long distances in order to access financial services"; "the number of days taken by the financial institution to process loan applications is not favourable"; and "in this household, we are discriminated by the financial institution in its service provision". All the measurement items used in the questionnaires were adopted from previously journal referenced studies.

The variables in this study were operationalised. Financial literacy was conceptualised based on dimensions of behaviour, skills, knowledge and attitude as adopted from previous scholars such as Atkinson and Messy (2013), Kempson (2009), Lusardi and Mitchell (2009), Lusardi and Mitchell (2006), Lusardi (2003). Besides, Kempson (2008) conceptualised financial literacy by functional components and the move overtime from knowledge to skills to attitudes to behaviour. Knowledge would include the purpose of saving and its instruments, skills the capacity of making a saving plan, attitude the willingness to save ahead and behaviour to put aside some saving. A total of ten questions were used to probe financial literacy aspects among poor households. Social capital was measured using the dimensions of trust, bonding and bridging, and collective action as adopted from World Bank Social Capital Initiative (2000), World Value Survey (1998), Munene *et al.* (2005), Heikkilä *et al.* (2009), Grootaert (2001). Financial inclusion was measured based on dimensions adopted from previous scholars (Čihák *et al.*, 2012; Claessens, 2006; Kempson, 2006; Beck *et al.*, 2008) who recommended them as reliable and valid for financial inclusion studies. The dimensions of access, quality, usage and welfare were adapted to measure financial inclusion in our study. Therefore, for the purpose of this study, measures developed and used by scholars above were adopted to measure variables under this study. All items were anchored onto a five-point Likert scale starting from strongly agree (5), agree (4), not sure (3), disagree (2) to strongly disagree (1).

Items in our questionnaire were subjected to both validity and reliability tests. Content validity was ascertained by use of expert views on items included in our questionnaire. All our variables had content validity greater than 0.90 with financial literacy yielding (0.90), social capital (0.96) and financial inclusion (0.95) as indicated in Appendix section. Tests to determine reliability (internal consistency) of our instrument was also performed. The results revealed that all variables under study had reliability with alpha coefficient of above 0.70 as recommended by Nunnally and Bernstein (1994). Financial literacy, social capital and financial inclusion had alpha coefficients of 0.832, 0.774 and 0.844 respectively.

Common method bias, which is one of the main sources of measurement errors, was considered in this study so as to avoid bias in validity of conclusions about the relationships between measures (Nunnally, 1978). Podsakoff *et al.* (2003) recommends that common method bias can be controlled by defining ambiguous/unfamiliar terms, and vague concepts. Therefore, in this study, we endeavoured to remove many worded questions in our questionnaire by keeping questions simple, specific, concise, avoiding double barrelled questions and decomposing questions into simpler more focussed questions. All items in our questionnaire for the final study were re-worded. The scale anchors used in the pilot study was maintained to avoid change in the meaning of the construct and potential compromise on validity. Scale formats, anchors and scale values were maintained to avoid common method biases.

Furthermore, our instruments from the field were checked for careless scoring, inaccurate responses and missing instruments. Thereafter, the raw data were captured into Statistical Package for Social Scientist data analysis programme (SPSS version 20) and screened for incorrect data entry, out-of-range values (outliers), missing values and normality as recommended by Field (2005) and Hair *et al.* (2010). Tests for outliers were performed using Box plots, while missing values in our data were determined by running frequencies for each of the items in our questionnaire. To ascertain whether our data were normally distributed, tests for normality using histogram, normal p-p plots and multicollinearity were performed. Besides, tests on assumption of parametric data of homogeneity were also determined using the Levene's test as recommended by Field (2005). The test for outliers revealed no existence of any in our data, while test for normality indicated that the histogram was bell-shaped and the normal p-p plots had most observed values falling along the straight line. Furthermore, results from the multicollinearity test using the variance inflation factor (VIF), and tolerance levels indicated that multicollinearity was not a problem as shown by a VIF value of 1.170 and tolerance level of 0.855. This is confirmed by non-violation of the rule of thumb of VIF <4 and tolerance >0.2 as recommended by Field (2005). Therefore, we safely concluded that there was no collinearity in our data. Results from Levene's test to determine homogeneity revealed that all variables showed in Levene's test were non-significant at $p > 0.05$ and the variances were stable at all level. To establish whether social capital had a mediation effect in financial literacy and financial inclusion relationship, the test for mediation was performed using MedGraph programme by Jose (2008) based on Field (2005) and Baron and Kenny (1986).

Results

The results from the study indicated that out of 375 poor households selected for the study, 53 per cent response rate was achieved. Further analysis of the results also indicated that most (35 per cent) of the respondents were in the 26-33 age bracket, while 31 per cent were in the 34-41 age bracket. In addition, the results showed that 14 per cent were in the 42-49 age bracket and 13.5 per cent were in the 18-25 age bracket and only 6 per cent in the 50+ age bracket. The results also revealed that 44.5 per cent of the respondents resided in peri-urban, while 30 per cent lived in urban areas, and 25.5 per cent resided in rural areas. On the aspect of being able to read and write, the results indicated that 79.5 per cent of the households' heads used in this study were able to read and write, while only 20.5 per cent were not able to read and write.

We performed principal component analyses using exploratory factor analysis (EFA) to reduce and summarise variables from constructs with multiple questions into more meaningful and interpretable factors, and also to explore the theoretical structure. Furthermore, a special form of factor analysis to confirm whether the summarised variables from the constructs were related was performed. Confirmatory factor analysis (CFA) that postulates relations between the observed measures was performed. The rationale for carrying out EFA and CFA was to determine how and the extent to which the observed variables (measured, indicators and manifest) are linked and related to each other in determining the underlying latent factor (unobserved/factors/constructs).

The results from EFA performed on financial literacy confirmed that ten items loaded well on the constructs of financial literacy with a total component of four of financial literacy. The Kaiser-Meyer-Olkin (KMO) test was sufficient at 0.732 to predict that the data were likely to factor well based on correlation and partial correlation between the variable constructs. This implied that the sample used for the study was sufficient enough for further statistical tests to be performed. Only items with absolute values above 0.50 were taken to determine the loadings on each of the factors of financial literacy. Principal component analysis using Varimax with Kaiser normalisation was performed to test the components of financial literacy, which yielded four factors with eigenvalues greater than 1. Furthermore, CFA for the four components to determine whether the observed are linked and related to each other in determining the underlying latent factor was performed. The results revealed that all the observed (behaviour, skills, knowledge and attitude) were linked and related to each other in determining the underlying latent factor (financial literacy) based on the different goodness-of-fit measures. Drawing from above, the results indicate that behaviour, skills, knowledge and attitude are reliable and valid measures of financial literacy as adopted from previous studies.

Furthermore, the results from EFA performed on social capital also revealed that 12 items loaded well on the constructs of social capital with a total component of four of social capital. The KMO was sufficient at 0.714 to predict that the data were likely to factor well based on correlation and partial correlation between the variable constructs. Thus, this result indicated that the sample used for the study was sufficient for further statistical tests to be performed. Only items with absolute values above 0.50 were taken to determine the loadings on each of the factors of social capital. Principal component analysis using Varimax with Kaiser normalisation was performed to test the components of social capital, which yielded four factors with eigenvalues greater than 1. Furthermore, CFA for the four components to determine whether the observed are linked and related to each other in determining the underlying latent factor was performed. The results revealed that all the observed (trust, bonding and bridging and collective action) were linked and related to each other in determining the underlying latent factor (social capital) based on the different goodness-of-fit measures. The results showed that social capital measures of trust, bonding, bridging and collective action are key constructs in measuring social capital.

The results from EFA carried out on financial inclusion indicated that ten items loaded well on the constructs of financial inclusion with a total component of four of financial inclusion. The KMO was sufficient at 0.750 to predict that the data were likely to factor well based on correlation and partial correlation between the variable constructs. Indeed, the samples used for the study were sufficient enough for further statistical tests to be performed. Only items with absolute values above 0.50 were taken to determine the loadings on each of the factors of financial inclusion. Principal component analysis using Varimax with Kaiser normalisation was performed to test the components of financial inclusion, which yielded four factors with eigenvalues greater than 1. Besides, CFA for the four components to determine whether the observed are linked and related to each other in determining the underlying latent factor was performed. The results revealed that all the observed (access, quality, usage and welfare) were linked and related to each other in determining the underlying latent factor (financial inclusion) based on the different goodness-of-fit measures. The results revealed that access, use, quality and welfare were the major indicators of financial inclusion, and this was similar to past studies by Atkinson and Messy (2013), Kempson (2009), Lusardi and Mitchell (2006), Lusardi (2003), Munene *et al.* (2005), Heikkilä *et al.* (2009), Grootaert (2001), Čihák *et al.* (2012), Claessens (2006), Kempson (2006), Beck *et al.* (2008), who have used similar dimensions.

Correlation and regression analyses

Pearson's correlation analysis involving two-tailed tests was performed to predict the nature of the relationships (Field, 2005). The results are indicated in Table I. The results revealed that financial literacy is significantly related with financial inclusion ($r = 0.297$, $p < 0.01$). According to Lusardi (2009) and Greenspan (2002), financial literacy helps in empowering and educating the poor so that they are knowledgeable and capable of evaluating different financial products and services to make informed financial decisions, so as to derive maximum utility. Therefore, the poor more than ever need a certain level of financial understanding to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options and payment instruments. Scholars like Campbell (2006) and Grable and Joo (1998) argue that financial learning increases financial knowledge and affects financial decisions, choices, attitudes and behaviours of the poor. This supports *H2* of the study that there is a significant relationship between financial literacy and financial inclusion. Furthermore, results from the table also indicated that there is a significant and positive relationship

Latent variables	Mean values	Financial literacy	Social capital	Financial inclusion
Financial literacy (1)	3.65	1.00		
Social capital (2)	3.59	0.381**	1.00	
Financial inclusion (3)	3.70	0.297**	524**	1.00

Note: **Correlation is significant = 0.01 level (two-tailed)

Table I. Zero-order correlation between financial literacy, social capital and financial inclusion between financial literacy and social capital among poor rural households ($r = 0.381$, $p < 0.01$). This finding is consistent with Falk and Kilpatrick (2000) who observed that, social capital available to the participants lies within the knowledge resources and the identity resources that are brought to the interaction by the participants individually and collectively. The subset of these resources used to achieve the desired objective of any specific interaction that contributes to the common purpose constitutes social capital. These findings lend support to *H1* of the study.

Testing and establishing existence of mediation

A test to establish existence of mediation by social capital in financial literacy and financial inclusion relationship was performed. Conditions to be met under mediation set forth by Baron and Kenny (1986) were determined. Furthermore, the MedGraph excel programme was used to compute the Sobel *z*-value and the significance and type of mediation effect of social capital in financial literacy and financial inclusion relationship. The results of the test are shown in Table II.

Results from Table II revealed that four conditions based on Baron and Kenny (1986) were met and tenable. As the first condition, there is a significant relationship between financial literacy and financial inclusion; thus, the effect to be mediated ($B = 0.290$, $p < 0.01$). Besides, there is a significant relationship between financial literacy (independent variable) and social capital (mediator) ($B = 0.300$, $p < 0.01$). Furthermore, it is worth noting that the coefficient of social capital (mediator) is significant in the third regression ($B = 0.594$, $p < 0.01$), with both financial literacy and social capital as predictor variables. Lastly, the standardised coefficient of the independent variable (financial literacy) changes and decreases because part of the impact of the independent variable goes through the mediating variable. However, the results indicated that standardised coefficients reduced and changed to insignificant. The standardised coefficients changed and reduced as indicated in Model 2 ($B = 0.297$, $p < 0.01$) compared to standardised coefficient in Model 3 ($B = 0.114$, $p > 0.05$). This means that social capital fully mediates the association between financial literacy and financial inclusion.

More so, the significance of the mediation effect and type of mediation was also tested by plotting the coefficients, beta and standard errors of financial literacy and financial inclusion as being mediated by social capital on the MedGraph Excel programme. The results generated revealed a significant mediation effect of social capital between financial literacy and financial inclusion with Sobel *z*-value of 4.53 with *p*-value of 0.000006 and the beta weight of $r = 0.114$, $p < 0.001$, between financial literacy and financial inclusion as indicated in Figure 1. Therefore, the results confirmed that

Table II.
Mediating effect of social capital in financial literacy and financial inclusion relationship

	Dependent variable								
	Social capital			Financial inclusion					
	Model 1			Model 2			Model 3		
Predictor	*B*	SE	Beta	*B*	SE	Beta	*B*	SE	Beta
Intercept	1.337**	0.096		1.337**	0.122	0.553**	0.152		
Financial literacy	0.300**	0.052	0.381	0.290**	0.066	0.297	0.112	0.064	0.114
Social capital							0.594**	0.081	0.480

Notes: $n = 200$; $^{**}p < 0.01$

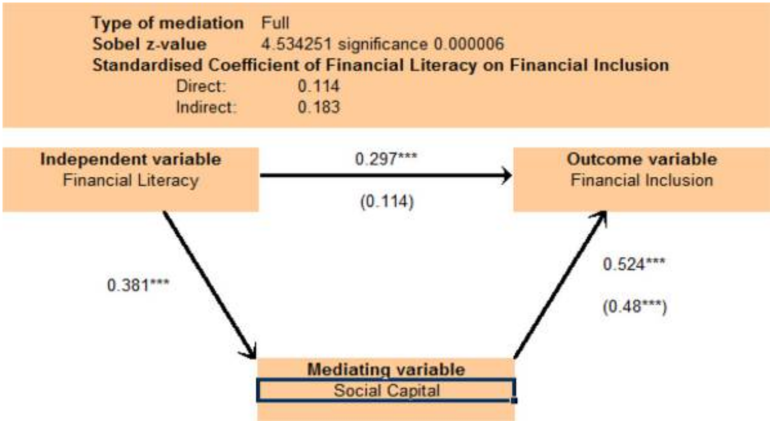

Figure 1.
Sobel's z test results

because the Sobel z-value was big with a p-value < 0.01, it meant that mediation of social capital in the financial literacy and financial inclusion relationship existed. It means the relationship between financial literacy (predictor variable) and the outcome (financial inclusion) has been significantly reduced (i.e. from 0.297 to 0.114), after including social capital into the relationship in Model 3 in regression as indicated in Table II. Besides, full type of mediation was experienced because the standardised coefficient of the independent variable (financial literacy) reduced and changed to insignificant (i.e. from $B = 0.297$, $p < 0.01$ to $B = 0.114$, $p > 0.05$). This indicated that including social capital in Model 3 resulted into full mediation. This implied that the impact of financial literacy had to reduce within the model because the impact of the financial literacy (independent variable) goes through social capital (mediating variable) to create a greater impact on financial inclusion as indicated in Table II above. Conclusively, the ratio index of 61.6 per cent was registered as derived by 0.183/0.297 $\times$ 100. This implied that the study revealed full mediation results of social capital in the relationship between financial literacy and financial inclusion as explained by ratio index of 61.6 per cent. This means that 38.4 per cent remains unaccounted for. Thus, we could assume that if other mediating factors existed in the model, these could account for the remaining 38.4 per cent.

Indeed, the unique finding of this study is that including social capital as a third variable in investigating the impact of financial literacy on financial inclusion increases more than when financial literacy is investigated alone as a major predictor of financial inclusion. The paper indicate that financial literacy can be boosted by the presence of social capital, which helps in bringing the poor together bounded by norms of obedience to enable them have access to and use of formal financial services. The existing social capital through expected norms of behaviour helps boost financial literacy and hence access to and use of formal financial services. This has not been studied by previous scholars, especially in Uganda context. This is justified by the social learning theory which emphasises that people learn by observing other people (models) whom they believe are credible and knowledgeable. Through this, they are able to acquire the expected knowledge and skills, which changes their behaviour and understanding to solve problems in daily life. The Sobel's z test result is indicated in Figure 1.

Discussion and conclusion

The findings from our study are in line with the social learning theory by Bandura (1986), which posits that people learn from one another through observation, imitation and modelling in social interaction existing in social structures. The social learning theory emphasises that people learn by observing other people (models) whom they believe are credible and knowledgeable. Through this, they are able to acquire the expected knowledge and skills, which changes their behaviour and understanding to solve problems in daily life (Ramsden, 1992). Networks embedded in social capital of relationships are a resource that can facilitate access to other resources by individuals or groups for a specific purpose (Balatti, 2006). The resources that are available within a network are clearly a function of the resources that its members bring to it and share. These resources may include knowledge, skills and contacts with other networks, financial and physical resources. Studies such as Falk and Kilpatrick, 2000; Nahapiet and Ghoshal, 1998; Schuller and Field, 1998 observed the importance of social capital in relations to financial literacy. For instance, Falk and Kilpatrick (2000) observed that social capital available to the participants lies within the knowledge resources and the identity resources that are brought to the interaction by the participants individually and collectively. The subset of these resources is used to achieve the desired objective of any specific interaction that contributes to the common purpose constitutes social capital. In addition, Cohen and Nelson (2011) also argued that poor households in associational networks may improve their financial knowledge and skills, which enable them to make wise financial decision and choices. These findings are in support of *H1* of the study.

Drawing from the findings, World Bank (2008) argued that financial literacy helps to improve efficiency and quality of financial services. Thus, the poor need a certain level of financial understanding to evaluate and compare financial products, such as bank accounts, saving products, credit (loan) and payment instruments. Besides, Lusardi (2009) and Greenspan (2002) also suggests that financial literacy helps in empowering and educating the poor so that they are knowledgeable and capable of evaluating different financial products and services to make informed financial decisions, so as to derive maximum utility. Therefore, the poor more than ever need a certain level of financial understanding to evaluate and compare financial products, such as bank accounts, saving products, credit and loan options and payment instruments. Studies by scholars like Campbell (2006) and Grable and Joo (1998) further revealed that financial learning increases financial knowledge and affects financial decisions, choices, attitudes and behaviours of the poor. Braunstein and Welch (2002) also observed that financial literacy can offer a better understanding of mainstream financial services and encourages the unbanked to avoid non-standard services. Furthermore, Carpena *et al.* (2011) also found that financial literacy significantly improves poor households' basic financial awareness, choices and decisions. Thus, financial literacy facilitates decision-making processes, which improve the savings rates, credit worthiness of potential borrowers, therefore resulting in improved access and use of financial services by the poor (World Bank, 2009; OECD, 2009). These arguments are also consistent with OECD (2013a, 2013b) who argued that financial literacy facilitate access and encourages widening use of relevant financial products and services for the benefit of poor individuals. This is also in line with Cole *et al.* (2011) who contend that financial literacy programme tailored towards poor households lead to increase in demand for savings account. Thus, financial literacy facilitates effective product use by helping poor households to develop skills to compare and select the best financial products, which suits their needs, hence leading to increased financial inclusion. These findings support *H2* of the study.

The study findings also indicated that there was full mediation by social capital in financial literacy and financial inclusion relationship. This finding indicates the critical role of social capital in mediating and enhancing sharing of scarce resources including knowledge and skills obtained by poor households during financial literacy drive. This supports *H3* of the study, which states that social capital mediates the relationship between financial literacy and financial inclusion. This shows the powerful impact of social capital in generating (positive) externalities and beneficial outcomes for members within the social structures, based on trust, norms and values emanating from social networks and associations (Durlauf and Fafchamps, 2004, p. 5). Financial inclusion initiatives such as microfinance movements have greatly relied on social capital to monitor and sanction participants (Woolcock, 1999; Karlan, 2003). Social capital inform of networks and trust reduces opportunistic behaviour among the poor through peer pressure mechanism, which prevents default problems (Karlan, 2007; Armendariz and Morduch, 2005). This is consistent with Aryeetey (2005) who argued that group membership is an essential tool for screening microfinance loan applications and for ensuring that contracts are enforced among borrowers. This reduces transaction costs incurred while banking with the poor. Thus, social capital inform of networks and trust is a powerful tool in reducing opportunistic behaviour among the poor through peer pressure mechanism, which results into increased access to scarce resources such as knowledge and financial services.

Conclusively, the findings from this study indicate that social capital is very instrumental in the relationship between financial literacy and financial inclusion, especially among rural poor households in Uganda. This indicates the powerful mediating role of social capital in the relationship between financial literacy and financial inclusion, especially in rural Uganda. Thus, from financial inclusion perspective, social capital helps in promoting learning through the social learning theory because it brings the actors (poor) together to acquire the knowledge and skills. Indeed, social capital acts as a resource that creates opportunities and facilitates social exchange that would be more costly. Social capital helps to mitigate adverse selection and moral hazard problems common in access and use of financial services such as credit, especially by poor households. Indeed, social capital acts as a resource that creates opportunities and facilitates social exchange that would be more costly. It means the relationship between financial literacy (predictor variable) and the outcome (financial inclusion) has been significantly reduced (i.e. from 0.297 to 0.114), after including social capital into the relationship. Therefore, countries such as Madagascar, Namibia, Kenya, Zimbabwe, Papua New Guinea, Nicaragua, Bolivia and Armenia with very low level of financial inclusion, should re-consider the importance of social capital in promoting efficient financial contracts to improve the level of financial inclusion, especially among the poor.

Implications for managers, practitioners and researchers

The results from the findings reveal some lessons and a number of steps to be taken by managers and practitioners. The result contributes to existing studies on importance of social capital.

Managers, policymakers and practitioners should note that financial literacy programmes alone may not promote financial inclusion among rural poor households in Uganda. There is need to redesign and implement future financial education programmes through social structures. For example, financial literacy programmes can be disseminated through non-formal programmes located in the community and faith-based organisations, cooperative extension agencies, community colleges and the private sector.

Financial inclusion working groups, managers and practitioners should ensure that learning takes place within the social environment, but not in isolation because people learn from one another, through observation, imitation and modelling in social interaction as stipulated by Bandura (1986). Through this, they are able to acquire and share knowledge and skills, which changes their behaviour and understanding to solve problems in daily life such as lack of access to financial services.

Financial inclusion practitioners and policymakers should ensure a new national literacy policy taking into account a combination of economic, social capital and community development approach as suggested by Falk and Kilpatrick (2000).

For researchers, future investigations may adopt the study of social capital as a mediator in financial literacy and financial inclusion relationship among other vulnerable groups such as migrants, disabled, new immigrants, elderly and illiterate people. Besides, researchers should always endeavour to consider the impact of a third variable in relationships that exist between study variables to achieve meaningful interpretation.

Limitations of the study

The study focused mainly on a cross-sectional design, thus limiting our study. Future research may adopt longitudinal design to investigate the mediating effect of social capital in financial literacy and financial inclusion relationship. Besides, the study paid more attention to quantitative approach through use of close-ended questionnaire, thus ignoring qualitative study through interviews. Therefore, future research may adopt the use of interviews in studying the current phenomenon. Furthermore, our study examined mainly poor households from the consumer side, leaving out financial institutions' staff from the supply side. Future study could be undertaken to include financial institutions' staff. More so, this study was carried out in Uganda, thus limiting our findings to only poor households in this context. Therefore, our findings may be difficult to generalise to other countries.

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Appendix

Financial literacy items	Financial literacy components Behaviour	Skills	Attitude	Knowledge
In this household, we always save on regular basis	0.718			
In this household, we always spend by sticking to our budgets	0.673			
In this household, we have been actively saving in the past years	0.631			
In this household, members have the ability to accurately determine benefits from financial dealings		0.747		
In this household, members have the ability to accurately determine costs from financial dealings		0.686		
Members in this household are always interested in financial news			0.755	
In this household, members feel very interested in dealing with financial institutions			0.677	
Members of my household have the ability to prepare a personal budget				0.736
In this household, members are financially capable of making good use of financial products/services				0.632
In this household, we compare prices before making choices on financial products/services				0.502
Eigenvalues	2.179	1.184	1.124	1.047
% of variance	23.791	16.844	12.240	10.473
Cumulative (%)	23.791	40.635	52.875	62.349

Note: Extraction method: principal component analysis: KMO is 0.732

Table AI.
Factor analysis results for financial literacy

Social capital items	Collection action	Bonding	Trust	Bridging
	Social capital components			
In this household, members are always involved in charity to serve this community	0.740			
In this household, we always share information with other members in this community	0.728			
In this household, we always want to give something back to this community	0.650			
Members of this household are always honest amongst themselves		0.808		
In this household, members always have a high sense of trust amongst themselves		0.795		
In this household, we always treat ourselves equally		0.606		
Most people who live in this community can be trusted			0.787	
In this community, people generally trust others in matters of lending and borrowing money			0.757	
In this household, we are always polite amongst ourselves			0.647	
In this household, we always share our plans with others beyond this household				0.697
In this household, we always share our ideas and thinking with others beyond this household				0.685
In this household, we always share our abilities in what we do with others beyond this household				0.538
Eigenvalues	2.436	1.661	1.399	1.156
% of variance	22.303	15.843	13.655	9.634
Cumulative (%)	22.303	38.146	51.801	61.436

Note: Extraction method: principal component analysis: KMO is 0.714

Table AII. Factor analysis results for social capital

Financial inclusion items	Financial inclusion components Welfare	Quality	Usage	Access
The products/services provided by the financial institution have led to improvement in our nutrition	0.756			
The products/services provided by the financial institution have improved our access to utilities	0.755			
The products/services provided by the financial institution have improved our access to amenities	0.754			
The savings product provided by the financial institution suits our needs	0.801			
The savings product provided by the financial institution is safe for us		0.719		
The cost of making a trip to the financial institution is low		0.692		
The loan product provided by the financial institution suits our needs			0.788	
The terms of repayment of loans provided by the financial institution are favourable to us			0.674	
The payment services provided by the financial institution are safe for us				0.785
The initial account opening fees charged by the financial institution are affordable				0.747
Eigenvalues	2.211	1.527	1.162	1.121
% of variance	22.109	15.270	11.624	11.210
Cumulative (%)	22.109	37.379	49.003	60.213

Note: Extraction method: principal component analysis: KMO is 0.750

Table AIII. Factor analysis results for financial inclusion

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