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# Intellectual capital: company's invisible source of competitive advantage

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## Abstract

**Purpose** – The purpose of this paper is to examine the individual contribution of intellectual capital elements to competitive advantage. It aims to explore the extent to which intellectual capital elements can explain competitive advantage in Uganda's microfinance industry.

**Design/methodology/approach** – Hierarchical regression was used because of its capacity to indicate precisely what happens to the model as different predictor variables are introduced.

**Findings** – This study confirms that the three intellectual capital elements are strong predictors of competitive advantage and they account up to 44 percent of variance in competitive advantage. Their order of importance in explaining the variance in competitive advantage (basing on their standardized beta values) is: structural capital, human capital and relational capital.

**Research limitations/implications** – Only a single research methodological approach was employed and future research through interviews could be undertaken to triangulate. Furthermore, the findings from the present study are cross-sectional, future research should be undertaken to examine the effects of these variables across time.

**Practical implications** – The managers of microfinance firms need to appreciate that the rise of intellectual capital in the industry is unavoidable, given the competitive and technological forces that are sweeping the twenty-first century.

**Originality/value** – This is the first study that focuses on testing the individual influence of intellectual capital elements on competitive advantage in Uganda microfinance industry.

**Keywords** Intellectual capital, Microfinance industry, Competitive advantage, Uganda

**Paper type** Research paper

The liberalization of the microfinance industry, the suspension of donor grants and concessional funding have threatened the existence and competitive advantage of the industry in Uganda (Kalyango, 2005). This orientation has changed the strategy of microfinance to the extent that most pioneering microfinance institutions that considered microfinance a social-mission-oriented activity resorted to providing their products on a commercial basis (Littlefield *et al.*, 2003). This has, thus, forced microfinance institutions to adopt a market oriented and enterprise development approach to address a dismal competitive position in the financial sector (Fernando, 2007).

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With such developments, it is perceived that the industry's sustainable competitive advantage lies in building more efficient and stronger financial institutions that are capable of cultivating strategic assets that are firm specific (Kamukama *et al.*, 2011). Barney (1991) and Stiles and Kulvisaechana (2004) observed that increased investment and management of strategic assets that are valuable, rare, and hard-to-imitate is the answer to competitive challenges. Competitive advantage is, thus, not dependant, as traditionally assumed, on such bases as natural resources, technology or economies of scale, since these are increasingly easy to imitate (Kamukama *et al.*, 2011). They are indeed the assets which Stewart (1997) referred to as "invisible assets", which in a real sense are intellectual capital resources. In support of this, Balaji and Makhija (2001) argued that sustainable competitive advantage is no longer rooted in physical assets and financial capital, but in effective channeling of unique intellectual resources. From the financial perspective, intellectual capital is the group of knowledge assets that are attributed to an organization and which most significantly, contribute to an improved competitive position of the organization by adding value to the defined stakeholders, but are not normally captured and included in the financial accounts (Maheran and Khairu, 2009; Patricia, 2004; Marr and Schium, 2001). From a managerial perspective, intellectual capital is the sum of human capital, structural capital and relational capital (Bataineh and AlZoabi, 2011). In this case, human capital relates to the human resources within an organization which include tacit knowledge, skill, attitude and experience of the employees (the talent base of employees). According to Maheran and Khairu (2009), structural capital is competitive intelligence, formulas, information systems, patents, policies, and the like, resulting from products or systems the firm has created over time. Meanwhile, Welbourne (2008) identified relational capital as an intangible asset based on developing, nurturing and maintaining high-quality relationships with any organization, individuals or groups within or outside the firm that influences business performance.

The foregoing discussion pre-supposes that the real wealth of organizations has to be sought in the people, their knowledge and skills, internal processes and the company's reputation. Intellectual capital, therefore, encompasses resources and capabilities that are valuable, uncommon, inimitable and non-substitutable, which represent a lasting competitive advantage and superior performance to the firm (Barney, 1991; Prahalad and Hamel, 1990). The actual value of intellectual capital lies in the knowledge and skills of the people who made the products, internal processes, and the marketing power of the companies to sell the products. With such assets, a firm will be in position to implement a value-creating strategy that is not simultaneously being implemented by any current or potential competitors.

What is crucial in this case is how the firm can manage intellectual capital to increase intellectual resource bases. Proper management of such invisible resources enhances co-operative working and the development of knowledge, both of which are sources of competitive advantage. Bataineh and AlZoabi (2011) observe that the management of intellectual capital involves the sharing of competencies within the organization. This is achieved if the information is well managed. Information management and intellectual capital as observed by Bataineh and AlZoabi (2011) are, therefore, connected. The integration of information technology and human resources within the organization is one of the ways of building intellectual capital in the firm. The continued move to hire highly competent employees and encouraging them to freely participate in knowledge

sharing can rapidly transfer skills and tacit knowledge in the company. Besides, promoting and managing intellectual capital involves the building of networks and social ties with both internal and external stakeholders, which include, among others, customers, agencies, and employees. Welbourne (2008) argues that it is not the "humans" or people you hire that are the asset, but the relationships those people have that bring your company real value. Accordingly, relational and human capital are intrinsically linked because it is people within the firm that create, maintain and nurture the relationship that contributes to firm competitiveness every day.

According to the works of Bontis *et al.* (2002), structural capital is essentially "captured" human capital and relies on some of the skills of human capital for its existence, such as the ability to communicate and the willingness to share information and allow it to be encapsulated in structural capital. Carson *et al.* (2004) contend that structural capital is generated through group processes which encompass fluid (informal) patterns of interaction in the work groupings that are integral to production and through artifacts such as policies and procedures that are generated to crystallize the fluid processes (Ordonez de Pablos, 2004). Carson *et al.* (2004) further regard informal processes and undocumented aspects of group knowledge as fluid capital, which acts as the critical conduit between individual human competences and the artifacts that formalize and document the processes as crystallized structural capital. It is through some of the above processes that intellectual capital can be nurtured and managed so as to have sustained invisible resources that promote an enduring competitiveness.

Ugandan microfinance firms took drastic measures to increase their investments and management of intellectual assets to boost their competitiveness in the financial sector. However, what actually is on the ground is contrary to expectations of a microfinance industry (Baguma, 2008). The competitive position of the Ugandan microfinance industry has continued to deteriorate despite the increased effort to boost the industry's competitive advantage through improved investment in intellectual capital assets (Adongo and Christopher, 2005; Kalyango, 2004).

Though studies have been carried out in this area, there is insufficient empirical research investigating the influence of intellectual capital on competitive advantage in the microfinance industry. The few known studies that have examined the relationship between intellectual capital and competitive advantage have produced conflicting results (Tovstiga and Tulugurova, 2005; Barney, 1991; Stewart, 1996). Apart from the mixed results, there is hardly any study that has examined the individual contribution of intellectual capital elements (human capital, relational capital and structural capital) to competitive advantage in the microfinance industry. The foregoing underlies the need to explore the extent to which intellectual capital elements affect competitive advantage in the microfinance industry. This research, thus, set out to address this evident knowledge gap.

This paper is divided into five main sections including this introduction as the first section. The second section covers the theoretical framework and reviews the theoretical and conceptual literature on intellectual capital and competitive advantage. It also addresses the hypotheses to be tested. The third section presents the research methodology, while the fourth section reports the empirical results. The fifth section concludes the paper and makes recommendations.

## Review of the literature

### *Theoretical framework*

Most research on the relationship between intellectual capital and competitive advantage is rooted in the resource-based view, human capital theory and dynamic capabilities theory (DCT; Barney, 1991; Conner, 1991; Amit and Schoemaker, 1993; Decarolis and Deeds, 2006; Becker, 1993; Teece *et al.*, 1997). All these theories provide a detailed account of firm performance using available resources, in spite of the limitations in their application.

Meso and Smith (2000) posit that sustained competitive advantage is attributable to strategic assets which Barney (1991), the brain behind the resource-based view, regards as the assets that are internally controlled and strategic to the firm. According to the resource-based view, sustained competitive advantage is influenced by resources that are valuable, rare, non-substitutable and hard-to-imitate and reside within an organization (Barney, 1991; Stiles and Kulvisaechana, 2004). Accordingly, the discrepancies in size distribution and competitiveness of firms occur from their distinctive capabilities (Amit and Schoemaker, 1993). It becomes imperative that management monitors such internal resources to ensure the firms' sustainable competitive advantage.

Related to the resource-based view, is the knowledge-based theory; which states that heterogeneous knowledge bases among firms and the ability to create and apply knowledge are the main determinants of competitive advantage (Grant, 1996; Spender, 1996; Decarolis and Deeds, 2006). Blending different knowledge bases, according to the theory, gives the firm a better competitive position in an environment (Ahmadi *et al.*, 2012).

From a different perspective, the fact that since firms are faced with an uncertain, competitive and dynamic business environment, there is need to provide a coherent framework to integrate existing conceptual and empirical knowledge to match environmental volatility. In this case, the DCT, which puts emphasis on resource development and renewal, can be seen as a tentative alternative theory to explain firm competitive advantage. The DCT enables firms to integrate, build and reconfigure internal and external competencies to address rapidly changing environments (Teece *et al.*, 1997). This signifies that competitive advantages of the firm rest squarely with industry analysis, organizational governance and firm effects in the form of resource advantages and strategies (Mahoney and Pandian, 1992).

### *Empirical literature*

Extensive empirical studies have attempted to explain intellectual capital from different perspectives, depending on the subject matter. However, definitions that are dominant in the literature include that of Stewart (1997, p. 67), who identified intellectual capital as "packaged useful knowledge". Edvinsson and Malone (1997, p. 358) broadened the definition to "knowledge that can be converted into firm value". while Zigan *et al.* (2008) conceptualized intellectual capital as the holistic or meta-level capability of an enterprise to harmonize, orchestrate and deploy its knowledge resources to create value in pursuit of its future vision.

Many scholars appreciate that intellectual capital is an invisible, valuable asset and the most powerful competitive weapon in influencing firm performance (Stewart, 1997, 1998). Their findings agree with Jaradate *et al.* (2012) and Bontis's (1998) conclusions that it is intellectual capital that creates wealth through the accumulation of profits.

Other scholars like F-Jardon and Martos (2009) and Kiong and Lean (2009) share the same view and argue that the drivers of firm value in modern competitive environments lie in a firm's intellectual resources rather than in its physical and financial capital. Likewise, Hazline and Zubaidah (2009) observed that intellectual capital is a source of competitive advantage, which influences firm profits.

Other scholars, including Hazline and Zubaidah (2009), found that intellectual capital is a significant predictor of firm's profitability listed in the Malaysia main board. Studies by Wang and Changa (2005) and Bontis *et al.* (2006) have also proved that intellectual capital is a major element in influencing firm's competitive position in a variety of industries.

While there is broad consensus that intellectual capital influences organizational competitive advantage (Jaradate *et al.*, 2012; Edvinsson and Malone, 1997), some scholars such as Firer and Williams (2003) and PekChen (2005) argue that the effect of intellectual capital on firm performance may be industry- and country-specific. In support of this, F-Jardon and Martos (2009) observed that the existence of some element differentials in the companies condition the effect of intellectual capital on the firm's competitive position. Villalonga (2004) extends the debate and observes that, in some industries and countries, intellectual capital resources can even lock firms in persistent disadvantages. Owing to these controversies, the findings of earlier scholars in Malaysian, Scandinavian and Portuguese financial institutions cannot be generalized to explain competitive trends in Uganda's microfinance industry.

Further review of the extensive literature revealed that intellectual capital is a combination of human capital, relational capital and structural capital (Tovstiga and Tulugurova, 2009; Bontis, 2002; Stewart, 1997; Edvinsson and Sullian, 1996; Lynn, 1998). The logic of the taxonomy of the three is that intellectual capital is a product of the interaction of these three different classes of intangibles. According to Bontis (2002), human capital represents the human factor in the organization; the combined intelligence, skills and expertise that employees take with them when they leave the company and which gives the organization its distinctive character. Similarly, Halima (2010) observes that human capital denotes what a single employee brings into the value adding processes and encompasses professional competence, social competence, employee motivation, employee agility and leadership ability.

Meanwhile, Tumwine *et al.* (2012) and Barry (2001) refer to relational capital as the value of an organization's external relationships with the organizations and people with whom it does business. It is knowledge embedded in the marketing channels and customer relationships that an organization develops through the course of conducting business (Bontis, 1999, 2001; Choo and Bontis, 2002). Likewise, Maria and Landeiro (2002) refer to relational capital as knowledge embedded in the relationships with external entities or individuals that can influence the organization's life. In the same way, Tumwine *et al.* (2012) and Welbourne (2008) identified relational capital as an intangible asset that is based on developing, nurturing and maintaining high-quality relationships with any organization, individuals or groups that influence business position in the market.

On the other hand, Maheran and Khairu (2009) delineate structural capital as competitive intelligence, formulas, information systems, patents, policies, organizational culture, and the like, resulting from the products or systems the firm has created over time. Similarly, structural capital, according to Abadulai *et al.* (2012),

represents the organization's capabilities to meet its internal and external challenges. It includes infrastructures, information systems, routines, procedures, data bases, organizational structure, management philosophy, processes and organizational culture (Namasivayam and Basak, 2006).

Whereas there is general consensus that intellectual capital encompasses human capital, relational capital and structural capital (Tovstiga, 2009; Bontis, 2002; Stewart, 1997; Edvinsson, 1996; Lynn, 1998), the three intellectual capital elements are not equally important in influencing competitive position of the firm (Bontis, 1998; Stewart, 1997; Martos *et al.*, 2009). Extensive empirical literature exists globally on the contribution of individual intellectual capital elements to firm performance in different industries, but results are rather mixed (Wang and Changa, 2005; Pfeffer, 1994; Uzzi, 1996; Pablos, 2004). For example, Wang and Changa (2005) discovered that all intellectual capital elements directly affect competitive advantage in technological information industries in Taiwan, with the exception of human capital.

Findings of other scholars like Pfeffer (1994) and Uzzi (1996) in Japanese Pharmaceutical companies indicated that human capital and relational capital are key predictors of firm performance. However, an observation of Pablos (2004) contradicts the conclusions made by Pfeffer (1994) and Uzzi (1996). Pablos (2004) discovered that of the three elements of intellectual capital, structural capital was the only significant element in predicting organizational competitive advantage in Ireland's steel works. Given these contradictions, the individual effect of human capital, structural capital and relational capital to financial performance in most industries, and the microfinance industry in particular, remains unclear. This is a clear manifestation of the knowledge gap that was addressed by this study. Because of this, we tested the following hypotheses:

*H1.* Intellectual capital positively influences competitive advantage in the microfinance industry.

*H2.* Structural capital positively relates to competitive advantage in the microfinance industry.

*H3.* Human capital positively relates to competitive advantage in the microfinance industry.

*H4.* Relational capital positively relates to competitive advantage in the microfinance industry.

## Study design and methodology

This study took cross-sectional and quantitative research designs to address the formulated hypotheses. The population consisted of 78 microfinance institutions which are registered members of the Association of Microfinance Institutions (AMFIU) in Uganda (*Microfinance Directory* 2010/2011). The sample size of 65 firms was covered and the number was arrived at by adopting the Yamane (1973) sample size determination approach. Under this approach, sample size was determined using the formula:

$$n = N/1 + N(e)^2.$$

where n – represents a sample size; N – represents total population and e – represents tolerable error.

Simple random sampling was applied for sample selection. The selection procedure involved picking pieces of paper out of a box without replacement until 65 firms were selected. The survey unit of analysis was composed of microfinance institutions whose directors and senior members of staff were the units of inquiry. On the basis of Ntoumans's (2001) and Field's (2006) guidelines, this study covered a minimum of five senior staff per MFI. However, out of 65 MFIs, 51 firms responded, hence giving a response rate of 78.4 percent.

Questionnaires earlier developed and tested by Bontis (1998) and Sveiby (1997) were adopted and modified to match the Ugandan study context. In line with measurements used in previous studies, a five-point Likert scale was adopted for all item scales, anchored on a five point, ranging from 1 – strongly disagree to 5 – strongly agree.

Intellectual capital was sub-divided into three elements: human capital, structural capital and relational capital. Each dimension was operationalized with a number of items that measured employees' perception of that variable. Human capital was measured using the intangible asset monitor developed by Sveiby (1997) and later modified by Petty and Guthrie (2004), and the main focus was on employee know-how, education, vocational qualifications, work-related knowledge, work-related competence, entrepreneurial spirit, innovations, proactive and reactive abilities and changeability.

Structural capital was measured on the basis of many dimensions. They included company's culture, orientation to quality, innovation, continuous improvement, information systems and teamwork (Wang and Changa, 2005; Brooking, 1996; Roos *et al.*, 1997; Sveiby, 1997; Bontis *et al.*, 2002; Kaplan and Norton, 2004). Relational capital was measured using a combination of instruments developed by Edvinsson and Malone (1997) and Rindfleisch and Moorman (2001) and modified and used by Heng-cheng and Chin-wen (2007). The main dimensions included among others network levels, customer capital and level of marketing channels.

Competitive advantage was measured using instruments by Sharma (2005) and Porter (1985); specific dimensions covered cost leadership, product differentiation and outreach levels.

Further tests covered the reliability of the instrument and Cronbach's $\alpha$ values for intellectual capital dimensions and competitive advantage were all above 0.80, suggesting adequate internal validity. Anastasi (1982) and Nunnally (1978) state that reliability coefficients of 0.70 or more signify high validity of instruments.

*Data management and analysis*

Common method bias was addressed in this study by:

- collecting data from at least five senior managers of each MFI; and
- sourcing most of the data relating to the dependent variable from MFIs' published financial data, www.microfinance-mixmarket (accessed 28 September 2009).

This approach is supported by Podsakoff *et al.* (2003). Potential effects of response pattern biases were reduced by incorporating negatively worded items on the questionnaire (Hinkin, 1995; Drasgow and Idaszak, 1987). The logic is that negatively worded items are like cognitive "speed bumps" that require respondents to engage in a more controlled, as opposed to automatic, cognitive processing (Hinkin, 1995).

*Exploratory factor analysis and data cleaning*

*Principal component analysis*. The researcher ran a principal component analysis (form of factor analysis) to identify patterns in data and to express the data in such a way as to highlight their similarities and differences. This helped in identifying groups or clusters of variables besides having data set items reduced to a manageable level, while retaining as much of the original information as possible. Principal component analysis was deemed appropriate because of its ability to establish linear components in the data set, besides being psychometrically sound and conceptually less complex (Field, 2006). Though there are three orthogonal rotation methods, such as varimax, quartimax and equamax, the researcher found varimax rotation appropriate because of its ability to maximize the dispersion of loadings within factors; as a result, it loads a smaller number of variables onto each factor (Field, 2006). On the basis of the criterion of Kaiser (1960), the researcher retained all factors with eigen values greater than 1. The criterion was based on the idea that the eigen values represent the amount of variation explained by a factor and that an eigen value of 1 represents a substantial amount of variation. The researcher, therefore, deemed it fit to base on the criterion of Kaiser (1960) to determine the number of factors to retain (Appendix A). The extracted factors (items) of each variable were transformed (average) to get mean values (Table I) for each global variable using SPSS Program (transform-compute variable, etc.).

*Data cleaning*. Data were checked, cleaned and aggregated to a firm level using the name of the firm as a breaking variable (Field, 2006). Completed questionnaires were further checked for missing values and inconsistencies in responses given by the respondents. Simple frequency runs were made to screen the data so as to identify missing values. The identified values were a result of omissions made by respondents and constituted less than 1 percent of the data, thus, considered trivial (Little and Rubin, 2002) and inconsequential to suppress the standard deviation (Field, 2006; Mundfrom and Whitcom, 1998). The fact that missing values were a result of omissions in the questionnaire (not related to other values or variables) met the criteria of data missing completely at random (MCAR) (Little and Rubin, 2002; Acuna *et al.*, 2003). Central to the above facts, mean imputation replacement method was found suitable for this study (Field, 2006; Little and Rubin, 2002; Acuna and Rodriguez, 2002, available at: www.missingdata.org.uk (accessed 9-11 June 2010)).

The data screening exercise was aimed at establishing the distribution of data to assess whether the assumptions of parametric data were tenable. Specific assumptions tested included normality of the distribution of the data, homogeneity of variance, linearity of the data independence of errors and multicollineality. We tested multicollinearity by running the variance inflation factor (VIF) and the tolerance levels. Multicollinearity results for this study using VIF and tolerance values were in the ranges of 1.21 and 0.81, respectively, (Table II). These results indicated that

| | Means | SD | Structural | Human | Relational | Compet. advantage |
|---|---|---|---|---|---|---|
| Structural capital | 4.31 | 0.55 | 1 | | | |
| Human capital | 4.12 | 0.47 | 0.416** | 1 | | |
| Relational capital | 4.07 | 0.81 | 0.181 | 0.264** | 1 | |
| Competitive advantage | 4.11 | 0.79 | 0.261** | 0.353** | 0.294** | 1 |

**Note:** Significant at: *95 percent (0.05) and **99 percent (0.01) levels

**Table I.**
Zero order correlation between intellectual elements and competitive advantage

| | Model 1 B | Model 2 B | Model 3 B | Collinearity tests Tolerance | VIF |
|---|---|---|---|---|---|
| Constant | 0.45 | −1.13 | −2.54 | | |
| Structural capital | 0.32** | 0.28* | 0.43** | 1.00 | 1.00 |
| Human capital l | | 0.33** | 0.42* | 0.83 | 1.21 |
| Relational capital | | | 0.39** | 0.92 | 1.09 |
| $R^2$ | 0.11 | 0.24 | 0.44 | na | na |
| $R^2$ change | – | 0.13 | 0.10 | na | na |
| *F*-statistics | 12.11 | 13.61 | 13.84 | na | na |
| *F* change | 10.12 | 11.14 | 8.64 | na | na |
| Sig. *F* change | 0.00 | 0.00 | 0.01 | na | na |
| Sig. | 0.00 | 0.00 | 0.01 | na | na |

**Note:** Significant at: *95 percent (0.05) and **99 percent (0.01) levels
**Source:** Primary data

**Table II.**
Hierarchical regression of intellectual capital elements on competitive advantage

multicollinearity problem among the predictor variables did not exist because all the values were below the cut-off value as per the rule of 10, which advocates for a threshold VIF of less than 10 or tolerance ratio of greater than 0.1 (O'Brien, 2005; Scott, 2003; Kutner, 2004; Yu, 2008).

*Data analysis*

The regression analysis was also conducted to test the model fit and to establish the predictive power of the models in criterion variable. The hierarchical regression approach was used because of its capacity to indicate precisely what happens to the model as different predictor variables are introduced in the model (Field, 2006). This gave us a chance to systematically follow the contribution of each independent variable in explaining the predictive power of the model.

## Results

*Sample characteristics*

Data from 51 out of 65 targeted firms representing 78 percent response rate were received. Of these, 47 percent (24) were from central, 29 percent (15) western, 10 percent (5) northern and 14 percent (7) eastern regions of Uganda. The majority (82 percent) of microfinance institutions' capital structure consists of equity and loans and their average capital size was greater than 2 billion Uganda shillings. The bigger percentage (76 percent) of the firms has been operating for more that 15 years. The mean scores of variables ranged between 4.07 and 4.31 and standard deviations in the ranges of 0.47-0.81. Since the standard deviations are small compared to mean values, it is true that the computed means highly represent the observed data. In effect, the calculated averages are a good replica of reality (Garson, 2000; Field, 2006; Saunders *et al.*, 2007).

*Correlation and regression analyses*

In order to test the hypotheses of this study, zero-order correlation analysis was carried out. The aim was to assess whether linear relationships existed between predictor variables (human capital, relational capital and structural capital) and the criterion variable (competitive advantage). The correlation matrix in Table I summarizes the results.

Correlation results presented in Table I indicate that intellectual capital dimensions (structural capital, human capital and relational capital) have a substantive and significant relationship with competitive advantage ($r = 0.261$, $p < 0.05$; $r = 0.353$, $p < 0.01$, $r = 0.294$, $p < 0.01$), respectively.

Going by the hypotheses stated earlier in this study, It is evident that there is a positive and significant correlation between structural capital and competitive advantage ($r = 0.26$, $p < 0.01$), thus lending support for *H2*. This finding implies that a positive change in the structural capital base is associated with competitive position of microfinance institutions. This is true because strong internal processes, networks and organizational culture can promote the firm's efficiency levels, which, in turn, can influence low costs and unique products in the market that may be difficult to be reproduced by others. This finding is in agreement with observations made by Edvinsson (2005), who established that organizational cultures, structures and processes that support the purpose of the organization can promote efficiency and, thus, the firm's competitive advantage.

Results of the study further indicate a positive and significant relationship between human capital and competitive advantage ($r = 0.35$, $p < 0.01$), thus supporting *H3*. The finding indicates that an increased human capital base is highly associated with improved competitive advantage in microfinance firms. Thus, an increased base of human capital is associated with strong and better competitive advantage in microfinance institutions. It is important to note that competent staff with unique qualities can provide better services than their counterparts in the market place, which can put the firm in a better competitive position. This finding supports the observations of Teece (2000) and Zott (2003), who argue that organizations with superior manpower and learning capability are able to coordinate and combine their traditional resources and capabilities in new and distinctive ways to provide more value to their customers and, in general, to stakeholders than their competitors. This point of view is also consistent with Prahald and Hamel (1990), who argue that the best way to win in a competitive world is to build up long-term core competences that can stand the test of time.

It is also evident from Table I that a positive and significant relationship was established between relational capital and competitive advantage ($r = 0.29$, $p < 0.01$), thereby further supporting *H3*. This finding reveals that microfinance institutions' efforts to strengthen their relationships with business partners are highly associated with their competitive advantage. This is true because the mutual trust and friendship created with customers, suppliers and employees can strengthen networks and boost microfinance institutions' competitive advantage. The findings of earlier scholars like Tumwine *et al.* (2012), Zahra (1999), Kennerley and Neely (2000), Baldwin and Danielson (2002) and Goh and Ryan (2002), also support the fact that long-term relationships between the company and stakeholders strengthen the networks and create channels through which a firm can gain competitive advantage over others in the industry.

## Testing predictive power of study variables

Under this section, hierarchical regression was used. Regression method was preferred because of its clarity in pointing out the contribution of each predictor in the regression model (Field, 2006). Besides, application of this method helped the researcher to test the theoretical assumptions and examine the contribution of HC, SC and RC variables in a sequential way, such that the relative importance of individual predictor is judged

on the basis of how much it adds to the prediction of a criterion variable. The regression results are presented in Table II.

The models in Table II are defined by the following regression equations:

$$\text{Model 1}: \quad CA = a + b_1S + e$$

$$\text{Model 2}: \quad CA = a + b_1S + b_2H + e$$

$$\text{Model 3}: \quad CA = a + b_1S + b_2H + b_3R + e$$

where CA is a competitive advantage, a is a constant; $b_1$, $b_2$ and b3 are coefficient values; and S, H and R, represent human, structural, relational capital, respectively.

The results in Table II reveal the following.

In model 1, structural capital accounted for 11 percent of variance in competitive advantage ($F$-change = 10.12, $p < 0.01$) and leads to a statistically significant un-standardized coefficient (B = 0.32, $p < 0.01$); this finding further supports *H2*. According to the results, an additional unit in structural capital base leads to 32 percent (0.32) change in competitive advantage. Furthermore, structural capital exclusively accounts for 11 percent of variance in the competitive advantage of microfinance institutions in Uganda. This signifies that the firm with strong internal structures, processes and organizational cultures can provide enduring customer service excellence and become more efficient in its operations. It is, thus, the level of efficiency and high customer service that puts a firm in a better competitive position. This finding agrees with the conclusions made by Kamukama *et al.* (2012) and Collins and Porras (1998), when they argue that the supportive organizational culture, internal processes, coupled with strong corporate purpose and compelling values are responsible for major corporate success. The above views are valid because organizational culture influences teamwork, which, in turn, impacts on the firm's competitive advantage. On the basis of this discussion, it is confirmed by this study that structural capital significantly contributes to the competitive advantage of the microfinance industry.

In model 2, the inclusion of human capital in the equation yielded an additional 13 percent of the explanatory power of the model. This implies that human capital accounted for an additional 13 percent of the variance in competitive advantage ($F$-change = 11.14, $p < 0.01$) and led to a statistically significant un-standardized coefficient (B = 0.33, $p < 0.01$). This implies that human capital accounts for a significant portion of the variance in competitive advantage of the microfinance industry in Uganda, hence, offering further support to *H3*. This implies that highly skilled individuals facilitate the delivery of high value-added products and services, as well as the competencies to build consumers' confidence and trust. Thus, the quality of human capital, as observed by Maheran and Khairu (2009), determines the success of any firm in an increasingly complex and more liberal environment; the microfinance industry is not an exception.

In model 3, the inclusion of relational capital in the equation yielded an additional 10 percent to the explanatory power of the model. This means that relational capital explained an additional 10 percent of the variance in competitive advantage ($F$-change = 8.64, $p < 0.01$) and yielded a statistically significant un-standardized coefficient (B = 0.39, $p < 0.01$). This finding supports *H4*. According to the results, an additional unit in relational capital base leads to 39 percent (0.39) change in competitive advantage. Furthermore, relational capital exclusively accounts for 10 percent of

variance in the competitive advantage of the microfinance institutions in Uganda. Indeed, the results signify that approximately 10 percent of variation in competitive advantage of microfinance institutions is attributable to relational capital when combined with other intellectual capital elements. This finding is no different from the conclusions made by Shih *et al.* (2010) and Kajek and Kajek (2007) in insurance industries and Polish enterprises. They observed that the compatibility of individuals' values with an enterprise's values allows the employees to trust one another and pursue the collective goals by sharing knowledge and team working. It is this synergetic effect that makes the firm unique and builds the firm's competitive position in the market (Kamukama *et al.*, 2011). In support of this finding, Abadulai *et al.* (2012), Kennerley and Neely (2000), Baldwin and Danielson (2002) and Goh and Ryan (2002) observe that long-term relationships between the firm and other stakeholders strengthen the networks and create channels through which a firm gains competitive advantage over others in the industry. Hence, networks, social ties, and mutual friendship are cornerstones in the microfinance industry that can promote sustainable competitive advantage.

Overall, the research results indicate that all the three intellectual capital elements significantly contribute to the competitive advantage of microfinance institutions in Uganda. Accordingly, the three intellectual elements combined account for up to 44 percent of variance in competitive advantage in the Ugandan microfinance industry. In this case, structural capital, human capital and relational capital are important predictors or determinants of competitive advantage in the microfinance industry.

More so, it is evident that structural capital is more important in explaining competitive advantage (43 percent), followed by human capital (42 percent) and relational capital (39 percent) in that order. Given the above results, the relative importance or weight of intellectual capital components in influencing competitive advantage are addressed in this study. This finding supports the theoretical assertions made by Pfeffer (2000) and Uzzi (1996) when they observe that the three intellectual capital elements play a very important role in enterprise performance and in survival of the business. This coincides with the work of Ting and Hancock (2009) who also observe that firm value is created when intellectual capital elements act together. The magnitude of firm value therefore, depends on the composition of intellectual capital elements. However, the findings by Wang and Changa (2005) in technological information industries in Taiwan conflict with these study results. In their study, they discovered that all intellectual capital elements have a direct impact on the enterprise performance, apart from the human capital. In the same vein, Pablos (2004), while analyzing the influence of three types of intellectual capital on organizational performance, found that only structural capital had a direct significant effect on firm success. However, such conflicting results are expected because of diverse industries, environments and measurements, as pointed out by Chen (2005) and Bandura (1986) in the social cognitive theory. For example, the microfinance industry is completely different in all respects from the technological information industries, in which Chang (2008) conducted his study. In a nutshell, this study confirms that the three intellectual capital elements are strong predictors of competitive advantage, except that their predictive powers differ.

## Conclusion

The study has addressed empirical matters that have not been addressed in the literature, more especially in the microfinance industry. As well, the study has attempted

to disprove or confirm whether the theoretical underpinnings in the literature are empirically supported in the microfinance industry. Consequently, the study has contributed to the enduring intellectual capital debate in the field of business.

The study has further established that intellectual capital dimensions operate in a synergic way to affect competitive advantage in microfinance institutions. More importantly, the study has thrown more light on the relative contribution of intellectual capital elements in influencing competitive advantage. This study has established the leading elements of intellectual capital in influencing microfinance institutions' competitive levels. Their relative contribution to competitive advantage in descending order is as follows: structural capital, human capital and relational capital.

## Managerial and policy implications

The results suggest a series of issues that need to be considered seriously by managers and researchers.

On the basis of these findings, the Ugandan Government needs to be aware that traditional resources which include tangible assets and financial assets are no longer crucial in influencing the survival of some of the financial institutions without intangible resources. In this case, it is high time the government revisited its education curriculum so that the way intellectual capital resources can be cultivated and managed is included in the syllabi. The conventional belief that the economy can grow by investing in traditional assets has been overtaken by events. It is now all about the networks, professional and social competences together with a stock of knowledge base that can promote sustainable competitiveness and performance of a firm or a nation in the current dynamic environment.

On the other hand, the managers of microfinance firms need to appreciate that the rise of intellectual capital in the industry is unavoidable, given the competitive and technological forces that are sweeping the world in the twenty-first century. It is important to note that current and future managers must know that a contemporary company changes so rapidly that everything is dependent on its talents, the dedication of its people (human capital), the quality of stock of knowledge (structural capital) and the strength of networks with its stakeholders (relational capital). These are the invisible resources that are inimitable, valuable and, above all, firm specific that boost sustainable competitive advantage.

These findings also hold far-reaching implications for professionals, in particular accountants, marketers and others. They (professionals) should realize that traditional approaches of measuring value or performance of a firm using tangible assets (as basis of measurement) are no longer sustainable in the current business environment, especially where intangible assets are essential in influencing firm performance. Rather than the historical and supposedly objective approach that has characterized performance reporting to date, valuation of intellectual capital requires immediate and precise measures (Firer and Stainbank, 2003).

The study has further introduced a clearer understanding of the extent to which intellectual capital elements contribute to competitive advantage in the microfinance industry. This can promote management efforts of microfinance institutions to improve business performance, which can be facilitated through the appropriate management of principal elements of intellectual capital in advance by allocating more resources to the most vital elements of intellectual capital. Thus, since this study has pointed out

intellectual capital elements that matter most, management can take initiative in investing in key intellectual resources that can promote the strength of intellectual capital bases in Uganda's microfinance industry.

## Recommendations

On the basis of reviewed literature and the study findings, the following recommendations are pertinent to the success of the Ugandan microfinance industry.

Given the rapid technological changes, increasingly sophisticated and indiscriminate customers coupled with fierce competition, timely information and strategic resources are perceived as tools for business success. To succeed in today's global and interconnected economy, microfinance institutions need to cultivate and manage well intellectual capital resources which are strategic to the firm. Management's emphasis should be vested in intellectual capital resources, because sustainable competitive advantage is no longer rooted in physical assets and financial capital but in effective channeling of intellectual capital (F-Jardon and Martos, 2009; Ting and Lean, 2009; Balaji and Makhija, 2001). On the basis of this study's results, it is suggested that managers should pay extra attention to relationships with customers and other stakeholders so as to revive both mutual trust and institutional reputation that have deteriorated.

Since human capital has been identified in literature as a central construct that enhances other intellectual capital elements (Stewart, 1998; Maheran and Khairu, 2009), it is recommended that training of staff should be emphasized by microfinance instructions in conjunction with the institutions of higher learning in this country. Specialized skills that can match technical tasks of microfinance institutions should be provided to both current and potential staff of such institutions. Since the root of intellectual capital (and its elements) is human capital resources (Martos *et al.*, 2009), failure to have a strong and dedicated staff puts into question the competitive position of microfinance institutions.

It is also recommended that the recruitment and selection process of staff should go beyond applicants' professional competences by considering other staff attributes like social competences, employee motivation and leadership abilities. Welbourne (2008) observes that it is not the quality of the people you hire that will promote business success, but the ability of the hired people to network well with stakeholders and their agility in addressing sensitive matters in a firm.

## Limitations of the study

The findings of this study are subject to some limitations that provide the initiatives for future research. One of the possible reasons for the varied results of the study is the methodology used for measuring intellectual capital. Although the constructs have been defined as precisely as possible by drawing on relevant literature, the measurements used may not perfectly represent all the dimensions. Second, only a single research methodological approach was employed and future research through interviews could be undertaken to triangulate. Future studies could use the same basic hypotheses and regression construction, but implement the study in terms of a longitudinal rather than a cross-sectional design. The longitudinal study would need to correct changes in data relative to time element. Despite possible limitations of using single-period data, the results of the present study provide valuable insights into the effect of intellectual capital on microfinance firm's financial performance.

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(Appendices follow overleaf.)

## Appendix 1

**Table AI.** Intellectual capital extracted elements

| | Intellectual capital components | | |
|---|---|---|---|
| | Human capital | Structural capital | Relational capital |
| Working under pressure | 0.86 | | |
| Knowledgeable employees | 0.83 | | |
| Creative employees | 0.74 | | |
| Competent employees | 0.64 | | |
| Staff with high skills | 0.62 | | |
| Good at problem handling | 0.60 | | |
| Clear structures in the firm | | 0.88 | |
| Staff complement each other | | 0.78 | |
| Staff are in touch with each other | | 0.72 | |
| Teamwork exists in the firm | | 0.63 | |
| Firm processes are fast | | 0.61 | |
| Firm has networks with others | | | 0.87 |
| Employees are committed to clients | | | 0.64 |
| Mutual trust exists between firm | | | 0.62 |
| Have many channels with clients | | | 0.61 |
| Eigenvalues | 5.07 | 1.78 | 1.29 |
| Percentage of variance | 27.38 | 20.95 | 14.15 |
| Cumulative percentage | 27.38 | 48.33 | 62.48 |
| Extraction method: principal component analysis: | | | |
| KMO | 0.76 | | |
| Determinant of matrix | 0.002 | | |

## Appendix 2. Intellectual capital questionnaire

*O BE filled by managers/directors*

Dear participant

I am pursuing a study on Intellectual Capital and financial performance in the microfinance institutions in Uganda.

Recently, INTELLECTUAL CAPITAL was identified as "a company's most valuable asset". Business managers are continually attempting to find ways to put real shillings on the bottom line as they discover the influence of Intellectual Capital on performance in Microfinance industry.

There are three (3) elements that are proposed as encompassing Intellectual Capital:

(1) Human capital; (2) Structural capital; and Relational capital. Human capital can be described as the firm's collective capability to extract the best solutions from the knowledge of its individuals. Structural capital can be thought of as the firm's organizational capabilities to meet market requirements. Finally, Relational capital refers to the firm's level relationship with its stakeholders in the industry.

Your participation in this research study is very much appreciated. The completion of this questionnaire is very important to the overall design of the study and should take you less than 10 minutes to complete. It is my hope that the timely completion and return of this questionnaire is representative of your continued support for this type of research.

While answering this questionnaire, please make sure that you take on the role as your firm's representative. It is important to understand that the design of this study concentrates on the firm level of analysis. In other words, I am trying to tap into a phenomenon that resides in

organizations and I am thus using your responses as a proxy for the firm's overall status. Please make sure to complete *all* items in the questionnaire.

Please be open and candid with your responses. All information you provide will be strictly confidential. Furthermore, your responses will only be presented in aggregate and no single firm's results will be highlighted.

These results will also be available to you should you wish to follow up on this research. Again, thank you for your participation and if you have any questions or concerns please do not hesitate to contact me directly at 0772-447066.

Yours Sincerely,
Nixon Kamukama

**SECTION A: BACKGROUND INFORMATION: TICK THE APPROPRIATE BOX.**

**Section A (i): I ndividual characteristics:**

1. Gender: Male ☐ Female ☐
2. Age of respondents:
   Less than 30 years ☐ 30-39 years ☐ 40-49 years ☐ 50-above ☐
3. Education Background
   Diploma ☐ Degree ☐ Masters ☐ Professional ☐ PhD ☐
   Others
   specify……
4. Name of MFI……
5. Position held in an MFI ……
6. Number of years in the present position:
   Less than 2 years ☐ 2-5 years ☐ 5-8 years ☐ 8-11 years ☐
   11-14 years ☐ 14-17 years ☐ over 17 years ☐
7. Length of servicein this MFI:
   Less than 5 years ☐ 5-10 years ☐ 10-15 years ☐ 15-above ☐

**Section A (ii): Firm characteristics:**

1.Number of years of operation:
   Less than 5 years ☐ 5-10 years ☐ 10-15 years ☐ 15-above ☐
3. The firm is financed by:
   Equity capital ☐ Equity& Loans ☐ Donations ☐ Loans only ☐
   Others
   specify.……
4. Location of the firm:
   Central region ☐ Western region ☐ Northern ☐ Eastern ☐
6. The firm's capital size in shillings.
   Less than 500 millions ☐ 500-1 billion ☐ 1-1.5 bns ☐ 2bns&above ☐

(*continued*)

**GUIDELINES TO THIS SECTION:**
Tick appropriate box or correct response on the basis of the following scale:
1 = Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Sure & 5 = Strong Agree:

SECTION B: HUMAN CAPITAL

| | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | Our employees are experts in their jobs and functions | | | | | |
| 2 | Our employees are always a source of new ideas | | | | | |
| 3 | Our employees have required competences | | | | | |
| 4 | This firm usually employs staff who are highly qualified | | | | | |
| 5 | When an employee leaves the firm, we do not have a succession training program for his/her replacement | | | | | |
| 6 | This firm's employees are knowledgeable about their work | | | | | |
| 7 | Our employees can with stand pressure from work | | | | | |
| 8 | We have self-driven employees | | | | | |
| 9 | Our employees provide technical skills to our customers | | | | | |
| 10 | Most of business ideas are initiated by our employees | | | | | |
| 11 | Level of commitment of our staff to work is high | | | | | |
| 12 | Employees in this firm rarely think their actions through | | | | | |
| 13 | Most of our employees are more creative | | | | | |
| 14 | Employees in this firm are socially competent | | | | | |
| 15 | Employees in this firm always search for knowledge | | | | | |

**GUIDELINES TO THIS SECTION:**
Tick appropriate box or correct response on the basis of the following scale:
1 = Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Sure & 5 = Strong Agree:

SECTION C: STRUCTURAL CAPITAL

| | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | The time to complete one whole transaction has been decreasing | | | | | |
| 2 | Our internal processes are clear to the users | | | | | |
| 3 | This firm consistently comes up with new business ideas | | | | | |
| 4 | Our transaction processes are usually fast | | | | | |
| 5 | Our employees complement each other in this firm | | | | | |
| 6 | Employees in this firm are **not** result oriented | | | | | |
| 7 | Our systems make it easy to access relevant information | | | | | |
| 8 | Our information systems are not stable | | | | | |
| 9 | We work as a team in this firm | | | | | |
| 10 | We have a well defined organizational structure | | | | | |
| 11 | This firm promotes a culture of team work | | | | | |
| 12 | This firm has clear values that guide its employees | | | | | |

**GUIDELINES TO THIS SECTION:**
Tick appropriate box or correct response on the basis of the following scale:
1 = Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Sure & 5 = Strong Agree:

(*continued*)

SECTION D: RELATIONAL CAPITAL

| | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | This firm has many clear openings to its customers | | | | | |
| 2 | We have good network systems with our customers | | | | | |
| 3 | Our firm takes services nearer to our customers | | | | | |
| 4 | Our networks with our customers have made this firm what it is | | | | | |
| 5 | We usually get new business ideas from customers | | | | | |
| 6 | Our systems ensure that our customers are always in touch with this firm | | | | | |
| 7 | At times customers participate in deciding on the matters that affect them | | | | | |
| 8 | Our employees have good relationship with the customers | | | | | |
| 9 | Our customers help us to enroll or get new customers | | | | | |
| 10 | Customers help this firm to improve or update its services | | | | | |

**GUIDELINES TO THIS SECTION:**

Tick appropriate box or correct response on the basis of the following scale:
1 = Strongly Disagree; 2 = Disagree; 3 = Not Sure; 4 = Sure & 5 = Strong Agree:

SECTION F: COMPETITIVE ADVANTAGE

| | | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|
| 1 | This firm has the best market share in the industry | | | | | |
| 2 | This firm provides timely services than any other firm in the industry | | | | | |
| 3 | This firm provides cheaper financial services to its customers in the market | | | | | |
| 4 | This firm is known for diversified services in the industry | | | | | |
| 5 | This firm is known for its convenient services in the industry | | | | | |
| 6 | Customers attach a lot value to the services provided by this firm | | | | | |
| 7 | Service flexibility is one of a competitive advantage resources of our firm | | | | | |
| 8 | This firm has the best market strategy in the industry | | | | | |
| 9 | This firm's market for its services has been growing | | | | | |
| 10 | This firm's outreach is so far good enough in the market | | | | | |
| 11 | Our products are popular in the market | | | | | |
| 12 | This firm's products are cheaper in the industry | | | | | |
| 13 | We provide distinctive products to our customers | | | | | |
| 14 | This firm is famous because of its services or products | | | | | |
| 15 | The cooperation between this firm and its customers is promising | | | | | |
| 16 | Majority of our customers came for our services due to this firm's goodwill | | | | | |
| 17 | Interest charged on loans is afforded by customers | | | | | |
| 18 | Our transaction costs per customer is high | | | | | |
| 19 | This firm occupies a key position in the industry | | | | | |
| 20 | This firm is always given a priority by customers in the industry | | | | | |

**RESPONDENT'S SIGNATURE……AND TEL. NO……..**

**THANK YOU SO MUCH**

## About the author

Nixon Kamukama, is a Senior Lecturer in the Department of Accounting, Makerere University Business School, Uganda. Dr Kamukama's teaching and research interests are in Finance, Accounting and intellectual capital. Nixon Kamukama can be contacted at: nkamukama@mubs.ac.ug