

# **Intellectual capital components and its relationship to Microfinance institutions' performance: The moderating effect of institutions specification**

**Maryam Jameelah Hashim<sup>1</sup>, Nur Afizah Muhamad Arifin<sup>2</sup>, Mohd Faizal Kamarudin<sup>3</sup> & Mohd Rahim Khamis<sup>4</sup>**

<sup>1,2,3,4</sup>Department of Economics and Financial Studies, Faculty of Business Management, Universiti Teknologi MARA  
Kampus Puncak Alam, 2300 Kuala Selangor, Selangor  
<sup>1</sup>jamieniz@uitm.edu.my

Received: 18 September 2020

Revised from: 30 September 2020

Accepted: 25 October  
Published: 31 October 2020

## **Abstract**

In a majority of banking and non-banking institutions, intellectual capital (IC) is one of the prominent factors that contribute to the development of a knowledge-based economy and an increase in competitiveness. However, there is an ambiguity in whether a firm's precious resources could guarantee new strategies' success. Thus, this study was undertaken to examine the significant effect of intellectual capital on microfinance institutions' performance (MFIs). This study also examined whether the MFIs specification could have a moderating impact on the relationship between intellectual capital and MFIs' performance. The current study used the PLS-SEM to analyze the research model and found that it explains 43.6 % of the substantial amount of variance in the performance of MFIs. Theoretically, the study extends the resource-based view (RBV) in projecting the MFIs' performance. The empirical results show a significant relationship between IC and MFIs' performance for both banking and non-banking MFIs.

**Keywords:** Intellectual Capital, Microfinance Institutions, Specification, Performance, Resource Base View.

## **1. Introduction**

The knowledge-based economy is increasingly recognized as an aspect that transforms the current business environment. Intellectual capital (IC) is one of the prominent factors contributing to developing a knowledge-based economy and increasing competitiveness for both profit and non-profit oriented companies. (Adnan, Kamaluddin, & Kasim, 2014). The implementation of intellectual capital is still new in the global business environment and only several developed countries, such as Australia, America, and Scandinavian countries have implemented this concept. Ulum (2007) posits that business circles have yet to find the right answers concerning the additional value that a company possesses in general. This owned additional value can be derived from a company's ability to produce services based on customer loyalty to the company. This value is generated by intellectual capital, which can be obtained from the development of the company's culture and the ability of the company to motivate its employees so that productivity can be maintained or even increased (Ulum, 2007).

On the other hand, higher-level managers are still uncertain on whether the success of new strategies is attributed to the precious resources owned by a firm. Therefore, ignoring intellectual capital will place the firm in a dilemma about employee ineffectiveness, low service quality, lack of knowledge, and poor customer relations; the factors that must be considered by a firm to ensure its survival to the intellectual capital of the company. It is claimed that managers should participate in the increasingly stiff competition to allow them

to survive even in the current economy. Researchers have advocated that microfinance institutions (MFIs) should prioritize increasing the firms' intellectual capital so that they can maintain their excellent performance and be sustainable in the future. Microfinance providers consist of banks and non-banks MFIs (Mokhtar, 2011).

In the study presented in this paper, both providers were evaluated to provide an excellent example of how demand and supply aspects of the industry interact to facilitate its rapid growth. Hence, the aims of this study were bifurcated into two parts. The first aim was to examine the role of intellectual capital in increasing microfinance institutions' performance (MFIs). The second aim was to demonstrate how the business nature of MFIs (banking and non-banking) acts as the moderating variable on the relationship between IC and the performance of MFIs. It was anticipated that the study would raise the awareness of the MFIs to concentrate not only on the financial or business aspects but also on the capitals, such as employee and customer perspectives that should be taken into consideration (Prawiranata, 2013). This employee-and-customer approach will enhance the economic aspect in terms of customer motivation to repay a loan due to the excellent quality service provided by the employees, which will further lead to income generation. Furthermore, the researchers expected this study to contribute to and enhance the knowledge of the HRM in specific, and microfinance policymakers, government, and non-government organizations (NGOs) in general, about MFIs besides identifying topics for studies in the future.

## **2. Literature Review**

### **2.1. Resource Base View Theory**

The resource base view, or RBV, has been adopted widely in the management field by academic researchers (Barney, 1991). According to Cruz and Haugan (2019), RBV is a perfect theory to consider on company's performance. This theory comes from the fields of strategic management, intellectual capital, and economics (Galbreath, 2004). The central tenets of the RBV are that firm resources are heterogeneous, not entirely mobile, and durable. A firm's resources are considered as the basic building blocks for their functioning and performance. These resources will influence a firm's production quality and include tangible and intangible resources, such as financial capital, skilled employees, and machinery. Past studies have examined how a firm's resources can predict its performance in a dynamic and competitive environment (Holsapple & Joshi, 2001).

### **2.2. Microfinance Institutions Performance**

Over the last decade, the world has acknowledged microfinance's role as a developmental tool to reduce poverty by providing financial support for people with no access to financial institutions. Grameen Bank in Bangladesh is one of the pioneers and most popular MFI in the world. Assessing the performance of MFIs involves examining its development towards accomplishing its goals. Therefore, MFIs need to ascertain their challenges to sustain and improved their operations (Hashim, Alhabshi & Mohd Ishar, 2018). MFIs are deemed 'social enterprise' whose primary mission is to provide financial services for underprivileged societies to reduce poverty (Ahmed, Brown, & Williams, 2013). External funds sustain MFIs, and efficient operations are imperative for their growth and sustainability (Ahmed, 2002). It is argued that regular employees training in relevant skills could increase the operation efficiency of MFIs. In this regard,

Kahaso (2012) states that determining the key challenges that could hinder the operations and sustainability of MFIs is predominantly essential, particularly in the current knowledge-based economy.

### **2.3. Intellectual Capital**

Intellectual capital is central to a knowledge-based economy (Khalique, Shaari, Isa, & Samad, 2013). Despite being rooted in the word 'intellect' (which means pure intellect), John Kenneth Galbreath, the pioneer of intellectual capital, described 'intellectual' as the degree of intelligent action. Galbreath (2004) defined intellectual capital as the "knowledge that is of value to an organization", which suggests that intellectual capital is a result of knowledge management (the sum of what is known). Studies have reported that compared to firms with low intellectual capital or high intellectual capital in a single component, such as either human, structural, and relational capital, firms with comprehensive high intellectual capital components have more substantial resources. This is because firms with complete high intellectual capital components have more strength to compete than those who possess only a single intellectual capital resource (Kamaluddin & Rahman, 2013). As a result, these firms will have a more sustained competitive advantage. Furthermore, MFIs should portray sensible consideration for their institutions by taking care of their IC and encouraging the practice of recognizing intangible assets, especially from the aspects of their employees' expertise and capabilities (Hashim, Alhabshi & Mohd Ishar, 2018). Scholars argue that non-substitutable resources will become a source of competitive advantage in a growing economy. These resources will create value and act as drivers for firms' growth, ultimately enhancing its performance. These two characteristics, value creation and driver for firms' growth are profusely available in intellectual capital. (Ozkan, Cakan, and Kayacan, 2017; Tiwari and Vidyarthi, 2018; Tran and Vo, 2018; Ousama, Hammami, and Abdulkarim, 2019; Ting, Ren, Chen, and Kweh, 2020; Soewarno and Tjahjadi, 2020). According to Bontis, Keow, and Richardson (2000) and Jardim and Dasilva (2017), intellectual capital comprises three significant elements: human capital, structural capital, and customer capital.

#### **2.3.1. Human Capital**

Employees of the organization can be considered either as an asset or a liability to an organization (Khan, Farooq, & Hussain, 2010). Sardo, Serrasqueiro, and Alves (2018) define human capital as employee's talent, skill, and expertise. On the other hand, Roos, Roos, Edvinsson, and Dragonetti (1997) and Nimtrakoon (2014) state that human capital constitutes the staff members' skills, knowledge, education, and experience, and attitude that can be used to achieve organizational objectives. In MFIs, their human capital comprises higher-level management (including CEOs and managers), executives, and other employees. Human capital can be considered as their primary resource, and their institutional behavior will lead to more extraordinary outreach performance and financial sustainability (Hossain, 2012). Human resources are often deemed as the most precious asset for a firm. However, it is also often the most under looked. There is a need for MFIs to retain their employees' expertise and appreciate their work by determining and maintain the employees' level of satisfaction as this will make them feel more comfortable. Thus they will choose to stay with the firm. Ling (2012) suggests that firms should invest in developing entrepreneurial leadership (human capital), enhancing the management process (structural capital), and further nurturing the relationship with other firms (customer capital) to ensure that they can compete in the global market.

Therefore, it was hypothesized that:

- H1a: Human capital (HC) has a positive effect on MFIs' performance
- H1b: Human capital (HC) has a positive effect on customer capital (CC)
- H1c: Human capital (HC) has a positive effect on structural capital (SC)

### **2.3.2. Customer Capital**

Customer capital, also known as relational capital, consists of alliance and capability, and it refers to the liaison with external and internal factors, such as employees, customers, suppliers, and competitors of an organization (Bontis et al., 2000; Ling, 2012; Roos et al., 1997). This term also refers to the organization's relationships or network of associates and their satisfaction with and loyalty to the company (Akpinar & Akdemir, 1999). Recent evidence confirms a significant positive relationship between the Malaysian MFIs and the clients' well-being, leading to a higher performance of their micro and small enterprises. Furthermore, Scafarto et al. (2016) documented customer capital's positive contribution towards firms' performance in a global agribusiness industry. However, Ozkan et al. (2017) found that customer capital does not affect the Turkish banking sector's financial performance. The relationship resulted in the increment of client asset acquisition and income generation at the household level (Al-Shami, Majid, Rashid, & Hamid, 2013). Therefore, the hypothesis was:

- H2: Customer capital (CC) has a positive effect on MFIs' performance

### **2.3.3. Structural Capital**

An organization is made up of internal structure and people. A firm's internal structure comprises the system, design, strategy, patents, trademarks, culture, and norms, which create the organization's innovative capability to ensure its success (Ling, 2012; Nimtrakoon, 2014). A firm's structural capital will improve once its technology is enhanced, and it develops processes and other internal initiatives. Therefore, structural capital reflects a firm's ability to fulfill its customers' demands. Recent studies have shown that a sound organizational structure, skilled employees, and an efficient and quality service will help increase the performance of the MFI (Kamaluddin & Kasim, 2013). It is also argued that the whole intellectual capital is not optimized to its maximum capacity if an organization only possesses knowledgeable and skilled employees but has a less effective structural capital (Khalique, Bontis, Abdul, Abu, & Isa, 2015). Hence, it was hypothesized that:

- H3: Structural capital (SRC) has a positive effect on MFIs' performance

## **2.4. MFIs Specific**

The term 'MFIs specific' refers to the two types of institutions, namely the bank-based and non-bank-based microfinance institutions (Nawai & Shariff, 2012). According to past studies, the best practices for microcredit programs for microenterprises are demonstrated by non-bank-based MFIs, NGOs, and government agencies. The reason being that these MFIs offer entrepreneurs with development support that is strategically important for novice and inexperienced entrepreneurs. These MFIs also require less loan application documents, offer a lower financing cost, and practice an efficient resource allocation (Abate, Borzaga, & Getnet, 2014). On the contrary, most bank-based MFIs require supporting documents that might be impossible or difficult for customers to provide. This

signals that the latter group of MFIs is very careful in choosing customers and operating the same way as the other normal commercial banks. There are also few bank-based MFIs branches that can be found in rural markets, in which most poor customers are located, and this will result in a lower outreach compared to non-bank-based MFIs (Tuyon & Alfonso, 2012). On the other hand, the result of Ozkan, Cakan and Kayacan (2017) claimed the existence of vast differences in the banking performance in different segments, it stated the foreign banks depend on human capital, whereby public bank relied more on physical capital for esteem creation. Several studies have moderately supported IC's effects on firms' performance, which effect differs from one firm to another (Ling, 2012). Furthermore, it was found that the banking sector has the least effect on IC followed by insurance companies and brokerage firms as compared to non-financial institutions where IC has a positive relationship with the performance (Muhammad & Ismail, 2009; Zehri, Abdelbaki, & Bouabdellah, 2012). Therefore, the hypothesis was:

H4: MFIs specific moderate the relationship between IC and MFIs' performance

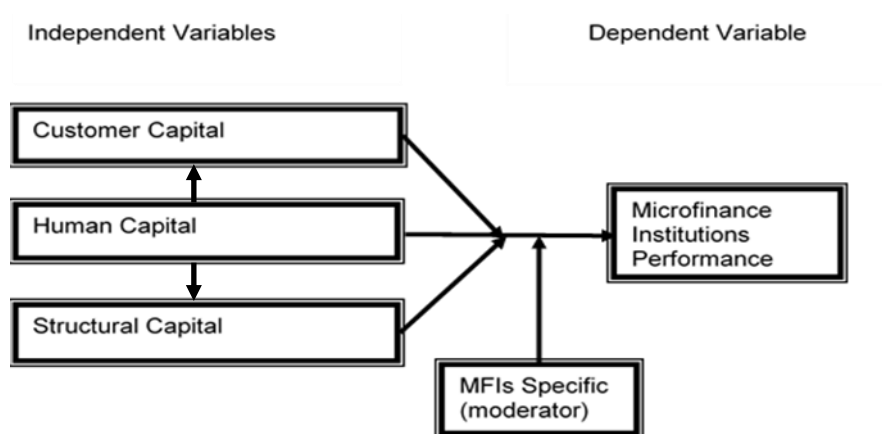


Figure 1: Theoretical framework

### 3. Methodology

This study involved MFIs from 22 countries. The data for this study were collected using structured questionnaires. The questionnaire was divided into three sections. The first section questions are related to the components of IC (human capital, customer capital and structural capital). The second part focuses on the performance of microfinance institutions. A seven-point Likert scale (ranging from 1 'strongly disagree' and 7 'strongly agree') was used for all items in the first and second sections. Meanwhile, the third section probes into the respondents' profiles. The measures adopted in the study and their respective sources are presented in Table 1. Intellectual capital acts as an exogenous variable. Eighteen (18) items were included to measure this variable, which was further trifurcated into three dimensions, human capital, customer capital, and structural capital. Five (5) items were used to measure the endogenous variable (MFIs' performance). Copies of the instrument, a structured questionnaire, were distributed to 300 senior executives and managers of MFIs in 22 countries. According to Awang, Asyraf and Asri (2015), respondents suitable for representing their companies can be selected based on the researcher's decision. Hence, the respondents were determined using the purposive sampling method. In this study, the target respondents

comprised senior executives and managers of MFIs worldwide, who were involved in the institutions' internal management and development. The respondents' sample size was calculated using the G-power software, whereby the minimum sample size required was determined. Since the model has a maximum of three predictors (for the outcome variable of the MFIs' performance), the effect size was set to medium (0.15), and the required power was 0.80. In the field of social science, the minimum acceptable rate of response has been set at 80 % (Gefen, Rigdon, & Straub, 2011). As the sample size required was 77, hence the data collected were slightly larger than the required number. A total of 156 managers participated in this study. This accounted for 52 % in response rate, which is considered satisfactory (Sekaran & Bougie, 2010). Meanwhile, the model in Figure 1 was measured by using Smart PLS 3.2.7, which is based on bootstrapping and path modelling (Chin, 2010; Tenenhaus & Esposito, 2005; Wetzels, Odekerken-Schröder, & Oppen, 2009). There are two stages in a PLS analysis, which involves two models: measurement model and structural model. The measurement model requires the reliability and validity to be assessed where the validity is measured through convergent validity and discriminant validity. Reliability is measured by examining the composite reliability (CR). Therefore, a structural model testing was conducted on 500 re-samples after the development of the measurement model to analyze the hypothesized relationships between critical success factors and organizational performance.

## 4. Findings

### 4.1. Descriptive Statistics

In terms of the respondents' demography, as shown in Table 1, 71 (45.5 %), which is the majority of the respondents, work as senior managers and higher, 52 (33.3 %) work as middle managers, and 33 (21.2 %) work in the top management position. Out of the 156 respondents, 143 (91.7 %) are male, and only 13 of the respondents (8.3 %) are female. The majority of the respondents' age is between 25 to 35 (53.2 %), 50 respondents (32.1 %) are between 36 to 45 years old, 15 respondents (9.6 %) are between 46 to 55 years old, 6 respondents (3.8 %) are between 20 to 25 years old, and only 2 (1.3 %) respondents are 56 years old and above. There were 132 MFIs managers who participated in the survey work at bank-based MFIs (84.6 %), and only 24 managers were from non-bank-based MFIs (15.4 %).

Table 1: Distribution of Respondents by Gender, Age and Designation

| Descriptions               | Frequency         | %   |      |
|----------------------------|-------------------|-----|------|
| <b>Gender</b>              | Male              | 143 | 91.7 |
|                            | Female            | 13  | 8.3  |
| <b>Age Group</b>           | 20-25             | 6   | 3.8  |
|                            | 26-35             | 83  | 53.2 |
|                            | 36-45             | 50  | 32.1 |
|                            | 46-55             | 15  | 9.6  |
|                            | 56 and above      | 2   | 1.3  |
|                            | Top management    | 33  | 21.2 |
| <b>Designation</b>         | Senior management | 71  | 45.5 |
|                            | Middle management | 52  | 33.3 |
|                            | 1-5               | 35  | 22.4 |
| <b>Working experience</b>  | 6-10              | 57  | 36.5 |
|                            | 11-15             | 34  | 21.8 |
|                            | Above 15          | 30  | 19.2 |
| <b>MFIs Specifications</b> | Bank-based        | 132 | 84.6 |
|                            | Non-bank-based    | 24  | 15.4 |

#### 4.2. Measurement Model (Partial Least Square - Structural Equation Modelling)

For this study, a confirmatory factor analysis (CFA) was conducted to obtain the reliability, convergent validity, and discriminant validity of the measures. Hair, Black, Babin, and Anderson (2010) suggest the use of factor loadings to assess the reliability, while the convergent validity can be assessed using the average variance extracted (AVE), and composite reliability (CR). Table 2 shows that most item loadings are higher than 0.5 (significant at  $p < 0.01$ ), while all average variance extracted (AVE) exceed 0.5 (Bagozzi, 1988), and the composite reliability (CR) for all the variables exceed 0.7 (Gefen, Straub, & Boudreau, 2000).

Table 2: Discriminant Validity

| <b>Constructs</b>  | <b>Loadings</b> | <b>CR</b>    | <b>AVE</b>   |
|--|-----------------|--------------|--------------|
| <b>Human Capital (HC)</b>  |                 | <b>0.918</b> | <b>0.616</b> |
| HC1 Employees are knowledgeable of organizational matters.   | 0.784           |              |              |
| HC3 We recognize the importance of knowledge as a strategic asset.                                     | 0.802           |              |              |
| HC5 Employees are generally familiar with the organization strategic intents.                          | 0.747           |              |              |
| HC7 Employees possess relevant academic qualification and vocational training.                         | 0.832           |              |              |
| HC8 Employees are competent in handling matters pertaining to microfinance transactions.               | 0.758           |              |              |
| HC9 Employees are highly motivated self-learners.  | 0.794           |              |              |
| HC10 Employees focus on the quality of service provided.   | 0.775           |              |              |
| <b>Customer Capital (CC)</b>   |                 | <b>0.897</b> | <b>0.636</b> |
| CC1 Our organization is aware of customer's complaints.  | 0.819           |              |              |
| CC3 Our customers have loyalty toward our organization.  | 0.813           |              |              |
| CC4 Customer are satisfied with timeliness of our product or service delivery.                         | 0.783           |              |              |
| CC7 Our organization distributes customer's data to all relevant departments                           | 0.765           |              |              |
| CC9 Our organization has enough distribution channels for the satisfaction of our customers.           | 0.807           |              |              |
| <b>Structural Capital (SC)</b>   |                 | <b>0.917</b> | <b>0.649</b> |
| SC2 Our organization uses the best and most integrated management system to serve the customers        | 0.859           |              |              |
| SC4 Our organization uses patents and licenses to store knowledge.                                     | 0.739           |              |              |
| SC6 Our organizational system and procedures support innovation.                                       | 0.832           |              |              |
| SC7 Our organization increasingly reduces time to solve problems                                       | 0.796           |              |              |
| SC9 Our organization encourage creative ideas by employees.  | 0.804           |              |              |
| SC10 Our organization provides opportunities to upgrade the education level of employees.              | 0.801           |              |              |
| <b>MFIs Performance (OP)</b>   |                 | <b>0.903</b> | <b>0.652</b> |
| OP3 Our organization has been continuously reducing cost per revenue unit.                             | 0.759           |              |              |
| OP5 Our organization's net return on sales has been increasing.  | 0.785           |              |              |
| OP6 Due to organizational performance, customer loyalty level is increasing.                           | 0.835           |              |              |
| OP7 Our customers are satisfied with our products or services  | 0.801           |              |              |
| OP8 Our customers believe that our organization offers high value-added products and services to them. | 0.854           |              |              |

Note: HC2, HC4, HC6, CC2, CC5, CC6, CC8, SC1, SC3, SC5, SC8, OP1, OP2, OP4 were deleted due to low loadings

As suggested by Henseler, Ringle, and Sarstedt (2015), the Heterotrait Monotrait (HTMT) discriminant criterion was used to validate the discriminant validity in this study. According to Henseler et al. (2015), the discriminant validity is achieved when the correlation value between constructs is less than one. However, in our study, we followed the more conservative threshold of 0.85 as it indicates a clearer difference between the constructs (Clark & Watson, 1995; Kline, 2011). The correlation estimates for the HTMT evaluations are presented in Table 3. As the correlation value between the constructs is less than 0.85, hence, the discriminant validity is met through the HTMT assessment.

Table 3: Discriminant Validity HTMT

| Constructs                          | HC    | CC    | SC    | MFIs Perf |
|-------------------------------------|-------|-------|-------|-----------|
| <b>Human Capital (HC)</b>           |       |       |       |           |
| <b>Customer Capital (CC)</b>        | 0.680 |       |       |           |
| <b>Structural Capital (SC)</b>      | 0.812 | 0.748 |       |           |
| <b>MFIs Performance (MFIs Perf)</b> | 0.626 | 0.612 | 0.651 |           |

### 4.3. Structural Model (Partial Least Square - Structural Equation Modelling)

The  $R^2$  of the endogenous variable was used to explain the variance. According to Sandin, Sanchez-Arribas, Chorot, and Valiente (2015), the  $R^2$  value of above 0.60 is considered as high, between the range of 0.30 to 0.60 is moderate and less than 0.30 is low. The  $R^2$  generated in Figure 2 has resulted in values of 0.356, 0.436, and 0.669, indicating that human capital explains 35.6 % and 66.9 % of the variance in customer capital and structural capital, respectively. The study shows that all the exogenous variables (HC, CC, SC) are capable to explain 43.6 % of the MFIs' performance.

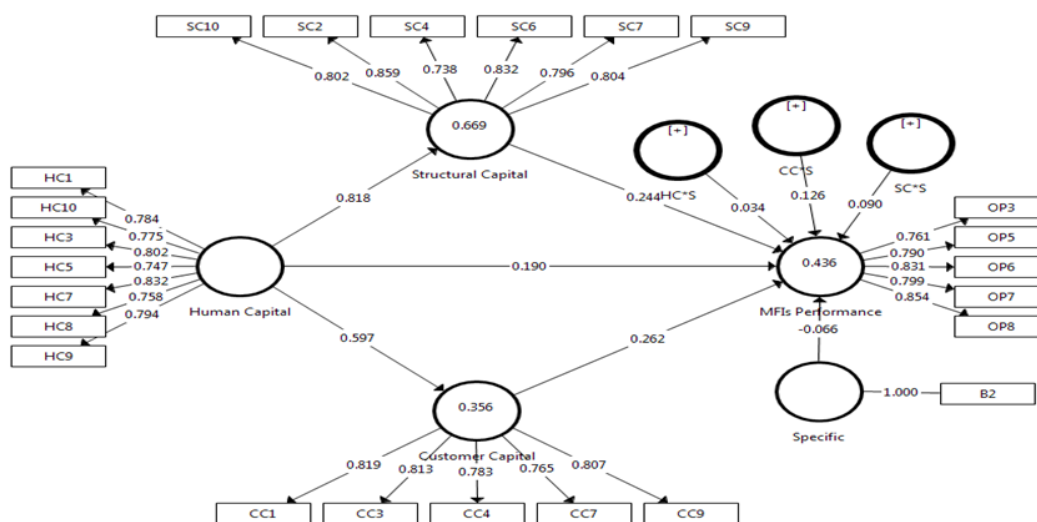


Figure 2: Result of Path Analysis

Table 4 presents the results of the hypothesis testing. Here, the path coefficients, observed t-statistics, and significance levels for all the hypothesized paths are outlined. Past studies by Henseler, Ringle, and Sinkovics (2009) as well as Hair, Sarstedt, Hopkins, and Kuppelwieser (2014) have shown that the acceptable t-values to identify the significance level in the one-tailed test are 1.28 (10 % significance level at  $p < .10$ ), 1.645 (5 % significance level at  $p <$



.05), and 2.33 (1 % significance level at  $p < .01$ ). Based on the results, there are four hypotheses with a significant positive relationship with the endogenous variable. From the perspective of MFIs' performance as an endogenous variable, CC ( $\beta = 0.262$ ,  $t = 1.822$ ,  $p < .05$ ) and SC ( $\beta = 0.244$ ,  $t = 1.868$ ,  $p < .05$ ) show positive and significant relationships with MFIs' performance. As a result, H2 (CC has a positive significant influence on MFIs' performance) and H3 (SC has a positive significant influence on MFIs' performance) are supported. However, HC ( $\beta = 0.190$ ,  $t = 1.312$ , not significant) has no significant influence on MFIs' performance. As a result, H1a (HC has a positive significant influence on MFIs' performance) is not supported. On the other hand, the analysis of the interrelation between IC dimensions shows that HC ( $\beta = 0.597$ ,  $t = 7.334$ ,  $p < .01$ ) has the ability to influence CC and HC ( $\beta = 0.818$ ,  $t = 22.400$ ,  $p < .01$ ) has the ability to influence SC. This supports H1b (HC has a positive significant influence on CC) and H1c (HC has a positive significant influence on SC), respectively.

Table 4: Path Coefficient and Hypotheses testing

| Hypothesis | Relationship | Std Beta | T-value | LL      | UL    | Supported |
|------------|--------------|----------|---------|---------|-------|-----------|
| H1a        | HC → MFIs    | 0.190    | 1.312   | - 0.001 | 0.449 | NO        |
| H1b        | HC → CC      | 0.597    | 7.334   | 0.443   | 0.736 | YES       |
| H1c        | HC → SC      | 0.818    | 22.400  | 0.746   | 0.874 | YES       |
| H2         | CC → MFIs    | 0.262    | 1.822   | 0.033   | 0.505 | YES       |
| H3         | SC → MFIs    | 0.244    | 1.868   | 0.010   | 0.464 | YES       |

Note: HC=Human Capital, CC=Customer Capital, SC=Structural Capital, MFIs=Microfinance Performance

Table 5 illustrates that the moderating effect was examined using a t-test with pooled standard errors. Henseler (2007) states that this is a parametric approach method, and the findings suggest that the form of MFIs business (bank based or non-bank-based) does not affect the relationship between IC and MFIs' performance. Therefore, H4 (MFIs specific as the moderator variable has a positive influence on IC and MFIs' performance) is not supported.

Table 5: Moderating Effect of MFIs Specific

| Hypothesis | Relationship    | Std Beta | T-value | LL     | UL    | Supported |
|------------|-----------------|----------|---------|--------|-------|-----------|
| H4         | Specific → MFIs | -0.066   | 1.239   | -0.153 | 0.021 | NO        |
|            | HC*S → MFIs     | 0.034    | 0.302   | -0.144 | 0.224 | NO        |
|            | CC*S → MFIs     | 0.126    | 1.148   | -0.048 | 0.319 | NO        |
|            | SC*S → MFIs     | 0.090    | 0.809   | -0.093 | 0.267 | NO        |

Note: HC=Human Capital, CC=Customer Capital, SC=Structural Capital, S=Specific, MFIs=Microfinance Performance

## 5. Conclusion and Recommendations

For firms in developing countries, intellectual capital (IC) is equally essential as capital investments as it could help create sustainable advantages and value. Chen, Cheng, and Hwang (2005) call for developing countries to create a balanced investment in IC and physical investments. Meanwhile, a firm's individual economic value is reflected through its human capital (HC). Researchers have argued that relying on just human competency and intellectuality is not enough to ensure that HRM is effective and performance could be sustained. Previous studies have shown that the use of HC only cannot lead to competency and an increase in performance. Bontis et al. (2000) assert that HC needs to be supported by other organizational capitals, such as structural capital. Corporate value and robust processes embedded in structural capital are required to support human capital development and ensure quality service and efficiency, to yield better performance among microfinance institutions

(Kamaluddin & Kasim, 2013). According to Muhammad and Ismail (2009), human capital and structural capital, as separate entities, do not have a significant relationship with a firm's performance. Firms with multiple IC components have also shown higher competitiveness compared to firms that only use one form of IC resource (Kamaluddin & Rahman, 2013). To strengthen this study, previous researchers highlighted the existence of a positive relationship between intellectual capital and firms' performance (Sumedrea, 2013; Zulkifli, Abdul-Shukor, & Ridhuan, 2017). It can be deduced that firms with a balanced human, customer, and structural capitals will show better market performance and financial excellence.

Based on these arguments, the current study expected that IC is positively related to microfinance institutions' performance. It was hypothesized that IC has a highly significant relationship with the microfinance institutions' performance. Earlier studies have shown that IC is significantly related to organizational performance across different industries and sectors (Bontis et al., 2000). Past studies also reported the differences between other businesses, such as a study on public and private banks in Pakistan, which discovered that public banks' performance was more unsatisfactory than that of private banks due to inadequate utilization of capital or incompetent management of intellectual capital (Zia, Muhammad, Arbab, Shahzad, & Bilal, 2014). Moreover, Hashim et al. (2018) highlighted that the human element is crucial in MFIs value creation. The institutions should encourage their managers to practice recognizing their intangible assets as a whole. Therefore, regardless of whether the MFI is a bank-based or a non-bank based, this study suggests that microfinance institutions' managers should promptly resolve their organizational issues. Managers should also portray sensible consideration for their firms by focusing on intellectual capital and recognize intangible assets, especially employees' expertise and capabilities. The recommendation for future studies include the location (urban or rural) of the MFIs as one of the variables to identify its effect on microfinance institutions' performance.

## References

- Abate, G. T., Borzaga, C., & Getnet, K. (2014). *Cost efficiency and outreach of microfinance institutions in Ethiopia: Do they contrast with financial cooperatives?* SSRN Electronic Journal.
- Adnan, N. S., Kamaluddin, A., & Kasim, N. (2014). Intellectual Capital in Religious Organisations : Malaysian Zakat Institutions Perspective. *Accounting Research Institute*, 16(June),2013–2014. <https://doi.org/10.5829/idosi.mejsr.2013.16.03.11092>
- Ahmed, F., Brown, B., & Williams, S. P. (2013). Is it time to regulate microfinance? *Progress in Development Studies*, 13(3), 209–220. <https://doi.org/10.1177/1464993413486546>
- Ahmed, H. (2002). Financing Microenterprises: An Analytical Study of Islamic Microfinance Institutions. *Islamic Economic Studies*, 9, 27–64. Retrieved from [http://www.isdb.org/irj/go/km/docs/documents/IDBDevelopments/Internet/English/IRTI/CM/downloads/IES\\_Articles/Vol 9-2. Habib Ahmed..Financing Microenterprises..dp.pdf](http://www.isdb.org/irj/go/km/docs/documents/IDBDevelopments/Internet/English/IRTI/CM/downloads/IES_Articles/Vol 9-2. Habib Ahmed..Financing Microenterprises..dp.pdf)
- Akpinar, A. T., & Akdemir, A. (1999). Intellectual capital. In *In Third European Conference* (pp. 332–340).
- Al-Shami, S. S. A., Majid, I. B. A., Rashid, N. A., & Hamid, M. S. R. B. A. (2013). Conceptual Framework: The Role of Microfinance on the Wellbeing of Poor People Cases Studies from Malaysia and Yemen. *Asian Social Science*, 10(1), 230–242. <https://doi.org/10.5539/ass.v10n1p230>
- Awang, Z., Asyraf, A., & Asri, M. (2015). Parametric and Non-Parametric Approach in Structural Equation Modeling (SEM): The Application of Bootstrapping. *Modern Applied Science*, 9(9), 58–67.
- Bagozzi, R. R. (1988). On the Evaluation of Structural Equation Models, I ~ LI, 16(1).
- Barney, J. B. (1991). Firm Resources and Sustained Competitive Advantage. *Journal of Management*. <https://doi.org/10.1177/014920639101700108>
- Baron, A. (2011). Measuring human capital. *Strategic HR Review*, 10(2), 30–35. <https://doi.org/10.1108/14754391111108338>

- Bontis, N., Keow, W. C. C., & Richardson, S. (2000). Intellectual capital and business performance in Malaysian industries. *Journal of Intellectual Capital*, 1(1), 85–100. <https://doi.org/10.1108/14691930010324188>
- Chen, M.-C., Cheng, S.-J., & Hwang, Y. (2005). An empirical investigation of the relationship between intellectual capital and firms' market value and financial performance. *Journal of Intellectual Capital*, 6(2), 159–176. <https://doi.org/10.1108/14691930510592771>
- Chin, W. W. (2010). *How to Write Up and Report PLS Analyses*. <https://doi.org/10.1007/978-3-540-32827-8>
- Clark, L. A., & Watson, D. (1995). Constructing validity: basic issues in objective scale development. *Psychological Assessment*, 7(3), 309–319
- Cruz, A. M., & Haugan, G. L. (2019). Determinants of maintenance performance: A resource-based view and agency theory approach. *Journal of Engineering and Technology Management*, 51, 33–47.
- Galbreath, J. T. (2004). Determinants of Firm Success: A Resource-Based Analysis.
- Gefen, D., Rigdon, E. E., & Straub, D. (2011). An Update and Extension to SEM Guidelines for Administrative and Social Science Research. *MIS Quarterly*, 35(2), A1–A7. <https://doi.org/10.1016/j.lrp.2013.01.001>
- Gefen, D., Straub, D. W., & Boudreau, M.-C. (2000). Structural Equation Modeling and Regression: Guidelines for Research Practice. *Communication for the Association for Information Systems*, 4(7), 79.
- Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). *Multivariate Data Analysis (7th ed.)* (7th edition). Pearson.
- Hair, J. F., Sarstedt, M., Hopkins, L., & Kuppelwieser, V. G. (2014). Partial least squares structural equation modeling (PLS-SEM). *European Business Review*, 26(2), 106–121. <https://doi.org/10.1108/EBR-10-2013-0128>
- Hashim, M. J., Alhabshi, S. M., & Mohd Isha, N. I. (2018). Does intellectual capital explain the financial performance of Malaysia MFIs? *Social and Management Research Journal*, 15(2), 1–22.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling, 115–135. <https://doi.org/10.1007/s11747-014-0403-8>
- Henseler, J., Ringle, C. M., & Sinkovics, R. R. (2009). The use of Partial Least Square Path modeling in international Marketing. *New Challenges to International Marketing: Advances in International Marketing*, 20, 277–319. [https://doi.org/10.1108/S1474-7979\(2009\)0000020014](https://doi.org/10.1108/S1474-7979(2009)0000020014)
- Hirsch, R. D., & Peters, M. P. (2008). *Entrepreneurship*. McGraw-Hill Singapore.
- Holsapple, C. W., & Joshi, K. D. (2001). Organizational knowledge resources. *Decision Support Systems*, 35, 39–54.
- Hossain, M. T. (2012). Human Resource Management Practices and Employees' Satisfaction Towards Private Banking Sector in Bangladesh. *International Review of Management and Marketing*, 2(1), 52–58.
- Jardon, C. M., & Dasilva, A. (2017). Intellectual capital and environmental concern in subsistence small businesses. *Management of Environmental Quality: An International Journal*, 28(2), 214–230.
- Kahaso, T. N. (2012). *The Key Success Factors for Microfinance Industry In MOMBASA*.
- Kamaluddin, A., & Kasim, N. (2013). The Relationship between Human Resource Management and Islamic Microfinance Providers' Performance: The Mediating Role of Human Capital. *International Journal of Business and Social Science*, 4(16), 52–57. Retrieved from [http://ijbssnet.com/journals/Vol\\_4\\_No\\_16\\_December\\_2013/5.pdf](http://ijbssnet.com/journals/Vol_4_No_16_December_2013/5.pdf)
- Kamaluddin, A., & Rahman, R. A. (2013). Intellectual Capital Profiles: Empirical Evidence of Malaysian Companies. *International Review of Business Research Papers*, 9(6), 83–101. Retrieved from <http://search.ebscohost.com/login.aspx>
- Khalique, M., Bontis, N., Abdul, J., Abu, S., & Isa, H. (2015). Intellectual capital in small and medium enterprises in Pakistan. *Journal of Intellectual Capital*, 16(1), 224–238.
- Khalique, M., Shaari, J. A. N. Bin, Isa, A. H. B. M., & Samad, N. B. (2013). Impact of Intellectual Capital on the Organizational Performance of Islamic Banking Sector in Malaysia. *Asian Journal of Finance & Accounting*, 5(2), 75. <https://doi.org/10.5296/ajfa.v5i2.4005>
- Khan, B., Farooq, A., & Hussain, Z. (2010). Human resource management: an Islamic perspective. *Asia-Pacific Journal of Business Administration*, 2(1), 17–34. <https://doi.org/10.1108/17574321011037558>
- Kline, R. B. (2011). *Principles and practice of structural equation modeling*. New York: Guilford Press. New York: Guilford Press.
- Ling, Y. (2012). A Study on the Influence of Intellectual Capital and Intellectual Capital Complementarity on Global Initiatives. *The Electronic Journal of Knowledge Management*, 10(2), 154–162. <https://doi.org/10.1108/03055721211207806>
- Mokhtar, S. H. (2011). *Microfinance performance in Malaysia*. Lincoln University. Retrieved from <http://researcharchive.lincoln.ac.nz/handle/10182/4186>
- Muhammad, N. M. N., & Ismail, M. K. A. (2009). Intellectual Capital Efficiency and Firm's Performance: Study on Malaysian Financial Sectors. *International Journal of Economics and Finance*, 1(2), 206–212.

- Nawai, N., & Shariff, M. N. M. (2012). Factors Affecting Repayment Performance in Microfinance Programs in Malaysia. *Procedia - Social and Behavioral Sciences*, 62, 806–811. <https://doi.org/10.1016/j.sbspro.2012.09.136>
- Nimtrakoon, S. (2014). *The Relationship Between Intellectual Capital, Firms' Market Value and Financial Performance: Empirical Evidence from Asian Countries*.
- Ousama, A., Hammami, H., & Abdulkarim, M. (2019). The association between intellectual capital and financial performance in the Islamic banking industry. *International Journal of Islamic and Middle Eastern Finance and Management*, 13(1), 75-93.
- Ozkan, N., Cakan, S., & Kayacan, M. (2017). Intellectual capital and financial performance: A study of the Turkish Banking Sector. *Borsa Istanbul Review*, 17(3), 190-198.
- Prawiranata, I. R. (2013). *Sustainable Microfinance in Indonesia: A Sociocultural Approach*. Victoria University.
- Roos, J., Roos, G., Edvinsson, L., & Dragonetti, N. C. (1997). *Intellectual Capital Navigating in the New Business Landscape*. Macmillan Business.
- Sandin, B., Sanchez-Arribas, C., Chorot, P., & Valiente, R. M. (2015). Anxiety sensitivity, catastrophic misinterpretations, and panic self-efficacy in the prediction of panic disorder severity: Towards a tripartite cognitive model of panic disorder. *Behaviour Research and Therapy*, 67, 30–40.
- Sardo, F., Serrasqueiro, Z., & Alves, H. (2018). On the relationship between intellectual capital and financial performance: A panel data analysis on SME hotels. *International Journal of Hospitality Management*, 75, 67-74.
- Scafarto, V., Ricci, F., & Scafarto, F. (2016). Intellectual capital and firm performance in the global agribusiness industry. *Journal of Intellectual Capital*, 17(3), 530-552.
- Sekaran, U., & Bougie, R. (2010). *Research Methods for Business A Skill-Building Approach* (Fifth Edit). John Wiley and Sons Ltd.
- Soewarno, N., & Tjahjadi, B. (2020). Measures that matter: an empirical investigation of intellectual capital and financial performance of banking firms in Indonesia. *Journal of Intellectual Capital*, 21(6), 1085-1106.
- Sumedrea, S. (2013). Intellectual Capital and Firm Performance: A Dynamic Relationship in Crisis Time. *Procedia Economics and Finance*, 6, 137-144.
- Tenenhaus, M., & Esposito, V. (2005). PLS path modeling, 48, 159–205. <https://doi.org/10.1016/j.cstda.2004.03.005>
- Ting, I., Ren, C., Chen, F.-C., & Kweh, Q. (2020). Interpreting the dynamic performance effect of intellectual capital through a value-added-based perspective. *Journal of Intellectual Capital*, 21(3), 381-401.
- Tiwari, R., & Vidyarthi, H. (2018). Intellectual capital and corporate performance: a case of Indian banks. *Journal of Accounting in Emerging*, 8(1), 84-105.
- Tran, D., & Vo, D. (2018). Should bankers be concerned with Intellectual capital? A study of the Thai banking sector. *Journal of Intellectual Capital*, 19(5), 897-914.
- Tuyon, J., & Alfonso, A. (2012). Analysis of Microfinance Institutions Lending and Credit Assessment Mechanism in East Malaysia. In *International Conference on Management, Economics and Finance (ICMEF 2012) Proceedings* (p. 20). Retrieved from [http://www.globalresearch.com.my/proceeding/icmef2012\\_proceeding/034\\_196\\_ICMEF2012\\_Proceeding\\_PG0463\\_0482.pdf](http://www.globalresearch.com.my/proceeding/icmef2012_proceeding/034_196_ICMEF2012_Proceeding_PG0463_0482.pdf)
- Ulum, I. (2007). *Pengaruh Intellectual Capital Terhadap Kinerja Keuangan Perusahaan Perbankan*. Universitas Diponegoro Semarang. <https://doi.org/10.1108/14691930010324188>
- Wetzels, M., Odekerken-Schröder, G., & Oppen, C. van. (2009). Using PLS Path Modeling for Assessing Hierarchical Construct Models: Guidelines and Empirical Illustration. *MIS Quarterly*, 33(1), 177–195. <https://doi.org/Article>
- Zehri, C., Abdelbaki, A., & Bouabdellah, N. (2012). How Intellectual Capital Affects A Firm's Performance? *Australian Journal of Business and Management Research*, 2(06), 32–39
- Zia, M., Muhammad, H., Arbab, S., Shahzad, A., & Bilal, S. (2014). VAIC and Firm Performance: Banking Sector Of Pakistan. *Information and Knowledge Management*, 3(4), 100–107.
- Zulkifli, N., Abdul-Shukor, Z., & Ridhuan, M. (2017). Intellectual Capital Efficiency and Firm Performance in Malaysia: The Effect of Government Ownership. *Asian Journal of Accounting and Governance*, 8, 93-105.