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# Role of the intellectual Capital in promoting the financial inclusion in Islamic banks : Empirical Study

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**Abstract .**

*The research aims at analyzing the role of Islamic banks in enhancing financial inclusion. The research was based on an empirical study of the relationship between intellectual capital in Islamic banks and financial inclusion. The sample of the study consisted of 18 Islamic banks operating in the OIC countries during the period 2007-2017. The results of the study indicated that the participation of Islamic banks significantly in enhancing financial inclusion to promote social and economic justice in society.*

***Key words:*** *crude oil price, economic growth, main macroeconomic factors, vector autoregressive model, Granger causality*

***JEL classification codes:*** *C32, O40, Q30*

***Résumé.***

*On a étudié sur la période 1986-2016, l'effet du prix de pétrole brut sur la croissance économiques (CE) et les facteurs clés macroéconomique (FM) en Algérie avec le modèle de vecteur autorégressive et la causalité au sens de Granger. Les variables étaient le produit intérieur brut (GDP), la formation du capital fixe brut (GFCF), dépense national brut (GNE), l'indice de prix à la consommation (Inflation), le taux de change effectif réel (REER), production et consommation du pétrole (OP) et (OC), et la volatilité réalisé du prix de pétrole brut (COP). On a trouvé une relation bidirectionnelle entre (Inflation) et (Cop), cette dernière variable à un effet négatif sur (CE) et (FM).*

***Mots clés :*** *Le prix du pétrole brut, la croissance économique, les facteurs clés macroéconomique, le modèle de vecteur autorégressive, la causalité au sens Granger*

***Codes de classification JEL:*** *C32, O40, Q30*

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# 1. Introduction.

Financial inclusion is a concept that aims to mainstream financial and banking products and services at reasonable costs to the largest number of communities, institutions and individuals, especially low-income segments of society. Financial inclusion requires the ability of individuals and institutions to access and use financial services effectively and responsibly .Financial inclusion cannot be achieved without financial awareness, the conscious consumer is more aware of the risks and rewards associated with financial products and is more aware of his rights and duties. Financial inclusion includes a comprehensive range of financial services including bank accounts, savings, short- and long-term loans, leasing, Insurance, salaries, payments, domestic and international remittances, retirement plans, consumer protection and financial capacity enhancement .It should be noted that expanding participation in the formal financial system or achieving financial inclusion is not an end in itself, but a means to achieve its desired development role that helps improve the standard of living, empower women, promote equal opportunities, finance small and medium enterprises, reduce poverty and inequality, Ensuring well-being and thus achieving comprehensive and sustainable economic growth.

## Importance of research

The importance of the study stems from the fact that it highlights the role of Islamic banks in enhancing financial inclusion by allowing individuals and small and medium-sized enterprises who prefer Sharia-compliant banking operations to deal with the banking system and access to Islamic financial services.

## Research problem

It is estimated that around 35% of SMEs are outside the banking sector because they are not able to obtain financing from Shariah-compliant financial institutions. In addition, there is a disparity in the segments of the population that are excluded financially for religious reasons in the economies. Hence, Islamic finance can play a role in attracting disadvantaged groups to the official financial system.

The research problem can be formulated in several questions:

- What is intellectual capital, and the availability of its components in Islamic banks.
- Does Islamic banking have mechanisms to increase financial inclusion?

Is it possible to rely on intellectual capital to promote financial inclusion in Islamic banks?
- Is there a relationship between the components of intellectual and physical capital and the financial inclusion of Islamic banks?

**Research hypotheses**

H1: There is a significant positive relationship between intellectual capital and financial inclusion in Islamic banks .

H2: There is a significant relationship between human capital and financial inclusion in Islamic banks .

H3: There is a positive relationship between the structural capital and the financial inclusion of Islamic banks ,

H4: There is a significant relationship between physical capital and financial inclusion in Islamic banks .

**Search structure**

To answer the problem of the research problem we can divide the research into three part:

First: The philosophical framework of intellectual capital in Islamic.

Second: financial inclusion and its relationship with Islamic banks

Third: Quantitative model of the proposal to estimate the impact of intellectual capital on the financial inclusion of Islamic banks. And finally conclusion of the research includes the research findings and recommendations.

**First: The philosophical framework of intellectual capital in Islamic banks**

Intellectual capital is an important element of any organization, which is one of the most important assets in the knowledge economy, and is sometimes classified as more important than physical assets. As intellectual capital is of great importance and helps business organizations to achieve universality through the

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competitive asset set of creative and strategic development based on innovation and innovation, the central objective of the intellectual head as a factor of production that supports the competitive position of business organizations and can continue to And help them to acquire knowledge and renew their knowledge base, and eliminate the stereo types and traditional concepts prevailing in the work environment, and provides creative and innovative capabilities that contribute to solving problems and develop methods of performance in Business Organizations .

**1-1 Concept of intellectual capital**

Intellectual capital is defined as "the sum of the expertise, capabilities, skills and competencies possessed by the Organization to increase productivity and achieve a competitive advantage" .

Intellectual capital differs from physical (traditional) capital. Physical capital refers to the resources that appear in the organization's budget such as real estate, equipment and stocks .

Intellectual capital contributes to determining the real value of banks, but the measurement process faces many difficulties because of the difference between physical capital and intellectual capital since the material resource can be measured and counted, while the intellectual resource cannot be accurately measured because it is intangible and indefinite in existence So do not interfere often in accounting and in the use of the fact that the difference does not make it difficult to manage the knowledge only, but to measure the impact and outcome.

**1-2 Indicators of measuring intellectual capital**

Despite these limitations and difficulties, there are many financial and non-financial indicators that can be used to measure intellectual capital:

- The ratio of return on assets, if this ratio is low compared to previous years or similar companies, reflects the weak productivity of investments of the business unit resulting from the lack of a capable mental ability to direct investments, and the index of descriptive and indicative standards.
- The method of direct intellectual capital: It is one of the most accurate methods to measure intellectual capital is based on the measurement of value after the identification of its components

accurately can be identified directly, but the difficulty of that method enables the identification of components.

- The ratio of market value to book value is one of the simplest methods of intellectual capital. This method is based on the difference between the market value of companies, including the book value. Therefore, the main rationale for this method indicates that the value represents the real value of the companies and within that value the value of tangible assets and intellectual capital In the sense of the difference between the book and market values (representing the value of intellectual assets) .

**1-3 Components and classification of intellectual capital**

Intellectual capital consists of three main components:

A- Human capital: Is the knowledge (skills, experiences, innovations) owned by the workers, the value of the individual for the organization is determined by the organizational role, which means that the skills and knowledge of the individual does not evaluate the organization for each post (job), but assess whether we expect to employ skills The individual and his knowledge as a financial means to serve the goals of the organization (Flamholtz ,1999), can be developed through brainstorming, reengineering processes and improving personal skills .

Human capital is characterized by a number of characteristics including:

-Human capital is increasing with repeated us .

- -The life cycle of human capital is longer than the life cycle of technology, because the knowledge and experience of human capital flows among the members of the Organization, thus providing better opportunities for the renewal of this knowledge .

- Human capital is most capable and vital to renew itself and generate its renewable value .

B- Structural capital

Structural capital is defined as all things that support human capital, but it remains in the organization when individuals leave their organization (McElroy ,2002). It is the infrastructure and support of workers. It includes traditional objects such as structures,

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physical parts of computers and software, operations, Patents, trademarks, information systems, databases, policies, administrative procedures, and any other intangible assets owned by the Organization and not reflected in its budget

The most important indicators of structural capital are the following :

- General culture: The methods of building the culture of the organization include the compatibility of the workers with the developments of the organization .
- - Organizational structure: includes the effectiveness of the organization's control system, and the clear relationship between authority and responsibility .
- Organizational learning: It includes the preparation of an internal information network, the extent of its use, the preparation of an educational inventory of the organization, and the extent of its use.
- Operations: It includes the business processes, the various activities, the quality of the product, as well as the efficiency and efficiency of the operations .
- Information system: includes coordination among employees, providing mutual support, the availability of data, information related to the activities of the organization, and also the extent of participation in knowledge .

C- Capital of Relationships

Is the value of the relationships that the organization establishes with its customers through increasing customer satisfaction, loyalty, and retention, by taking care of its suggestions, listening to complaints submitted by it, finding successful solutions as quickly as possible, participating in its business and transactions, ). It consists of several elements:

- Basic marketing capabilities: includes the preparation and use of customer database, providing the necessary capabilities customer requirements, and the ability to determine the requirements of customers .
- Market density: Includes the market share of the organization and the potential market, the units that were discharged to the number of customers and the revenue earned per customer, and also the reputation of the brand, and the trade name of the organization .

- Customer loyalty indicators: includes customer satisfaction or complaints and the size of investment in building relationships with customers, and the average turnover of customers .

**1-4 Reasons for interest in intellectual capital in Islamic banks**

The interest in the development of intellectual capital in Islamic banking contributes to many advantages, the most important of which is increasing the creative ability of employees, attracting customers and enhancing their loyalty, enhancing competitiveness, reducing costs and improving productivity .

The main reasons for Islamic banks recently interest in intellectual capital and its components are as follows :

- The global spread of Islamic banking, and the increase in the phenomenon of the transition to Islamic banks requires the availability of the human element is aware of the concepts of Islamic banking and knowledge and knowledge of the controls Islamic legitimacy governing banking .
- The need for research, development and innovation

The strong competition between Islamic banks and traditional banks to offer Sharia-compliant products due to the growing demand for these products has opened special sections and branches to attract a new segment of customers who prefer Islamic banking. Moreover, Islamic banks and each other, this process ultimately leads to the promotion of Islamic banking and reputation as long as each Islamic bank tries to improve its position and satisfy its customers through the provision of Islamic banking services of high quality. All this increases the pressure on banks Islamic countries to increase their competitiveness, so they must move towards enhancing their human resources capabilities and qualify them to provide high quality banking services .

- Technological and economic developments: Keeping pace with the human resources in Islamic banks and raising the skills, knowledge and experience of the employees make the Islamic Bank able to adapt and face any change in technology, whether economic or absorbed, to serve the objectives of the Islamic Bank .

Second: Financial inclusion and its relationship with Islamic banks

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The Islamic banking business derives its rules and its forms from the Holy Quran and the Sunnah of the Messenger of Allah (peace and blessings of Allaah be upon him), in addition to what the scholars of Shari'a have reached. This means that everyone who has become active in Islamic banking must always return to that reference, And the first officer to distinguish the Islamic Bank from other conventional banks that it does not take advantage of the benefits, due to the nature of the financing techniques applied by the hand, and the legal basis on which the Islamic Bank on the other hand, which You absolutely forbid these sins The Islamic Bank may not require profit or guarantee in its investments in accordance with the jurisprudential rules of the sheep with the penalty, the absolution by guarantee, and the commitment in its dealings with the halal and away from the prohibited and doubtful areas. It derives its legitimacy from the Islamic thought which it embodies and its activity is subject to the controls of activity in the economy. And adherence to his ethics and ethics in these transactions, which extend to all areas of human activity .

**2- Islamic banking programs to enhance financial inclusion**

The Islamic financial system is theoretically based on improving financial inclusion. The Islamic financial system plays an important role in promoting welfare in society through the prohibition of usury and gambling (Chapra, 1992). It focuses on promoting equality and equity among all Categories of society .

There are several reasons for enhancing the role of these Islamic banks in increasing financial inclusion. Most notably, they have huge financial capabilities. Available figures indicate that the value of assets in Islamic banks increased from $ 4.2 trillion in 2015 to $ 3.4 trillion in 2018, % in the middle. The most important programs offered by Islamic banks to include disadvantaged groups within the banking sector are as follows :

A- Offering Islamic financing modes based on participation in profit, loss and risk that are appropriate for customers who do not have adequate banking guarantees and need capital to set up their small businesses. In fact, Islamic banks have largely avoided the use of participative financing methods because of the risks associated with these formulas, Islamic banks can use their excess liquidity to introduce equity-based financing methods for low-income sectors of society .

B- use of wealth redistribution tools; the Islamic financial system contains unique tools for the redistribution of wealth, such as: Zakat, Alsadaqat and alqard alhasan, would these tools to integrate with risk-sharing tools occur; to target low-income earners in society, and can use those tools to support inclusion Financial institutions in several ways to provide training centers for the education of the poor and help themselves to provide good loans ,to craftsmen and unemployed Islamic microfinance programs in the form of productive assets, to provide Zakat to those in need in the form of productive assets with ownership of these assets, Live for the poor, contributing to the development of poor areas through the establishment of infrastructure projects provide them with living in a dignified, prepare a feasibility for a bundled small-scale projects to replace imports studies, and develop exports with the implementation of Islamic banks for such projects, and provide what you need of productive assets, and possessed the poor who Bringing them to work in these projects .

C) Presenting Islamic microfinance programs

The availability of Islamic microfinance can support funding for a segment of the population that has little or no access to traditional banking services for religious reasons. To increase the capacity of Islamic banks to improve financial and banking inclusion .

## 2-2Indicators to measure the ability of Islamic banks to achieve financial inclusion

The main indicators for measuring financial inclusion in Islamic banks are:

A. The spread of infrastructure services for Islamic banks, including the spread of banking branches and ATMs, electronic banking operations and financial operations using mobile phones. The availability of effective and efficient infrastructure systems for Islamic banks is a key factor in improving the efficiency of access of finance and financial and banking services to different segments of society and geographical areas.

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B. Allow the use of low-cost channels such as: local retailers acting as agents for financial services providers and "small" branches; thus expanding the actual presence of financial service providers at reasonable cost while providing real benefits to the groups to which the services reach.

C. The degree Of Used ICT to reach lower segments of society in rural areas and to connect with customers in urban areas and to enable Islamic banks to reach places where physical presence is costly. According to Nazim and Kasbati 2016, the use of mobile banking services in the UAE is 34%, followed by 27% in Kuwait, 19% in Qatar and 15% in Saudi Arabia. In the GCC, 26% of Islamic banking customers use mobile banking compared to 38% of customers in conventional banks.

D - Increasing the percentage of participation methods to the total modes provided by the Islamic Banks, which helps to increase the actual investment rates, in addition to it does not require any guarantees in kind that prevent the access of small farmers and producers to finance whenever Islamic banks tend to attract those categories whenever you can achieve Financial Inclusion .

**Third: A quantitative model proposed to study the impact of intellectual capital on the financial integration of Islamic banks.**

The objective of this model is to determine the impact of intellectual capital on the financial inclusion of Islamic banks in several selected banks during the period 2013-2017. We will estimate the value of intellectual capital of Islamic banks on the market value index of Islamic banks, which consists of two capital components Financial and intellectual capital, so as to determine the extent of their relative importance in order to assess the degree of financial inclusion in the Islamic Bank, and to allow appropriate policies to support the developmental impact of financial inclusion at the community level. Based on this, the model will be addressed by:

**3.1 Sample selection and time series**

The study sample consisted of eighteen Islamic banks operating in the OIC countries (Kuwait, Saudi Arabia, UAE, Egypt, Bahrain and Jordan). These countries were selected due to their increasing participation in enhancing financial inclusion through several programs, . The list of Islamic banks operating in each country has been compiled in accordance with the financial statements. Annual reports are used as a primary source of data collection because these reports are more reliable and audited.

The time series included (11) years of the period (2007-2017), and the number of views of the sample about 72 views.

**3.2 model characterization and identification of variables and data sources.**

Based on the theoretical and applied literature, which show that the physical and intellectual capital are the most important variables affecting the ability of Islamic banks to enhance and increase financial coverage. Based on the hypotheses of the study, the following standard models were built for testing. Shown in the following function:

**FI=∝+β1VAIC+β2HC E+β3SCE+β4CEE+β5Bank size+ε**

**FI :** Financial inclusion

Which is measured by the size of Islamic microfinance provided by the Islamic Bank for Small and Medium Enterprises. In addition to alqurud alhasana that are set up with the Islamic Bank of Zakat .

- **VAIC** Value added of intellectual capital.

**HCE** :The efficiency of human capital, calculated by the following equation

**Human capital efficiency = value added of intellectual capital / total human capital expenditure**

**SCE:** Structural Capital Efficiency.

**CEE**: efficiency financial capital**.**

-**Bank size:** It is measured by the total assets of Islamic banks.

**-- ε: Random error**, which is supposed to take the form of moderate natural distribution, so its arithmetic mean is equal to zero and its variation is constant and its value is independent .

The double linear logarithmic method was selected in the process of estimating the parameters of the model because it expresses the elasticity of the dependent variable for the independent variables. Thus, the regression function form is as follows **:**

**LnFI=∝+β1VAIC+β2HCE+β3SCE+β4CEE+β5Bank size+ε**

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Since the efficiency of the intellectual capital consists of three variables, three sub-equations will be formulated based on the proposed basic regression equation :

**LnFI=∝+β1VAIC+ β2CEE+ β3Bank size+ε**

**LnFI=∝+ β1HCE+ β24CEE + β3Bank size+ε**

**LnFI=∝+ β1SCE+ β2CEE + β3Bank size+ε**

### 3.3 Statistical description of variables in the model

Table 1 shows the descriptive statistics of the research variables used in this study.

As shown in the table, the minimum and maximum value of financial inclusion(expressed in the size of good loans and microfinance) is 0.29 and 1.24 respectively, with an average of 0.80 indicating that the Islamic banks in the study sample continue to provide financial inclusion programs .

During the study period. While the 4.65 average value added of the VAIC suggests that, during the study period, Islamic banks were generally modeled for enhancing financial inclusion through the exploitation of their intellectual capital resources. The descriptive statistics on separate independent variables indicate that both human capital efficiency (HCE) and SCE (regulatory capital efficiency and CEE) have positive averages ranging from 3.29 to 1.23 and 0.38, respectively.

**Table (1) Statistical description of the variables of the model**

| Stats | Mean | Std. .Dev | Minimum | Maximum | Maximum Skewness | Kurtosis |
|---|---|---|---|---|---|---|
| LnFI | 0.0789 | 0.282 | 0.292 | 1.237 | -01.190 | 3.396 |
| VAIC | 4.654 | 3.059 | - 3.250 | 11.030 | -0.165 | 3.927 |
| HCE | 3.294 | 2.622 | - 2.704 | 9.410 | 0.177 | 3.817 |
| SCE | 1.232 | 0.096 | -0.039 | 3.187 | 0.575 | 4.462 |
| CEE | 0.0381 | 0.156 | -0.094 | 0.448 | 0.059 | 2.487 |
| Bank-size | 14.361 | 1.577 | 10.787 | 16.836 | -0.647 | 2.7363 |

Table (2) shows the results of Pearson's correlation. It is noted that the value-added value coefficient of the intellectual head and its sub-components are positively correlated with the mechanisms of financial inclusion in the Islamic banks under study. The results of the second column of Table 2 show that there is no correlation between the study variables.

**Table (2) Correlation analyzes between model variables**

| | VIF | VIF Ln FI | VAIC | HCE | SCE | CEE |
|---|---|---|---|---|---|---|
| VAIC | 1.79 | 0.2893 | | | | |
| HCE | 1.64 | 0.3089 | 0.9185 | | | |
| SCE | 1.52 | 0.1711 | 0.0344 | 0.0795 | | |
| CEE | 1.49 | 0.3810 | 0.5179 | | 0.2009 | |
| Bank-size | 1.34 | 0.4762 | 0.3694 | 0.4008 | 0.1989 | 0.451633 |

2

## 3.4 Results of regression analysis

Table (3) shows the results of estimating the regression models. From the table, it is noted that the value of the R2 is for each of the four models between 28% and 35% during the study period. This indicates the low explanatory capacity of the model variables to explain the determinants of financial inclusion. Such as the profitability of the Islamic bank, and the cost of transactions may have an impact on the degree of financial inclusion in Islamic banks and were not included in the model because of insufficient data during the study period.

**Table (3) Results of regression models[1]**

| **Models** | **Model (1)** | **Model (2)** | **Model (3)** | **Model (4)** |
|---|---|---|---|---|
| Observations | 72 | 72 | 72 | **72** |
| VAIC | 0.0147 (**) | | | |
| Banks-size | 0.0893 (***) | (0.0876 ***) | 0.0987 (***) | 0.0788 **(***)** |

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**The coefficient has a statistical significance at a significant level of 1%
***The coefficient has a statistical significance at the level of 5%
* The coefficient has a statistical significance at the level of 10%

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| | | | | |
|---|---|---|---|---|
| HCE | | 0.0191 (***) | | |
| SCE | | | 0.0211 | |
| CEE | | | | 0.597 **(***)** |
| Constant | -0.378 (* ) | -0.350 (*) | -0.485(**) | - 0.232 |
| Adj. R2 | 0.271 | 0.275 | 0.261 | 0.351 |

### 3.4.1 The relationship between ( VAAC) and the financial inclusion of Islamic banks.

As shown by the first regression model, there is a significant correlation between financial inclusion in Islamic banks and value added labs for intellectual capital (VAIC) (P <0.05). Therefore, **the first hypothesis of the imposition of the study is achieved by a relationship Between financial inclusion and intellectual capital**.
The size of the Islamic bank is also correlated with financial inclusion at a significant level of 1%. The higher the assets of Islamic banks, the higher their ability to achieve financial inclusion.

### 3.4.2 The relationship between human capital and financial inclusion in Islamic banks

From Model 2 in the third column of Table (3), it is clear that there is an important positive relationship at a significant level of 1% between the efficiency of human capital and the measure of financial inclusion. Thus **fulfilling the second hypothesis that human capital is the main driver of financial inclusion.**

### 3.4.3 The relationship between structural capital and financial inclusion in Islamic banks

The results in the third model, shown in the fourth column of Table 3, show a statistically significant relationship between the efficiency of regulatory capital and financial inclusion. Thus, there is not enough statistical evidence to support the third hypothesis of the study. Thus, the third hypothesis that there is a positive relationship between financial inclusion in Islamic banks and regulatory capital is rejected .

### 3.4.4 The relationship between physical capital and financial inclusion in Islamic banks .

Finally, the results of the fourth model, in the fifth column of Table 3, indicate that there is a significant positive relationship at the 1% level between the efficiency of working capital (financial) and the financial inclusion in Islamic banks , Thus, the fourth hypothesis of the hypothesis of the study is realized .

## Conclusion and Recommendations

The results of the study showed that the integration between intellectual and physical capital is the mainstay of achieving financial inclusion in Islamic banks. The higher the knowledge levels of the employees, the greater their mental and creative abilities. The study showed that increasing the structural capital, such as buildings and equipment, does not affect the ability of Islamic banks to Achieving financial inclusion.

**Based on the above, the study recommends several proposals :**

- -To stimulate scientific and applied research related to Islamic banking products and to establish a special system of specialists to provide extension services to overcome obstacles to development. Islamic banks are not considered separate entities but are part of a coherent group with interrelated relations of cooperation and coordination.

-Establishing Islamic training accreditation centers to raise the professional level of employees in the Islamic financial industry by setting standards and rules governing the training services and supervising the accreditation of trainers, training programs and bodies based on the training work, in addition to offering various

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programs, courses and seminars in the field of developing Islamic products **.**

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