“Intellectual capital and financial performance of Sharia-compliant banks in Saudi Arabia”

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ARTICLE INFO	Mohammad Naushad (2019). Intellectual capital and financial performance of Sharia-compliant banks in Saudi Arabia. *Banks and Bank Systems*, *14*(4), 1-9. doi:10.21511/bbs.14(4).2019.01
DOI	http://dx.doi.org/10.21511/bbs.14(4).2019.01
RELEASED ON	Friday, 15 November 2019
RECEIVED ON	Thursday, 12 September 2019
ACCEPTED ON	Friday, 25 October 2019

JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
48	0	2

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine

www.businessperspectives.org

Received on: 12th of September, 2019
Accepted on: 25th of October, 2019

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INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE OF SHARIA-COMPLIANT BANKS IN SAUDI ARABIA

Abstract

The current study is aimed at analyzing the impact of intellectual capital on the performance of Sharia-compliant banks in Saudi Arabia for the period 2013–2018. The intellectual capital efficiency has been measured by applying a widely-used proxy to intellectual capital, i.e., Value Added Intellectual Coefficient (VAIC). A multiple linear regression method, based on panel data using the pooled Ordinary Least Squares (OLS), was exerted. Regression equations were obtained to determine the impact of VAIC and its components (Human Capital Efficiency (HCE), Structural Capital Efficiency (SCE), and Capital Employed Efficiency (CEE)) on the financial performance of banks, designated as Return on Assets (ROA) and Return on Equity (ROE). The study has found out that VAIC has a statistically significant impact on the financial performance of Sharia-compliant banks in Saudi Arabia. But VAIC components fail to have a significant impact on ROE. However, these components significantly affect ROA. The study concludes that Sharia-compliant banks in the Kingdom of Saudi Arabia should pay particular attention to Intellectual Capital (IC) in general and Human Capital (HC), Structural Capital (SC), and Employed Capital (EC) in particular to increase Return on Assets and financial performance as a whole.

Keywords Sharia-compliant banks, Intellectual Capital (IC), Value Added Intellectual Coefficient (VAIC), Return on Assets (ROA), Return on Equity (ROE), Saudi Arabia

JEL Classification G21, 034, C31

INTRODUCTION

The roots of the conventional banking system can be traced back centuries (Cerović et al., 2017). The conventional banking system was based solely on the interest-based banking system. In contrast to the interest-based banking system (conventional), there is a non-interest based banking system called the Islamic banking system. It fully complies with banking principles referred to in Sharia law, also known as the Sharia-compliant banking system. The Sharia banking system arose at the dawn of Islam (Ali, 2015; Chachi, 2005). The basis of the Sharia-compliant banks lies on three important pillars, i.e.:

a) prohibition of Ribaa' (interest);

b) prevention of speculative activities (gharar);

c) proscription of financing the illegal (haram) business activities (Chachi, 2005; Nawaz & Haniffa, 2017).

The Kingdom of Saudi Arabia (KSA), which is one of the largest Muslim countries, does not exclude the presence of the Islamic banking. There are currently four full-fledged Sharia-compliant banks in

http://dx.doi.org/10.21511/bbs.14(4).2019.01

KSA, and other conventional banks also offer the Sharia-compliant products (Oxford Business Group, 2018). The performance of Sharia-compliant banks has been stable, since banks are well capitalized, sound and profitable (Iqbal & Molyneux, 2005). But how Intellectual Capital (IC) influences the performance of these banks has not yet been investigated. This study is based on this notation, focusing on the Sharia-compliant banks in Saudi Arabia.

The present work studies the impact of the Intellectual Capital (IC) on the financial performance of Sharia-compliant banks in Saudi Arabia. Though the influence of IC on the financial performance of conventional banks in Saudi Arabia and other parts of the world has been well examined by researchers (e.g., Al-Musali, & Ismail, 2014; Kamath, 2007; El-Bannany, 2008; Kyrmizoglou & Mavridis, 2005; Karem & Ismail, 2012; Mavridis, 2004; Meles, Porzio, Sampagnaro, & Verdoliva, 2016), the Sharia-compliant banks must be explored specifically in the Saudi context.

1. LITERATURE REVIEW

Numerous studies have shown the impact of intangible assets on a firm's financial performance (Chareonsuk & Chansa-ngavej, 2008; Haji & Ghazali, 2018; Moeller, 2009; Sriram, 2008). It is important to note that measurements of intangible assets in the literature are in the form of intellectual capital (IC). However, researchers do not seem to have a unified view of the definition of intellectual capital. According to Edvinsson and Malone (1997), intellectual capital is considered as the excess of a firm's market value over its book value. According to Edvinsson and Sullivan (1996), IC is knowledge that can be transformed into values. However, intellectual capital is not limited only to knowledge, but is a combination of information, Intellectual Property Rights (IPR), knowledge and experience (Stewart & Ruckdeschel, 1998). Chen, Liu, and Kweh (2014) confirm that IC is intangible assets based on knowledge deeply-rooted in organizations that include intellectual competencies, intellectual property, and other intellectual resources. Thus, it can be summarized that IC is intangible assets that include knowledge and other intellectual resources (IPR, competencies, and human intellect). Moreover, the various components of IC, as mentioned in the literature, are classified as Human Capital (HC), Structural Capital (SC), and Customer Capital (Guthrie & Petty, 2000; Kannan & Aulbur, 2004; Choong, 2008). Probably, to determine the firm's intellectual capital, more challenging task is to measure the impact of IC on the firm's financial performance and profitability. The intangible nature of IC complicates the task of observing exposure. Therefore, academics develop certain indirect methods of intellectual capital. One of the most commonly used proxies for IC is the Value Added Intellectual Coefficient (VAIC) proposed by Pulic (2000).

VAIC is a combination of value creation efficiency for IC components, namely, Human Capital (HC), Structural Capital (SC), and Capital Employed Efficiency (CEE). Recently, VAIC has gained momentum in measuring the efficiency of the intellectual capital components of companies in various sectors (e.g., Nimtrakoon (2015) among technology firms, Kamath (2008) among pharmaceutical firms, Forte et al. (2017) among various listed companies, Naushad (2019) among listed SMEs in KSA, and Bontis et al. (2015) among the hotels).

VAIC is applied differently in different sectors, as mentioned above, but widespread use can be cited in the banking sector. The banking sector is considered as one of the most appropriate sectors for creating value and overall intellectual capital. Goh (2005) measured the intellectual capital performance among commercial banks in Malaysia from 2001 to 2003. Similarly, Ting and Lean (2009), Poh, Kilicman, and Ibrahim (2018) observed the effect of intellectual capital on the financial performance of Malaysian banks. While Yalama and Coskun (2007) realized the importance of intellectual capital coefficients for the efficiency, calculated by applying DEA among 18 listed banks in Turkey. Alhassan and Asare (2016) found a positive relationship between the intellectual coefficients and the Malmquist performance among banks in Ghana. The same can be said of Mavridis (2004) for the Japanese banking sector; Kyrmizoglou and Mavridis (2005) for the Greek banking sector; Joshi et al. (2010) for the Australian banking sector; Kamath (2007) for the

http://dx.doi.org/10.21511/bbs.14(4).2019.01

Indian banking sector; El-Bannany (2008) for the UK and Meles et al. (2016) for the US banking sector. Thus, there is evidence that indicates an optimistic trend in constructive relationships between IC and bank performance. Similarly, the influence of IC and corporate governance on the banking sector performance in the Arab world has also been determined by El-Bannany (2012) for UAE banks, Naushad and Malik (2015), Al-Musali and Ismail (2016) for banks in the GCC, Al-Musali and Ismail (2014), Abdulsalam et al. (2011) and Ismail and Karem (2011) for Bahraini, Kuwaiti and Saudi banks, respectively. But there is a lack of suitable research that could understand the effect of VAIC on the Sharia-compliant banks' financial performance, especially in the Arab region. However, there are studies in other countries that talk about the VAIC impact on Sharia banking, such as Nawaz and Haniffa (2017), who research on 64 Islamic banks in 18 different countries. Rachmawati et al. (2018) studied the Islamic banks in Indonesia, Aziz and Hashim (2017) analyzed the Malaysian banks and Hasan et al. (2017) explored the Islamic banks in Bangladesh. But there are still no studies available in the Saudi context, specifically regarding the Sharia-compliant banks (Islamic banks). This study will be aimed at validating the applicability, effectiveness and reliability of VAIC for Sharia-compliant banks in the banking sector of Saudi Arabia.

1.1. Research hypotheses

Therefore, the following hypotheses can be stated for the current study:

H1: Intellectual capital, as measured by VAIC, influences the financial performance as measured by ROA of Sharia-compliant banks.

H1.1: The financial performance measured by ROA of Sharia-compliant banks is influenced by HCE, SCE and CEE.

H2: Intellectual capital measured by VAIC influences the financial performance measured as ROE of Sharia-compliant banks.

H2.1: The financial performance measured by ROE of Sharia-compliant banks is influenced by HCE, SCE, and CEE.

2. METHODOLOGY

This study uses data from four listed Sharia-compliant banks in Saudi Arabia. According to the Oxford Business Group Report (Oxford Business Group, 2018), there are 12 listed commercial banks in Saudi Arabia. And all banks offer the Sharia-compliant products, but only four banks are Sharia-compliant (Oxford Business Group, 2018). Therefore, this study is limited to only four banks that are fully consistent with Sharia norms in banking products and practices. The data is outspread for six years from 2013 to 2018. Overall, there are 24 observations for this study. The data is obtained from the annual reports of banks, accessed from public websites.

The study applies the Pulic VAIC® model (Pulic, 2000) to measure the value added created by a bank and a proxy of intellectual capital. While for the financial performance, Return on Assets (ROA) and Return on Equity (ROE) were applied. Multiple linear regression analysis was performed based on panel data using the pooled Ordinary Least Square (OLS) method to estimate the relationship between IC and bank financial performance. The value added intellectual coefficient (VAIC) is one of the widely-used tools for intellectual capital efficiency of companies. VAIC has four components, namely, value added, human capital efficiency (HCE), structural capital efficiency (SCE), and capital employed efficiency (CEE). The calculation for VAIC is taken from Pulic (2004).

Therefore, the independent variables for this study have been taken as the calculated values of

a) VAIC;
b) HCE;
c) SCE; and
d) CEE.

2.1. Dependent variables

The financial performance of banks has been considered as a dependent variable. The widely-used proxies for financial performance in the literature are Return on Assets (ROA) and Return on Equity (ROE). The combination of these two represents the overall financial health

of the organization. The value of ROA can be obtained by dividing total income by total assets. While ROE value is obtained by dividing net income by average value of shareholder's equity. These values were calculated for each financial year.

2.2. Control variables

The regression model emerged for the estimation by regressing the dependent and independent variables and is controlled by two variables, namely, SIZE and LEVERAGE (LEVRG). The value for SIZE is obtained as the log value of total assets of banks in the financial year. While the value for LEVERAGE is obtained by dividing total debts by total assets of a bank in the financial year.

2.3. Empirical models

Having gathered all the variables together, the following two empirical models were obtained with one additional equation for each:

Model 1

$$ROA_{i,t} = \propto + \beta_1 VAIC_{i,t} + \\ + \beta_2 SIZE_{i,t} + \beta_3 LEVRG_{i,t} + \mu_{i,t}\ , \quad (1)$$

$$ROA_{i,t} = \propto + \beta_1 CEE_{i,t} + \\ + \beta_2 HCE_{i,t} + \beta_3 SCE_{i,t} + \\ + \beta_4 SIZE_{i,t} + \beta_5 LEVRG_{i,t} + \mu_{i,t}. \quad (2)$$

Model 2

$$ROE_{i,t} = \propto + \beta_1 VAIC_{i,t} + \\ + \beta_2 SIZE_{i,t} + \beta_3 LEVRG_{i,t} + \mu_{i,t}\ , \quad (3)$$

$$ROE_{i,t} = \propto + \beta_1 CEE_{i,t} + \\ + \beta_2 HCE_{i,t} + \beta_3 SCE_{i,t} + \\ + \beta_4 SIZE_{i,t} + \beta_5 LEVRG_{i,t} + \mu_{i,t}, \quad (4)$$

where i denotes a bank (i = 1, 2, 3, 4), t is the time (t = (2013–2018)), and $\mu_{i,t}$ is the error term.

3. RESULTS AND DISCUSSION

3.1. Descriptive statistics and correlation

A description of all the variables taken together is shown in Table 1. Where the mean score for *VAIC* is (M = 5.496, SD =1.013), while the other antecedent has *HCE* (M = 0.2837, SD = 0.899), *SCE* (M = 6.14, SD = 0.114), *CEE* (M = 0.036, SD = 0.008), respectively.

Before investigating the relative impact of VAIC and its components on profitability using regression analysis, a Pearson correlation has been carried out. The *VAIC* is found to have a statistically significant correlation with *ROA* and *ROE* (r = 0.849, p < 0.001) and (r = 0.459, p < 0.005), respectively. Among the components of *VAIC*, i.e., *HCE*, *SCE* and *CEE*, there are those that significantly correlate with *ROA*, i.e. (r = 0.849, p < 0.001), (r = 0.459, p < 0.005) and (r = 0.459, p < 0.005), respectively. While there is no or low level of significant relationship between the components of *VAIC* and *ROE*, i.e. (r = 0.461, p < 0.005), (r = 0) and (r = 0.559, p < 0.001). Table 1 provides the correlation results in detail.

3.2. Regression results

To develop the impact of IC on the performance of Sharia-compliant banks, a multiple linear regression equation based on panel data is estimated using the pooled OLS method. Two models are estimated, in which model 1 considers the Return on Assets as the proxy of profitability and model 2 considers Return on Equity. In model 1, a significant regression equation (1) was found (F (3, 20) = 101.506, p < 0.000), with an R^2 of 0.724 and $R^2_{Adjusted}$ = 0.717. The profitability predicted by *ROA* is equal to –0.010 + 0.004 (*VAIC*) + 0.001 (*SIZE*) + 0.008 (*LEVRG*). In order to test the influence of *VAIC* components on profitability measured by *ROA*, the other equation (2) was estimated with VAIC components. The equation is found to be significant with (F (3, 20) = 920.823, p < 0.000), with an R^2 of 0.966 and $R^2_{Adjusted}$ = 0.965. The profitability predicted by *ROA* is equal to –0.026 + 0.002 (*HCE*) + 0.008 (*SCE*) + 0.356 (*CEE*) + 0.003 (*SIZE*) – 0.005 (*LEVRG*). The results are surprising with a very high R^2 and $R^2_{Adjusted}$. This may be probably due to

http://dx.doi.org/10.21511/bbs.14(4).2019.01

Table 1. Descriptive statistics and correlation matrix

	Range	Min	Max	Mean	Std. dev	Skewness	Kurtosis	ROA	ROE	VAIC	HCE	SCE	CEE	Size	LEVRG
ROA	.020	.009	.028	.018	.005	.417	–.508	1							
ROE	.183	.015	.199	.126	.046	–.337	–.167	.712**	1						
VAIC	3.244	2.252	5.496	3.487	1.013	.452	–1.185	.849**	.459*	1					
HCE	2.877	1.788	4.665	2.837	.899	.506	–1.102	.848**	.461*	1.000**	1				
SCE	.345	.441	.786	.614	.114	.024	–1.686	.806**	0	.982**	.978**	1			
CEE	.027	.023	.050	.036	.008	.298	–.823	.662**	.559**	0	0	0	1		
Size	1.002	7.560	8.562	8.005	.320	.791	–.841	.760**	.527**	.884**	.890**	.826**	0	1	
LEVRG	.153	.560	.713	.653	.037	–1.038	.786	0	0	0	0	.430*	0	0	1

Note: ** Correlation is significant at the 0.01 level (2-tailed). * Correlation is significant at the 0.05 level (2-tailed).

similar nature of the variables, chance correlation and excessive model matching (Frost, 2019).

Model 2, using the Return on Equity as a proxy for the profitability, was estimated using *VAIC* and its components. The equation utilizing *VAIC* as the predictor of profitability represented by *ROE* is found to be significant with the following equations ($F(3, 20) = 15.734$, $p < 0.000$), with an R^2 of 0.289 and $R^2_{Adjusted} = 0.271$. The profitability predicted by *ROE* is equal to –0.371 + 0.003 (*VAIC*) + 0.073 (*SIZE*) – 0.146 (*LEVRG*). While equation (3) estimated using the components of *ROE* found the following ($F(3, 20) = 42.835$, $p < 0.000$), with an R^2 of 0.569 and $R^2_{Adjusted} = 0.556$. The profitability predicted by *ROE* is equal to –0.556 + 0.017 (*HCE*) + 0.079 (*SCE*) + 3.443 (*CEE*) + 0.092 (*SIZE*) – 0.277 (*LEVRG*).

Table 2. Regression results

	Model 1	Model 2
Dependent variable (DV)		
STd. $_{\beta}$	ROA	ROE
Independent variable (IV)		
Constant	–0.010 (0.014)	–0.371 (0.204)
VAIC	0.004*** (0.001)	0.003** (0.008)
Size	0.001*** (0.002)	0.073** (0.025)
LEVRG (Leverage)	0.008*** (0.008)	–0.146^{ns} (0.110)
R^2	0.724	0.289
Adjusted R^2	0.717	0.271
F	101.506	15.734
Significance of *F*	0.000**	
Independent variable (IV)		
Constant	–0.026 (0.005)	–0.556 (0.163)
HCE	0.002*** (0.001)	–0.017** (0.019)
SCE	0.008*** (0.004)	0.079^{ns} (0.121)
CEE	0.356** (0.011)	3.443^{ns} (0.348)
SIZE	0.003*** (0.001)	0.092** (0.019)
LEVRG	–0.005*** (0.002)	–0.277* (0.075)
R^2	0.966	0.569
Adjusted R^2	0.965	0.556
F	920.823	42.835
Significance of *F*	0.000**	
Targeted hypotheses	*H1* and *H1.1*	*H2* and *H2.1*

Notes: *, **, *** Significant at 0.90%, 0.95% and 0.99%, respectively.

4. DISCUSSION

This work is aimed at studying the effect of IC on the financial performance of Sharia-compliant banks in Saudi Arabia. Though the effects of IC on financial performance of conventional banks in Saudi Arabia and other parts of the world is well established by researchers (e.g., Al-Musali & Ismail, 2014; Kamath, 2007; El-Bannany, 2008; Kyrmizoglou & Mavridis, 2005; Karem & Ismail, 2012; Mavridis, 2004; Meles et al., 2016), studies that could understand the impact of VAIC on the financial performance of Sharia-compliant banks, especially in the Saudi context, are scant. The present study is based on these notations, focusing on Sharia-compliant banks in Saudi Arabia. The study finds that intellectual capital, as measured by VAIC, influences the financial performance (proxied by ROA) of Sharia-compliant banks in Saudi Arabia. This resembles the authors' conclusion with El-Bannany (2012), Meles et al. (2016), Nawaz and Haniffa (2017). Similarly, VAIC components, i.e. HCE, SCE and CEE, indicate strong significance with ROA. Thus, the results indicate that any increase in HCE, SCE and CEE will increase the Return on Assets of the Sharia-compliant banks.

In another regression model where ROE has been taken as a proxy of profitability, the study regressed VAIC and its components. The outcome provides mix results, where VAIC has a statistically significant relationship with ROE and equation (3) is found to be significant with a relatively low *R*-squared. But other components of VAIC (SCE and CEE) are found to be statistically insignificant. This indicates that structural capital efficiency and capital employed efficiency have no impact on the profitability of banks. While the HCE has a negative significant effect on ROE. The results are in line with Joshi et al. (2013), and Goh (2005) who perceived the same results on the components of VAIC for profitability. This may be due to the fact that ROE is considered as a relatively weak proxy of profitability due to its inclination towards the capital structure. In contrast, ROA is a stronger proxy because it is used to illustrate the financial value of intangible assets (Stewart & Ruckdeschel, 1998). ROA represents a framework that indicates the efficiency of management in using their assets for generation of income. Thus, it can be concluded that banks should consider the combination of financial assets with the appetite of IC management. This will allow them gaining the sustainable operations with increased profitability (Meles et al., 2016). The result is also in line with the fact that in the banking industry, human capital provides the competitive advantage to organizations. The results substantiate that human capital is the source of value creation, which emphasizes the hidden value of intellectual wealth (Young et al., 2009). Therefore, Sharia-compliant banks should also attract employees with extensive expertise using a variety of training tools.

CONCLUSION

The effect of IC on the financial performance of conventional banks in Saudi Arabia and other countries of the world is investigated by many researchers. In the literature on banking and IC, a sufficient amount of studies has shown a positive impact of IC on the profitability and overall financial performance of conventional banks. However, Sharia-compliant banks, which differ from conventional banks in the basic principles of banking, require proper consideration. The conventional Sharia banks perform well enough in value creation, human capital and general intellectual capital. Conversely, Sharia banks lack the attention of academics on IC fronts. This study establishes the IC efficiency and its impact on the financial performance of four Sharia-compliant banks between 2013 and 2018 in Saudi Arabia. IC efficiency was calculated using the Value Added Intellectual Coefficient (VAIC) and financial performance represented by ROA and ROE. A multiple linear regression method, based on panel data using the pooled Ordinary Least Squares (OLS), was used to show the impact of IC on the financial performance of the banks. The study confirmed that there is a positive statistically significant relationship between VAIC and the financial performance indicators (ROA and ROE). But there is no statistically significant relationship among VAIC components, namely HCE, SCE & CEE and ROE. The findings obtained mean that VAIC as

http://dx.doi.org/10.21511/bbs.14(4).2019.01

a whole has a significant impact on the profitability and overall financial performance of Sharia-compliant banks, but its individual components do not influence the return on equity.

The study provides substantial inputs to the current banking and IC literature, which includes findings about Sharia banks with the range of conventional banks. However, a comparative study is needed to compare Sharia and conventional banks. The study is limited in scope since it uses only one method of measuring IC, though there are other methods of IC measurement such as Tobin's Q, Skandia IC Navigator, Balance scorecard and Calculated Intangible Value (CIV), etc. However, the results of the study can be confirmed by extending to Sharia-compliant banks in GCC and other parts of the world.

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