



## Intellectual Capital and Performance of Nigerian Banks

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### ABSTRACT

This study examined the effect of intellectual capital on the performance of Nigerian banks using six selected banks in Nigeria from 2010-2015. The aim of this work was to ascertain the relationship between Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) and Employee Productivity (Log EP) in Nigerian banks and to determine the relationship between value added intellectual coefficient indices (HCE, SCE and CEE) and growth in revenue (GR), of Banks in Nigeria. Descriptive ex-post facto research design was adopted for this study. The study made use of secondary sources of data. The population of study is made up of the six (6) selected banks in Anambra state. This study adopted Pearson coefficient correlation statistical tools to test the hypotheses. The study revealed that there is a relationship between Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) and Employee Productivity (Log EP) in Nigerian banks. Another finding is that there is a negative relationship between values added intellectual coefficient indices (HCE, SCE and CEE) and growth in revenue (GR), of Banks in Nigeria. Based on the findings of this study, it is recommended that there should be recognition of intellectual capital as an important business resource and companies in Nigeria especially the banks should adopt an intellectual capital strategy. This will help to impact positively on intellectual capital development and enhance business performance.

**Keywords:** Intellectual Capital, Employee Productivity, Growth in Revenue and Nigerian Banks

### INTRODUCTION

In today's global economy, particularly in the service industry, where knowledge and information are very crucial to their very existence and survival, intellectual capital is gradually assuming the characteristic of "product". In the process, a company's workforce has evolved into arguably the biggest competitive differentiator for organizations in virtually all industries especially the service oriented industry which banks fall.

Obviously, little research attention has been devoted to understanding the link between intellectual capital and organizational performance in Nigeria. The problem that confronts businesses, users of accounting information, standard setters and regulators is how to best understand and communicate the difference between the value of a company, usually expressed as market prices of their shares and the accounting book value of that company (Pourkiani, Sheikhy & Daroneh 2014).

Till date, few scholars have focused on the effect of intellectual capital on organizational performance in the Nigerian banking sector. This is surprising given that scholars (Ruta, 2009, Yang & Lin, 2009) argue that intellectual capital development is the hidden value that is not reflected in organizational financial

statements but has the potential to contribute to organizational profitability and competitive advantage. Bontis and Fitz-enz (2002) classified intellectual capital into four elements human capital, customer capital, innovation capital, and process capital. Each element could directly influence performance. Moreover, there may exist a cause-effect relationship among human capital and other elements of intellectual capital (Bontis and Fitz-enz, 2002). That is, human capital, the most fundamental intellectual capital element, that affect other the three elements, and then, these three elements, in turn, affect performance. Based on the above development, this study intended to investigate the effect of intellectual capital on the performance of Nigeria bank.

The broad objective of the study is to assess the effect of intellectual capital on performance of Nigerian banks, while specific objectives are:

1. To ascertain the relationship between Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) and Employee Productivity (Log EP) in Nigerian banks.
2. To determine the relationship between Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) and growth in revenue (GR), of Banks in Nigeria.

## REVIEW OF RELATED LITERATURE

### Conceptual Framework

#### Concept of Intellectual Capital

Various studies have made attempt at providing one acceptable definition for intellectual capital but have not yet succeeded and as such there is no generally agreed definition of intellectual capital (Engstrom 2003). However, some definitions are noted here: Intellectual Capital (IC) can be briefly defined as the knowledge based equity of organizations and has attracted, during the last decade, a significant amount of practical interest (Campisi and Costa, 2008). The widespread acceptance of Intellectual Capital (IC) as a source of competitive advantage led to the development of appropriate methods of its measurement, since traditional financial tools are not able to capture all of its aspects (Campisi and Costa, 2008).

Edvinsson and Malone (1997) define intellectual capital as 'the possession of knowledge, applied experience, organizational technology, customer relations and professional skills that provide a company with a competitive edge in the market'. Ahangar (2011) sees the term intellectual capital to include inventions, ideas, general knowledge, design approaches, computer programs and publications. Brooking (1996) in Ismail and Kareem (2011), defines intellectual capital as the combined intangible assets which enable the company to function and see an enterprise as the sum of its tangible assets and intangible assets as expressed in the following formula: Enterprise = Tangible Assets + Intellectual Capital.

Saint-Onge's, (1996) model developed in the early 1990s divides intellectual capital into three parts: Human capital, Structural capital; and Customer capital. Edvinsson (1997) agrees that intellectual capital comprises human capital, structural capital and customer capital. Bontis (2000) adjusts customer capital into relational capital arguing that it not only the customer's contribution that affects intellectual capital but the whole lot of relations with customers, suppliers, shareholders and other partners. Tseng and Goo (2005) categorized intellectual capital (IC) framework in term of human capital, organizational capital, innovation capital and relationship capital. Therefore following from the above arguments, intellectual capital is expressed mathematically as: Intellectual Capital = Human Capital + Structural Capital + Relational Capital.

Wikipedia defines intellectual capital as a way of defining and categorizing peoples' skills and abilities as used in employment and as they otherwise contribute to the economy. Schmidt (2004) defines intellectual capital as a form of intangible assets that creates future economic value, which include the competencies of front-line employees and the organizational capabilities. Intellectual capital is a broad concept encompassing many components but essentially describing the quality of the labour force. While some find the term intellectual capital a limiting one, others such as Davenport (1999) suggest that identifying employees as intellectual capital allows people to be more highly valued. Davenport proposes that this permits the model where employees are "investors in a business, paying in intellectual capital and expecting a return on their investment". Simply stated, intellectual capital means people. For the purposes

of this study 'intellectual capital' refers to the sustainability of people management systems which are likely to have an impact on the performance of a firm.

From the above definitions, it is clear that intellectual capital is an important asset which has not been fully recognized and reported in financial statements but contributes significantly to improved financial performance and transformation of organizations. Intellectual capital has been widely acknowledged as that innate attribute usually acquired by a firm which drives it on the wheel of value creation, value sustainability. To this end, many definitions have been propounded by different scholar and researcher. The concept generally emanated from a describing the 'dynamic effect of individual: the 'intellect' (Sveiby, 1998). The very first of such definition of IC is that credited to Thomas Stewart, a pioneer of the concept, who in 1991 in an article captioned 'Brain power-How Intellect Capital is Becoming America's most valuable Asset' defined intellectual capital (IC) as the sum of everything everybody in your company knows that gives you company a competitive edge in the market place'. He further noted it is knowledge that transforms raw material and makes them more valuable. He submitted that for any knowledge to be tagged 'IC', the knowledge must be able to be used to create wealth.

Undoubtedly, in modern economic theory intellectual Capital Theory is one of the important theoretical foundations to account for the intellectual capital dimension. However, the extensive definitions of intellectual capital create accounting obstacles. Therefore, it is necessary to categorize the various definitional notions to identify a practical definition for intellectual capital.

Presently, there are three basic views for the notion of intellectual capital. The first is the investing view, which conceives that intellectual capital is the result of investment, and so the intellectual capital value is the expenditure that is invested to enhance personal physical strength and intelligence, and acquire knowledge and skills (Schultz 1961). The second is the view of part outputs, which conceives that intellectual capital is proprietary knowledge and skill, experience and the relevant workplace competencies of managers and technical innovators (Weijie and Zhao 2001). The third is the holistic output view, which conceives intellectual capital as the total value of personal physical strength, intelligence, and knowledge and skills for utilization. The total output is the sum of labour abilities of a particular population (Wang, Xu and Zhao 2005). There exist a strong belief and support for the third view, namely, that intellectual capital is the labour ability of any person. Thus, intellectual capital is not limited only to managers or technical personnel. More specifically, intellectual capital is the 'output' formed by the investment, the form is intangible, and its value is not what has been invested, but the worth of 'output'. As noted by Stacey (2001), intellectual capital can be divided into two main categories, defined as human capital and invisible assets, or 'non thinking' capital.

### **Intellectual Capital (IC) and Market Value**

There are two main ways of determining the value of a company: based on the company's financial statement (balance sheet) or based on its market value (stock market). Nowadays, the two values differ quite a lot (Andriessen, 2004; Edvinsson and Malone, 1997). Market value is often much higher than book value (Paula and

Lonnqvist, 2007). Market valuation describes the degree to which a firm's market value exceeds its book value (Santanu & Amitava, 2009). Market value exceeds its book value. One explanation among others for the gap is the companies' IC, which is for the most part not included in the financial statement. For example, the value of customer relationships, experiences of employees or organizational culture cannot be determined on the basis of the balance sheet (Paula & Lonnqvist, 2007). The market estimates the value of companies with high intangible assets (IC) to be significant higher than the calculated book value (Chen et al., 2005; Riahi-Belkaoui, 2003). The relationship between IC and corporate market value of a company is based on three perspectives: IC, resource-based and finance (Tseng and James Goo, 2005).

As a result, conservative accounting practices failed to account one the most important intangible assets of every organization: IC (Sveiby, 2001). The gradual introduction of the International Accounting Standards (IAS) in nearly every developed and developing country (except from the USA which is expected to implement the IAS in the next five years) forced companies to calculate assets at their real market value, while giving full definition and credit to all intangibles (International Financial Reporting

Standards, 2008). Despite that, the inability of most companies to comply with the IAS and the significant cost of such an implementation, still deteriorate the recognition of the intangible assets of every organization (Judge Piccolo, Podsakoff, Shaw and Bruce 2010). Tseng and Goo (2005) categorized IC framework in term of human capital, organizational capital, innovation capital and relationship capital. The result of such a short seeing is a growing divergence between the market and book value of organizations.

### **Capital Employed and bank performance**

Capital employed on the other hand can be defined as total capital harnessed in a firm's fixed and current assets. Viewed from the funding side, it equals to stockholders' funds or equity capital plus long-term liabilities or loan capital. However, if it is viewed from the asset side, it equals to fixed assets plus working capital. Thus, capital employed represents the value of the assets that contribute to a company's ability to generate revenue and it is also known as operating assets. This capital is normally financed by using two funding methods which are shareholders' equity and net debts. It is the assets within a manager's direct span of control and typically includes accounts receivable, inventory and plant and equipment (Nik Maheran, 2009). The banking sector is one of the sectors that utilize intensive intellectual capital. With regards to bank performance and intellectual capital, there are some researches that study the role of intellectual capital on banks' performance (Saengchan, 2008; Cabrita and Bontis, 2008). By using intellectual capital to measure performance, it has proved to give benefits towards the banks involved. In addition, Riahi-Belkaoui (2003) study has indicated that there is a positive relationship between intellectual capital and financial performance of multinational companies in United States. By seeing this, intellectual capital is proven to be compatible not only for banking industry but other industries as well.

### **Empirical Review**

Khelwalatenna and Gunaratne (2010) investigate, empirically, the relation between IC, and firm performance and the response of investors. In this respect, the study has been conducted using data drawn for 2002 to 2006 from listed financial services and manufacturing sector firms in Sri Lanka. The Public's Value Added Intellectual Coefficient (VAIC) has been employed to measure the IC together with the measurements of value creation efficiencies of capital employed, human capital, and structural capital of selected firms. The researchers use the Pearson's correlation analysis and construct regression models to investigate the said relationships. Results of the main analysis show that IC is positively associated with firm performance, and investor response. In addition, it is found that the level of importance placed by investors on three components of value creation efficiencies (physical capital, human capital, and structural capital) has not been uniform. Moreover, the results of the extended analyses further confirm some of the above associations with few exceptions. The study is novel and original in its approach to determine the value addition in the VAIC model.

Abdel-Aziz, Abdul-Naser and Shamaric (2013) examined the impact of intellectual capital on Jordanian Telecommunication Companies' (JTC) Business Performance (BP). The study surveyed the managers at JTC companies. Practical data were used in the empirical analysis collected from 84 managers out of about 500 managers, by means of a questionnaire. Statistical techniques such as descriptive statistics, t-test, ANOVA test, correlation and multiple regressions were employed. The results also indicated that RC is positively and significantly affect JTCs' BP, while SC and IC do not significantly affect JTCs' BP. The Empirical results also indicated that there are strong inter-relationships and interactions among the three components of IC.

Chidiebere (2012) examined the relationship between intellectual capital and financial performance in the Nigeria banking sector. The study adopted the ex-post facto research design. It was systematically conducted using longitudinal time series data generated from the Nigeria Stock Exchange and from annual reports and accounts of the selected banks in Nigeria spanning from year 2000 to 2011. The multiple regression analysis method was adopted for the test of all the hypotheses. The SPSS statistical software (version 17.0) was used for the data analysis. There was a positive significant relationship

between components of VAIC and the Return on Assets of the banks in Nigeria (VIAC coefficient). There was also a positive significant relationship between components of VAIC and the Return on Equity of the banks in Nigeria (VIAC coefficient). The study further showed that there was a positive significant relationship between components of VAIC and employee productivity of the banks in Nigeria (VIAC coefficient). The results also showed that there was no positive significant relationship between components of VAIC and the growth in revenue of the banks in Nigeria (VIAC coefficient). There was a positive relationship between the components of VAIC and market to book value ratio of the banks in Nigeria (VIAC coefficient).

Moradi, Saeedi, Hajizadeh and Mohammadi (2013) examined the influence of intellectual capital on the improvement of listed companies' financial performance on Tehran stock exchange. Chosen companies in this article were active in two fields of automotive manufacturing industry and needed instruments, and drug manufacturing industry and needed raw materials in a four-year-period from 2007 to 2010. Two models were utilized for intellectual capital measurement which are VIC model (value of IC) and Pulic model. The study indicates that there is positive significant association between each component of intellectual capital which is consisting of physical, human and structural capital and various indexes of financial performance. Moreover, there is a positive significant relationship between intellectual capital value and indexes of financial performance in the chosen companies

Ogbo, Ezeobi and Ituma (2013) examined the impact of intellectual capital on organizational performance: evidence from Nigeria banking sector. The survey method was adopted. From a population of 7,000 workers in the commercial banks in South Eastern States of Nigeria, a sample size of 378 workers was obtained using Taro Yamane Formula. The questionnaire contained statements to which respondents indicated the extent of their agreement on a seven-point Likert scale. The total number of copies of questionnaire distributed was three hundred and seventy-eight (378). Three hundred and sixty (360) copies were completely filled and returned representing 95% while eighteen (18) copies were incompletely filled and was discarded. The statistical tool used in testing the hypotheses is the Chi-Square statistical test which is helpful in cause and effect situation or to show the relationship between events. Findings indicated a notable similar pattern of intellectual capital –organizational performance link as found in Western countries of North America and Europe. Findings specifically show that human capital and structural capital have a positive and significant effect on organizational outcomes in the Nigerian banking sector.

Kamukama, Ahiauzu and Ntayi (2010) examined the individual contribution of intellectual capital elements to performance. Its purpose was to explore the extent to which intellectual capital elements can explain financial performance in Uganda's microfinance industry. Hierarchical regression was used because of its capacity to indicate precisely what happens to the model as different predictor variables are introduced. This study confirms that the three intellectual capital elements are strong predictors of financial performance and they account for 47% of variance in performance. However, the order of importance of these variables in explaining the variance in financial performance (basing on their standardized beta values) is: relational capital, structural capital and human capital. The findings can help management to intensify initiatives to encourage greater understanding and acceptance of the concept of intellectual capital that boosts performance in the industry.

Emadzadeh, Nadia, Asiya, Mahboobe, Fatemeh and Mojgan (2013) examined the effect of Intellectual Capital on Firm Performance. Variables were based on data collected and the study adopted descriptive research design. To calculate the performance of the corporate, balanced scorecard approach was used. A total of 89 questionnaires were distributed among the employees and operation administrators of 4 factories. SPSS18 and Amos 20 were used for data analysis. The results showed that intellectual capital have positive and significant impact on financial performance, customer, business processes, and learning and growth.

Wagiciengo and Belal (2012) did an investigation on Intellectual capital disclosures by South African companies. The main purpose of their study is to examine the extent and nature of intellectual capital disclosures in 'Top 20' South African companies over a 5 years period (2002–2006). The results show that intellectual capital disclosures in South Africa have increased over the 5 years study period with

certain firms reporting considerably more than others. Out of the three broad categories of intellectual capital disclosures human capital appears to be the most popular category. This finding stands in sharp contrast to the previous studies in this area where external capital was found to be most popular category. Abeysekera (2011) examine the effect of current-period intellectual capital disclosure on earnings and current annual stock return during a civil-war period. This study finds that firms do not include the current period intellectual capital disclosure in the current stock return and the increase in the current-period intellectual capital disclosure activity have no influence on earnings included in the current stock return. Future accounting-based earnings, if stated in the current period, by contrast are included in the current stock return. The findings provide insights into the intellectual capital disclosure practice and its influence on stock return in a civil-war environment.

Ramezan (2011) seeks to investigate the relationship between organizational organic structure and intellectual capital improvement. Researches show that the organic structure and intellectual capital have a strong relationship but this relationship has not been examined systematically. The results support the view that organic structure has a positive impact on intellectual capital. Therefore, the organic structure can improve intellectual capital in the organization. The study helps managers to design flexible and dynamic organizational structures to enhance the intellectual capital in the organization and increase the ability to compete.

Mbugua and Rotich (2014) examined the effects of intellectual capital on profitability of listed Kenyan commercial banks. The study focused on four variables; human capital, structural capital, relational capital and innovation capital. Descriptive research design was used to test how independent variables influenced listed banks profitability. The target population was ten commercial banks that were listed in Nairobi Securities Exchange by 2012. The study used secondary data sources from published audited accounts for last 5 years from 2009-2013 in gathering data for analysis. Descriptive statistical tool MS-Excel and SPSS was used to analyze data. The study found that structural capital and innovation capital affects listed commercial banks of Kenya profitability. The study recommends that Kenyan listed banks to continue with strong control over structural and innovation capital, more allocations for intellectual capital investment be made to the two elements of intellectual capital for more growth in profitability. In addition, Kenyan listed banks to be more focused in making managerial decisions in the areas of its relational and human capital reforms and their utilization to enhance efficiency of generating profit for banks.

Abdullah and Coskun (2007) examined intellectual capital performance on quoted banks on Istanbul Stock Exchange (ISE) market to measure their intellectual capital performance, and also the effect of intellectual capital efficiency on financial performance. Data were taken for the period 1995-2004, and VAIC TM was used for measurement of intellectual capital and data envelopment analysis was used for testing the impact of intellectual capital on profitability by descriptive statistical. They found that the effect of intellectual capital on profitability on the banking sector on the ISE was approximately 61.3 percent. Their findings indicated that IC seems to be a more important factor than physical capital for banks; they also observed the effect of intellectual capital on investor's behavior

Kiong and Hooi (2009) examined the relationship between intellectual capital and profitability conducted a survey on the financial institutions of Malaysia from the period of 1999 to 2007 to calculate the intellectual capital performance of finance companies and also its impact on financial performance of these companies. The findings of their study revealed that intellectual capital in the form of VAIC index and all its three components were positively and significantly associated with return on assets and profitability of companies in the financial sector

Djamil, Razafindrambinina and Tandean (2013) examined the impact of intellectual capital on firm's stock return. The increasing importance of intellectual capital that generates more value is beneficial both for managers and investors at large. The banking sector in Indonesia is chosen as the data sample for this research. Intellectual capital is measured by VAICTM, a method was adopted. The regression models explore the relationship between current and future stock returns and intellectual capital and its constituents. The findings show that intellectual capital does not affect the current stock return, but it however contributes to stock return growth. Only one element of intellectual capital affects the stock

return. The results may indicate that changes of stock returns are mostly determined by external factors such as inflation, exchange rate and socio-economic conditions.

Fathi, Farahmand and Khorasani (2013) examined the relationship between intellectual capital and financial performance. The empirical data were drawn from a panel consisting of 49 Iranian companies listed in the Tehran Stock Exchange (TSE), classified in three different industrial sectors observed over the ten-year period of 2001 to 2010. Various regression models were examined in order to test the hypotheses included in the proposed conceptual framework. The results demonstrate that there is significant positive relationship between intellectual capital and value added efficiency of structural capital component with the three financial performance measures (ROE, ROA, GR). Moreover, results indicate that there is significant positive relationship between value added efficiency of capital employed and value added efficiency of human capital with two independent variables ((ROE, ROA) and there is no significant relationship between value added efficiency of capital employed and value added efficiency of human capital with growth revenue (GR).

Tan, Plowman, Hancock (2007) examined the relationship between intellectual capital and financial performance of companies listed in the Singapore stock exchange. For this study descriptive Statistics was adopted for the purpose to used equity, earnings per share and annual return per share as indicators of financial performance and they used VAIC method for measuring intellectual capital. The results of their study indicated that there is a positive correlation between intellectual capital and the company's future performance. They also concluded that the growth rate of intellectual capital has a positive relationship with firm performance.

Samiloglu (2006) examined the relationship between value added intellectual coefficient (VAIC) and the ratio of market value to book value in the Turkish banking sector. The study adopted VAIC method. The results of their study indicated that there is significant correlation between the dependent variable (ratio of market value to book value) and the independent variable (VAIC) and its three components. Firer and Williams (2003) used VAIC M to measure the relationship between intellectual capital and commercial performance of African firms; the results of their study indicated that there is no significant correlation between the three components of intellectual capital and three dependent variables (profitability, productivity, market value).

Ngari, Gichira, Aduda and Waititu (2013) examined the relationship between Intellectual Capital Accounting and Business Performance of Pharmaceutical Companies in Kenya. To do this study, the researchers formulated three hypotheses. With a target population of eighty-nine (89) local pharmaceutical manufacturing companies, a sample size of 31 companies qualified for the study as they were the only ones that has been licensed by Pharmacy and Poisons Board and this signifies a 35% of total population. Data were collected through a 5-Scale Likert structured questionnaire administered to 31 pharmaceutical companies. The Multi-regression analysis tool, Analysis of Variance (ANOVA) and Pearson Bi-variate correlation coefficient were used to test the hypotheses. The result shows that intellectual capital accounting has positive relationship with business performance; however, human capital was the most prominent of intellectual accounting.

Boujelbenen and Affes (2013) examined the impact of intellectual capital disclosure on the cost of equity capital: A case of French Firms". The study which is an empirical research was based on companies listed in the French SBF 120 Stock Market Index adopted descriptive statistics method. Two main hypotheses and three sub-hypothesis were formulated to guide the study. Annual reports for the year 2009 of French companies in the SBF 120 French Index: these are companies that have the most significant stock exchange capitalization, while elimination was done for foreign companies. The product got the sample size to 102 French companies. Data relating to the Intellectual capital disclosure data were collected from the annual reports (reference documents) of 2009 of the companies found on the SBF 120 index for the year 2009. The result therefore shows that managers of firms, the result show the benefits of enhanced IC disclosure regarding the reduction in their cost of capital.

Vafaei, Taylor and Ahmed (2011) examined the value relevance of intellectual capital disclosure". The study sought to examine whether or not listed company disclosure of intellectual capital is value-relevant in share market and to assess its moderating role in the value relevance of reported earnings and equity

following the adoption of IFRS. The study adopted a content analysis based on annual reports sampled from listed companies in Britain, Australia, Hong Kong and Singapore were incorporated to a model to examine the direct and moderating roles ICD in a firms valuation. The study reveals that ICD is positively associated with the market price (has value relevance) in companies in two or four countries and in non-traditional industries, however, the incremental value relevance of earnings and net assets is mostly non-significant, however, the article submitted that the interaction of these variables with ICD considerably increases the basic coefficient and explanatory power the models.

The related literatures to this work were reviewed within the area and the scope of the study. This study reviews the conceptual framework which deals with the definitions of the dependent and the independent variable. There are also very limited ones on the effect of Intellectual Capital on bank performance in Nigeria and no work has been done on intellectual capital on bank performance in Nigeria. The study also note that few studies carried out in Nigeria tilted towards the banking industry (financial sector) and limited on firm performance and because of the nature of their business, such findings cannot be used to generalize for firms in Nigeria. The study is therefore set out to fill in the gap.

**METHODOLOGY**

**Research Design**

Ex post facto research design was adopted for this study. Ex post facto research is ideal for conducting social research when is not possible or acceptable to manipulate the characteristics of human participants. Ex post facto investigation seeks to reveal possible relationships by observing an existing condition or state of affairs and searching back in time for plausible contributing factors.

**Population of the Study**

The population for the study centered on the performance indices and market capitalization to book value ratios of the fifteen (15) Nigerian deposit banks quoted on the Nigerian Stock Exchange. However, due to the inability of the most of the banks to provide data for a period of up to the six (6) years, the researcher was constrained into selecting six (6) deposit banks whose stocks have consistently been very vibrant and active by volume of their stock turnover in the Exchange as well as their market capitalization, and were able to provide data for up to twelve years. The banks selected include the new generation banks such as: Zenith Bank Plc, Diamond Bank Plc, ECO Bank Plc, and the old generation banks which included: First Bank of Nigeria (FBN) Plc, Union Bank of Nigeria (UBN) Plc, and United Bank for Africa (UBA) Plc. The period covered by the study was from 2010 to 2015.

**Description of Independent Variables**

The Value Added Intellectual Co-efficient (VAIC) methodology developed by Ante Pulic in 1998 formed the underlying measurement basis for the independent variable in this study. It made use of three independent coefficients- Capital Employed Efficiency, Human Capital Efficiency, and Structural Capital Efficiency. In his words, Pulic (1998) opines that VAIC is an analytical procedure designed to enable management, shareholders and other relevant stakeholders to effectively monitor and evaluate the efficiency of Value Added by a firm’s total resources and each major resource component. VAIC is a composite sum of two major indicators these are:

**Capital Employed Efficiency (CEE)** – indicator of value added efficiency of capital employed;

**Intellectual Capital Efficiency (ICE)** – indicator of value added efficiency of company’s Intellectual Capital base. Intellectual Capital Efficiency is composed of two other variables as follows:

**Human Capital Efficiency (HCE)** – indicator of value added efficiency of human capital.

**Structural Capital Efficiency (SCE)** – indicator of value added efficiency of structural capital. The two sub-components of VAIC form the independent variables in this study.

Equation (1) formalizes the VAIC relationship algebraically:

$$VAIC = CEE + HCE + SCE-----$$

Where:

VAIC = VA intellectual coefficient of the bank,

CEE = capital employed efficiency coefficient of the bank,

HCE = human capital efficiency coefficient of the bank and

SCE = structural capital efficiency of the bank.

Based on prior empirical research findings, Pulic (1998) argues that there is a proportionate inverse relationship between HC and SC in the value creation process attributable to the entire Intellectual Capital base, the less Human Capital participates in value creation; the more Structural Capital is involved. Consequently, Pulic (1998) argues the formula for calculating SCE differed to that for CEE and HCE respectively. Specifically, Pulic (1998) states SCE is the ratio of a firm’s SC divided by the total VA. This relationship is shown in Equation (6):

$$SCE = SC / VA \text{ ----- [Equation (6)]}$$

Where: SCE = structural capital efficiency coefficient VA of the banks,

SC = Structural capital of the banks; and VA = VA of the banks.

**Method of Data Analysis**

For the purpose of empirical analysis, this study adopted the Pearson coefficient correlation as the underlying statistical tools to test the hypotheses. The two functional forms were employed in the test of the effect of each of the independent variables (i.e. the indices of value added intellectual coefficient) on the dependent variables (i.e. financial performance indices).

**PRESENTATION, ANALYSIS AND INTERPRETATION OF DATA**

**Analysis and Interpretation of Data**

**Table 1: Descriptive Statistics**

	N	Minimum	Maximum	Mean	Std. Deviation
VAIC	6	302.23	807.22	467.8823	182.07890
ROA	6	-.04	.21	.1233	.09525
ROE	6	.07	1.04	.6818	.34663
EP	6	99500.00	217134.00	158663.3333	49641.93025
GR	6	132214496.00	192389194.00	156335246.500	21493694.7586
Valid N (listwise)	6				

Table 1 shows the mean (average) for each of the variables, their maximum values, minimum values, and standard deviation. The results in table 1 provide insight in the nature of the selected Nigerian quoted deposit money banks that were used in this study.

It was observed that on the average over the six (6) years periods (2010-2015), the sampled quoted Nigerian banks, value added intellectual coefficient were characterized by improved financial performance (ROE, ROA and EP, RG) =.467.88, 0.12, 0.0.68, 158663.33 and 156335246.5 respectively. The gap between the maximum and minimum value of the financial performance and value added intellectual coefficient (the capital employed efficiency coefficient (CEE) the human capital efficiency coefficient (HCE) and the structural capital efficiency coefficient (SCE) shows that value added intellectual coefficient really determine the level of financial performance of the bank.

**Test of Hypotheses**

**Test of Correlation Coefficient**

**Table 2: Correlations**

	VAIC	EP	GR
VAIC Pearson Correlation	1	.172	-.058
VAIC Sig. (2-tailed)		.745	.913
VAIC N	6	6	6
EP Pearson Correlation	.172	1	.452
EP Sig. (2-tailed)	.745		.368
EP N	6	6	6
GR Pearson Correlation	-.058	.452	1
GR Sig. (2-tailed)	.913	.368	
GR N	6	6	6

**Hypothesis One:**

**H0:** Value added intellectual coefficient indices (HCE, SCE and CEE) do not have relationship with Employee Productivity (Log EP) of Banks in Nigeria.

**Testing the correlation coefficient for hypothesis one**

In determining the extent (%) at which the Value Added Intellectual Coefficient Indices affect the employee productivity of the banks, table 4.3.5 correlation coefficient table show a value of .172 indicates a positive correlation between Value Added Intellectual Coefficient Indices of the banks. To get an idea of how much variance the two variables share, the coefficient of determination (R) is calculated.  $R = 0.172 \times 0.172 = 0.029$  It implies that employee productivity of the banks help to explain 29 % of the variance in Value Added Intellectual Coefficient Indices. From the above result, the study discovers that the confidence level between Value Added Intellectual Coefficient Indices and employee productivity of the banks is low. It means that correlation coefficient is significant at 0.05 levels though positive. Therefore, we accept alternative hypothesis which states that Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) have positive effect on employee productivity (ROE) of Banks in Nigeria.

This opinion is also shared by (Mankiw, *et al* 1992; Badinger and Tondl 2005, Chen *et al.*, 2005; Edvinsson and Malone, 1997; Lev and Radhakrishnan, 2003; Lev and Zarowin, 1999; Lev, 2001; Ruta, 2009; Yang and Lin, 2009 and Ahangar 2011). Similarly and very interestingly, all the six banks studied, showed that the Capital Employed Efficiency (CEE) has strong significant relationship with the Log of Employee Productivity (Log EP) of the banks. When combined with the high correlation value coefficient, the null hypothesis is rejected; thereby concluding that The Value Added Intellectual Coefficient Indices (HCE, SCE and CEE) have a strong positive effect on Employee Productivity (Log EP) of Banks in Nigeria.

**Hypothesis two**

**H0:** Value added intellectual coefficient indices (HCE, SCE and CEE) do not have relationship with growth in revenue (GR), of Banks in Nigeria

**Testing the correlation coefficient for hypothesis two**

In determining the extent (%) at which the Value Added Intellectual Coefficient Indices affect the employee productivity of the banks, table 4.3.5 correlation coefficient table show a value of -.058 indicates a negative correlation between Value Added Intellectual Coefficient Indices of the banks. To get an idea of how much variance the two variables share, the coefficient of determination (R) is calculated.  $R = -.058 \times -.058 = 0.0033$ . It implies that employee productivity of the banks help to explain 0.34 % of the variance in Value Added Intellectual Coefficient Indices. From the above result, the study discovers that the confidence level between Value Added Intellectual Coefficient Indices and employee productivity

of the banks is low. It means that correlation coefficient is significant at 0.05 levels though negative. Therefore, we accept alternative hypothesis which states value added intellectual coefficient indices (HCE, SCE and CEE) have significant effect on growth in revenue (GR), of Banks in Nigeria.

Considering the fact that in all the banks, the components of Value Added Intellectual Coefficient (VAIC) appear to have high effect on Growth in Revenue in these banks; the regression analyses show that the relationships are not significant. In view of this, the null hypothesis that the value added intellectual coefficient indices (HCE, SCE and CEE) do not have significant effect on growth in revenue (GR), of Banks in Nigeria is accepted. The implication of this is that the independent variables may not have had direct observable relationship with growth in Revenue of banks in Nigeria.

## **DISCUSSION OF FINDINGS**

This work examined effect of intellectual capital on the performance of Nigeria banks using six selected banks in Nigeria as the focus of the study from 2010-2015. Data were sourced secondary sources. The data generated were analyzed and the hypotheses formulated were tested. The study further found out that value added intellectual coefficient indices (HCE, SCE and CEE) have a strong positive effect on employee productivity (Log EP) of Banks in Nigeria Following from the discussions above, it is considered that since human capital and structural capital make up intellectual capital; it implies that there is a strong significant and positive relationship between intellectual capital and employee productivity of Banks in Nigeria. This is of special importance to the management of banks in Nigeria and entire service industry; that should adequate working environment be created for workers, with good welfare package, the organizations are bound to do well. This opinion is also shared by (Tan, Plowman, Hancock 2007; Badinger and Tondl 2005, Fathi and Samiloglu 2006; Lev and Radhakrishnan, 2003; Abdel-Aziz, Abdul-Naser and Shamaric 2013; Boujelbenen and Affes 2013).

Finally, the last hypothesis shows that the value added intellectual coefficient indices (HCE, SCE and CEE) do not have significant effect on growth in revenue (GR), of Banks in Nigeria. This finding tallies with that of Emadzadeh, Nadia, Asiya, Mahboobe, Fatemeh and Mojgan 2013, Chidiebere 2012, Kehelwalatenna and Gunaratne 2010, Mbugua and Rotich 2014) The implication of this is that the independent variables may not have had direct observable effects on the growth in Revenue of banks in Nigeria.

## **CONCLUSION**

There is a significant and positive effect of human capital on employee productivity on banks in Nigeria. There is also a strong significant effect on structural capital on employee productivity of banks in Nigeria, and there is also strong significant and positive effect between intellectual capital and employee productivity of banks in Nigeria. There is a significant effect on human capital and market to book value ratio of banks in Nigeria. Also there is a strong significant and positive effect on structural capital and market to book value ratio of Banks in Nigeria. There is a strong significant and positive effect on intellectual capital and market to book value ratio of banks in Nigeria and physical capital also showed significant and positive association with both the employee productivity as well as with the market to book value ratio of banks in Nigeria

## **RECOMMENDATIONS**

The study therefore recommended that the accounting profession in the emergence of intellectual capital as a primary business resource, the accounting profession has the opportunity to concentrate its best talents and experience on an issue that will fundamentally affect business in future.

Companies in Nigeria especially the banks should adopt an intellectual capital strategy. They should identify and evaluate the role of knowledge in the company. This means that management should determine on how knowledge intensive the business is.

Also banks in Nigeria should establish which aspects of their employee training programmes actually enhance productivity and which are misdirected and worthless.

## REFERENCES

### Books

- Brookings, A. (1998). Intellectual capital: core Asset for the third Millennium enterprise, International Thomson Business press, London.
- Frykman, D. & Torreryd, J (2010). Corporate valuation (2<sup>nd</sup> Ed.). London:
- Lev, B., (2001), *Intangibles: Management, and Reporting*, Washington, DC. Brookings Institution Press.
- Penrose, E. T. (1959). The Theory of the Growth of the Firm, New York: Wiley.
- Stewart, T. A. (1997) Intellectual capital, 1st ed. ed., Doubleday / Currency. New York:
- Wagiciengo, M. & Belal, A.R. (2012). Intellectual capital disclosures by South African companies: A longitudinal investigation. *Advances in Accounting*, 28, 111-119.

### Conference/ Workshop

- Berzklane, I. (2013). Macro economic factors as determinant of company performance: Evidence from the Baltic countries. Proceeding from the 5<sup>th</sup> *International Conference Economic Challenges in Enlarged Europe, Tallinn, Estonia*, 16-18.
- Grootaert, C., & Bastelaer, T. van. (2001). Understanding and Measuring Social Capital: A Synthesis of Findings and Recommendations from the Social Capital Initiative. Center for Institutional Reform and the Informal Sector University of Maryland. *Conference paper* (250).
- Institute of Certified Management Accountants (ICMA), (2001). Intensive Workshop in Advanced Strategic Management Accounting, ICMA, Australia.
- Ismail, M.Y. (2009). Investigation of loss and bandwidth performance of reflect array antennas using lumped components. Proceedings of the 5<sup>th</sup> *International Conference Telematics, Systems, Services and Applications*. Institute Technology Bandung, Indonesia.
- Kristandl, G. & Bontis, N. (2007). Constructing a definition for intangibles using the resource based view of the firm', *Management Decision*, 45(9), 1510-1524. *Conference paper*
- Latif, M., Malik, M. S., & Aslam, S. (2012). Intellectual capital efficiency and corporate performance in developing countries : A Comparison between Islamic and Conventional Banks of Pakistan.
- Ngah, R. (2011). The Relationship of Intellectual Capital, Knowledge Sharing, Innovation and Organizational Performance of Malaysian SME's.
- Stewart, T. A. (1991) 'Brainpower: How Intellectual Capital is Becoming America's Most Valuable Asset', *Fortune*. 2. 44-60.
- Saint-Onge, H., (1996). Tacit knowledge: the key to the strategic alignment of intellectual capital. *Strategic Leadership*. 24(2): 10-14.

### Internet

- Barker, K.C.(2003). The e-portifolio and human capital accounting. Future ED Consulting Education Futurists Inc. Accessed online at [www.futurEd.com](http://www.futurEd.com).
- Saengchan, S. (2008). The Role of Intellectual Capital in Creating Value in the Banking Industry. Online] Available: [http:// www.bus.tu.ac.th/uploadPR/ADV.pdf](http://www.bus.tu.ac.th/uploadPR/ADV.pdf) (January 22, 2009)
- Sveiby, K.,(2000). Intellectual capital and knowledge management. Accessed online at [www.sveiby.com/articles/IntellectualCapital.html](http://www.sveiby.com/articles/IntellectualCapital.html) on 6/4/2014

### Journals

- Abdel-Aziz, A. S., Abdul-Naser I. N. & Shamaric, N. S. (2013). The impact of intellectual capital on Jordanian telecommunication companies' business performance. *American Academic & Scholarly Research Journal*. 5(3), 23-38
- Abeysekera, I. (2011). Civil war, stock return, and intellectual capital disclosure in Sri Lanka. *Advances Journal in Accounting*, 27, 331-337.
- Advisson, L. & Malone, M.(1997). Intellectual capital: Realizing your company's true value by finding its hidden brain power, *Journal of Human Resource Accounting*. 4(1)21-33
- Advisson, L, and Sullivan, P.(1996). Developing a model for managing intellectual capital. *European Management Journal*, 14(4)356-364

- Ahangar, R. G. (2011). The relationship between Intellectual Capitals and Financial Performance: An empirical investigation in an Iranian company. *African Journal of Business Management* . 5(1), pp. 88-95, 4
- Amrizah, K., & Nawal, K. (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.
- Amaefule, E. F (2008). Human capital accounting: should employees be classified as assets. *Journal of Business and Public Policy*, 2(1) 36-49.
- Amir, E. and Lev, B.(1996) Value relevance of non-financial information: the wireless communication industry. *Journal of Accounting and Economics*22(1-3), 3-30.
- Anuonye, B. N. (2016). Effect of intellectual capital on return on assets of insurance firms in Nigeria. *Global Journal of Management and Business Research*. 16 (1)
- Appauhami, B.A(2007). The impact of intellectual capital on investors capital, gains on shares: An imperial investigation of Thai banking finance and insurance Sector; *International Management review*, 3(2),14-25.
- Barney, J. (1991) 'Firm resources and sustained competitive advantage', *Journal of Management*. 17(1), 99.
- Boda, G. and Szlavik, P.(2007). Alternative accounting to manage Intellectual capital: *the electronic Journal of Knowledge management*, 5,1(7-18).
- Bontis, N., Chua, W., Richardson S. (2000). Intellectual capital and the nature of business in Malaysia. *Journal of Intellectual Capital*. 1(1), 85-100.
- Bornemann, M.(1999). Potential of value systems according to VAITM Method. *International Journal of Technology Management*, 18(5)463-475.
- Boujelbene, A. M & Affes, H.(2013). The impact of intellectual capital disclosure on cost of equity capital: A case of French firms; *Journal of Economics, finance and Administrative science*. 18(34)45-53.
- Brown, J., Osgorn, T., Chan, J. M & Jaganathan, V.(2005). Managing Intellectual capital. *Journal of Research Technology Management*, 48, 34-41.
- Cabrita, M. D. R. & Bontis, N. (2008). Intellectual Capital and Business Performance in the Portugese Banking Industry. *International Journal of Technology Management*. 43 (1-3) 212-237.
- Campisi, D. and Costa, R. (2008). Based method to enhance intellectual capital Management, *Journal of Knowledge and process management*. 15(3) 170-183.
- Chang, W.S.(2013). Are R and D and intellectual property rights related to firms financial performance?: the prospectives on intellectual capital: *International Journal of Technology, policy and Management*, 13,245-260.
- 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.
- Clarke, M., Seng, D. & Rosalind, H. W. (2010). Intellectual capital and firm performance in Australia. *Journal of Economic Literature Classification*.2 (4)56-77
- Edvinsson, L. and Sullivan, P. (1996). Developing a model for managing intellectual capital. *European Management Journal*, 14 (4), 356-364.
- Edvinsson, L. (1997). Developing intellectual capital at Skandia. Long Range Planning, *European Management Journal*, 30 (3), 320-373.
- Emadzadeh, Nadia, Asiya, Mahboobe, Fatemeh and Mojgan (2013). Effect of Intellectual Capital on Firm Performance. *International Journal of Academic Research in Accounting, Finance and Management Sciences*. 3, (2). 98–103
- Eisenhardt, K. M. & Schoonhoven, C. B. (1996) 'Resource-based view of strategic alliance formation: Strategic and social effects in entrepreneurial firms', *International Journal for Organization Science*, 7(2), 136-150
- Engstrom, T. E. J., Westnes, P., & Westnes, S. F. (2003). Evaluating intellectual capital in the hotel industry. *Journal of Intellectual Capital*, 4 (3), 287-303.
- Firer, S. L. & Stain bank, (2003). Testing the relationship between Intellectual capital and a company's performance: Evidence from South Africa. *Mediterranean Accountancy Research*.2 (11),25-44.
- Gan, K., and Saleh,Z (2008). Intellectual Capital and corporate performance of technology intensive companies: Malaysian Evidence. *Asian Journal of Business and Accounting*, 1(13) 119-130.
- Goh, P. (2005). Intellectual capital performance of commercial banks in Malaysia, *Journal of Intellectual capital*,6(3)385-396.
- Guthrie, J., Ricceri, F., Dumay, J. (2012.). Reflection and Projections: A decade of Intellectual capital accounting research, *British Accounting Review*, 44(2)68-92.
- Guthrie, J., and Petty, R.(2000). Intellectual capital. Autralian annual reporting practices, *Journal of Intellectual capital*, 1(3)241-251.

- Harrison, S., & Sullivan, P. H. (2000). Profiting from intellectual capital: Learning from leading companies, *Journal of Intellectual Capital*, 1(1)33-46
- Hadjimanolis, A. (2000) 'A Resource-based view of innovativeness in small firms', *Technology Analysis & Strategic Management*, 12(2), 263-281.
- Hassan, A. (2014). The challenge in poverty alleviation: role of Islamic microfinance and social capital. *Journal for Humanomics*, 30(1), 76-90.
- Joshi, M., Cahill, D., & Sidhu, J. (2010). Intellectual capital performance in the banking sector : An assessment of Australian owned banks. *Journal of Human Resource Costing & Accounting* , 14 (2), 151-170.
- Judge, T. A., Piccolo, R. F., Podsakoff, N. P., Shaw J. C., & Bruce, L. R. (2010). The relationship between pay and job satisfaction: A meta-analysis of the literature. *Journal of Vocational Behavior*. 77 (2)157-169
- Kim, K. S., Knotts, T. L. and Jones, S. C. (2008) 'Characterizing viability of small manufacturing enterprises (SME) in the market' *Expert Systems with Applications Journal*. 34(1), 128-134
- Kamau, A. & Were, M. (2013). What drives banking sector performance in Kenya. *Global Business and Economics Research Journal*, 2(4)
- Kamukama, N. Ahiauzu, A. & Ntayi, J. M.(2010) Intellectual capital and financial performance in uganda's microfinance institutions. *African Journal of Accounting, Economics, Finance and Banking Research*.6.(6), 17-32
- Kamukama, N., Ahiauzu, A. & Ntayi, J. M. (2011). Competitive advantage: mediator of intellectual capital and performance', *Journal of Intellectual Capital*, 12(1), 152-164.
- Kianto, A., Andreeva, T. & Pavlov, Y. (2013). The impact of intellectual capital management on company competitiveness and financial performance', *Knowledge Management Research & Practice*, 11(2), 112-122.
- Leitner, K.-H. (2011) 'The effect of intellectual capital on product innovativeness in SMEs', *International Journal of Technology Management*, 53(1), 1-18.
- Lu, W. M., Wang, W. K., Tung, W. T., & Lin, F. (2010). Capability and efficiency of intellectual capital: The case of Fabless companies in Taiwan. *Expert Systems with Applications Journal*. 37(1), 546-555.
- Mbugua, S. M. & Rotich, G. (2014) Effects of intellectual capital on profitability of listed Kenyan commercial banks. *International Journal of Business & Law Research* 2(4):16-21,
- McEvily, S. K. & Chakravarthy, B. (2002) 'The persistence of knowledge-based advantage: an empirical test for product performance and technological knowledge', *Strategic Management Journal*, 23(4), 285-305.
- Moradi.m., Saedi, M., Hajizadeh, H. & Mohammadi, M. (2013)The Influence of Intellectual Capital on the Improvement of Companies' Financial Performance. *International Journal of Economics, Business and Finance*. 1(5) 120- 139
- Nik Maheran, N. M. (2009). Intellectual Capital Efficiency and Firm's Performance: Study on Malaysian Financial Sector. *International Journal of Economics and Finance* . 1 (2) 115-126
- Oba A, Lopes P.C.F, Boiago M. M., Mary A, Silva S, & Montassier H, (2012). Características produtivas e imunológicas de frangos de corte submetidos a dietas suplementadas com cromo, criados sob diferentes condições de ambiente. *Revista Brasileira de Zootecnia*. 41(5)1186-1192
- Ogbo, A., Ezeobi, J. & Ituma, A. (2013). The impact of intellectual capital on organizational performance: evidence from Nigeria banking sector. *JORIND* 11(2), 249-255
- Ramezan, M. (2011). Intellectual capital and organizational organic structure in knowledge society: How are these concepts related? *International Journal of Information Management*, 31, 88-95.
- Riahi-Belkaoui, A. (2003). Intellectual Capital and Firm Performance of US Multinational Firms. A Study of the Resource-Based and Stakeholder Views. *Journal of Intellectual Capital*.3 (4) 215- 226
- Ruta, C.D., (2009).HR portal alignment for the creation and development of Intellectual capital, *The International Journal of Human Resource Management*, 20(3), 562-577.
- Salimi, G. A., Abadi, F. E., Jalilvand, M. R., Sharif, M. & Khanzadeh, S. A. (2011) A study of influential factors on employees' motivation for participating in the in -service training courses based on modified expectancy theory. *International Business and Management*. 2(1), 157-169.
- Samiloglu, A. T. (2006), "The performance analysis of the Turkish banks through VAIC and MV/MB ratio", *Journal of Administrative Sciences*. 4 (1)207-26.
- Tan, H. P., Plowman, D., Hancock, P. (2007), "Intellectual capital and financial returns of companies", *Journal of Intellectual Capital*. 8(1)76-94.
- Tseng & Gooh, P. C. (2005). Intellectual capital performance of commercial banks in Malaysia. *Journal of Intellectual Capital*, 6 (3), 385-396.
- Wernerfelt, B. (1984). A resource-based view of the firm. *Strategic Management Journal*, 5(2), 171-180.

**Thesis**

- Chidiebere, E. M.(2012). The relationship between intellectual capital and financial performance in the Nigeria banking sector. A *thesis submitted* in partial fulfilment of the requirements for the award of doctor of philosophy (Ph.D.) Degree in accountancy department of accountancy faculty of business administration University of Nigeria, Enugu Campus
- Kehelwalatenna, S. & Gunaratne, P. S. M.( 2010 ) the impact of intellectual capital on the firm performance and investor response: an empirical study of selected sectors in Colombo stock exchange. University of Kelaniya, Sri Lanka

**Paper**

- Bornemann, K. A., Schneider, U . & Sixl, K.I(1999). Holistic measurement of Intellectual capital. *Paper presented at the international Symposium Measurement and reporting Intellectual capital: Experiences, Issues and prospects*, June, Amsterdam.
- Lev, B., & Radhakrishnan, S. (2003), The measurement of firm-specific organization capital”, *NBER Working Paper Series*, No. 9581
- Liu, A. (2010). Measuring Spiritual Capital as a latent variable Defining Spiritual Capital as religion capital. *School of accounting Research Paper Series*, 23(12).
- McMahon, R. G. P. (1998) 'Putting SME Financial Reporting into Theoretical and Practical Perspective.', *School of Commerce Research Paper Series*, 98(10).
- Marques, J. F. (2008). Spiritual performance from an organizational perspective: the Starbucks way. *Corporate Governance*, 8(3), 248–257.