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INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE OF LISTED OIL MARKETING COMPANIES IN NIGERIA

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Abstract

This study examined the impact of intellectual capital (IC) on financial performance of listed oil marketing companies in Nigeria covering the periods 2004 to 2013. Return on assets (ROA), return on equity (ROE), economic value added (EVA) and future growth value (FGV) were used as proxies for financial performance; while market to book value ratio (ICMB), calculated intangible value (ICCV), monetary model of Tobin's Q (ICMMQR), return model (ICRM), and value added intellectual coefficient (ICVAIC) were adopted to measure IC. Physical assets intensity and financial leverage were used as control variables. Ten years audited financial statements of six out of the ten companies listed on the floor of the Nigerian Stock Exchange as at 31 December, 2013 were used to generate the data for the study and analyzed using multiple regression via Stata version 12. Multiple regression results of the four models indicate mixed results. In model one, ICMB, ICRM and ICVAIC were found to be positively and significantly related with ROA; results from model two established that ICMB and ICRM are directly and significantly related with ROE, and ICVAIC is also directly but insignificantly related with the dependent variable, but for ICMMQR, the relationship is negative and insignificant. The IC measures (ICMB,

ICCIV, ICMMQR, ICRM and ICVAIC) considered in model three, have direct and significant influence on EVA, except ICMMQR. However, in model four, only ICMB and ICMMQR affect FGV in positive direction while ICCIV, ICRM, and ICVAIC negatively and significantly impacted on FGV. The study recommends that Nigerian listed oil marketing companies should concentrate more on maximization of their total market valuation, maximization of IC return and increased investment in IC components with a view to enhancing their financial performance.

Keywords: Intellectual Capital, Financial Performance, Oil Marketing Companies, ICMMQR

1.1 Introduction

The about-turn in strategic reference point which took place in the late 1980s to early 1990s left corporate organizations with no option rather than resorting to internal factors (intellectual assets) impacting on their financial performance (FP). Since then, investment in this category of assets took different dimension, with studies the world over striving to test the efficacy of theories such as resource-based and knowledge-based view on one hand; and ascertain the nature of the relationship between IC and FP on the other. For, it has been theorized and mainstreamed by the latter view that until corporate organizations accumulate specific knowledge assets, they would not gain competitive advantage and impressive FP. However, while some of these studies (Komnenic & Pokrajcic, 2012; Mondal & Ghosh, 2012) accord the axioms of these theories, i.e. reaffirming direct correlation between IC and FP; others, specifically, Pal and Soriya (2011); and Mehralian, Rajabzadeh, Sadeh and Rasekh (2012) found mixed results, i.e. a position motivating more researches (including the current study) into the area.

Moreover, the field of IC has not succeeded in courting attention of many researchers in Nigeria. Because, few researchers such as Uadiale and Uwalomwa (2011); Salman, Mansor and Babatunde (2012); Suraj and Bontis (2012); Salman, Yahaya and Olarewaju (2012); Abdulai, Kwon and Moon (2012); Okafor (2012); Ogbo, Ezeobi and Ituma (2013); Ekwe (2013); and Ekwe (2014) have so far been found to have contributed to the existing literature in this area. Besides, with the exception of Uadiale and Uwalomwa (2011) that focused on a selection of 32 listed Nigerian companies (including two oil marketing companies); the aforementioned studies paid particular attention to different industries. This is in spite of huge investments in IC drivers by the quoted oil marketing companies. Specifically, Mobil Oil Nigeria plc investment in IC drivers like System Applications and Products (SAP) was US\$3.5 million in 2006, a significant part

of which was incurred in training 53 employees locally. This is in addition to foreign postings to other affiliates in Europe purposely to develop and update skills of its employees.

Also, Chevron (now MRS) sponsored training and development courses for its 118 employees in 2007; this was complemented by other programmes like New to Chevron, people leadership and leading workgroup with a view to develop its intellectual assets. In line with patterns over the years, investment in quality staff training and development were stepped up by Total Nigeria Plc, to cover 91% of its employees through training courses in 2010; this was followed by graduate traineeship and feminization programmes in the same year. Above all, Oando plc commenced a training school project on 13th June, 2011. This was complemented by Strategic Talent Management and Business Acumen developed by human capital management (HCM) team of the company.

In view of the foregoing, the paper aimed at examining the effect of IC on FP listed oil marketing companies in Nigeria. The research covers only major marketers in the Nigerian oil marketing industry which are quoted on the first-tier market of the Nigerian Stock Exchange. The study did not include independent marketers and part time marketers like the surface tank operators which are also players in the industry. Independent marketers and surface tank operators are privately owned, small in size (in terms of marketing outlet) and most of them may not have established accounting records or financial reports to show their performance over a period of time and as such they are excluded. The study covers a period of ten years (2004 to 2013). The period of ten years is considered adequate to determine the impact of IC on FP in the oil and marketing industry. The paper is divided into five sections introduction, literature review, methodology, results and discussions and finally conclusion and recommendation.

2. Review of Related Literature

IC as one of the concepts in human resource accounting that are yet to have generally acceptable definition was defined by Edvinsson (1997) as applied experience and knowledge that enable a firm to occupy a competitive position in the market. It was viewed from different viewpoint by Pablos (2003) as the difference between market value and book value of a company. Kavida and Sivakoumar as cited in Yegane, Moazez, Nikoonesbati & Khanhossini, 2013 viewed IC from another perspective by defining it as the future profitability factor derived from human capital of a company. Besides, there have been disagreements among scholars on measurement of IC as there are on definition and components. Kavida and Sivakoumar (2008) went further to broadly categorized the methods of measuring IC into three i.e. direct, Indirect and

scorecard (SC) methods. Direct IC methods first identify the different elements of IC in an organization, and then estimate the monetary value of the asset. Scorecard method on the other hand, uses scorecards or graphs to report IC. This study is yet to find evidence on the usage of either direct or scorecard method in any empirical work. Indirect method uses financial measures to value IC. The methods include market value to book value ratio (M/B ratio), Tobin's q Ratio (Q Ratio), Market Value Added (MVA), Economic Value Added (EVA), Future Growth Value (FGV), Value Added Intellectual Coefficient (VAIC), Return Model (RM), and Computed Intangible Value (CIV).

FP is the results of activities of an organization particularly investments in one category of assets over a given period of time (Investor words, 2011 as cited in Fatoki, 2011). It is a criteria which numerically determines how well a company utilizes different classes of its assets specifically IC components to earn profit (Moradi, Saeedi, Hajizadeh & Mohammadi, 2013). This highlights the conceptual linkage between FP and IC accumulation by corporate organizations. FP can be evaluated using different measures. Some of the FP measures provided by investopedia, (2013) include revenue from operations, operating income or cash flow from operations, return on assets (ROA), return on investment (ROI) and value added (VA). However, previous studies used other FP measures such as market value and book value ratio (PBR), productivity (ATO), economic value added (EVA), future growth value (FGV) and basic earning power (BEP) (Wang, 2011; Shakina and Barajas, 2012 and Naidenova and Parshakov, 2013).

Studies on IC and FP of corporate organizations in Nigeria are not many when compared with those conducted in other parts of the world, particularly developed economies. Besides, the local studies found so far employed VAIC model and established positive relationship between the variables, notwithstanding the differences in the level of significance. For instance, Yahaya (2007) examined the effect of banks investment in training and development on employees' effectiveness, and its ultimate impact on organizational performance using a questionnaire administered on 125 employees of selected banks. The inferential statistics showed that investment in training and development (i.e. IC drivers) has direct bearing on employees' effectiveness in generating revenue for the banks. Using a sample of thirty-two audited financial statements of quoted companies in Nigeria, Uadialle and Uwuigbe (2011) established that IC measured using VAIC is positively and significantly correlated to business performance (ROA and ROE). This position was supported by Salman and Mahamad (2011) as cited in Salman, et al (2012a).

Studies in companies operating in telecommunications, services and software industries by Suraj and Bontis (2012), Salman, et al (2012) (as cited in Salman et al, 2012) and Abdulai, Kwon and Moon (2012) respectively established positive relationship between IC and FP. However, on the significance of the relationship, the findings of Salman, et al (2012) can be said to support the position reached in Abdulai, Kwon and Moon (2012) on one hand; and contradict the stance of Suraj and Bontis (2012). This is because, Salman, et al (2012) established positive and significant correlation between the variables despite the differences in sources of data.

Investment in IC by Nigerian manufacturing companies have also received attention of Salman et al (2012a) who confirmed the existence of direct relationship between IC components and productivity in the industry. Okafor (2012) broadened the scope of his research to cover two different industries, by examining the impact of human and social capital on performance of small businesses (8 servicing and 12 manufacturing companies) in Nigeria. The result revealed that two human capital measures (i.e. work experience and education) and social capital, particularly relational component impact on performance of the firms. Other studies conducted in the Nigerian banking industry by Ogbo, Ezeobi and Ituma (2013), Ekwe (2013) and Ekwe (2014) also found similar results, notwithstanding differences in sources of data. In fact, Ekwe (2014) further confirmed that the banks differ in terms of IC indices and financial performance indicators; thus, banks with larger investment in IC attain higher level of FP.

Thus, it can be deduced that the local studies conducted so far used VAIC method and established positive relationship between IC and FP in the aforementioned listed Nigerian companies, notwithstanding the differences in methods of collecting data on FP. Besides, the methodologies adopted in the studies particularly Uadialle and Uwuigbe (2011) called for the need to employ other methods of valuing IC in order to further determine its relationship with FP in the listed Nigerian oil marketing companies. This is in addition to the time frame and sample size that subject the work to more criticisms.

Most of the recent studies on IC and FP paid special attention to companies listed in developed countries. Beginning with studies that established positive relationship between the variables; Chen, Cheng and Hwang (2005), empirically investigate the relationship between IC and FP in Taiwanese listed companies using VAIC. The regression results support the hypothesis that firms' IC has a positive impact on FP, and may be an indicator for future FP. Wang (2011), used same model and different FP indicators like market to book value ratio (PBR) and productivity (ATO). Notwithstanding, the ordinary least square results reaffirmed

the position reached in Chen, Cheng and Hwang (2005). This indicated the extent to which IC measured using VAIC influences other FP indicators of a company not only ROA and ROE. Other studies conducted in Taiwanese listed design and public companies by Wu, Lee and Wang (2012) and Huang (2012) respectively established similar results in spite of the use of questionnaire in generating data.

In United States also, empirical evidence indicated that FP is directly related to investment in IC. Positive and significant relationship established by Riahi-Belkaoui (2003) in 81 U.S. multinational firms was confirmed by Kehelwalatenna and Premaratne (2012), while considering other companies listed on the New York stock exchange (NYSE). The findings of Riahi-Belkaoui (2003), was also reaffirmed by Naidenova and Parshakov (2013), who adopted different methodology. This is because; the study took into consideration the mutual influence and lag effect of IC elements. Also, the proxies used for human, structural and relational capital were number of employees, value of intangible assets and advertising expenditures respectively. Thus, It can be deduced that the findings of studies in USA support the position reached by researchers in Taiwan; although studies in the former employed different methodology.

Studies conducted in various companies listed on the Tehran stock exchange also continue to confirm that IC relates positively to FP. This is so, when we look at researches by Yegane, Moazez, Nikoonesbati and Khanhossini (2013), Fathi, Farahmand and Khorasani (2013) and Hamelkhani, Boochani and Rarani (2014) that used VAIC in valuing IC of the respective firms. However, there is slight difference between findings in Taiwanese and Tehran listed companies when it comes to ranking of IC components. This is because; in Taiwan human capital was found to have largest effect on FP of the companies, followed by structural capital. In Tehran however, capital employed efficiency has the most significant impact on FP of the studied companies.

Moderate and positive relationship between IC and ROA established by Santoso (2012) in Indonesian banking industry was strengthened by Amalia (2012) who employed VAIC in the country's pharmaceutical companies. Study carried out by Budiandriani and Mahfudnurnajamuddin (2014) also established that all the elements of VAIC have positive and significant impact on FP, with the exception of VAHU that relates directly but insignificantly with the FP.

Other scholars that have established positive relationship between IC and FP in other parts of the world include Mehri, Umar, Saeidi, Hekmat and Naslmosavi (2013). Sharabati, Nourb and Shamaric (2013) also found similar results after assessing the relationship in Jordanian telecommunication companies using

questionnaire administered on 84 managers of the selected companies. In Pakistan, Iqbal, Ahmad and Javaid (2013) supported the position reached in Malaysia after conducting a study in the country's Manufacturing, Banking, and Oil and gas sectors. Finally, Studies by Mariya, Olga, Jana (2012) and Shakina and Barajas (2012) that broadened their scope to consider short and long term FP indicators (i.e. EBIT, EVA and FGV) of multinational companies also succeeded in establishing positive correlation between the variables.

However, in South Africa some research findings show mixed results. For instance, Firer and Williams (2003) failed to find any strong association between VAIC components and performance of the 75 public listed companies. Firer and Stainbank (2003) found the same relationship between the variables in 65 companies that are listed on the JSE securities exchange (high knowledge-base sectors). The correlation between IC and FP measured by profitability, productivity and market valuation are informative but varied and mixed.

In India also, the study by Mondal and Ghosh (2012) in software and pharmaceutical companies indicated that IC could not explain productivity. This position was supported by Pal and Soriya (2011) after conducting similar study in IT industry. However, the findings of another study conducted later by Pal and Soriya (2012) in the country's pharmaceutical and textile industry established positive but insignificant relationship between IC and productivity. This was reaffirmed by Deep and Narwal (2014) who conducted the study in the country's textile sector from 2003 to 2012. Finally, Chu, et al (2011) found no evidence to establish that VAIC as aggregate measure of IC could explain FP of companies listed on the Hong Kong stock exchange. However, the VAIC components were found to have influenced FP of the companies, with structural capital efficiency having significant and positive effect on productivity, and human capital efficiency affecting FP negatively.

Even though the findings from studies carried out in South Africa, India and China represent few cases where indirect relationship between IC and FP was established; the findings still implied the need to explore more on the impact of IC on FP in other industries. This is because, the findings from studies conducted in India suggested that IC could not explain financial performance of firms like software and pharmaceutical companies; and it could also have negative effect on performance indicators of IT industry. The findings also implied the same in South Africa and China; notwithstanding, the studies mostly employed VAIC method and paid attention to specific industries. This therefore, motivated battery of studies in other countries including the current research to employ other

measurement models of IC (other than VAIC method) purposely to examine the nature of the relationship between the variables.

The relevant theories explaining the relationship between IC and FP are resource-based view (RBV), Knowledge-based view (KBV) and Intangible-based view (IBV). They were adopted and used in previous studies like Curado (2006); Shakina and Barajas (2012); Abdulai, et al (2012) and Statsenko, Bozhko, Prause and Irelan (2013). RBV argued that until a company acquire and employ rare, valuable and surpassing resources (both tangible and intangible), it would not achieve competitive advantage and positive results (Barney 2001 as cited in Statsenko, Bozhko, Prause and Ireland 2013). It was based on the axiom that each firm has specific core competencies that are the key sources of competitive advantage and good FP indicators. These core competencies are unique capabilities and skills that make it possible for a firm to outperform its competitors (Stam, 2006). However, scholars particularly Kraaijenbrink (2009), Thorpe et al. (2005) and Priem et al. (2013), raised number of issues that opened this theory to criticisms. First, is the difficulty in valuing intangible assets; and Second, the failure to explain FP and competitive advantage in dynamic markets.

Nonaka & Takeuchi (1991) came up with KBV in order to address the issues raised against RBV by critics. Grant as cited in Stam, (2006) revealed that, KBV focused on knowledge as the most essential resource of a firm. It argued that knowledge-based resources are the main determinants of sustained competitive advantage and FP, this is because they are immobile, heterogeneous and hard to imitate (Fenwick, 2011). Later, IBV emerged and combined the view of the last two theories. IBV made distinction between human and non-human related resources of a company, just as in KBV. It also takes both categories (tangible and intangible) of organizations resources into consideration. IC, intellectual assets, intangible assets, intangibles, knowledge assets, knowledge capital are used interchangeably in this theory (Stam, 2006). Thus, the proponents of this theory further argued that what counts were the entire intangible assets of corporate organizations and knowledge was merely part of these assets.

Therefore, Since the main objective of this paper is to examine the impact of IC (human-related and non-human-related knowledge) on FP of the listed Nigerian oil marketing companies; knowledge-based view best explained the work, and was therefore adopted as a guide. This was further justified by huge investment in the drivers of both human-related and non-human-related knowledge identified with the listed Nigerian oil marketing companies.

3.1 Methodology and Data

This study used descriptive research design. Ten oil marketing companies listed on the floor of the Nigerian stock exchange as at 31st December, 2013 constitute the population of this study. They are Afroil, Beco, Conoil, Eterna, Forte, Japaul, Mobil, MRS, Oando and Total. Six out of the ten companies were taken as sample as a result of unavailability of relevant data in respect of the remaining companies. The study used secondary sources of data which comprised of annual reports and accounts of the selected companies, and relevant web page of the Nigerian stock exchange.

The study has two sets of variables, i.e. dependents and explanatory variables. The dependent variable is the FP of the listed Nigerian oil marketing companies measured using four (4) different indicators. They are:

- a) ROA= return on assets (profit after tax ÷ total assets). This was used in the work of Uadialle andUwuigbe (2011) and Jafari (2013);
- b) ROE= return on equity (profit after tax ÷issued and fully paid ordinary shares); as used in Yegane, Moazez, Nikoonesbati and Khanhossini (2013) and Garkaz (2012)
- c) EVA= economic value added (net operating profit after tax-cost of capital employed). This measure was used in the works of Naidenova and Parshakov (2013); and Shakina and Barajas (2012).
- d) FGV= Future Growth Value (i.e MVA – EVA), and MVA=total market value –book value of common stocks. FGV was employed in the study conducted by Mariya, Olga, Jana (2012); and Shakina and Barajas (2012).

The explanatory variables consist of independent and control variables. The independent variable for this study is IC measured using five (5) different models. They are:

- i) ICMB= value of IC using market value to book value ratio (mkt value=issued and fully paid ordinary shares × stock price at accounting year end of each company). This was used in Kavida and Sivakoumar (2008).
- ii) ICCIV= Value of IC using Calculated Intangible Value (RELe÷Average discount rate), where RELe= Net Exceeding Return. This was used in Richieri, Cruz Basso and Martin (2008) and Moradi, Saeedi, Hajizadeh and Mohammadi(2013).
- iii) ICMMQR= value of IC using monetary model of Tobin's Q Ratio (i.e Market Value Replacement cost of tangible assets). As used in Naslmosavi, Ghasemi and Mehri (2012); and Kavida and Sivakoumar (2008).
- iv) ICRM= value of IC using return model (i.e. IC return X replacement cost or book value of assets ÷ industry index); IC return= company

profit-industry index. This model was used in Naslmosavi, Ghasemi and Mehri (2012).

- v) ICVAIC= IC using Value Added Intellectual Coefficients (i.e the summation of VACE, VAHU, and STVA, that stand for VA efficiency of capital employed, human capital and structural capital respectively. This was used in the works of researchers like Chen, Cheng and Hwang (2005); Wang (2011); Amirkhani et al (2011); Kehelwalatenna and Premaratne (2012); Amalia (2012); Yegane, et al (2013); Farahmand and Khorasani (2013).

The control variables used in the study are physical capital intensity and financial leverage and are measured as follows:

- a) Physical capital intensity (PAI) = net book value of fixed assets ÷ total assets. This was used in Kehelwalatenna and Premaratne (2012).
b) Financial leverage (FL) = Total debt/book value of total assets. This was used in Kehelwalatenna and Premaratne (2012); and Moradi, et al (2013)

Multiple regression was used to analyze data. The regression equation was expressed as:

$$F_p = f(IC, CV) \dots\dots\dots (i)$$

Meaning F_p is a function of IC and control variables.

Since F_p was measured by ROA, ROE, EVA and FGV; and IC was measured by ICMB, ICCIV, ICMMQR, ICRM, and ICVAIC; and PAI and FL represent control variables; the regression models for the study were formulated as follows:

$$ROA = \alpha_0 + \alpha_1 ICMBs + \alpha_2 ICCIV + \alpha_3 ICMMQR + \alpha_4 ICRM + \alpha_5 ICVAIC + \alpha_6 PAI + \alpha_7 FL + e \quad (2)$$

$$ROE = b_0 + b_1 ICMBs + b_2 ICCIV + b_3 ICMMQR + b_4 ICRM + b_5 ICVAIC + b_6 PAI + b_7 FL + e \quad (3)$$

$$EVA = d_0 + d_1 ICMBs + d_2 ICCIV + d_3 ICMMQR + d_4 ICRM + d_5 ICVAIC + d_6 PAI + d_7 FL + e \quad (4)$$

$$FGV = e_0 + e_1 ICMBs + e_2 ICCIV + e_3 ICMMQR + e_4 ICRM + e_5 ICVAIC + e_6 PAI + e_7 FL + e \quad (5)$$

Where: e =error term

4.1 Results and Discussion

Table 1.0 on the appendix presents the regression models results. This study used computed t statistics at 1, 5 and 10% level of significance. Meaning, for the relationship between IC and ROA to be significant, the cut-off value for computed t must at least be 1.75 at the stated levels of significance. From table 1.0, it can be observed that the model one OLS R-square (R^2) is 0.6014; which

implied that 60% changes in the dependent variable (ROA) is caused by the explanatory variables (ICMB, ICRM, ICVAIC, PAI and FL). From the model one OLS result also, it can be established that ICMB positively and significantly affects ROA. Because, the t statistics is 2.15 at 5% level of significance. The relationship is also significant but at 10% by FE result. This is in line with the findings of Saeed et al (2013) and Hamehkhani et al (2014) who used VAIC in Iranian and Pakistani companies respectively. The positive relationship between ICRM and ROA is also significant in both the OLS and FE result, and is line with Jafari (2013) work that studied 60 Iranian companies using VAIC model. It also strengthened and supports the position reached by Santoso (2012) and Amalia (2012) in their study of banks and pharmaceutical companies listed on the Indonesian Stock Exchange.

For ICVAIC, the direct relationship is significant at 10% and 5% by OLS and FE results respectively. And this supports the findings of previous studies conducted in Nigerian that relates ICVAIC with ROA, particularly Uadialle and Uwuigbe (2011) that established significant relationship at 1%. The result is also in line with the position in Salman, Yahaya and Olarewaju (2012) and Suraj and Bontis (2012). This is in addition to other researches carried out in different Nigerian industries. These include studies conducted respectively by Salma et al (2012); Okafor (2012) and Abdulai, et al (2012), in manufacturing, small businesses and software firms in Nigeria notwithstanding differences in methodology, particularly, methods of data collection. In addition, the study finding on ICVAIC and ROA also accords the stance of researches carried out in the Nigerian banking industry by Ogbo, et al (2013); Ekwe (2013) and Ekwe (2014). However, it is in consonance with findings of research conducted by Ahangar (2011); Jafari (2012) and Yegane, et al (2013) in Iranian companies. The result also reaffirmed the findings of studies carried out in Pakistan, Malaysia and Jordan by Iqbal, et al (2012); Mehri, et al (2013) and Sharabati, et al (2013) respectively.

The study is contrary to findings on ICVAIC and ROA conducted by Firer and Williams (2003) and Chu, et al (2011) who respectively found negative relationship, and no evidence to establish that ICVAIC could explain ROA of companies listed on South African and Hong Kong Stock Exchange.

For model two, the R^2 is 71%. The positive relationship between ICMB and ROE is significant at 10% level of significance. This suggests that an increase in the value of ICMB all things being equal, will significantly boost the return expected by ordinary share holders. However, the relationship is insignificant by FE result, because the t value (1.63) falls below the minimum cut-off value. The findings support that of Garkaz (2012) and Moradi et al (2013) that used computed

intangible value (CIV) for measuring the value of IC in Iranian companies listed on the Tehran stock exchange.

For ICMMQR, negative and insignificant relationship was found in both OLS and FE models. This is confirmed by the respective t value of -1.62 and -1.35. This was reaffirmed by $p > /t/$ which in either of the two cases is above 10%. From the model two results also, the relationship between ICRM and ROE is significant at 1% under both OLS and FE results. The positive relationship between ICVAIC and ROE is insignificant by OLS result. This is justified by lower t value of 1.41 than 1.75. However, the relationship is significant at 1% level of significance by FE result. Thus, the model two OLS result support the findings of a study carried out in companies listed on Tehran stock exchange by Moradi et al (2013) using same ICVAIC and ROE. This result is in disagreement with the FE result and position reached by Uadialle and Uwuigbe (2011) that established positive and significant relationship at 1% level of significance. It is also in conflict with other studies conducted using same variables in companies listed on Tehran stock exchange by Yegane, et al (2013) and Jafari (2013). Also, studies conducted using same measure of IC and ROE in other parts of the world specifically Malaysia and Bangaladash by Mehri, et al (2013) and Afroze (2011) respectively established conflicting result with the OLS result.

For model three, the OLS regression results reveal the cumulative R^2 (0.80) which is the multiple coefficient of determination gives the proportion or percentage of the total variation in the dependent variable explained by the explanatory variables jointly. Hence, it signifies 80% of total variation in financial performance of Nigerian listed oil marketing companies is caused by their ICMB, ICCIV, ICMMQR, ICRM, ICVAIC and FL. This indicates that the model is fit and the explanatory variable are properly selected, combined and used as substantial value of the financial performance is accounted for by the explanatory variables.

Besides, the relationship between ICMB and EVA is significant at 1% in both OLS and FE results. The relationship is also significant for ICCIV at 5% level of significance for OLS; and is in conflict with FE results, which shows 1.07 as value of t. Significant but negative relationship between ICMMQR and EVA is also established in both OLS and FE results at 1% level of significance. From the model three result, it can further be observed that the ICRM suggests direct and significant relationship with the dependent variable at 5% and 1% level of significance for OLS and FE respectively. Finally, ICVAIC is positively and significantly related with EVA at 1% in both OLS and FE results. This position support the findings of Naidenova and Parshakov (2013) in US firms;

notwithstanding, the number of employees, value of intangible assets and advertising expenditures were used as proxies for VAIC components. The current study findings on ICVAIC and EVA also agree with the results established by Mariya, et al (2012) in the study of multinational companies drawn from different industries of Europe and Shakina and Barajas (2012) in Russian and European companies.

Model four robust OLS results shows a very high R^2 of 0.99; implying that 99% of changes in FGV is caused by the explanatory variables. Therefore, it can be established that ICMB and ICMMQR relate positively and significantly with FGV at 1% significant level in both the OLS and FE result. Likewise, the negative relationship between ICCIV and FGV is significant at 5% level of significance under OLS only. The OLS results in table 1 also shows that other variables like ICRM and ICVAIC correlates negatively and significantly with FGV at 5% and 1 % significant levels. The relationship is also significant but at 1% level of significance by FE result. The position reached by this study, particularly on ICVAIC and FGV is in consonance with the findings of the research carried out by Mariya et al. (2012) in 351 European multinational companies. It is also in agreement with Shakina and Barajas (2012) in the study of Russian and European companies.

The results of robustness tests (multicollinearity, heteroscedasticity, Hausman specification and histogram test of residuals) conducted in order to improve the validity of all statistical inferences for the study reveal favourable but not reported for brevity.

This study finding has practical, methodological and theoretical implications that changed the substantive literature on the subject matter. Practically, the statistical findings imply that the FP indicators of the listed oil marketing companies are explained not only by physical assets, but by intellectual assets as well, depending on the valuation models. In fact, the latter influence FP more significantly. This is likely to influence the capital investment decisions of the listed companies. It will also affect the decisions of shareholders and other investors regarding where to invest their resources for higher return. The findings also imply the need for regulatory bodies like financial reporting council of Nigeria and international accounting standard board to set specific accounting standard on IC accounting in Nigeria and other parts of the world, considering the role that IC may play in influencing users' decisions.

Methodologically, the findings imply that intellectual assets measured using different methods of valuation other than VAIC as used in Uadiale and Uwuigbe

(2011) and other local studies do affect FP of companies. Theoretically, even though, this study presents mixed results; the knowledge-based theory adopted to guide the work, and to theoretically explain the relationship between IC and FP is still effective. This is because, the investment in human-related and non-human-related knowledge by the listed Nigerian oil marketing companies were found to have significant impact on most of the FP indicators employed in the study. It also imply just like the knowledge-based theory argues, other assets can influence FP of corporate organizations; but, the main determinants are human-related and non-human-related knowledge.

5.1 Conclusion and Recommendations

This study found positive and significant relationship between IC (i.e. ICMB, ICRM, and ICVAIC) and ROA of the listed Nigerian oil marketing companies. Direct and significant relationship was also established between IC (i.e. ICMB and ICRM) and ROE in model two. Positive but insignificant relationship exists between ICVAIC and ROE in the industry. For ICMMQR, the current study found negative and insignificant relationship. The IC measures (i.e. MB, CIV, MMQR, RM and VAIC) considered in model three were found to have positive and significant impact on EVA of the quoted Nigerian oil marketing companies, except MMQR which has negative and significant effect on the dependent variable. The result from model four showed mixed results as positive and significant relationship between two IC measures (i.e. ICMB and ICMMQR) and FGV was established on one hand; negative and significant relationship between other measures (CIV, RM and VAIC) and FGV was equally established on the other. Thus, the following conclusions were drawn based on the findings:

- i. The return expected by the listed Nigerian oil marketing companies from utilization of assets (i.e. ROA) can be largely enhanced through increase in the value of IC.
- ii. The return expected by the companies' ordinary shareholders will noticeably improve as long as there is improvement in the value of ICMB and ICRM. It will also improve but not significantly when there is increase in ICVAIC. However, the return expected by equity holders will fall (although not significantly) when the ICMMQR is improving.
- iii. The economic value to be created or added by the listed Nigerian oil marketing companies will largely increase with an upward shift in ICMB, ICCIV, ICRM and ICVAIC. However, the reverse will be the case if the companies' ICMMQR increase.

iv. Finally, the long term FP of the listed Nigerian oil marketing companies will only improve when ICMB and ICMMQR are enhanced. On the contrary, any attempt to boost the value of IC as determined using CIV, RM and VAIC will cause the FGV to seriously decline.

The study therefore, recommend that, Nigerian listed oil marketing companies should concentrate more on maximization of their total market valuation, maximization of IC return and increased investment in IC components with a view to enhancing their financial performance.

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	Model One				Model Two				Model Three				Model Four			
Variables	OLS Coef.	T	FE Coef.	T	OLS Coef.	T	FE Coef.	T	OLS Coef.	T	FE Coef.	T	OLS Coef.	T	FE Coef.	T
CONS	-0.0051	-0.3	0.03389	2.06	2.76203	2.4	5.15722	5.8	0.06646	0.09	0.33631	0.51	-0.0066	-0.1	-0.0336	0.51
	0.738		0.045		0.019		0		0.927		609		0.927		0.609	
ICMB	0.00385	2.15	0.00305	1.98	0.40723	1.8	0.36067	1.7	2.14799	9.31	2.08113	7.88	0.7852	34	0.79189	30
	0.036**		0.053*		0.072*		0.098		0.000***		0.000***		0.000***		0.000***	
ICCIIV									0.11394	2.22	0.06914	1.07	-0.0114	-2.2	-0.0069	1.07
									0.030**		0.289		0.030**		0.289	
ICMMQR					-0.3777	-2	-0.3034	1.4	-1.9532	-8.3	-1.9336	-7	0.19532	8.25	0.19336	7.04
					0.112		0.185		0.000***		0.000***		0.000***		0.000***	
ICRM	0.01843	3.37	0.01678	4.78	1.92297	9.3	0.45079	8.5	0.54481	2.23	0.86491	3.43	-0.0545	-2.2	-0.0806	3.43
	0.001***		0***		0.000***		0.000***		0.030**		0.001***		0.030**		0.001***	
ICVAIC	0.0025	1.75	0.00259	2.43	0.10855	1.4	0.15805	3.1	0.17239	2.69	0.20979	2.94	-0.0172	-2.7	-0.021	2.94
	0.087*		0.019**		0.164		0.003***		0.010***		0.005***		0.010***		0.005***	
PAI	0.13325	2.65	0.00189	0.04	6.36003	2.2	-3.267	1.3								
	0.011**		0.967		0.036**		0.199									
FL	0.03168	1.29	0.0204	0.66					-8.2278	-1.8	-10.613	-5.1	0.82278	1.82	1.06127	5.14
	0.202		0.512						0.075*		0.000***		0.075*		0.000***	