



THE EFFECT OF INTELLECTUAL CAPITAL DISCLOSURE ON MARKET VALUE OF LISTED COMPANIES IN NIGERIA

¹Mutalib Anifowose
(mutalib@salihin.com.my)
+601164548497

²Abdul Garba
(garbaabdul236@gmail.com)
+2348036094820

¹Salihin Consulting Group, Batu Cave Selangor, Malaysia

²Department of Accounting, Ibrahim Badamasi Babangida University, Lapai

Abstract

This research examines the intellectual capital (IC) disclosure's effect on the market value of the companies listed on Nigerian Stock Exchange's main board. The hypothesis for the study is formulated using signaling theory. Using content analysis of sampled 30 most capitalised firms, the study generates IC disclosure scores from annual reports. IC is surrogated with customer capital, protected capital, human capital, innovation capital and process capital, while corporate market value is proxied with market capitalisation. This study longitudinally examined the connection between market capitalisation and IC disclosure quality using data between 2016 and 2019 financial years based on ordinary least square method. The result shows that the listed companies' corporate market value and the overall IC disclosure are significantly and positively correlated. The study recommends that managers should disclose adequate information on IC because of its influence on investors' decisions and activities at capital market.

Keywords: Voluntary disclosure, Intellectual capital, corporate market value, Nigeria.

1. Introduction

Efficiency utilisation and subsequent disclosure of intellectual capital (IC) information in companies' annual reports have become a common research area globally among academia and practitioners in the field of accounting (e.g. Alfraih, 2017; Anifowose, Abdul Rashid, & Annuar, 2017; Widarjo & Bandi, 2018; Mangena, Pike, & Li, 2010; Mouritsen, Bukh, & Marr, 2004; Orens, Aerts, & Lybaert, 2009). The importance of IC, which fails to meet the recognition yardsticks of international accounting frameworks and standards (M'Pherson & Pike, 2001), cannot be over emphasised because its non-inclusion in main stream financial statements as either asset or capital has led to huge differences between book value and corporate market (e.g. Parshakov & Shakina, 2020, Stewart, 1991; Public, 2000).

Further, scholars such as Bounfour (2003), Bontis (1996), Edvinsson and Malone (1997), Anifowose et al. (2017) have identified relational capital, structural capital and human capital as three components of IC. Relational capital refers to the value or worth of an organisation's social relationships, both internal and external; it is an intangible asset. Structural capital covers the methods, processes, structure of intellectual property, brands and other important things which the company possesses, but do not reflect in the financial statement (Bounfour, 2003; Bontis, 1996; Stewart, 1997). Included in human capital,



according to Edvinsson and Malone (1997); Roos, Roos, Dragonetti and Edvinsson (1997) and Stewart (1997), are the intellectual abilities, skills, experience and competence of each employee.

Meanwhile, although one can easily understand the constituents of relational and human capitals, the elements of structural capital are ambiguous. After critically examining the extant literature on structural capital, and Nigerian economic environment, this paper suggests that structural capital should be divided into three components: process capital (Hsu & Fang, 2009; Stewart, 1997), protected capital or intellectual capital (e.g., Brooking, 1996; Edvinsson & Malone, 1997; Lynn, 1998) and innovation capital (Bontis, Dragonetti, Jacobsen, & Roos, 1999; Joia, 2000). This will be a ground breaking scientific framework for research in IC accounting. Innovation capital is believed to be a direct effect of the culture of a company and its capacity to bring out from the existing knowledge new one (Chang, 2007; Joia, 2000). Process capital covers operation processes, cooperative culture, specific methods, workflow, information technology systems, etc. in a company (Hsu & Fang, 2009). Intellectual property is legal way to protect the infrastructural assets of a firm. This is why intellectual assets are referred to as protected capital if they are legally protected.

In addition, stakeholders are worried about corporate value because it affects both present business decisions and the future assessment in investment and financing decisions (Keeney & Keeney, 2009). Market capitalisation has estimated corporate market value (e.g. Abdolmohammadi, 2005; Anam, Fatima, & Majdi, 2011) as its reliability can be assumed to be free from manipulation of those charged of corporate management. Meanwhile, Abhayawansa and Abeysekera (2008) posit that disclosing intellectual capital can improve market value. It will enhance information symmetry between investors and managers and guarantee capital market efficiency and as well facilitate better corporate governance (Abeysekera, 2008) as it may guide users towards the company's future direction, as signalling theory opines (Morris, 1987). The theory states that the information content of annual reports signals the direction to the users concerning the firm's future and guides their decisions. This can, therefore, explain the association between corporate value and intellectual capital reporting as the management of an entity with good value will endeavour to indicate this information in the firm's annual reports through disclosure of more information on IC and the market could capture the information (Anam et al., 2011).

To sum it up, the current study will extend the literature to sub-Saharan Africa, particularly Nigeria; it will investigate the effect of IC disclosure and its components: process capital disclosure, human capital disclosure, innovation capital disclosure, protected capital disclosure and process capital disclosure on the corporate market capitalisation of top 30 most capitalised firms in the country for a three-year period of 2016 to 2109. This is the pioneer study to consider such a relationship as previous studies have considered the trend of IC disclosure (Haji & Mubaraq, 2012; Mahamad & Salman, 2011) and the impact of VAIC on traditional accounting measures (Salman, Mansor, Babatunde, & Tayib, 2012; Uadiale & Uwuigbe, 2011) in the context of Nigeria economy.



However, this study reveals a significant positive correlation between market capitalisation and IC disclosure among the sampled companies. The structure of the study has section one which presents the introduction, while literature review and theoretical framework come in section two, which ends with hypotheses development. The methodology for the study is discussed in section three; data analysis presented in section four and the conclusion in section five.

2. Literature review

The value relevance of IC information among market participants has been considered using various theories. One of the most celebrated theories of voluntary disclosure is signalling theory which was proposed by Spence Michael in 1973. The theory suggests that the problem of information asymmetry could be minimised if the party possessing most information could give relevant stakeholders signals (An, Davey, & Eggleton, 2011). It proposes that corporate entities with better performance or high-quality firms would like to distinguish themselves from low-performing or low-quality companies by sending signals to the market through voluntary disclosure and, consequently, minimise the information inequality (Watson, Shrivess, & Marston, 2002).

Signalling theory proposes that entities with better quality should signal their potential to the market; in this way investors re-estimate the company's value and then make decisions, which will favour the company better (Whiting & Miller, 2008). In the same vein, it is anticipated that company will secure more investment through the investors' favour and the costs of raising capital will, thereby, reduce. Other studies, such as Oliveira, Rodrigues and Craig (2006) have also argued that corporate firms be better motivated and encouraged to disclose IC related information if fitness is signalled to the market. However, the reporting format and emphasis could vary depending on companies.

Research on the influence of disclosure and corporate value has received a considerable attention among academia and some notable practitioners in recent time. The premise of most of these studies is signalling theory as it is expected that information contents of IC will change the opinion of the market participants regarding the present as well as the future performance of the business organisations (e.g. Gamerschlag, 2013; Ousama, Fatima, & Hafiz, 2011; Sang & Taylor, 2014; Vafaei, Taylor, & Ahmed, 2011; Rooney & Dumay, 2016; Zhicheng, Zhuoer, Shing, & Wah, 2016). Also, Sang and Taylor (2014) examine IC value relevance and its components in the share price of 160 companies listed in Australian capital market within a period of five years. Data collected from sampled firm was analysed using fixed-effects (FEs) Panel regression analysis. The study finds that IC (structural capital and human) and share price of the sampled firms are significantly related.

Also, Gamerschlag (2013) investigates the impact of human capital disclosure on the corporate value of 130 largest quoted German firms for the time period of 2005 to 2009 using content analysis. The study utilises disclosure index to estimate human capital disclosure (HCD) and employs share price and equity return as proxies for market value.



Also, it introduces year and industry dummies as control variables. The study surrogates HCD by four items which include: HCRTOT refers to the amount of human capital disclosed, HCRQC refers to the quantity of “qualification/competence” information disclosed, HCRMC refers to the quantity of “motivation/commitment” information disclosed, while HCRPS refers to the quantity of “personnel” issues (the amount of keywords available in the report analysed) disclosure. Closing price of the share and holding period return were estimated as a proxy of the entities’ market value.

Besides, Ousama et al. (2011) examine the value relevant of IC information disclosure of Malaysian listed companies. The study utilises a survey instrument to generate data from both the preparers and users of financial statements. It employs human capital, internal capital and external capital as surrogates for IC and the questionnaire was administered among chief finance officers (CFOs) and accountants of selected companies, loan officers of banks and broker institutions. ANOVA, t-test and descriptive statistics are used for data analysis. The study reveals that information content of IC is perceived to be value-relevant to both preparers and users though at different degrees. Vafaei et al. (2011) examine the extent of value relevance of IC disclosure among firms in the capital markets. It is a cross-national and comparative study in which 220 firms are sampled from 4 countries: Singapore (50), Hong Kong (49), Australia (63) and Britain (58). Word count of the contents of the firms’ annual reports for in the content of firms’ annual reports for each of four components (HC, SC, RC and general terms) and a disclosure index are used to measure disclosure of IC. The finding suggests industry-specific factors and country-specific factor have impact on a positive association between share price and IC disclosure. It is also found that IC disclosure gives market participants information on value relevance in non-traditional industrial sector and in Britain and Australia alone.

In the same vein, Swartz, Swartz and Firer (2006) examine JSE Securities Exchange (SA) using Ohlson’s 1995 valuation model. The study finds that IC reporting and market capitalisation are significantly related. Also, Abdolmohammadi (2005) studied a sample of Fortune 500 in the USA and utilised aggregate value for ICD and documented that the information content of annual reports concerning IC affect corporate market capitalisation significantly. Similarly, Vafaei et al. (2011) measure ICD value relevance of the sample firms in Australia, Britain, Singapore and Hong Kong., It can only document that market value is significantly and positively influenced in two of the four countries.

The above shows that IC is not peculiar to some countries and it could be studied across firms. Also, the findings might be influenced by the economic jurisdiction of the study. Thus, it would be interesting to explore the phenomenon in Nigerian economy. Relying on theoretical underpinning and established association between market capitalisation and voluntary disclosure, this study proposes the following conceptual framework. The dependent variable is measured as market capitalisation, while independent variable is IC disclosure made of, relational capital disclosure, innovation capital disclosure, structural capital disclosure, human capital disclosure and protective capital disclosure. Also,



included in the framework are control variables which are considered relevant in explaining the dependent variables. These are size of the firms and industry affiliation.

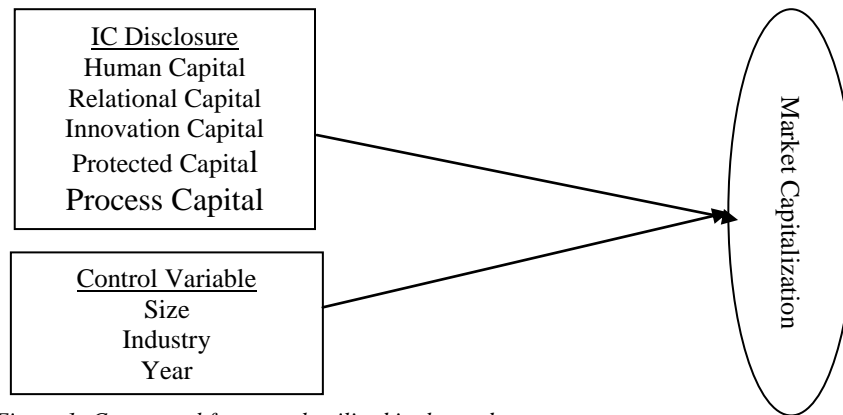


Figure 1: Conceptual framework utilised in the study

Based on the underpinning theory and the existing empirical studies, this section presents the hypothesis of this study. The research question is does IC disclosure significantly affect market capitalisation of a firm based on signaling theory? Several scholars have investigated the relationship between market capitalisation and IC disclosure. Abdolmohammadi (2005) and Anam et al (2011), for instance, discover that market capitalisation is significantly and positively influenced by IC disclosure. Similarly, Taliyang et al. (2014) examine the impact of IC disclosure on market capitalisation in 185 Malaysian listed companies. They too find that Malaysian listed companies' market capitalisation is significantly and positively influenced by IC disclosure. Based on the above findings, the present study tests the hypothesis below:

H₁:Intellectual capital disclosure has significant effect on the market value of the companies listed in Nigeria.

3. Methodology

Due to their market capitalisation on the floor of NSE, 30 Nigerian listed firms were sampled for this study. The firms are those, which consistently fell within the 30 most capitalised firms over the period 2016 – 2019. Though their positions changed, they still meet the criteria. The study utilised data mainly from secondary sources because the core of the data needed for analysis was adequately and authoritatively extracted from the



annual reports of the sample firms and other relevant publications issued by the Nigerian Stock Exchange (NSE).

Measurement of IC disclosure

Based on the review of previous studies, this study employs content analysis to form a checklist after familiarisation with IC disclosure pattern. The 49 IC items are selected, comprising 6 innovation capital items, 9 process capital, 16 human capital 13 relational capital items and 5 protected capital. The items in each of the categories are presented in Table 1 below.

Table 1: Checklist list of IC Disclosure Items

A	Human Capital	C	Customer/Relational Capital
1	Number of Employees	1	List of Customers
2	Employee satisfaction	2	Customer satisfaction
3	Employee retention	3	Customers loyalty
4	Compensation to employees	4	Customer Appreciation
5	Engagements with employees	5	Customer retention
6	Recruitment from the local communities	6	Customer service/support
7	Disability recruitment policy (number)	7	Customer feedback system
8	Employee Know-how	8	Distribution channels
9	Education Background	9	Customer Market Share
10	Employee succession planning program	10	Company awards
11	Work-related knowledge	11	Company image/ reputation
12	Knowledge sharing	12	Customer training & education
13	Employee health and safety	13	Diffusion & networking
14	Employee Expertise	D	Innovation Capital
15	Training and development	1	Innovation
16	Cultural Diversity	2	Research and Development
B	Process Capital	3	Brands
1	Corporate Culture	4	Knowledge-based
2	Information Systems (Technology)	5	Research collaboration
3	Financial Relations	6	Goodwill
4	Business Collaboration	E	Protected Capital
5	Favourable contracts	1	Patent
6	Organisation flexibility	2	Copyright
7	Organisation structure	3	Trademarks
8	Organisation learning	4	Licenses
9	Quality management	5	Commercial rights

Source: Checklist developed by the Authors 2019



A four Likert scale (0-3) was used to score IC disclosure quality (e.g., Abeysekera, 2008; Guthrie et al., 2006). Following Haji and Ghazali (2012) and Anifowose et al. (2017), an item disclosed in Nigerian Naira was scored a value of 3; an item disclosed numerically was scored 2. An item disclosed in form of narrative was scored 1, while an item, which did not feature the annual report, was allotted 0. Therefore, the total scores for overall disclosure and each of components (TXS) were computed as the proportion of actual score (AXS) to maximum possible score (MXS) (i.e. $3 \times 49 = 147$). The TXS of a company is obtained by:

$$TXS = AXS/MXS \dots\dots\dots 1$$

There have been worries in the recent times regarding reliability and validity of scores in IC disclosure (Dumay & Cai, 2014) because the approach has inherent problems. To avoid such problems, the scoring approach used in this study involves a two-stage checklist. To be familiar with annual reports, the study did a pilot scoring of the top ten listed firms. Then, the annual reports of the sample firms were scored independently by the author their scores were then compared and they jointly rescored areas where they differed to correct their differences.

Data Analysis Methods

In order to identify anomalies in the series, the analysis began by describing the data. Pearson Correlation Matrix was done to detect whether there was multicollinearity among independent variables (e.g., Field, 2013; Hinton et al. 2004). Due to the nature of data and finding from these preliminary analyses, the study estimated the parameters with ordinary least square method (e.g., Field, 2013; Hinton et al. 2004). The stochastic models were used for making estimations as presented below:

$$MKcap_{it} = \gamma_0 + \gamma_2 \sum_{i=1}^5 TICD_{it} + \gamma_3 Industry_{it} + \gamma_4 Size_{it} + \gamma_5 Year_{it} + \epsilon_{it} \dots\dots\dots 2$$

$$MKcap_{it} = \delta_0 + \delta_2 HC_{it} + \delta_3 EC_{it} + \delta_4 INC_{it} + \delta_5 PC_{it} + \delta_6 PRC_{it} + \delta_7 Industry_{it} + \delta_8 Size_{it} + \delta_9 Year_{it} + \epsilon_{it} \dots\dots\dots 3$$

The total impact of IC disclosure and its individual components on market capitalisation are estimated using equation 2 and equation 3 respectively. Presented in Table 2 are definitions, measurements and sources of acronyms used in the models.

Table 2: Details of Variables

Symbol	Definition	Measurement	Sources
Log_MK	Natural log of market capitalization	Product of year end stock price and num: share ranking for dividend	NSE Website
HC	Weighted human capital disclosure	Ratio of actual to maximum possible score of HC	Annual report
EC	Weighted Relational capital disclosure	Ratio of actual to maximum possible score of RC	Annual report
INC	Weighted Innovation capital disclosure	Ratio of actual to maximum possible score of INC	Annual report



Symbol	Definition	Measurement	Sources
PC	Weighted Process capital disclosure	Ratio of actual to maximum possible score of PC	Annual report
PRC	Weighted Protected capital disclosure	Ratio of actual to maximum possible score of PRC	Annual report
TICD	Weighted Overall Intellectual capital disclosure	Ratio of actual score to maximum possible score Overall IC	Annual report
Industry	Categories firms along financial and non-financial line	1 for financial firm and 0 for non-financial	NSE Website/Annual reports
Size	Size of the sampled firms	Log of total assets	NSE Website/Annual reports
Year	Year Dummy	Dummy variable for year of study	

Source: extracted by the authors

4. Results

Descriptive Statistics

The analysis begins with data description to establish their suitability for further estimations. The results of descriptive statistics reveal that about 43.6% of the overall disclosure items were disclosed by the firms on the average. Also, human capital was most disclosed among the five components with an average of 46.3% of the expected disclosure. This is closely followed by process capital with a mean of 45.3%, while protected capital has the least disclosure. The results also show that median values of all the variables fall between their means and maximum values. This is an indication of normality as this proves the variable to mesocurtic shapes in their probability distributions. Besides, the variables are moderately normally distributed based on skewness and kurtosis criterion (e.g. Field, 2013; Wooldridge, 2010). It can be drawn from the above that the parameters could be estimated with ordinary least square method.

Table 3: Result of Descriptive Statistics

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Ob
LOG_MK	11.30	11.250	13.104	9.780	0.675	0.455	3.783	90
TICD	0.436	0.422	0.687	0.238	0.098	0.324	2.642	90
SIZE	10.58	10.627	11.740	7.280	0.809	-1.445	6.938	90
HC	0.463	0.458	0.625	0.250	0.091	-0.216	2.486	90
EC	0.443	0.410	0.795	0.051	0.164	0.197	2.577	90
PC	0.453	0.444	0.778	0.148	0.116	0.386	3.417	90
PRC	0.340	0.333	0.600	0.067	0.087	0.323	5.548	90
INC	0.408	0.389	0.889	0.000	0.148	0.827	4.783	90

Source: Extracted by the authors

Summary of Pearson Correlations Coefficient Matrix

Table 4 presents the results of correlation matrix. The results indicate that perfect multicollinearity was absent among the variables because all that figures are acceptable



based on the submissions of Field (2013) and Gujarati and Porter (2009). Except in the case of TICD and its constituents which are not to be regressed together in the same model, the correlation coefficient across the pair is lower than 0.5. This signifies non-awfulness or non-presence of collinearity problems among the independent variables. To investigate the relationship among both dependent variables and independent variables, a correlation analysis is considered and Table 4 presents the coefficient matrix among the variables. One could deduce that market capitalisation is positively significantly correlated with the intellectual capital components. This could provide a better basis for further analysis using regression method of estimation.

Table 4: Coefficient of Correlation Result

	Log_MK	TICD	HC	EC	PC	InC	PrC	Size
Log_MK	1							
TICD	.436**	1						
HC	.226*	.885**	1					
EC	.454**	.912**	.716**	1				
PC	.351**	.906**	.755**	.767**	1			
InC	.431**	.662**	.413**	.532**	.597**	1		
PrC	.261*	.459**	.383**	.276**	.447**	.288**	1	
Size	.418**	.235*	.151	.230*	.278**	.179	.054	1

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

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

Regression Result of ICD and Market Capitalisation

The major aim of the present study is to find out the Intellectual Capital Disclosure (ICD) impact on Nigerian listed firms' corporate market value. The hypothesised correlation was tested with the aggregated model (i.e. equation). The results of the model indicate that Nigerian listed firms' market capitalisation is significantly and positively affected by overall disclosure. The possible implication of this finding is that more disclosure would enhance the market value. This result supports previous studies such as Anam et al. (2011) and Abdolmohammadi (2005). However, from individual components' perspectives, the market value of Nigerian listed firms is significantly positively influenced by innovation capital, external capital and protected capital. The results also reveal unexpectedly that corporate market value measure by market capitalisation is significantly and negatively influenced by process capital and human capital. In addition, firm's size has a significant effect on corporate value supports Anam et al. (2011).

Besides, both the year effect and industry effect have a significantly negative impact on corporate market value during the period under study in the two models. It could be said that industry and year are not necessary in the IC disclosure in the context of Nigeria. The overall variation in market value is explained by IC disclosure to the extent of 71.2% on the aggregate and 83.2% on individual component model, as revealed by the adjusted R-square, while F-statistic reveals fitness of the model (F-statistic, 44.54, P<0.01 for model 1 and F-statistics, 49.58, P<0.01 for model II) with value of 44. The detail summaries of the



estimation are presented in Table 5. It seems the autocorrelation is not a serious problem with values of DW from both models which is approaching 1 as suggested by earlier studies (e.g. Field, 2013; Wooldridge, 2010).

Table 5: Intellectual capital disclosure and market capitalisation

Variable	Model 1				Model 2			
	Coefficient	Std. Error	t-Stat	Prob.	Coefficient	Std. Error	t-Stat	Prob.
TICD	1.935	0.245	7.915	0.000				
HC					-0.854	0.209	-4.094	0.000
EC					1.825	0.300	6.087	0.000
INC					0.589	0.086	6.861	0.000
PRC					1.216	0.111	10.967	0.000
PC					-0.549	0.244	-2.251	0.027
SIZE	0.496	0.068	7.291	0.000	0.391	0.043	9.135	0.000
FIN	-0.395	0.030	-13.197	0.000	-0.315	0.032	-9.753	0.000
YEAR1	-0.114	0.014	-8.415	0.000	-0.075	0.010	-7.521	0.000
YEAR2	-0.091	0.003	-26.764	0.000	-0.053	0.004	-13.174	0.000
C	5.125	0.615	8.333	0.000	6.242	0.426	14.666	0.000
R ²		0.729				0.850		
Adj.R ²		0.712				0.832		
F-value		44.543				49.589		
Prob.		0.000				0.000		
DW		0.936				0.997		

Source: Extracted by the Authors

5. Conclusion and Recommendations

The study has investigated the potential effect of ICD on corporate market value surrogated by market capitalisation which was measured by number of shares ranking for divided and product of end year share price. The study employed content analysis for the annual reports of the top 30 Nigerian listed firms from 2016 to 2019. IC was classified as innovation capital, human capital, protected capital, process capital and external capital. Overall IC disclosure and innovation, external capital and protected capital disclosure significantly and positively influenced Nigerian listed companies' market value. This mean the more these are disclosed, the better the firms' market value is. Contrary to expectation, human and process capital disclosure negatively affected market value, which suggests that these components are not necessarily valued by Nigeria investors.

Practically, one would expect the people in charge of governance to pay attention to IC information disclosure in financial reports because investors are conscious of IC information. However, this is subject to certain limitations, which future studies could investigate to extend the present research. Since this study used 30 top listed firms NSE, its findings cannot be generalized to cover smaller firms. Further research is needed to empirically find out if the results are generalizable to all listed companies regardless of their sizes.



References

- Abdolmohammadi, M. J. (2005). Intellectual capital disclosure and market capitalisation. *Journal of Intellectual Capital*, 6(3), 397-416.
- Abeysekera, I. (2008). Intellectual capital disclosure trends: Singapore and Sri Lanka. *Journal of Intellectual Capital*, 9(4), 723-737. doi:10.1108/14691930810913249
- Abhayawansa, S., & Abeysekera, I. (2008). An explanation of human capital disclosure from the resource based perspective. *Journal of Human Resource Costing and Accounting*, 12(1), 51-64.
- Alfraih, M. M. (2017). The value relevance of intellectual capital disclosure: empirical evidence from Kuwait. *Journal of Financial Regulation and Compliance*, 25(1), 22-38. doi:10.1108/JFRC-06-2016-0053
- An, Y., Davey, H., & Eggleton, I. R. C. (2011). Towards a comprehensive theoretical framework for voluntary IC disclosure. *Journal of Intellectual Capital*, 12(4), 571-585. doi:10.1108/14691931111181733
- Anam, O. A., Fatima, A. H., & Majdi, A. R. H. (2011). Effects of intellectual capital information disclosed in annual reports on market capitalisation: Evidence from Bursa Malaysia. *Journal of Human Resource Costing & Accounting*, 15(2), 85-101. doi:10.1108/14013381111157328
- Anifowose, M., Abdul Rashid, H. M., & Annuar, H. A. (2017). Intellectual capital disclosure and corporate market value: does board diversity matter? *Journal of Accounting in Emerging Economies*, 7(3), 369-398. doi:doi:10.1108/JAEE-06-2015-0048
- Bontis, N. (1996). There's a price on your head: managing intellectual capital strategically. *Business Quarterly*, 60, 40-78.
- Bontis, N., Dragonetti, N. C., Jacobsen, K., & Roos, G. (1999). The Knowledge Toolbox: A Review of the Tools Available to Measure and Manage Intangible Resources. *European management journal*, 17(4), 391-402.
- Bounfour, A. (2002). *How to measure Intellectual Capital's dynamic value: the IC-dVAL approach*. Paper presented at the 5th World Congress on Intellectual Capital, McMaster University, Hamilton, Ontario, Canada.
- Bounfour, A. (2003). The IC-dVAL approach. *Journal of Intellectual Capital*, 4(3), 396-413. doi:10.1108/14691930310487833
- Brooking, A. (1996). *Intellectual Capital: Core asset for the third millennium*: Cengage Learning EMEA.
- Chang, S. (2007). *Valuing Intellectual Capital and Firms' Performance: Modifying Value Added Intellectual Coefficient (VAIC™) in Taiwan IT industry*. (Doctoral of Business Administration Program), Golden Gate University.



- Edvinsson, L., & Malone, S. M. (1997). *Intellectual Capital: Realizing Your Company's True Value by Finding Its Hidden Brainpower*: HarperBusiness: New York.
- Field, A. (2013). *Discovering statistics using IBM SPSS statistics* (3rd ed.). London: Sage.
- Gamerschlag, R. (2013). Value relevance of human capital information. *Journal of Intellectual Capital*, 14(2), 325-345. doi:10.1108/14691931311323913
- García-Meca, E., Parra, I., Larrán, M., & Martínez, I. (2005). The explanatory factors of intellectual capital disclosure to financial analysts. *European Accounting Review*, 14(1), 63-94.
- Haji, A. A., & Mubaraq, S. (2012). The trends of intellectual capital disclosures: evidence from the Nigerian banking sector. *Journal of Human Resource Costing & Accounting*, 16(3), 184-209. doi:10.1108/14013381211286360
- Hsu, Y.-H., & Fang, W. (2009). Intellectual capital and new product development performance: The mediating role of organisational learning capability. *Technological Forecasting and Social Change*, 76(5), 664-677. doi:10.1016/j.techfore.2008.03.012
- Joia, L. A. (2000). Measuring intangible corporate assets: linking business strategy with intellectual capital. *Journal of Intellectual Capital*, 1(1), 68-84.
- Keeney, R. L., & Keeney, R. L. (2009). *Value-focused thinking: A path to creative decisionmaking*: Harvard University Press.
- Lynn, B. (1998). Intellectual capital: key to value-added success in the next millennium. *CMA magazine*, 72(1), 10-15.
- Mahamad, T., & Salman, R. T. (2011). Intellectual capital reporting in Nigeria: A way forward. <http://www.aibuma.org/abstract.php?value=101>.
- Mangena, M., Pike, R. H., & Li, J. (2010). *Intellectual capital disclosure practices and effects on the cost of equity capital: UK evidence*: Institute of Chartered Accountants of Scotland.
- Marr, B., & Chatzkel, J. (2004). Intellectual capital at the crossroads: managing, measuring, and reporting of IC. *Journal of Intellectual Capital*, 5(2), 224-229. doi:10.1108/14691930410533650
- Morris, R. D. (1987). Signalling, agency theory and accounting policy choice. *Accounting and business research*, 18(69), 47-56.
- Mouritsen, J., Bukh, P. N., & Marr, B. (2004). Reporting on intellectual capital: why, what and how? *Measuring Business Excellence*, 8(1), 46-54.
- M'Pherson, P. K., & Pike, S. (2001). Accounting, empirical measurement and intellectual capital. *Journal of Intellectual Capital*, Vol. 2(No. 3), pp. 246-260.
- Oliveira, L., Rodrigues, L. L., & Craig, R. (2006). Firm-specific determinants of intangibles reporting: evidence from the Portuguese stock market. *Journal of Human Resource Costing & Accounting*, 10(1), 11-33.



- Orens, R., Aerts, W., & Lybaert, N. (2009). Intellectual capital disclosure, cost of finance and firm value. *Management Decision*, 47(10), 1536-1554.
- Ousama, A. A., Fatima, A. H., & Hafiz, A. R. M. (2011). Usefulness of intellectual capital information: preparers' and users' views. *Journal of Intellectual Capital*, 12(3), 430-445. doi:10.1108/14691931111154724
- Parshakov, P., & Shakina, E. (2020). Do companies disclose intellectual capital in their annual reports? New evidence from explorative content analysis. *Journal of Intellectual Capital*, 21(6), 853-871. doi:10.1108/JIC-03-2019-0040
- Pulic, A. (2000). MVA and VAIC analysis of randomly selected companies from FTSE 250. *online] www. vaicon. net.*
- Rooney, J., & Dumay, J. (2016). Intellectual capital, calculability and qualculation. *The British Accounting Review*, 48(1), 1-16. doi:http://dx.doi.org/10.1016/j.bar.2015.07.002
- Roos, J., Roos, G., Dragonetti, N. C., & Edvinsson, L. (1997). Intellectual Capital. Navigating in the new business landscape: MacMillan Press, London.
- Salman, R. T., Mansor, M., Babatunde, A. D., & Tayib, M. (2012). Impact of Intellectual Capital on Return on Asset in Nigerian Manufacturing Companies. *Interdisciplinary Journal of Research in Business*, 2(4), 21- 30.
- Sang, K. H., & Taylor, D. (2014). Intellectual capital vs the book-value of assets: A value-relevance comparison based on productivity measures. *Journal of Intellectual Capital*, 15(1), 65-82. doi:10.1108/jic-04-2013-0048
- Spence, M. (1973). Job market signaling. *The quarterly journal of Economics*, 355-374.
- Stewart, T. A. (1991). Brainpower: How Intellectual Capital is Becoming America's Most Valuable Assets. *Fortune*, 123(11), 44-70.
- Stewart, T. A. (1997). Intellectual capital: The new wealth of nations. *New York*.
- Swartz, G., Swartz, N., & Firer, S. (2006). An empirical examination of the value relevance of intellectual capital using the Ohlson (1995) valuation model. *Meditari Accountancy Research*, 14(2), 67-81.
- Uadiale, O. M., & Uwuigbe, U. (2011). Intellectual Capital and Business Performance: Evidence from Nigeria. *Interdisciplinary Journal of Research in Business*, 1(10), 49-56.
- Vafaei, A., Taylor, D., & Ahmed, K. (2011). The value relevance of intellectual capital disclosures. *Journal of Intellectual Capital*, 12(3), 407-429. doi:10.1108/14691931111154715
- Watson, A., Shrivs, P., & Marston, C. (2002). Voluntary disclosure of accounting ratios in the UK. *The British Accounting Review*, 34(4), 289-313.



- Whiting, R. H., & Miller, J. C. (2008). Voluntary disclosure of intellectual capital in New Zealand annual reports and the “hidden value”. *Journal of Human Resource Costing & Accounting*, 12(1), 26-50.
- Widarjo, W., & Bandi. (2018). Determinants of intellectual capital disclosure in the IPOs and its impact on underpricing: Evidence from Indonesia. *International Journal of Learning and Intellectual Capital*, 15(1), 1-19. doi:10.1504/IJLIC.2018.088346
- Wooldridge, J. M. (2010). *Econometric analysis of cross section and panel data*: MIT press.
- Zhicheng, L., Zhuoer, C., Shing, L. T. T., & Wah, C. S. K. (2016). The Impact of Intellectual Capital on Companies’ Performances: A Study Based on MAKE Award Winners and Non-MAKE Award Winner Companies. *Procedia Computer Science*, 99, 181-194. doi:http://dx.doi.org/10.1016/j.procs.2016.09.110