Content and Determinants of Intellectual Capital Disclosure: Evidence from Annual Reports of the Jordanian Industrial Public Listed Companies

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Abstract

This study investigates the Intellectual Capital (IC) voluntary disclosures. Limited attention is given to examine IC practices of the business entities in the developing countries (including Jordan). Specifically, this paper documents the practices by the large industrial Jordanian firms when disclosing information related to IC and to what extent they do report such non-financial information in their annual reports. Based on relevant literature (namely, Edvinsson and Malone, 1997; and Johnson, 1999), we apply a research index on 60 publicly listed companies classified under the industrial sector at Amman Stock Exchange (ASE). Our findings suggest that information about the intellectual capital has been extensively disclosed by the industrial companies in Jordan. Up to 59% of the hypothesized IC disclosure items were found in the annual reports of the study sample. The evidence reported in this study reveals that human capital is the most disclosed aspect among all three investigated components of IC (i.e. human, internal, and external capital). Unsurprisingly, the multivariate cross-sectional regression analysis reveal size and ownership concentration have the highest explanatory power since that larger companies with greater concentration in their ownership tend to disclose more information about their intellectual capital.

Keywords: Intellectual Capital, Jordan, Intangible Assets, Industrial PLCs, Voluntary Disclosure

1. Introduction

In recent years, it has been commonly observed that a company's market value is well above its book value, thus, accounting literature has focused 'narrowly' on the considerable discrepancy between the two values and the incapability of traditional accounting concepts and methods to deal with the intangible nature of key sources of corporate competitive advantage (McPhail, 2009). This might suggest that traditional accounting systems deliver financial statements that do not fully reflect the value relevant information (Edvinsson, 1997). Previous research has revealed that Intellectual Capital (hereafter IC) or intangible assets (an intellectual capital component) outside the financial statements are the value drivers of firms since they increasingly base their own value on know-how, patents, skilled employees and other intangible assets (Bukh, 2003). Investors lack of information which could result in an increased risk perception cause difficulties in attracting funds and can possibly lead to an underestimation of future earnings (Walker, 2006 in Branswijck and Everaert, 2011). In order to avoid this underestimation, companies can decide to voluntarily disclose value relevant information, and this could be done through disclosing such information either in the annual report or in the prospectus. Cordazzo (2007) concluded that in the prospectus, companies provide investors with the voluntary disclosure of IC by reporting additional information on the companies' risk, future profitability and strategy. On the same vein, Brüggen *et al.*, (2009) examined the determinants of IC disclosure in the annual report and identified industry and entity size as possible explanatory factors.

Since the annual report generally focuses on the historical performance of the company, some differences are likely to be reflected in the nature of IC disclosure between the prospectus and the annual report. It has been argued that the quality of reporting in the prospectus could be seen as a "role model for future information disclosure of the company" (Beattie, 1999; Cumby and Conrad, 2001 in Branswijck and Everaert, 2011). However, this would raise questions about commitment regarding IC disclosure being produced by the companies within their annual reports in comparison with disclosure in prospectus.

Based on the literatures conducted on IC, it could be argued that a very limited attention is being given to examine IC practices within the developing countries. Therefore, this study will shed some light on IC disclosures being produced by the large industrial businesses in Jordan. In addition to this introduction, the flow of this paper is divided into several parts as follows: motivations and the research questions; an overview of the IC; previous literature; research methodology, method, and data collection process; the regression model and hypotheses of the study; and finally results of the analytical statistics along with conclusion of the study.

2. Motivations and Research Questions

In comparison with research studies being carried out in the developed countries, it could be argued that a limited attention has been given to examine IC practices of the business entities in the developing countries (including Jordan). Therefore, this study represents an attempt to shed some light on IC practices within the Jordanian largest industrial businesses. In particular, focus is given in this study to examine the IC disclosure in the annual reports of the targeted companies. Moreover, attention will be given to investigate influence of seven independent variables into the IC disclosures.

Given the fact that this study questioning the extent to which do listed industrial companies in Jordan disclose information about their IC practices, it addresses the following key research questions:

1- To what extent do the Jordanian industrial public listed companies voluntarily disclose information related to the IC practices in their annual reports?
2- What is the nature and extent of IC aspects being disclosed? And,
3- What impact do the proposed independent variables have on IC disclosure?

3. An Overview of the Intellectual Capital (IC)

Intellectual Capital is relatively new topic not only within the accounting and finance discipline but also within the business and management arena. Within the literature, there is no precise agreement on what IC concept might be (Starovic and Marr, 2003; Choong, 2008; McPhail, 2009). Choong (2008) argues that various terminologies were used by researchers to describe what is being called IC, these include for example: intellectual assets, intangible assets, intangibles, intangible resources, intellectual capital, intellectual property and intellectual knowledge. In the same context, Petty and Cuganesan (2005) assert that the term 'intellectual capital' is often treated as being synonymous with 'intangible assets'. Marr and Schiuma (2001 in Starovic and Marr, 2003) state that a key feature of the conceptions of intellectual capital is that they recognize the link between intellectual capital and the structure and performance of an organization.

Literature suggests several definitions for IC. Most of these definitions agree that the construct (which is referred to as IC), is a non-monetary asset, without physical substance but it possesses value or can generate future benefits (Choong, 2008). Marr and Schiuma (2001; in Mangena *et al*., 2010, p.11) define IC as the "possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give organizations competitive advantage". Further to this definition, Marr and Schiuma (2001; in Starovic and Marr, 2003, p.6) emphasized that IC could be related to "[a] group of knowledge assets that are attributed to an organization and most significantly contribute to an improved competitive position of this organization by adding value to defined key stakeholders". In the same vein, the Organization for Economic Co-operation and Development (OECD, 1999) describes IC as the "economic value of two categories of *intangible assets* of a company, these are: organizational (structural) capital; and human capital".

It could be argued that a broad consensus has developed that IC can be characterized in terms of a 'tripartite model' comprising: human capital, external capital and internal capital components (Edvinsson and Malone, 1997; Stewart, 1997; Sveiby, 1997 in Petty *et al.*, 2009).

In this regard, human capital refers to the skills/competences, training and education, and experience and value characteristics of an organization's workforce; external capital comprises relationships with customers and suppliers, brand names, trademarks and reputation; whereas the internal capital refers to the knowledge embedded in organizational structures and processes, and includes patents, research and development, technology and systems (Petty *et al.*, 2009).[1]

With respect to the value gained by businesses who disclosing IC, it could be argued that there are a number of incentives that may accrue to firms who choose to voluntarily disclose IC issues. Petty (2003, in Petty *et al.*, 2009, p.2) stats that the predominate incentive for firms to disclose their intellectual capital is to 'render the invisible visible'. Moreover, it has been suggested that capital markets respond favorably towards a company who decide to report on their IC (Garcia-Ayuso, 2003).[2] It should be indicated in this regard, that investigating motivations of the reporting companies towards disclosing IC is out of scope of the current research.

4. Components of the Intellectual Capital

Several studies have provided classifications that help in understanding the components of IC (see for example: Brooking, 1996; Edvinsson and Malone, 1997). Brooking (1996) emphasizes that there are specific processes could be used to identify, document, and measure the IC, and such classification would facilitate the audit process. In the same vein, Edvinsson and Malone (1997) argue that IC takes three basic forms: human capital; internal or structural capital; and external or customer capital.

Human capital includes knowledge, skills, and abilities of employees. It is an organization's combined human capability for solving business problems. Human capital is inherent in people and cannot be owned by organizations. It also encompasses how effectively an organization uses its people resources, as measured by creativity and innovation (Edvinsson and Malone, 1997).

Structural capital is everything in an organization that supports employees (human capital) in their work. It is the supportive infrastructure that enables human capital to function (such as: buildings, hardware, software, processes, patents and trademarks). In addition, structural capital includes things such as the organization's image, organization structure, information system, and proprietary databases (Edvinsson and Malone, 1997).[3]

Customer capital is the strength and loyalty of customer relations. Customer satisfaction, repeat business, financial well-being and price sensitivity may be used as indicators of customer capital. The notion that customer capital is separate from human and structural capital indicates its central importance to an organization's worth (Edvinsson and Malone, 1997).

Further to the framework proposed by Edvinsson and Malone (1997), Johnson (1999) suggested that an IC framework could be presented to identify and measure important resources that may provide sustainable competitive advantage for the company. However, the IC assets of the firm are intangible and not easily amenable to financial measures as benchmarks - as the difficulty of measuring and managing the elements of IC is a "result of management's inherent tendency towards over-dependence on financial measures of performance" (Johnson, 1999, p. 562). Table 1 illustrates the general types of the intangible assets in the IC Framework.

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[1] Petty *et al.*, (2009) emphasized that while there is a legal requirement for firms to disclose within their financial statements certain types of purchased intangible assets [IAS38 – Intangible Assets], "firms are currently not required by accounting standards or by law to report on most of their intellectual capital", however companies may voluntarily decide to disclose such information.

[2] It has been argued that reporting on IC may attempt to resolve uncertainty about the firm, thereby improving level of stock price (Edvinsson and Malone, 1997; Stewart,1997) which in turn, leading to a reduction in volatility of stock prices, a decrease in firm cost of capital, and an increase in intrinsic value (Garcia-Ayuso, 2003).

[3] Due to its diverse components, Edvinsson and Malone (1997) classified *structural capital* further into organizational, process and innovation capital. Organizational capital includes the organization philosophy and systems for leveraging the organization's capability. Process capital includes the techniques, procedures and programs that implement and enhance the delivery of goods and services. Innovation capital includes intellectual properties and intangible capital. Intellectual properties are protected commercial rights such as patents, copyrights and trademarks. Intangible capital is all the other talents and theories by which an organization is run (Edvinsson and Malone, 1997).

Table 1: The General Types of the Intangible Assets in the IC Framework

Type of Capital		General Asset Type
Human Capital	Ideas capital	Knowledge-based workforce
		Assembled workforce
		R&D Projects
	Leadership capital	Experts
		Managerial competence
Structural Capital	Innovation capital	Intellectual property
		Firm infrastructure
	Process capital	Corporate practices and procedures
Relational Capital	Cultural capital	Trade secrets
		Internal relations
	Customer relations	Competence-enhancing customers
		Profiling-Interaction
	Supplier relations	Supplier Alliances-Formal/Informal
	Community Stakeholders relations	Regulatory Authority Relations

Source: Johnson (1999).

From the perspective of the current study, the multi-dimensional model indicated in Petty *et al.*, (2009) and the IC classification models provided in (Edvinsson and Malone, 1997; and Johnson, 1999) could be used as a guidance framework to investigate disclosure practices of the Jordanian industrial companies in IC issues. However, review of the most relevant literatures will be presented in the next section of the paper.

5. Previous Literature

Intellectual Capital has been investigated by academics and professional bodies (mainly accounting professional institutions – see for example, CIMA, ICAS, and ICAEW). Through adopting a comprehensive analytical 'content analysis' methodology, Bozzolan *et al.*, (2003) studied the voluntary Intellectual Capital Disclosure (ICD) practices of the Italian listed companies by examining their annual reports for the year 2001. The main objective of this study was to identify the (amount and content) of ICD and what are the factors that influence different voluntary reporting behaviors. This study targeted a sample of 30 organizations chosen from the non-financial companies listed in the Italian Stock Exchange. Results of this study suggested that industry and size are not important in determining the content of IC information disclosed, however, as found in social and environmental disclosure (SED) studies, these factors are relevant in explaining the amount of information disclosed.

Bukh *et al.*, (2005) investigated whether information on intellectual capital (non-financial information on knowledge) is disclosed in Danish Initial Public Offering (IPO) prospectuses. The study also examined the extent of voluntary disclosure produced in Danish IPO prospectuses. In this study, an index is used to quantify the amount of information regarding IC included in the prospectuses. One of the key findings drawn by Bukh *et al.*, (2005) is that, the voluntary disclosure of information on IC in Danish IPO prospectuses has increased substantially in the last decade. Furthermore, the results revealed the extent of managerial ownership prior to the IPO and industry type affect the amount of voluntary intellectual capital disclosure, while company size and age do not affect disclosure. It is suggested that intellectual capital reports should be read in the context of the firm's strategy in the same manner as a prospectus is read.

Brüggen *et al.*, (2009) examined the determinants of the decision to disclose IC information in the annual reports of a sample consists of 125 publicly listed Australian firms. The study found that industry type is an important determinant of the disclosure level of IC. More specifically, industries that rely more on intangibles disclose more information related to IC. It has been concluded that this result is an important signal to investors, which indicates the relevance of IC for some firms and industries.

Nurunnabi *et al.*, (2011) examined the Intellectual Capital Reporting (ICR) practices of 90 listed non-financial companies in Bangladesh (as an example of a South Asian developing country). The study utilized a weighted disclosure index and ordinary least squares regression analyses to test the association between company characteristics and the extent of ICR.

Results indicated that there was a tendency of companies not to disclose IC, despite the significant growth of the stock market during the recession period. Furthermore, the study confirmed that size and industry are important attributes to explain the IC disclosure (ICD) issues in Bangladesh.

In a qualitative-oriented study targeting the Malaysian market, Ousama *et al.*, (2011) designed a questionnaire to collect perceptions of preparers (i.e. CFOs and accountants) and external users (i.e. analysts and lenders) regarding usefulness of IC information being disclosed in annual reports by the listed companies. The findings indicated that the preparers and external users perceived IC information (i.e. overall) to be useful for their decision making purposes. Moreover, the study revealed that there are significant differences in the perception of usefulness between preparers and users. Given the fact that usefulness of IC disclosure was evidenced by perceptions expressed by users as well as preparers, a recommendation was presented to the regulatory authorities in Malaysia (e.g. Malaysian Accounting Standards Board and Bursa Malaysia) - whom should focus their attention towards enhancing disclosure practices of IC by Malaysian listed companies.

As an attempt to investigate relevancy of IC disclosure to share markets value, Vafaei *et al.*, (2011) employed content analysis to examine text in annual reports sampled from listed companies in Britain, Australia, Hong Kong and Singapore. The key objective of the study was to explore the extent to which Intellectual Capital Disclosure (ICD) items contained in companies' annual reports contribute to the overall value-relevance of earnings and equity of corporations. The main result revealed that ICD is positively associated with market price (i.e. has value relevance) in companies in two of the four countries and in non-traditional industries.

Based on a longitudinal research approach, De Silva *et al.*, (2014) examined the IC reporting patterns of New Zealand companies over seven years. The study utilized content analysis to examine the IC reporting of five 'knowledge intensive' companies and five 'traditional product-based' companies listed on the New Zealand Stock Exchange during 2004-2010. De Silva *et al.*, (2014) found that although there was an increase in IC reporting from 2004 to 2010, there was no strong pattern reflecting a marked increase in reporting over the time period. Results of the study also revealed that the level of IC reporting cannot be determined by the type of organization. Moreover, the majority of IC reporting was found to be in discursive form and only a small percentage of reporting conveyed 'negative news' from the companies.

Based on the literature reviewed above, there is an expectation that an increasing trend in disclosure of IC in annual reports will be observed. Nevertheless, except in Nurunnabi *et al.*, (2011), it could be argued that none of the above mentioned studies have considered any developing economy or countries of MENA region. Therefore, this study will investigate practices of IC disclosure in Jordan (as a developing country). In the same vein, previous literature has some implications for the current research, this includes: considering influential factors on IC disclosure practices (e.g. size, capital structure, ownership concentration). Such factors will be included within the regression model being examined in this research.

6. Research Methodology, Method, and Data Collection Process

The current study is a mainstream accounting research (Ryan *et al.*, 2002), it tends to adopt an analytical methodology for the purpose of achieving its objectives, and thus, the research is purely relying on an objective and quantitative-oriented research Index being informed by previous literature (namely, Edvinsson and Malone, 1997; and Johnson, 1999). In this regard, content analysis is used to gather information related to IC disclosure (non-accounting information on knowledge-based resources). The research Index adopted here consists of 40 items, while the sample of the study is represented by all the 60 manufacturing companies that are publicly listed in Amman Stock Exchange (ASE) during the year 2012 and produced annual reports.[4] The sample represents 80% of the manufacturing companies listed on the market.

Reliability of the research Index adopted in the current study has been examined through:

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[4] For the purpose of achieving objectives of the current research, a sample of the Jordanian public listed companies has been chosen. The sample focuses purely on the manufacturing companies since IC (knowledge-based resources) is more likely to be relevant to industrial-based business (in comparison with service and financial-based business). In total, the *industrial sector* represents 22.7% of the total market-capital invested in ASE (see http://www.ase.com.jo/en/bulletins/monthly_statistical, Date of retrieval 30 April 2014).

a. Refereeing the content by two external referees (both are academic, specialized in accounting, and experienced in non-accounting disclosures); and

b. Performing stability tests (Intra-observer) and 'reproducibility test' by the researchers.[5] For the purpose of this testing, Krippendorff Alpha Coefficient was used to examine reliability of the research Index, the coefficient result was (Kα=88.0%).

7. *The Regression Model and Hypotheses of the Study*

Building on multivariate analysis, and in order to examine influence of a group of variables on IC disclosure practices, the current research proposes the following regression model:

$$ICDI = \beta_0 + \beta_1 TA + \beta_2 DR + \beta_3 ROA + \beta_4 IOR + \beta_5 OCR + \beta_6 AGE + \beta_7 AUDS + e$$

Where
ICDI = Intellectual Capital Disclosure Index.
βi = the regression coefficient, i = 0,1...,7.
TA   = Total Assets.
DR   = Debt Ratio.
ROA   = Return on Assets.
IOR   = Institutional Ownership Ratio.
OCR   = Ownership Concentration Ratio.
AGE   = Company Age.
AUDS = auditing firm size
e   = error term

The independent variables include seven variables. There is one categorical variable (audit firm size); this is represented by a dummy variable in regression. In addition, six variables are continuous variables; one variable as proxy for the size measure (TA), one variable for the extent of using debts in the company's capital structure, one variable for the profitability indicators, one variable for the company age, one variable for the ownership concentration, and one variable for the institutional ownership ratio. Table (2) presents the variables of the study and their measurement techniques.

Table 2: **Variables of the Study and their Measurements**

Variable	Mechanism of measurement the variable
Level of intellectual capital disclosure (ICDI)	Measured by preparing an index of disclosure of intellectual capital information, if the item is disclosed, the company receives a weight of one, otherwise, it receives zero.
Size (TA)	Measured by logarithm of total asset.
Profitability (ROA)	Measured by return on assets (net income after tax divided by total assets).
Capital structure (DR)	Measured by total debt / total asset.
Age	Measured by time since the date of establishment.
Institutional ownership ratio	Measured by proportion of shares held by instructional owners to the company's total shares.
Ownership concentration	Measured by proportion of shares held by major shareholders who own more than 5% of the company's shares to the company's total shares
Audit firm size (AUDS)	Measured by a dummy, and is given a value of (1) If the company is audited by the "big four" and (0) If not.

Based on the regression model and the variables indicated above, the following null hypotheses will be tested:

H1: There is no significant association between size of the company and the level of IC disclosure in the company's annual report

H2: There is no significant association between profitability of the company and the level of IC disclosure in the company's annual report

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[5] In this context, the researchers applied the test on the Index's items by analyzing a pilot-sample which consists of 20% of the whole sample (60 cases) and reanalyzed it after two weeks of the first round. As necessary, some modifications were prepared, and another round of stability and reproducibility testing was performed.

H3: There is no significant association between capital structure of the company and the level of IC disclosure in the company's annual report

H4: There is no significant association between age of the company and the level of IC disclosure in the company's annual report

H5: There is no significant association between institutional ownership ratio of the company and the level of IC disclosure in the company's annual report

H6: There is no significant association between ownership concentration of the company and the level of IC disclosure in the company's annual report

H7: There is no significant association between auditor size of the reporting company and the level of IC disclosure in the company's annual report

In the next section, results of the study will be presented. Attention is given here to exhibit results of the descriptive analysis as well as results related to examining the regression model.

8. Results of the Study

8.1 Descriptive Analysis

To evaluate disclosure practices of IC information, the disclosure Index was applied to the annual reports of the 60 companies for the year 2012. Each annual report was evaluated based on the (40) items included in the disclosure Index. The annual report of each company was extensively examined in order to evaluate disclosure practices of the company. A disclosure score was calculated by dividing the actual number of items disclosed by the company by the maximum number of items that could be disclosed by the company (which is 40 items). Table (3) summarizes the disclosure scores received by the sample companies. As seen from the Table, the results indicate that disclosing issues of human capital is the highest (62%), followed by external capital and internal capital (59% and 54% respectively).

Table 3: Descriptive Results of the IC Disclosures

Aspect	Mean	Std. Deviation
Internal Capital	.543	.150
External Capital	.592	.105
Human Capital	.624	.157
Overall IC Disclosure	.588	.097

Σ n=60

Further to the aggregated descriptive analysis presented above, Table (4) below exhibits results of the detailed descriptive analysis which focus on disclosure of each investigated IC component. Results of the current study (as indicated in Table 4) show that there are variations in disclosing information related to different aspects of IC (internal, external, and human capital).

Table 4: Percentage of Disclosure of IC Aspects by the Jordanian Industrial PLCs

IC Aspect	Disclosed Issues	Percentage of Disclosure*
Internal Capital	Patents	0.050
	Corporate Culture	0.366
	Structural Capital	0.716
	Work Processes	0.916
	Information Systems	0.613
	Knowledge Management	0.640
	Trademarks	0.000
	Networking Systems	0.200
	Financial Relations	0.416
	Research Projects	0.680
	Management Philosophy	0.626
External Capital	Brands	0.850
	Companies' Names	0.986
	Customers' Names	0.050
	Customer Satisfaction	0.586
	Customer Loyalty	0.000
	Customer/Employees	0.416
	Education/Training of Customer	0.000
	Sales breakdown by Customer	0.480
	Dependence on Key Customer	0.653
	Average Customer Size	0.083
	Description of Customer Involvement	0.033
	Description of Customer Relation	0.760
	Annual Sales per Segment or Product	0.360
	Distribution Channels	0.583
	Business Partnership	0.626
	Market Share	0.133
	Favorable Contracts	0.050
Human Capital	Human Resources	1.000
	Human Capital	0.786
	Human Value	0.200
	Employee	1.000
	Employee Loyalty	0.000
	Employee Expertise	0.773
	Employee Know-how	0.840
	Employee Knowledge	0.933
	Employee Productivity	0.250
	Employee Skills	0.550
	Team work	0.400
	Training	0.800

$\Sigma n = 60$ *1.000 = 100% of the companies disclosed the issue.

Within the Internal Capital aspects, the results indicate that trademarks and networking systems are the weakest disclosed issues among all investigated items (0.00 and 20% respectively). In the same vein, the results indicate that the companies tend to disclose more information about: structural capital, work processes, and financial relations. These aspects are particularly important for the operational part of the industrial-based businesses, thus, it is unsurprisingly to disclose such aspects by majority of the investigated companies.

In terms of the External Capital disclosures, the results indicate that issues related to: customer loyalty, customers' education/training, and information about annual sales per segment or product are the weakest aspects disclosed among other issues investigated under this component (0.0%, 0.0% and 36% respectively). Unsurprisingly, issues related to: brands and companies' names are the most disclosed aspects within the external capital component. These aspects are significantly important in enhancing marketability and image of the company's products.

When it comes to the human capital, the results indicate (see Table 4) that: human resources, employees, and employee's knowledge are the most disclosed issues, whereas, issues related to: employees' loyalty, human value, and employees' productivity (with 0.0%, 20% and 25% respectively) are the weakest aspects disclosed by the reporting companies. Existence of these weaknesses in disclosure might be due to difficulty of measuring such aspects or missing of measurement systems within the company's reporting system.

8.2 Regression Analysis

As indicated earlier, regression analysis is used in this study to examine the impact of the independent variables in explaining variations in intellectual capital disclosure between the sample's companies. To achieve this objective, all variables were entered simultaneously in the regression model and analyzed jointly.[6] Table (5) shows the descriptive statistics of the variables included in the analysis.

Table 5: Descriptive Statistics of Investigated Variables

Variable	N	Minimum	Maximum	Mean	Std. Deviation
Overall Intellectual Capital Disclosure	60	.429	.773	.588	.097
Log of Total Assets	60	5.80	9.00	7.1953	.59139
Debt Ratio	60	.03	1.00	.3288	.22756
Return on Assets	60	-.19-	.16	.0058	.07822
Major Investors	60	.27	.99	.572	.154
Company Age	60	3	61	23.98	16.834
Institutional Ownership Ratio	60	.01	.99	.51381	.302198
Valid N (listwise)	60				
Auditor Size					
	Frequency	Percent	Valid Percent	Cumulative Percent	
Big Auditing Firm	24	40.0	40.0	40.0	
Others	36	60.0	60.0	100.0	
Total	60	100.0	100.0		

Σn=60

Table (6) shows the results of the regression analysis. As seen from Table (6), the model was significant (F = 2.699, p = .000) with an adjusted R^2 of 0.168. Therefore, approximately 17% of the variation in the disclosure intellectual capital information between the companies can be explained by the seven independent variables included in this model. In contrast with Bozzolan *et al.*, (2003) and Bukh *et al.*, (2005), results of the current research indicate that two variables were found significant at, at least, a 5% level with positive coefficients. These variables are the size - measured by total assets (TA) and ownership concentration (OC).

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[6] The regression model was checked for the presence of multicollinearity problem between the independent variables. The computed values of the variance inflation factors (ranged from 1.17 to 1.71) suggesting that there is no multicollinearity problem. In addition, the model was checked for normality. A Kolmogorov-Smirnov test for normality revealed that the size variable, total assets deviate significantly from normality. To overcome this problem, log transformation of the variable was conducted. A Kolmogorov-Smirnov test for normality after the transformation indicated that the size variable does not deviate significantly from normality.

Therefore, the null hypotheses that the coefficients associated with these variables are not significantly different from zero can be rejected at a 5% significance level, whereas, all other null hypotheses proposed above can be accepted.

Table 6: Results of the Regression Analysis

adjusted R^2 =		.168		
F =		2.699		
Sig. =		.000		
Variables	β	t-value	Sig. t	VIF
TA (Log)	.054	2.885	.006	1.478
DR	-.057-	-1.228-	.225	1.317
ROA	-.213-	-1.388-	.171	1.715
OC	.021	2.055	.045	1.328
AGE	.005	1.203	.234	1.177
IOR	.001	.127	.899	1.427
AUDS	.001	1.000	.322	1.289
(Constant)	.109	.668	.507	

Further to result revealed above, the fact that the coefficients of the two variables are positive and significant indicates that companies which are large in size and with higher ownership concentration tend to disclose more information about their intellectual capital. This finding is consistent with Nurunnabi *et al.*, (2011).

9. Conclusion

This study investigates the intellectual capital (as a voluntary) disclosure of (60) Jordanian public shareholding industrial companies. Except for the disclosure requirements provided by IAS38 (Intangible Assets), it could be argued that there is no generally accepted framework for the disclosure practices of IC aspects that are required by the business entities. Therefore, a disclosure index drawn from previous literatures and applicable guidelines have been adopted in this research to investigate the IC disclosures and to develop a better understanding for the current practices.

The results of the study indicate that public industrial firms in Jordan do disclose information about their IC. The results of the employed index reveal that up to 59% of the hypothesized IC disclosure items were found reported in the annual reports of the studied sample. Furthermore, when breaking down the IC disclosures into three dimensions; namely human capital, internal capital, and external capital, the human capital is reported to be the most disclosed aspect. It could be concluded that the level of disclosure varies for issues related to each component. A deeper analysis reveals that human resources, employees, and employees' knowledge represent the most disclosed issues within the human capital dimension. In the same vein, issues related to: structural capital, work processes, and research projects are the most frequently reported under the internal capital dimension, whereas brands, customer/employees, and customers' relations are the most disclosed issues within the external capital dimension.

The findings of the current research indicate that almost 17% of the variation in the disclosure of IC information among companies can be explained by several hypothesized factors including the firm's size, capital structure, profitability, ownership concentration, institutional ownership, company's age, and the auditor's type. However, two variables are found to have the highest correlation with the company's IC disclosure and these are the size of the company (as measured by total assets - TA) and the ownership concentration (OC). Unsurprisingly, large-sized companies with higher ownership concentration tend to disclose more information about their intellectual capital.

The results revealed in this study would have some implications for policy makers (mainly standards setting bodies). In this regard, it is highly recommended to enhance content and understandability of the disclosure's requirements within the applicable technical standards (mainly those related to IC and other Intangibles). This in turn, would probably encourage business firms to disclose more information about IC practices. Within the national level, it is recommended to enhance the disclosure and reporting requirements within the enforced legislative frameworks (i.e. JSC Law and the Companies Law) - with an aim to consider IC aspects by the reporting companies.

Finally, for the research agenda, the current study recommends conducting an exploratory research in the Jordanian business environment, with an aim to explore difficulties, challenges and obstacles (if exist) facing recognition and discourse practices of IC under the requirements of IAS38 (Intangible Assets).

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