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Managers' and auditors' perceptions of intellectual capital reporting

Atef Ahmed
Accounting Department, Faculty of Commerce, Beni-Suef University, Beni-Suef, Egypt, and
Khaled Hussainey
Accounting and Finance Division, Stirling Management School, Stirling University, Stirling, UK

Abstract

Purpose – This paper aims to explore managers' and auditors' perceptions of intellectual capital (IC) measurement and reporting in Egyptian companies.

Design/methodology/approach – The paper draws on a questionnaire survey sent to managers and external auditors who were asked to provide their opinion about IC measurement and reporting for companies listed on the Egyptian Stock Exchange.

Findings – The paper finds significant differences between respondents' rates on IC indicators. These differences are due to different industry sectors involved in our sample. Further, it finds that Egyptian listed firms neither measure nor report IC indicators in their annual reports. In addition, it finds that auditors' responsibilities on IC reporting are ambiguous. Finally, the paper finds that work experience is the main determinant of managers' perceptions of IC indicators, while professional education is the main determinant of external auditors' perceptions of IC indicators.

Originality/value – Prior research on IC used the content analysis approach to measure levels of IC disclosure in annual reports. This paper adds to the existing literature by using the results of a survey questionnaire distributed to managers working in (and auditors specialised in) Egyptian companies to explore their perceptions on IC measurement and reporting. Since prior research has focused on developed economies, we strongly believe that this paper contributes to the existing literature, as we are the first to examine this issue in Egypt as an example of a developing economy.

Keywords Intellectual capital, Disclosure, Managers, External auditing, Egypt

Paper type Research paper

1. Introduction

In a knowledge-intensive economy, there is a substantial increase in the significance of intangible knowledge-based factors in driving business success and its ultimate value (Unerman and Guthrie, 2008). A wide range of definitions for intellectual capital (IC, thereafter) exists in prior research. For example, Stewart (1997) defines IC as the sum of intellectual material – knowledge, information, intellectual property and experience – that can be put to use to create wealth. Bontis (1998) suggests another definition for IC. He views IC as the pursuit of the effective use of knowledge (the finished product) as opposed to information (the raw material). Two comprehensive definitions are suggested in the literature (Mangena *et al.*, 2010). The first definition is suggested by the Chartered Institute of Management Accountants (CIMA, 2001) as:

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> [. . .] the possession of knowledge and experience, professional knowledge and skill, good relationships, and technological capacities, which when applied will give organisations competitive advantage (CIMA, 2001, p. 2).

The second definition is suggested by Marr and Schiuma (2001). They define IC as the group of knowledge assets that are attributed to an organisation and most significantly contribute to an improved competitive position of this organisation by adding value to defined key stakeholders. Ngah and Ibrahim (2009) explained that IC has three types of capital: human, structural and relational capital. They argue that human capital refers to the value of knowledge, professional skills and experience and innovativeness of employees within a particular company. They also argue that human capital represents the individual tacit knowledge embedded in the mind of the employees. In addition, Ngah and Ibrahim (2009) argued that structural capital provides a platform for people to be creative. They claim that structural capital belongs to the organisation as a whole. In particular, good structural capital will provide a good environment for rapid knowledge sharing, collective knowledge growth, shortened lead times and more productive people. As explained in Mangena *et al.* (2010), structural capital consists of the structures and processes employees develop and deploy to be productive, effective and innovative. Finally, Bontis (1998) argued that relational capital refers to all the relations the firm has established with its stakeholder groups, such as customers, suppliers, community, government or industry network.

Over the last two decades, IC measurement and reporting has become the centre of increasing thought from academic researchers and practitioners in a similar way. For example, Sonnier *et al.* (2007, p. 1) argued that:

> As our society has moved from the industrial age to the information age, the importance of intellectual capital in business has grown. During the industrial age, it was the cost of property, plant, equipment and raw materials that was essential to the viability of a business. In information age, it is the effective use of IC that often determines enterprise success or failure.

Mangena *et al.* (2010) surveyed IC literature and identified the main motivation for reporting IC information. They summarized these motivations in six points. These include:

(1) to increase operational efficiency, improve employee morale and motivation and to better resource allocation with the firm;

(2) to render the invisible visible to external users of information;

(3) to establish trustworthiness with stakeholders and employ a valuable-marketing tool;

(4) to enhance external reputation;

(5) to appear legitimate to the public eye and avoid costs from non-legitimacy; and

(6) to reduce information asymmetry in the capital markets.

The paper adds to the literature on IC disclosure in two crucial respects. First, we examine managers' and auditors' perceptions on IC measurement and reporting in Egyptian companies. Second, we explore external auditors' responsibility for IC measurement and reporting in Egyptian companies. We contribute to prior research by offering the first study of its type undertaken in Egypt as an example of developing country.

The paper is structured as follows: Section 2 explains why it is of interest to look at IC indicators in Egypt. Section 3 reviews the prior literature and develops our research hypotheses. In Section 4, we describe the data and the research method. Descriptive analysis is presented in Section 5. Section 6 shows the results of testing our research hypotheses. Section 7 concludes.

2. The Egyptian context

Egypt is chosen as an example of developing countries for a number of reasons. First, as explained by Ismail (2010), Egypt is still in the early stage of the transition to a knowledge-intensive economy. In October 1999, the Ministry of Communications and Information Technology was established (Ismail, 2010) and it is argued that since that date Egypt has been moving towards a knowledge economy and the Egyptian Government has set national plans to encourage private sector participation to increase and leverage information and technology communication-related investment (Ismail, 2010). Therefore, the objective of this study is to provide insights on the Egyptian managers' and auditors' perceptions on IC-related issues.

Second, recent evidence by Ismail (2010) showed that the level of corporate IC disclosure is relatively low and the cost and time associated with developing IC indicators are the main barriers that affect the development and implementation of IC in Egyptian companies. This evidence motives us to further explore the perspectives of managers and auditors on IC measurement and reporting. Thus, this paper can complement Ismail's (2010) study to explaining potential reasons for the low level of IC disclosure in Egypt.

Third, Egypt is a rapidly growing economy compared with other emerging economies (Elsayed and Hoque, 2010). This makes Egypt are more likely to learn from international experience and likely to start to measure and report IC-related items. This is especially true if we take into our account that fact that since October 1999, the Egyptian Government has been encouraging private companies to move towards knowledge-based investment.

Finally, as explained in HassabElnaby *et al.* (2003), the dynamic development of the Egyptian accounting system is mainly derived by the level of economic growth and development of the political environment. Therefore, we do expect that these developments would affect the extent to which IC is measured and disclosed by Egyptian companies. This is particularly important given the current debate on the weakness and the irrelevance of the current financial reporting model to provide value-relevant information for potential users in the knowledge-based environment. Therefore, in this study, we investigate the Egyptian managers "and auditors" perceptions of IC measurement and reporting in a relatively "new" knowledge-intensive-based economy in a developing country.

3. Prior literature and hypotheses development

The majority of IC-related studies are focused on American, Canadian and European companies. A group of these studies discuss the theoretical framework of the IC disclosure (Bhartesh and Bandyopadhyay, 2005; Kujansivu and Lönnqvist, 2007; Noah and Garry, 2000; Ng, 2006; Chen, 2008; Garcia-Ayuso, 2003; Sonnier *et al.*, 2007). In these papers, the authors explained the irrelevance of the current financial reporting

for current and potential users. They also argued that there is a need to focus on IC measurement and reporting to provide value-relevant information on a timely basis.

A number of empirical studies also examine the value relevance of IC information. Bozabura (2004), for example, examined the association between IC and market value in Turkey. He divided IC into three components: human, relation and structure capital. He found that both human and relation capital have a positive association with the market/book value of firms. Another study of interest is that of Ng (2006). Ng (2006) provided evidence that there is an inter-relationship between components of IC and business growth performance. He also suggests that IC reporting would improve the predictability of future performance. Ng's (2006) study is limited to the technology sector. As a result, its findings may not be generalisable in other knowledge-intensive/technology-based sectors. Similarly, Kujansivu and Lönnqvist (2007) examined the association between the value and efficiency of IC in Finnish firms; however, they did not find any statistically significant results.

Subsequent papers linked IC reporting with competitive advantage. For example, Tayles *et al.* (2007) examined the relationship between a manager's perception of the level and shape of IC within firms and management accounting practices. They also explored whether firms that invested heavily in IC are able to respond to unanticipated economic and market changes and achieves relatively higher performance within their sector. Their results suggested some evolution in management accounting practices for firms investing heavily in IC. They also found that IC is a major source of corporate competitive advantage. In addition, Chen (2008) explored the link between green IC and competitive advantages for a group of Taiwanese companies. He found that the three types of green IC – green human, green structural and green relational capital – had positive effects on competitive advantages. However, the author did not find differences of IC in the different stages of the development of the information and electronics industry in Taiwan.

Considerable attention has been given to examining IC reporting. One such study is Abeysekera (2007), which compared the differences in patterns of IC disclosure between developing and developed nations. Using the content analysis approach, the researcher analysed the content of the annual reports of the top 30 firms listed on the Colombo Stock Exchange from 1998 to 2000, to identify the types of IC-reported items in Sri Lanka and compared those reported in Australia. Abeysekera's (2007) main findings draw attention to the need for a uniform IC reporting definition and a reporting framework that provides comparative and consistent reporting under the auspices of statutory institutions, accounting regulators and stock exchanges. Moreover, Abeysekera (2007) suggested that the differences in IC reporting between developing and developed countries can be attributed to economic, social and political factors. In a related study, Sonnier *et al.* (2007) examined the association between management's disclosure level of IC and financial performance for high-technology companies in the USA. The results supported a statistically significant negative association between the level of IC disclosure and profitability measures. However, the authors did not cover firms in traditional industry sectors (i.e. low-technology companies).

Few studies have examined IC disclosure in the Middle East in general and in Egypt in particular. In a study related more closely to our paper, Seleim *et al.* (2004) aimed to explore the nature of IC in Egyptian software companies, and the relationship between IC indicators and financial performance. They found that Egyptian software companies

possess many elements of IC and these elements can be measured. However, the authors did not empirically test their research hypotheses on the association between IC indicators and performance. In addition, the focus on one single sector (software sector) and a small sample size (35.5 per cent of total Egyptian software companies) makes it difficult to generalize their findings.

The above discussion of IC prior research has exposed a number of gaps in the existing IC literature. First, there are no generally accepted models for measuring IC in organisations. Banegil and Sanguino (2003) argued that there are many proposed models with some similarities. However, these models are different because of their complexity and adaptability. Second, a number of studies suggested that financial statements have lost their value relevance overtime because of higher levels of intangibles assets (Garcia-Ayuso, 2003; Sonnier *et al.*, 2007; Hussainey and Walker, 2009). Considering this fact, Banegil and Galvan (2007) argued that it is of great importance to develop and offer general guidelines that would help companies to identify, measure and follow-up their intangibles. Third, prior research showed that there is a lack of a conceptual framework for IC disclosure – even though there are no statistically significant differences among the analysed guidelines (Banegil and Galvan, 2007). Finally, most of the IC studies have been conducted in Western developed countries (i.e. Australia, the UK, Canada, the USA, Scandinavia, Spain and Denmark). In addition, to the best of our knowledge, few studies have examined IC-related issues within the context of a developing country like Egypt (Seleim *et al.*, 2004, 2007; Odette, 2007; Ismail, 2010).

Seleim *et al.* (2004) is the first study to examine the extent to which IC indicators are used by Egyptian software companies. Using descriptive analyses, their results showed that Egyptian software companies use many IC indicators. However, the results of this study cannot be generalized because the authors focus only on one industry sector and their conclusions were based on what CEOs said, rather than what they actually use and disclose in their company annual report. In a related study, the same authors examined the association between human capital and corporate performance (Seleim *et al.*, 2007). They found that human capital indicators are positively associated with corporate performance.

Odette (2007) examined the nature of human capital in the Egyptian gaming industry. Using a case study method, the author highlighted the importance of management in IC and knowledge management. However, the study did not find an effect of management in structural capital and value alignment. In addition, it did not find an effect of education on the value of human and rational capital.

In a recent paper, Ismail (2010) examined IC disclosure of 30 Egyptian companies. Based on the content analysis approach, he found that levels of IC disclosure are relatively low in Egyptian companies and it is dominated by customer relation items. He also examined the usefulness of IC indicators and the main barriers that impact the IC development and implementation in Egypt. He found that IC indicators are useful and that cost and time associated with developing IC indicators are the key barriers that affect the development and implementation of IC in Egypt.

Our paper is different from prior research in four crucial aspects: first, it examines the perceptions of Egyptian listed companies on measuring and reporting IC indicators. Second, it identifies the potential factors that potentially affect managers' perceptions on IC measurement and reporting. Third, it explores the extent to which external

auditors' responsibility on IC measurement and reporting are obvious under current accounting and auditing standards. And fourth, it investigates the potential factors that potentially drive external auditors' perceptions on IC measurement and reporting.

Drawing from prior academic literature, a number of studies have identified a number of problems with the current financial statements (Brown *et al.*, 1999; Francis and Schipper, 1999; Lev, 1989). Prior research argued that current financial statements lost their relevance in capturing the value relevance of intangible investments on a timely basis (Amir and Lev, 1996; Lev, 2001; Lev and Sougiannis, 1996). Hussainey and Walker (2009) argued that high growth and intangible asset intensity are potential factors that tend to reduce the predictive value of current earnings for predicting future earnings change. Current and potential users of financial statements of high-growth/high-technology firms are aware that current earnings provide a poor indicator for future performance of a given firm. Therefore, firms in high-growth sectors and/or high-technology companies are more likely to use IC indicators compared with low-growth, low-technology companies to convey value relevant information. This might explained the rationale of choosing high-technology industries in prior IC literature (Ng, 2006; Sonnier *et al.*, 2007; Seleim *et al.*, 2004, 2007; Odette, 2007). Ismail (2010) found that the usefulness of IC indicators differs among different industry sectors. In addition, April *et al.* (2003) explore the differences between South African industry sectors regarding IC indicators. The findings conclude that there is a difference between mining sector companies and other sectors companies regarding the disclosure of IC attributes. Also, these attributes were less in mining companies relative to other companies. Mining companies tend to focus more on external capital indicators than on either human or structural capital indicators. Overall, mining companies recognised the importance of IC but they lack appropriate systems and structures for measurement and reporting of IC. Based on these arguments, we set the first three research hypotheses as following:

H1. There are significant differences between Egyptian industry sectors concerning human capital indicators.

H2. There are significant differences between Egyptian industry sectors concerning structural capital indicators.

H3. There are significant differences between Egyptian industry sectors concerning relational capital indicators.

Ismail (2010) argued that there are many barriers that potentially impact the measurement of IC indicators in Egypt. These include the lack of Egyptian or international standards on measuring IC indicators. Therefore, we set our fourth hypothesis as follows:

H4. Egyptian listed companies do not measure their IC.

If Egyptian companies failed to measure their IC indicators, one should expect that there will be no IC disclosure at all or at least lower levels of IC disclosure compared with other countries. Ismail (2010) is the first study to examine the content of Egyptian annual reports. It found levels of IC disclosure in annual reports are relatively low and mainly focused on customer capital. Therefore, we set our fifth hypothesis as follows:

H5. Egyptian listed companies disclose little IC information in their annual reports.

Since there is no auditing standard available for IC indicators (Abeysekera, 2001), we expect the external auditors' responsibilities on IC indicators in the Egyptian setting will be ambiguous. Egyptian Accounting Standard does not provide any guidance for Egyptian firms to measure and report IC indicators. Similarly, there is no audit standard for IC in Egypt. Therefore, we set our sixth hypothesis as follows:

H6. Responsibilities of external auditors on IC indicators are ambiguous under accounting and auditing standards.

As discussed earlier, financial statements have arguably lost their relevance. Therefore, one could argue that manager' perceptions on the importance of IC indicators will depend on their academic and/or professional education, their experience and the industry sector that their firms are related to. Similarly, we expect that external auditors' academic and/or professional education and their experience might affect their perceptions on the importance of IC indicators. We treat this issue as a purely empirical question and offer no prior theoretical predictions as to which of these factors is the most likely determinant of managers or auditors perceptions on IC indicators. Therefore, we set H7 and H8 as follows:

H7. Managers' perceptions on IC indicators are affected by their academic and professional education, sector type and their work experience.

H8. Auditors' perceptions on IC indicators are affected by their academic and professional education and their work experience.

4. Data and research method

In this study, we use a questionnaire survey to collect data from 150 external auditors and executive and finance managers on their perceptions on IC measurement and reporting in companies listed on the Egyptian Stock Exchange. The population includes managers inside the big knowledge-based companies in Egypt. It also includes the big auditing firms. A survey questionnaire – around 250 – has been distributed (150 questionnaires to managers and 100 to external auditors). The usable questionnaires totaled 150 (90 respondents from managers and 60 respondents from external auditors). Thus, the response rate was 60 per cent (150 out of 250). The study used Cronbach's alpha coefficient to test the validity of the survey content. The statistical results conclude that Cronbach's alpha coefficient reached to 0.928, which provides strong evidence on the high consistency for the survey sample.

Our sample mainly covers eight industry sectors and big auditing firms. We choose the leading firms in each industry sector. Our industry sectors include the telecommunication sector (three firms); the information technology sector (one firm); the real estate sector (one firm); the basic resources sector (one firm); the building and construction sector (one firm); the tourism and entertainment sector (one firm); the financial services sector (two firms) and the banking sector (one bank). The big auditing firms in our sample include Deloitte and Touche; Ernst and Young; KPMG and PricewaterhouseCoopers.

The questionnaire used a five-point Likert scale with 1 equalling "strongly agree" and 5 indicating "strongly disagree". It contains six questions as follows. Question 1 is related to the perceptions of managers and auditors on human capital indicators. Respondents asked to rate 19 statements which reflect the employees' ability, experience and skills in the Egyptian listed companies. Question 2 is related to managers' and auditors' perceptions on structure capital indicators. Respondents are asked to rate 18 statements to explore how Egyptian managers are able to translate their innovations and human capital to valuable assets for creating economic value for their companies. Question 3 is related to managers' and auditors' perceptions on relational capital indicators. Respondents are asked to rate 18 statements to explore the degree to which managers of Egyptian companies can positively interact with others to create value for their companies. Table I shows statements related to Questions 1-3.

Question 4 is related to the measurement of IC indicators. Respondents are asked to rate nine statements to explore their perceptions on the measurement issues of IC indicators. Question 5 is related to IC-related issues. Respondents are asked to rate ten statements to explore their perceptions on IC reporting. Question 6 is related to the responsibilities of external auditors towards IC disclosure. Respondents are asked to rate seven statements to explore their perceptions on IC reporting. Statements related to questions 4, 5 and 6 are reported in Table IV. Finally, the questionnaire ends by individual data on the respondents (academic and professional education, current position and work experience). Respondents' data are reported in Table II.

5. Descriptive analysis

In this section, we provide the descriptive analysis for the respondents according to their academic and professional qualification, current position, work experience and the industry sectors that the managers is related to or the auditors is specialized in. Table II shows the descriptive analysis. In particular, Panel A shows that the majority of respondents are BSc degree holders; while Panel B shows the majority of respondents are holding a certificate from the Egyptian Certified Accountants and Auditors. Panel C shows that 36 per cent of respondents are finance managers; while external auditors, executive managers represent 26 and 24 per cent of the respondents. Panel D shows that over one-third of respondents have work experience between five and ten years. In addition, about 30 per cent of the respondents have work experience greater than ten years. This indicates that we collect data from highly experienced people in the filed. Finally, Panel E shows that respondents represent 28 per cent from big audit firms, 14 per cent from the telecommunication sectors and between 6.7 and ten for other industry sectors.

6. Test of hypotheses

Table III shows the mean values and the standard deviation of IC indicators for each industry sector. It also includes *F*- and *p*-value for testing *H1-H3*. Panel A shows that the financial service sector is found to have the highest mean (4.48), while the banking sector has the lower mean (3.53). The panel also shows that there are statistically significant differences between industry sectors concerning human capital indicators (*F*-value = 18,627 and *p*-value = 0.001). Based on these findings, we accept *H1*. Panel B presents the mean and the standard deviation for structure capital indicators for each industry sector. One can see from Panel B that the tourism and entertainment sector

Table I.
Points covered in questions 1, 2 and 3

Question 1	Question 2	Question 3
(1) Number of experts with PhD and MSc degrees	(1) Cost of actual work	(1) An increase in customer satisfaction
(2) Number of experts with professional education	(2) Time of actual work	(2) A reduce in time for solving customers' problems
(3) Managers' work experience	(3) Costs-to-revenues ratio	(3) An increase in customer loyalty
(4) Employees' skills	(4) The extent to which new ideas are implemented	(4) Offer competitive product and services
(5) Management leadership	(5) Company's support for ideas developments	(5) The focus on customer's demand
(6) Continuous improvement in the company financial results	(6) Firms' leadership in producing new products and ideas	(6) The improvement in market share
(7) The firm's support to new ideas and innovations	(7) Increasing employees' output	(7) Market share leadership
(8) Effective strategy for the selection of new employees	(8) Quick reach to information	(8) Marketing leadership
(9) Effective system for salaries and wages	(9) Practical procedure for supporting innovations and new ideas	(9) Employees, understanding for both the market and customers
(10) A clear promotion policy	(10) The system under which Egyptian firms operate	(10) The acquisition of the good imagine in the market
(11) Offering training courses for employees to improve their skills	(11) No restrictions on information	(11) The acquisition of the leading brand names in the markets
(12) Increasing salaries and remuneration for experts	(12) Clear quality objectives	(12) Company's support for social activities
(13) Encouraging employees for innovation and accepting risk	(13) Effective management information system	(13) Analysing the competitors very well
(14) Listen to employees' opinions and ideas	(14) Number of new products and innovations	(14) Good relationship with suppliers
(15) The ability of employees to provide feedback to decision makers	(15) Investment in research and development	(15) Increasing environmental awareness between employees
(16) Information should be available to all employees, so they can contribute to the success of the firms	(16) Investment in information technology	(16) Good relationships with shareholders
(17) Team work encouragement and employees' development	(17) Company support for innovations and creations	(17) Decreasing customers' complaints percentage
(18) Reducing employees' and experts' turnover ratio	(18) Improvement in companies' financial results	(18) Employees' attendance of conferences and meetings
(19) Investment costs of employees learning		

	No.	%
Panel A: academic education		
PhD	5	3.3
MSc	6	4
BSc	139	92.7
Total	150	100
Panel B: professional education		
CPA	3	2
CIMA	11	7.3
CIA	1	0.7
CFA	0	0
Egyptian Certified Accountants and Auditors certificate	15	10
Others	7	4.7
No answer	113	75.3
Total	150	100
Panel C: current position		
Owner of auditing firm	5	3.3
Partner of auditing firm	1	0.7
Auditing manager	15	10
External auditor	39	26
Executive manager	36	24
Finance manager	54	36
Total	150	100
Panel D: years of experience		
< 1	15	10
From 1 to < 5	38	25.3
From 5 to 10	53	35.3
More than 10	44	29.3
Total	150	100
Panel E: industry sectors		
Telecommunication	22	14.7
Information technology	15	10
Real estate	10	6.7
Basic resources	11	7.3
Building and construction	10	6.7
Tourism and entertainment	13	8.7
Financial services	14	9.3
Banking	13	8.7
Big audit firms	42	28
Total	150	100

Table II.
Descriptive analysis

has the highest mean (4.27), while the real estate sector has the lower mean (3.63). There is also evidence that there are statistically significant differences between industry sectors concerning structure capital indicators (F-value = 7.022 and p-value = 0.001). Based on these findings, we accept *H2*. Finally, Panel C presents the results related to *H3*. It shows that the auditing firms have the highest mean (4.47), while the construction and building sector has the lower mean (3.27). There is also evidence that there are statistically significant differences between industry sectors concerning relational capital indicators (F-value = 21.472 and p-value = 0.001). Based on these findings, we accept *H3*.

Indicators	Sectors	Mean	SD	*F*-value	*p*-value
Panel A: human capital	Telecommunication	4.10	0.42	18.627***	0.001
	Information technology	3.84	0.20		
	Real estate	3.79	0.24		
	Basic resources	4.07	0.36		
	Building and construction	3.57	0.16		
	Tourism and entertainment	4.30	0.31		
	Financial services	*4.48*	*0.38*		
	Banking	3.53	0.20		
	Big audit firms	*4.42*	*0.34*		
Panel B: structure capital	Telecommunication	3.85	0.62	7.022***	0.001
	Information technology	3.88	0.12		
	Real estate	3.63	0.19		
	Basic resources	4.01	0.46		
	Building and construction	3.72	0.19		
	Tourism and entertainment	*4.27*	*0.30*		
	Financial services	4.19	0.53		
	Banking	3.65	0.15		
	Big audit firms	*4.26*	*0.37*		
Panel C: relational capital	Telecommunication	3.96	0.53	21.472***	0.001
	Information technology	3.55	0.23		
	Real estate	3.47	0.11		
	Basic resources	3.96	0.70		
	Building and construction	3.27	0.18		
	Tourism and entertainment	*4.35*	*0.27*		
	Financial services	4.21	0.69		
	Banking	3.32	0.12		
	Big audit firms	*4.47*	*0.32*		

Table III.
Test of *H1-H3*

Note: Significance at: *10, **5, and ***1 per cent level for the two-tailed *t*-test

Overall, our results show that there are significant differences between industries concerning IC indicators. These findings are consistent with prior research who finds differences in IC indicators between different industries (April *et al.*, 2003; Ismail, 2010). These differences can be attributed to the nature of each industry (i.e. the extent to which a specific industry is considered as a high-growth industry with higher levels of intangible assets). In addition, the differences can be attributed to the extent to which industries are highly regulated and hence highly motivated to use IC indicators to reduce agency costs.

Table IV shows the means and standard deviations for respondents' view on the extent to which Egyptian firms measure and report IC and also the degree to which the respondents agree that external auditors have responsibilities on IC reporting. Panel A shows that Egyptian companies do not measure their IC as the mean for Statements 1-8 in the panel is 3.55. In particular, they agreed that there is a need for measuring IC in Egyptian companies. However, they show that the failure of Egyptian and Accounting Standards to guide the Egyptian listed companies on this issue is the key reasons for not measuring IC in Egypt (the mean for Statements 7 and 8 in Panel A is around 3.35). As a result, we accept *H4*.

In addition, Panel B shows that Egyptian companies do not report (or report little) IC information in their annual reports, as the mean for Statements 1-9 in the panel is 3.11.

Statements	Mean	SD
Panel A: IC measurement		
1. There is a need to measure IC in information technology age	4.65	0.63
2. The company measures IC	3.41	1.18
3. The company use clear models to measure IC	3.13	1.12
4. The Egyptian Accounting Standard encourages firms to measure IC	2.8	1.14
5. The Egyptian Financial Supervisory Authority encourages firms to measure IC	2.83	1.12
6. The Egyptian Stock Market Exchange encourages firms to measure IC	2.9	1.22
7. The Egyptian Accounting Standard failed to guide firms to measure IC	4.37	1.05
8. The International Accounting Standard failed to guide firms to measure IC	4.35	0.91
Mean	3.55	0.57
Panel B: IC reporting		
1. There is a need to IC reporting in the annual report	4.51	0.73
2. The company reports IC information in the annual report	3.07	1.15
3. The Egyptian Accounting Standard encourages firms to report IC information in the annual report	2.87	1.27
4. The International Accounting Standard encourages firms to report IC information in the annual report	3.05	1.23
5. The Egyptian Accounting Standard is suitable enough for IC reporting by Egyptian firms	2.33	1.18
6. The International Accounting Standard is suitable enough for IC reporting by Egyptian firms	2.47	1.27
7. IC reporting in the annual report is positively the market value of the stock prices in Egyptian Stock Exchange	3.95	1.06
8. The Egyptian Financial Supervisory Authority encourages firms to report IC information in the annual report	2.81	1.19
9. The Egyptian Stock Market Exchange encourages firms to report IC information in the annual report	2.89	1.25
Mean	3.11	0.70
Panel C: auditors responsibilities on IC		
1. Auditors are responsible for IC reporting in the annual report based on current accounting and auditing standards	2.08	1.15
2. IFRS are suitable enough for IC reporting in the annual report	2.15	1.00
3. Auditors write their views on IC indicators on the audited annual report	2.23	1.00
4. Egyptian Accounting Standards should be modified to make measuring and reporting IC indicators a compulsory requirement for all firms	4.59	0.63
5. IFRS should be modified to make measuring and reporting IC indicators a compulsory requirement for all firms	*4.55*	*0.65*
6. Auditors' views on IC disclosure positively affect the market value of the stock prices in Egyptian Stock Exchange	3.80	1.02
Mean	3.23	0.52

Table IV.
Test of *H4-H6*

In particular, respondents agreed that there is a need for reporting IC information in annual reports. However, they show that the failure of current Egyptian and International Accounting Standards as well as Egyptian Stock Market Exchange and financial supervisory authority rules does not motivates companies to report IC information. As a result, we accept *H5*. These findings are consistent with prior IC reporting by Egyptian companies (Ismail, 2010). The main reason for the lack of IC reporting in Egypt is the fact that Egypt is still in the early stage of the transition to the knowledge-intensive economy and the cost, time and effort required for measuring and reporting IC information in the Egyptian annual reports might be higher that its expected benefits.

Finally, Panel C shows that the mean for Statements 1-6 is 3.23. This indicates that external auditor' responsibilities toward IC disclosure under current Egyptian Accounting and Auditing Standards and IFRS are ambiguous. This leads us to accept *H6*.

Table V shows the determinants of managers' perceptions on IC indicators (i.e. academic and professional education and their work experience and industry sector type). Panels A and B show that neither academic education nor professional education has any effect of managers' perceptions on IC indicators. The panels show that the *p*-value for the difference in means between respondents' academic education is 0.460 and the *p*-value for the difference in mean between respondents' professional education is 0.780. This indicates that IC measuring and reporting issue is a relatively new phenomenon in Egypt and these issues should be considered in academic and professional education in Egypt. This will increase the awareness of the importance of IC measuring and reporting and should help managers to understand the potential costs and benefits of IC indicators.

	Human capital	Structure capital	Relational capital
Panel A: academic education			
PhD (mean)	*4.36*	*4.55*	*0*
MSc (mean)	*3.94*	*3.90*	*0.64*
BSc (mean)	*3.91*	*3.81*	*0.53*
F-value	0.625	1.52	0.78
p-value	0.530	0.210	0.460
Panel B: professional education			
CIMA (mean)	4.04	4.10	4.00
CPA (mean)	4.73	4.22	4.44
Egyptian professional certificate (mean)	4.23	4.01	4.10
Other (mean)	4.47	4.66	4.38
F-value	1.74	0.51	0.34
p-value	0.257	0.689	0.780
Panel C: years of experience			
< 1 (mean)	4.44	4.36	4.52
From 1 to 5 (mean)	4.01	3.81	3.80
From 6 to 10 (mean)	3.86	3.83	3.65
More than 10 (mean)	3.89	3.80	3.62
F-value	1.78	1.09	2.152*
p-value	0.157	0.357	0.100
Panel D: industry sector type			
Telecommunication (mean)	3.99	3.67	3.83
IT (mean)	3.84	3.88	3.55
Real estate (mean)	3.79	3.63	3.47
Basic resource (mean)	3.98	3.93	3.80
Building and construction (mean)	3.57	3.72	3.27
Big Four audit firms (mean)	4.27	3.98	4.37
Financial Services (mean)	4.45	4.17	4.18
Banking (mean)	3.53	3.68	3.31
F-value	12.17***	2.49**	7.26***
p-value	0.001	0.023	0.001

Table V.
Test of *H7*

Note: Significance at: *10, **5, and ***1 per cent level for the two-tailed *t*-test

Panel C shows a marginal effect of the work experience on managers' perceptions on relational capital indicators and this effect is marginally significant at the 10 per cent level. Panel D shows an effect of the industry sector type on managers' perceptions on IC indicators and this effect is fully significant at acceptable level for the three types of IC indicators. As a result, we partially accept *H7* as managers' perceptions on IC indicators are affected by respondents' work experience and industry type.

Table VI shows the determinants of external auditors' perceptions on IC indicators (i.e. academic and professional education and their experience). It is clear from Panel A that academic education has no effect on external auditors' perceptions on IC indicators. The panel shows that the *p*-value for the difference in means between respondents' academic education is 0.183. Similarly, Panel C shows no effect of work experience on external auditors' perceptions on IC indicators (difference in mean between work experience is statistically insignificant with a *p*-value of 0.457). Finally, Panel B shows that professional education of external auditors has a significant effect on their perceptions on IC indicators and this effect is statistically significant at the 1 per cent level. As a result, we partially accept *H8* as external auditors' perceptions on IC indicators are affected by professional education. This might indicate that external auditors with professional education have more knowledge about the international experience on IC measurement and reporting and this knowledge affects their perceptions on the current IC measurement and reporting issue in the Egyptian companies. The results also indicate that the current academic degrees in Egypt do not affect auditors' perceptions and hence there is a need to consider this issue Egypt universities to increase the awareness of the importance of IC measurement and reporting in Egyptian companies.

	Human capital	Structure capital	Relational capital
Panel A: academic education			
PhD (mean)	*4.73*	*4.55*	*4.79*
MSc (mean)	*4.44*	*4.02*	*4.19*
BSc (mean)	*4.36*	*4.25*	*4.40*
F-value	1.31	1.39	1.67
p-value	0.282	0.257	0.183
Panel B: professional education			
CIMA (mean)	4.50	4.29	4.54
CPA (mean)	4.66	4.61	4.90
Egyptian professional certificate (mean)	4.24	4.21	4.27
Other (mean)	4.48	4.40	4.53
F-value	2.31	1.62	5.47***
p-value	0.103	0.211	0.006
Panel C: years of experience			
< 1 (mean)	4.13	4.02	4.32
From 1 to 5 (mean)	4.42	4.23	4.41
From 6 to 10 (mean)	4.51	4.35	4.40
More than 10 (mean)	4.46	4.45	4.55
F-value	3.12**	4.03***	0.88
p-value	0.030	0.010	0.457

Note: Significance at: *10, **5, ***1 per cent level for the two-tailed *t*-test

Table VI.
Test of *H8*

7. Conclusions

This study, undertaken in an Egyptian setting, using a questionnaire survey of 150 managers and external auditors, finds that respondents' rates on IC indicators differ between industry sectors involved in the sample. In addition, it provides evidence that companies listed on the Egyptian Stock Exchange are aware that there is a need to measure IC in the information technology age. However, respondents' rates on IC measurement shows that this measurement issue is not supported by the Egyptian Accounting Standards, Egyptian Stock Market Exchanges rules or the Egyptian Financial Supervisory Authority rules. Finally, respondents agree that both Egyptian and International Accounting Standards fail to guide Egyptian firms to measure IC.

For the reporting issue, respondents' rates on IC reporting show that Egyptian firms are aware that there is a need to report IC information in their annual report. However, these rates show, like the IC measurement issue, that the IC reporting issue is not supported by Egyptian Accounting Standards, Egyptian Stock Market Exchanges rules or the Egyptian Financial Supervisory Authority rules. Finally, respondents agree that both Egyptian and International Accounting Standards failed to guide Egyptian firms on IC measurement reporting. For the auditing issue, we find that auditors' responsibilities on IC reporting are ambiguous. External auditors agree that the Egyptian Accounting Standards and IFRS on IC reporting should be modified.

Finally, we find that years of experience is the main determinant of managers' perceptions on IC indicators, while professional education is the main determinant of external auditors' perceptions on IC indicators. Further research could be undertaken to examine the types of IC information that actually disclosed in annual reports of Egyptian listed companies. It might be of interest to study the properties of these types of information (i.e. qualitative or quantitative). It would be interesting to examine the drivers of IC disclosure in Egypt. Finally, it would be interesting to study the degree to which online reporting provides value-relevant information for stakeholders.

References

Abeysekera, I. (2001), "A framework to audit intellectual capital", *Journal of Knowledge Management Practice*, available at: www.tlainc.com/articl25.htm

Abeysekera, I. (2007), "Intellectual capital reporting between a developing and developed nation", *Journal of Intellectual Capital*, Vol. 8 No. 2, pp. 329-45.

Amir, E. and Lev, B. (1996), "Value relevance of non-financial information: the wireless communications industry", *Journal of Accounting and Economics*, Vol. 22 Nos 1-3, pp. 3-30.

April, K.A., Bosma, P. and Deglon, D. (2003), "IC measurement and reporting: establishing a practice in SA mining", *Journal of Intellectual Capital*, Vol. 4 No. 2, pp. 165-80.

Banegil, T.M. and Galvan, R.S. (2007), "Intangible measurement guidelines: a comparative study in Europe", *Journal of Intellectual Capital*, Vol. 8 No. 2, pp. 192-204.

Banegil, T.M. and Sanguino, R. (2003), "A comparative study of the different guidelines for intangibles measurement and management", *Proceedings of International IC of Intellectual Capital Congress, Hanken Business School, Helsinki*.

Bhartesh, K.R. and Bandyopadhyay, A.K. (2005), "Intellectual capital: concepts and its measurement", *Finance India*, Vol. 19 No. 4, pp. 1365-74.

Bontis, N. (1998), "Intellectual capital: an exploratory study that develops measures and models", *Management Decision*, Vol. 36 No. 2, pp. 63-76.

Bozabura, F.T. (2004), "Measurement and application of intellectual capital in Turkey", *The Learning Organisation*, Vol. 11 Nos 4/5, pp. 357-67.

Brown, S., Lo, K. and Lys, T. (1999), "Use of R^2 in accounting research: measuring changes in value relevance over the last four decades", *Journal of Accounting and Economics*, Vol. 28 No. 2, pp. 83-115.

Chen, Y.-S. (2008), "The positive effect of green intellectual capital on competitive advantages of firms", *Journal of Business Ethics*, Vol. 77, pp. 271-86.

CIMA (2001), *Managing the Intellectual Capital within Today's Knowledge-based Organisations, Technical Briefings*, Chartered Institute of Management Accountants, London.

Elsayed, M.O. and Hoque, Z. (2010), "Perceived international environmental factors and corporate voluntary disclosure practices: an empirical study", *The British Accounting Review*, Vol. 42, pp. 17-35.

Francis, J. and Schipper, K. (1999), "Have financial statements lost their relevance?", *Journal of Accounting Research*, Vol. 37 No. 2, pp. 319-52.

Garcia-Ayuso, M. (2003), "Factors explaining the inefficient valuation of intangibles", *Accounting, Auditing & Accountability Journal*, Vol. 16 No. 1, pp. 57-69.

HassabElnaby, H.R., Epps, R.W. and Said, A.A. (2003), "The impact of environmental factors on accounting development: an Egyptian longitudinal study", *Critical Perspectives in Accounting*, Vol. 14 No. 3, pp. 273-92.

Hussainey, K. and Walker, M. (2009), "The effects of voluntary disclosure policy and dividend propensity on prices leading earnings", *Accounting & Business Research*, Vol. 39 No. 1, pp. 37-55.

Ismail, T.H. (2010), "Intellectual capital reporting in knowledge economy of Egypt", *International Journal of Critical Accounting*, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1529302

Kujansivu, P. and Lönnqvist, A. (2007), "Investigating the value and efficiency of intellectual capital", *Journal of Intellectual Capital*, Vol. 8 No. 2, pp. 272-87.

Lev, B. (1989), "On the usefulness of earnings: lessons and directions from two decades of empirical research", *Journal of Accounting Research*, Vol. 27, pp. 153-92 (Supplement).

Lev, B. (2001), *Intangibles: Management, Measurement and Reporting*, The Brookings Institution Press, Washington, DC.

Lev, B. and Sougiannis, T. (1996), "The capitalization, amortization and value-relevance of R&D", *Journal of Accounting and Economics*, Vol. 21 No. 1, pp. 107-38.

Mangena, M., Pike, R. and Li, J. (2010), "Intellectual capital disclosure practices and effects on the cost of equity capital: UK evidence", Research Report, The Institute of Chartered Accountants of Scotland, Edinburgh.

Marr, B. and Schiuma, G. (2001), "Measuring and managing intellectual capital and knowledge assets in new economy organizations", in Bourne, M. (Ed.), *Handbook of Performance Measurement*, Gee, London.

Ng, W. (2006), "Reporting intellectual capital flow in technology-based companies case studies of Canadian wireless technology companies", *Journal of Intellectual Capital*, Vol. 7 No. 4, pp. 492-510.

Ngah, R. and Ibrahim, A. (2009), "The relationship of intellectual capital, innovation and organizational performance: a preliminary study in Malaysian SMEs", *International Journal of Management Innovation Systems*, Vol. 1 No. 1, pp. 1-13.

Noah, P. and Garry, M. (2000), "The most valuable resource measuring and managing intellectual capital", *Strategic Finance*, Vol. 81 No. 8, pp. 1-4.

Odette, A. (2007), "Study of human capital in the gaming industry in Egypt", MSc dissertation, University of Louisville, Louisville, KY.

Seleim, A., Ashour, A. and Bonis, N. (2004), "Intellectual capital in Egyptian software firms", *The Learning Organization*, Vol. 11 Nos 4/5, pp. 332-46.

Seleim, A., Ashour, A. and Bonis, N. (2007), "Human capital and organizational performance: a study of Egyptian software companies", *Management Decisions*, Vol. 45 No. 4, pp. 789-801.

Sonnier, B.M., Carson, K.D. and Carson, P.P. (2007), "Accounting for intellectual capital: the relationship between profitability and disclosure", *Journal of Applied Management and Entrepreneurship*, Vol. 12 No. 2, pp. 3-14.

Stewart, T.A. (1997), *Intellectual Capital – The New Wealth of Organisation*, Nicholas Berkley, London.

Tayles, M., Pike, R.H. and Sofian, S. (2007), "Intellectual capital, management accounting practices and corporate performance: perceptions of managers", *Accounting, Auditing & Accountability Journal*, Vol. 20, pp. 522-48.

Unerman, J. and Guthrie, J. (2008), "UK account preparers perspectives on the role of Intellectual Capital Reporting", paper presented to the Global Accounting and Organisational Change Conference, Melbourne, 9-11 July, available at: http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1358762

Corresponding author
Khaled Hussainey can be contacted at: khaled.hussainey@stir.ac.uk