

Voluntary Disclosure of Intellectual Assets and Intellectual Liabilities: Impact on Financial Performance in Publicly Listed Firms in the United Arab Emirates

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Abstract: Financial reporting is an important, crucial task for achieving and sustaining a well-organized, farsighted business. Furthermore, investor demand for relevant information and improved quality and timeliness of financial information is increasing in the face of deteriorating usefulness of traditionally reported earnings, cash flows, and equity values. Thus, many accounting industry practitioners, analysts, and researchers now see Intellectual Capital (IC) as a driver for a firm's long term business competitiveness. However, most IC studies have overlooked the negative side of IC which is referred to as Intellectual Liabilities (IL). Therefore, the objective of the present research is to explore through empirical analysis how Intellectual Assets (IA) and IL components, as independent variables, influence Firm Financial Performance (FFP) as a dependent variable. The present study uses content analysis of 2010 and 2011 annual reports for all publicly listed companies in the United Arab Emirates (UAE). Multivariate regression analysis is employed to answer the research question: What are the characteristics of a new conceptual model that assists in explaining the relationships between IC disclosure and FFP for companies listed on the UAE stock exchanges? The findings indicate a statistically positive relationship between Human Assets (HA), Relational Assets (RA), Structural Assets (SA), Human Liabilities (HL), Relational Liabilities (RL), and Structural Liabilities (RL) on one hand, and Return on Equity (ROE) on the other hand. However, this research has some limitations which include the restrictions inherent in the content analysis method, in addition to the external validity to other jurisdictions due to the sample being chosen from the UAE only. In terms of practical implications, the findings of this study provide an insight to firm managers on the impact of increased transparency and disclosure on FFP.

Keywords: intellectual assets, intellectual liabilities, disclosure, financial performance, United Arab Emirates

1. Introduction

Evidenced by the shift from industrial to knowledge economy, there is an increasing focus on the knowledge sector across the globe (Oliveras et al., 2008). As a result, attention has shifted from capital, land, and equipment to IC (Oliveras et al., 2008). Furthermore, firms now focus on employees and the knowledge they possess as the core of value creation, thus making the need for a new financial reporting paradigm a necessity (Bhasin, 2011; Rashid, 2010). It is now generally believed by IC research bodies that an academic and practitioner focus on IC is important and that the measurement and disclosure of a company's intellectual capabilities provides real business benefits (Marr et al., 2004).

Although, the newly discovered future driver (i.e., IC) can be determined and measured, its measurement is often inaccurate since IC movement is still in its growing stage (Joshi and Ubha, 2009; Bhasin, 2011). With this context in mind, existing literature on IC recognizes the need for developing appropriate methods for IC measurement and reporting (Rashid, 2010).

It can be argued that in order to improve the financial performance of publicly listed companies in the UAE, managers should endeavour to find a viable IC mix or blend, which once invested in, measured, and disclosed, can improve financial performance. The present research provides the framework for this relationship. In addition to the scarcity of IC research in the UAE, it is believed that most research efforts have concentrated

on the asset category and ignored the liabilities category of IC. Thus, the significance of the present research is to determine the following objectives:

- To examine the field of IC research in publicly listed companies in the UAE;
- To examine the field of IL research;
- To compare the findings of the present research to the existing academic literature to determine whether or not the characteristics of IC disclosure are universal and applied in practice; and
- To generate a conceptual model that assists in understanding the relationship between ICD, IA and IL, and FFP for publicly listed companies in the UAE.

Using content analysis and multivariate regression analysis, the present study examines the association between ICD (HA, RA, SA, HL, RL, and SL) and FFP using the 2010 and 2011 annual reports of all publicly listed companies in the UAE. The remainder of this article is structured as: literature review and hypotheses development, research design and methodology, data presentation, statistical analysis and results, and finally, conclusions, limitations, and implications for future research.

2. Literature review

The industry-specific theory, which was developed within the industrial economy paradigm, states that the determinants of organizational performance are a direct effect of the structural differences of the economy to which the organization belongs (Galbreath and Galvin, 2008). This theory is best represented by the Five Forces of Competitive Position presented in Porter's (1980) work.

The industry-specific theory evolved into firm-specific factors of organizational performance, viewing the organization as a bundle of tangible and intangible resources (Galbreath and Galvin, 2008). According to Clulow et al. (2007), the value, scarcity, uniqueness, and sustainability of these resources can generate organizational competitive advantage. As such, these unique resources are the drivers of the organization's differentials in performance (Conner and Prahalad, 1996; Galbreath, 2005; Galbreath and Galvin, 2008). This theory is best represented by Wernerfelt's (1984) Resource Based View (RBV). In addition, research suggests that intangible resources are the real drivers of competitive advantage associated with peculiarity, high scale returns, and difficult barriers to duplication (Conner and Prahalad, 1996; Sudarsanam et al., 2003).

The RBV was integrated with the Competence Based View (CBV), which states that a competitive advantage can be achieved through competent managing of unique resources (Teece et al., 1997) and by the Knowledge Based View (KBV) which is the source of strategic competitive advantage (Conner and Prahalad, 1996), which in turn depends on an organization's ability to expand, manage, measure, and control the flow of knowledge (Sudarsanam et al., 2003; Galbreath, 2005). The KBV was then advanced to the Intellectual Based View (IBV) (Tseng and Goo, 2005).

According to the IBV, competitive advantage and firm performance are a function of how the organization moves its knowledge stocks (Sudarsanam et al., 2003; Tseng and Goo, 2005). Therefore, in a knowledge economy, the sources of economic value depend on IC management (Guthrie et al., 2004). However, conventional reporting methods are inadequate for reflecting the actual value of IC (Hayton, 2005).

2.1 Intellectual liabilities

To date, very little research has been conducted on IL (Stam, 2009; Solitander, 2011). A noteworthy inaccuracy in IC related studies seems to be researchers' complete omission of the constructs of IL (Stam, 2009). The major gap in understanding of IC is the complete misunderstanding of net intellectual worth, which in reality equals IA minus IL (Stam, 2009). Although a conceptual methodology is suggested to recognize both IA and IL in financial reports, this effort is still meagre (Stam, 2009). Harvey and Lusch (1999) claim that since companies often claim a huge number of unrecorded IA, conventional logic states that companies should also have significant amount of unrecorded IL. According to Caddy (2000), if capital is quantified indirectly by deducting liabilities from assets, IC should be quantified in the same deduction pattern. Furthermore, Stam (2009)

proposes that if the above stated equation is correct, a system of measurement and reporting enabling firms to identify the practicality of IL should be developed.

Even considering the fact that the existence of IL has been discussed in some studies (Abeysekera, 2006; Stam, 2009; Solitander, 2011), most current IC measurement and reporting models have continued to focus only on the firm's IA, without accounting for the firm's IL. Nevertheless, a major advantage of IL measurement and disclosure is the fact that it assists with improving firm performance by converting circumstances that have visibly gone out of the firm's control to their advantage (Abeysekera, 2006; Stam, 2009; Solitander, 2011).

By identifying the firm's key value drivers, the firm should also recognize IL for providing decision making related information (Andriessen, 2001). As such, the recognition of IL goes beyond an attempt to incorporate the idea of IL into the double-entry bookkeeping system (Andriessen, 2001). Moreover, IL should offer management and stakeholders with additional dependable information about the intangible resources not captured on the balance sheet (Andriessen, 2001). Consequently, with the provision that a firm's management is not cognizant of potential liabilities, deterioration will remain unanticipated (Andriessen, 2001). Therefore, practical assessment of the firm is impossible because the mere recognition and quantification of the firm's IA will only give a partial picture of the firm's true position (Caddy, 2000).

To balance IC reporting, Stam (2009) proposes that it is necessary to redefine the concept of IC itself. According to Stam (2009), if the equation " $IC = IA - IL$ ", as proposed by Harvey and Lusch (1999) and Caddy (2000) is true, the same equation will be correct for a variety of IC categories. In other words, the same equation can be extrapolated into each of the different categories of IC. Therefore, Stam (2009) maintains that it will be inaccurate to take the summation of all HA as a firm's HC; he recommends that the HC should be derived by deducting the summation of all HL from the summation of all HA. The same idea is applied in determining the SC and RC. These definitions are an extension of the framework suggested by Bontis (2002). Therefore, Stam's (2009) definition for IC components is summarized as: $IC = HA + RC + SC - HA - RL - SL$.

IL is typically categorized into HL, RL, and SL (Harvey and Lusch, 1999; Stam, 2009). HL are referred to as causes of deterioration arising from the personnel within the firm, the employees, employees' tacit knowledge, employees' skills, employees' experience, and employees' attitude (Harvey and Lusch, 1999; Stam, 2009). RL are defined as causes of deterioration arising from relationships between the firm and its customers, suppliers or other external stakeholders (Stam, 2009). SL are defined as causes of deterioration arising from the non-human resources within the firm (Stam, 2009). In other words, they refer to those value creation sources that persist, after the employees have quit the firm (Stam, 2009). Such value creation sources include codified knowledge, processes, procedures, and culture (Stam, 2009). According to Caddy (2000) and Garcia-Parra et al. (2009), and despite the fact that several studies have attempted to measure the disclosure of IC items, there are no known studies that have attempted to measure disclosure of IL or the impact of disclosure on FFP.

2.2 Intellectual capital and financial performance

According to Mangena et al. (2010), there is a rapidly emerging view among practitioners and academics that integration of financial measures into principal indicators of performance will require a new reporting model to boost investors' understanding of company operations. From this point of view, it is particularly important to examine how ICD affects FFP. Furthermore, it is likely that the rapidly growing interest in ICD may drive the consideration of appropriate legislations in the future. For this reason, understanding the relationship between FFP and ICD is important for firms; as it helps in assessing the economic benefits of increased ICD (Mangena et al., 2010). An understanding of the costs and advantages of disclosure is imperative for the process of standard setting (Mangena et al., 2010). Furthermore, a company's management will be able to pinpoint specific IC items to feature in financial reports if they have a complete understanding of the different categories of IC and how each of these categories has an impact on a FFP (Pedrini, 2007). Besides, it is possible that managers would be more likely to offer quality disclosure if they were to believe in the performance enhancement merits of increased ICD (Pedrini, 2007; Mangena et al., 2010).

Neu et al., (1998) claim that the connection between financial information and IC information may be interpreted from two perspectives that the call confirmatory and dis-confirmatory. For a profitable firm, which has stakeholders' category that values disclosure of IC related information, disclosure would be a "confirmation" that profit has not been at the cost of the environment. Occasionally, firms disclose IC

information to correct stakeholder's misconceptions regarding the correlation between profitability and disclosure responsibility (Neu et al., 1998). On the other hand, when there is relatively no profitability, managers might use disclosures to influence financial stakeholders' beliefs, in an attempt to indicate that existing IC investments will further strengthen the firm's future competitive advantage and future profitability (Dammak et al., 2010). This will again translate into an effort to correct the misconception that profitability and disclosure responsibility are meant to even each other out (Neu et al., 1998).

Alternatively, Neu et al., (1998) indicate that ICD can have a 'dis-confirmatory' effect on the firm's financial figures when using the disclosure to redirect focus during unprofitable times. This technique downplays questions about the management competencies, which usually arise in times of low or no profitability (Inchausti, 1997; Dammak et al., 2010; Falikhatun et al., 2010). The methodology has also been argued in some studies that have revealed that managers usually simultaneously communicate "good news" (qualitative) with "bad news" (quantitative) (Inchausti, 1997; Aljifri and Hussainey, 2007). Disclosing "bad news" requires managers to consider the competitive disadvantages of such disclosure, including proprietary costs and the work force to prepare and communicate the information (Inchausti, 1997). These confirmatory and dis-confirmatory applications of ICD can be interpreted as efforts to "frame" how financial stakeholders interpret the financial information available in the annual report (Inchausti, 1997). However, Solitander (2011) claims that depending on how voluntary IC is reported, stakeholders may see disclosure as either an asset or a liability; thus, the impact of ICD on FFP can either be positive or negative (Dammak et al., 2010; Van der Wielen, 2010). Stam (2009) claims, that to balance IC books, IA and IL must be reported; this has also been claimed by Harvey and Lusch (1999) and Caddy (2000). As a result, the primary focus of Stam's (2009) theoretical framework is on IL measurement, and his findings are combined within other studies about IL measurement framework. Stam's (2009) proposed IL measurement framework places emphasis on the differences between internal and external liabilities. According to Stam (2009), "internal liabilities are regarded as the causes of deterioration that arise from the sources of value creation within the organization while external liabilities are the causes of deterioration that come from outside and are beyond the control of the organization." Other studies (Harvey and Lusch, 1999; Garcia-Parra et al., 2009; Solitander, 2011) support Stam's (2009) findings, although it appears that these studies have not investigated the effects that such IL disclosure have on the FFP. Thus, and despite the fact that some studies (Harvey and Lusch, 1999; Garcia-Parra et al., 2009; Stam, 2009) recognize IL, very little work has been done, and what has been done was mostly conceptual, rather than empirical; hence, the need for further conceptualization of IL into IC, and to examine empirically IL disclosure and impact on FFP.

2.3 Hypotheses development

In order to adequately respond to the main research question "What are the characteristics of a new conceptual model that assists in explaining the relationships between ICD and FFP for companies listed on the UAE stock exchanges?" the following hypotheses were developed:

3. Research design and methodology

A major advantage of quantitative research in IC studies is that it focuses particularly on the attempts to create an integrated framework for examining the links between all components of IC (Chen, 2012). Furthermore, the quantitative research presents IC researchers with variables or proxies that are useful in identifying codes and concepts (Chen, 2012). According to Chen (2012), the concepts being labelled are usually obtained from the existing literature and can draw the researcher's attention to their existence in the case data. Within the RBV context, the present study is aimed at investigating the effect of IA and IL disclosure on FFP of publicly listed companies in the UAE by using quantitative methods. Thus, a quantitative research approach, using statistical analysis of content analysis findings, is applied to examine the relationships between the disclosure of IC components and FFP for publicly listed companies in the UAE for the fiscal years 2010 and 2011.

Table 1: Null hypotheses

H1 ₀	There is no statistically significant relationship between ICD and Firm Financial Performance for publicly listed companies in the UAE.
H2 ₀	There is no statistically significant relationship between HA Disclosure and Firm Financial Performance for publicly listed companies in the UAE
H3 ₀	There is no statistically significant relationship between HL Disclosure and Firm Financial Performance for publicly listed companies in the UAE
H4 ₀	There is no statistically significant relationship between SA Disclosure and Firm Financial Performance for publicly listed companies in the UAE
H5 ₀	There is no statistically significant relationship between SL Disclosure and Firm Financial Performance for publicly listed companies in the UAE
H6 ₀	There is no statistically significant relationship between RA Disclosure and Firm Financial Performance for publicly listed companies in the UAE
H7 ₀	There is no statistically significant relationship between RL Disclosure and Firm Financial Performance for publicly listed companies in the UAE
<i>Source: Authors</i>	

3.1 Target population and sampling method

Officially founded in 2000, the UAE stock market trading used to be the over-the-counter type (DFM, 2012; ADX, 2012). The UAE stock market is comprised of the Dubai Financial Market (DFM) and Abu Dhabi Stock Exchange (ADX) (Khedhiri and Muhammad, 2008). The Emirates Securities and Commodities Authority (ESCA), which was established in January 2000, monitors the activities of both markets. Commendable growth and general improvements are seen in both ADX and DFM since their inception (Oxford Business Group, 2007). Since inception, the UAE stock markets have grown in terms of capitalization and company listing because of the welcoming investment climate in the UAE (Khedhiri and Muhammad, 2008). The number of listed companies in the UAE stock markets has increased by 377% from 26 companies in 2000 to 124 companies in 2012 (Bloomberg, 2012). Furthermore, market capitalization increased by 170% from \$44.5 billion in 2003 to \$120 billion in 2012 (Bloomberg, 2012). The companies listed on the DFM are mostly Emirati companies in addition to some secondary listings from the neighbouring Gulf countries, in particular Kuwait (DFM, 2012; ADX, 2012). The main trading floor is in Abu Dhabi. The ADX also has secondary listings for several companies elsewhere in the Middle East and North Africa (MENA) region.

As displayed in Table 2, the UAE ranks third in the Gulf Cooperation Council (GCC) region in terms of number of publicly listed companies; hence, the relative importance of the stock markets in the UAE.

Table 2: Listed firms in the GCC

Stock Market	Number of Listed Firms
Kuwait	195
Kingdom of Saudi Arabia	161
United Arab Emirates	124
Oman	123
Qatar	43
Bahrain	32
Total GCC	431
<i>Source: Bloomberg, 2012</i>	

Market capitalization is the price of a share of stock multiplied by the number of shares outstanding (Eiteman et al., 2010). Most studies suggest that the macroeconomic environment has an important effect on the stock market capitalization through indices, such as GDP, exchange rates, interest rates, current account, and money

supply (Ologunde et al., 2006). As shown in Table 3, the UAE accounts for the second largest marketplace in the Middle East in terms of market capitalization.

Table 3: Arab market capitalization in2012

Country	Market Capitalization in Billions of USD
Kingdom of Saudi Arabia	397.0
United Arab Emirates	125.0
Qatar	117.0
Kuwait	102.7
Others	67.4
Morocco	61.5
Egypt	61.2
Jordan	27.0
Syria	1.4
Total Arab Market Capitalization	294.2
<i>Source: IMF, 2012</i>	

In addition to the above background, the UAE market is also important due to a number of factors, including (Hassan, 2009):

- As an emerging capital market, second largest in the Gulf region in terms of market capitalization, the UAE market seems to espouse market based economic beliefs as well as trade liberalization paradigm;
- Compared to other advanced capital markets such as the US, UK, and Australia, the accounting professional practice in the UAE still measures below standard in terms of ICD practices; and
- The regulatory framework in the UAE features different disclosure legislations that need to be researched further to align with the legislations in advanced economies.

According to Dillman (2000), controlling for non-response error in research is crucial and ought to start with research design and implementation that follow some generally acceptable procedures and techniques. To maximize participation, suitable sampling protocols and procedures need to be applied (Dillman, 2000). Adequate response rate will be achieved once the researcher has been able to maximize participation, which will ultimately help the researcher to eliminate the threat of non-response to external validity (Lindner, 2002).

To ensure the external validity and the generalizability to the population of interest, Hair et al. (2009) opine that the researcher needs to adequately respond to the question of whether the survey results would have remained the same if a response rate of 100% had been attained. In the current research, the authors have responded to this concern by studying 100% of the sample. Therefore, the present research is superior to the majority of existing ICD studies in the fact that it has used 100% of the population for content analysis. Adopting a 100% sample was relatively straightforward in this research because the publicly listed companies in the UAE are of a manageable size; in addition, all of them have their respective annual reports published in their online portals.

Additionally, the present research is superior to the majority of existing studies in the fact that it has used 100% of the population for content analysis, unlike several previous IC related studies that failed to consider 100% of the population (Zéghal and Maaloul, 2010). The choice of 100% sample population closes a gap in the literature, which is the small sample of firms being studied relevant to the population of publicly listed companies (Abeysekera, 2007).

3.2 Annual reports and content analysis

In the present research, content analysis is applied for the classification of annual reports contents according to IC terms and the frequency at which they appear; hence, the semantical content analysis method. This

technique is in line with the methods defined and applied by Abeysekera (2006). Annual reports were chosen for four reasons (Lang and Lundholm, 1993). First, they are considered an important source of company information by internal and external users (Guthrie and Petty, 2000; Abeysekera, 2007). Second, the level of disclosure in annual reports has a positive correlation with the volume of corporate information communicated to the market and to stakeholders via the use of other media (Guthrie and Petty, 2000). Third, annual reports are produced on a regular basis, usually yearly, and as such, they provide an opportunity for meaningful comparisons and analysis (Niemark, 1995). Fourth, annual reports often present firms with an opportunity to increase their communication with investors, as firms are able to report both financial and nonfinancial information, showing leadership and vision by highlighting firm values and position (Abeysekera, 2007).

To ensure full representation of all IC indicators, IC terms were grouped into six categories, with a total of 498 terms, based on the frameworks of Harvey and Lush (1999), Guthrie and Petty (2000), Bozzolan et al., (2003), Guthrie et al. (2004), Abeysekera and Guthrie (2005), Stam (2009), and Yi and Davey (2010) as represented in Table 4. Thus, the constructs were selected on the basis of a rigorous review of a pool of literature on IC research, organizational learning, and knowledge management. Since construct validity refers to “whether theoretical concepts are adequately reflected by the operational definitions and measures of empirical phenomenon” (Modell, 2005), as soon as the content validity was ascertained, the items were checked for construct validity.

Table 4: Intellectual capital categories

Category	Number of Terms
Human Assets	158
Relational Assets	133
Structural Assets	146
Human Liabilities	13
Relational Liabilities	17
Structural Liabilities	31
Total	498
<i>Source: Harvey and Lush (1999); Guthrie and Petty (2000); Bozzolan et al., (2003); Guthrie et al. (2004); Abeysekera and Guthrie (2005); Stam (2009); Yi and Davey (2010)</i>	

To ensure objectivity, which is usually associated with the allocation of different weights to various IC categories, a 0 - 1 coding scheme was used, following the set of coding rules. Nevertheless, other coding schemes exist, such as the 4-point coding scheme as proposed by Guthrie and Petty (2000), the 5-point by Beaulieu et al. (2002), and the 3-point by Bozzolan et al. (2003). However, the 0 - 1 coding scheme was used because applying a coding scheme with more points results in high subjectivity (Williams, 2001). Moreover, studies by Guthrie and Petty (2000), Brennan (2001), and Guthrie et al. (2006) have shown that IC information is only reported in a discursive form, which makes any coding scheme with more than two points unnecessary. Therefore, the appearance of the terms, as per the content analysis software search engine yields a score of 1, whereas the nonappearance yields a score of 0.

3.3 Independent and dependent variables

In IC studies, performance variables are time specific, representing information or a set of details that may interest the users of accounting information (Wallace et al., 1995). Consequently, researchers often apply variations of profit margins, Return on Equity (ROE), Return on Assets (ROA), current ratio, or VAIC™ as measures of performance (Zéghal and Maaloul, 2010). To carry out the necessary analysis in this study, the dependent variable ROE was used as proxy for FFP. ROE is defined as the ratio of Net Income divided by average Total Equity (Total Assets minus Total Liabilities). The use of ROE as a proxy for performance in this study is justified based on the fact that ROE reflects the resource utilization efficiency of the firm as an indicator of profitability and overall performance. Therefore, ROE in accounting is generally accepted as a valid and veritable measure of the overall performance of the firm as it provides the relevant details about the value added to the firm that causes better performance (Zéghal and Maaloul, 2010).

The relationship assumed between the dependent and independent variables was based on theoretical footing and the outcomes of empirical work. In addition, IBM SPSS Statistics 20, which is a reliable statistical instrument, was employed in ascertaining the robustness of the anticipated results.

Table 5 includes the dependent and independent variables, their definitions, and the proxies used in measurement.

Table 5: Independent and dependent variables

Independent Variables	Code	Definition
Human Assets	HA	Tacit knowledge embedded in the minds of the employees
Relational Assets	RA	Knowledge embedded in the relationships established with the outside environment
Structural Assets	SA	Organizational routines of the business
Human Liabilities	HL	Sources of deterioration arising from human resources with the organization
Relational Liabilities	RL	Causes of deterioration arising from relationships with external stakeholders
Structural Liabilities	SC	Causes of deterioration from internal non-human resources
Dependent Variable	Code	Definition
Return on Equity	ROE	Net Income divided by average Total Equity (Total Assets minus Total Liabilities)

Source: Authors

3.4 Data collection

Similar to the ways in which content analysis has been applied in previous studies (Guthrie et al., 2004; Steenkamp and Northcott, 2007), the use of content analysis in the present research is aimed at analysing published 2010 annual reports systematically, objectively, and reliably as stated by Guthrie and Petty (2000). The present study uses the 2010 annual reports of the 124 firms listed on the UAE stocks market as its source of information principally because of the following:

- Most of the companies have not yet published the 2012 annual reports; and
- Annual reports for 2011 are required to check the impact of ICD in 2010 on FFP in 2011. Obviously, there exists a time lag between ICD and FFP effect. This is evidenced by several studies that have pointed to an inevitable time lag between increased transparency and disclosure on one hand, and performance on the other; this time lag is generally perceived to be one year (Aksu and Kosedag, 2005).

The 2010 annual reports of 124 publicly listed companies were downloaded in PDF format from the website of each company. The downloaded annual reports were converted to MS Word 2007 format using “ABBYY FineReader 10 Professional Edition”, which is an optical-character-recognition (OCR) software. The MS 2007 Word format of each company’s annual report was uploaded to the content analysis software (QDAMINER 4 and WORDSTAT 6), coded, and then electronically codified to extract the disclosure of IA and IL (independent variables) according to the predefined categories. The 2011 annual reports of 124 publicly listed companies were analysed to extract the ROE for each company. The contents of the annual reports were directly coded by the authors to prevent the reference frame applied from having an effect on reliability. To ascertain steady identification of the contents of the various annual reports, the annual reports were re-examined after a time interval of one hour. This process made it possible to scrutinize the researchers’ underpinning assumptions in analysing the content while also enhancing the quality of the data generated from the content analysis. Furthermore, to ensure the validity and reliability of content analysis, the researchers mitigated the threats of sample size, established information, coding information process, and data recording and interpretation errors.

4. Results and discussion

This section includes data examination and statistical analysis of the study, including descriptive analysis and regression output.

The following four phases of data examination were applied in the present study:

- Graphical examination of variables, including the nature of the variables and the relationships between the dependent variable and independent variables;

- Missing data analysis, to verify the absence of missing values;
- Identification of outliers, including univariate and multivariate outliers; and
- Assessment of the ability of the data to meet the statistical assumptions specific to the selected multivariate technique, which in this case is multivariate regression analysis, including Linearity, Normality, Homoscedasticity, Non-correlation of error terms, and absence of Multicollinearity.

4.1 Descriptive analysis

Table 6 shows the descriptive statistics of independent and dependent variables:

Table 6: Descriptive statistics

Variable	N	Minimum	Maximum	Mean	Std. Deviation
ROE	124	(22.22)	32.24	5.50	9.86
HA	124	9.00	46.00	27.69	7.32
RA	124	2.00	18.00	9.41	3.43
SA	124	7.00	32.00	18.06	5.83
HL	124	-	16.00	6.79	3.08
RL	124	1.00	8.00	5.12	1.32
SL	124	1.00	9.00	3.63	1.66

Source: Authors

4.2 Regression output

The selected regression model used is the sequential search approach which employs the stepwise estimation method. This procedure is useful to identify important variables (Hair et al., 2009). Assessment of the regression model fit is performed in two parts:

- Overall model fit, which is analysed using the Coefficient of Determination (R^2), Cronbach's alpha, and F-Test ; and
- Analysis of the variate.

4.2.1 Coefficient of determination (R^2)

The coefficient of determination is a measure of the amount of variance in the dependent variable explained by the independent variables (Hair et al., 2009). The adjusted R^2 in this model is 0.825. The interpretation of R^2 is that 82.50% of the variation in ROE is justified by the variation in the independent variables, while 17.50% of the variation is explained by other factors not included in this model, as shown in Table 7:

Table 7: Coefficient of determination (R^2)

Model	R	R Square	Adjusted R Square
1	.913 ^a	.833	.825
a. Predictors: (Constant), SL, SA, RL, RA, HL, HA			
Dependent Variable: ROE			
Source: Authors			

4.2.2 Cronbach's Alpha

Cronbach's alpha is a measure of reliability that ranges from 0 to 1, with values of 0.60 to 0.70 deemed the lower limit of acceptability. As revealed in Table 8, the overall alpha in the present study is 0.772 which is considered acceptable (Hair et al., 2009).

Table 8: Cronbach’s Alpha

Cronbach's Alpha	N of Items
0.772	7
<i>Source: Author</i>	

4.2.3 F-Test

The F-Test indicates whether a significant amount (significantly different from zero) of variance was explained by the model (Hair et al., 2009).The regression model shows highly significant results, where the F value (97.576) shows a statistically significant relationship (p = 0.000) between the dependent and independent variables at the 95% confidence level (α = 5%), as displayed in Table 9:

Table 9: F-Test

Model	Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9,956.72	6	1,659.453	97.576 .000 ^b
	Residual	1,989.79	117	17.007	
	Total	11,946.51	123		
Dependent Variable: ROE					
b. Predictors: (Constant), SL, SA, RL, RA, HL, HA					
<i>Source: Authors</i>					

4.2.4 Analysis of the Variate

Analysis of the variate relates the respective contribution of each independent variable in the variate to the regression model (Hair et al., 2009). The model for regression is specified thus:

$$ROE = \beta_0 + \beta_1 HA + \beta_2 RA + \beta_3 SA + \beta_4 HL + \beta_5 RL + \beta_6 SL + \epsilon$$

Regression analysis is performed to test all the hypotheses developed in this study. The results are presented in Table 10.

Table 10: Regression results

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	(-37.531)	2.168	-	(-17.310)	0.000	-	-
	HA	0.646	0.102	0.480	6.327	0.000	0.247	4.043
	RA	0.732	0.119	0.255	6.151	0.000	0.828	1.207
	SA	0.388	0.134	0.229	2.887	0.005	0.225	4.438
	HL	0.584	0.137	0.183	4.257	0.000	0.774	1.291
	RL	0.995	0.306	0.134	3.252	0.001	0.843	1.186
	SL	0.601	0.250	0.101	2.407	0.018	0.803	1.245
<i>Source: Authors</i>								

The intercept β₀ has a value of -37.531 and a t-value of -17.310, which is significant (p = 0.000) at the 95% confidence level (α = 5%). Table 10 reveals the significant regression coefficients, namely HA (β₁) at p = 0.000, RA (β₂) at p = 0.000, SA (β₃) at p = 0.005, HL (β₄) at p = 0.000, RL (β₅) at p = 0.001, SL (β₆) at p = 0.018. The unstandardized coefficients indicate that for one unit increase in the independent variable, ROE will increase or decrease by that amount. Therefore, for one unit increase in HC disclosure, ROE will increase by 0.732%. From this information, we produce the regression equation as follows: ROE = -37.531 + 0.646 HA + 0.732 RA + 0.388 SA + 0.584 HL + 0.995 RL + 0.601 SL + ε

4.3 Hypotheses verification

Table 10 shows a statistically significant relationship between ICD and ROE at $\alpha = 5\%$. Thus, the null hypothesis $H1_0$ is rejected. This result supports the findings of Healy and Palepu (1993) and Reese and Weisbach (2002) who found statistically significant positive relationship between ICD and firm performance. This also contradicts the findings of Wyatt (2008) and Van der Wielen (2010) who claim that ICD has a negative impact on FFP.

Table 10 also shows that HA has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H2_0$ is rejected. This result supports the findings of Xu et al. (2007) who found statistically significant positive relationship between HA disclosure and FFP. However, this result contradicts the findings of Depoers (2000) and Falikhatun et al. (2010) who claim that there is a potential negative impact of HA disclosure because it can empower competitors by providing them with additional sensitive information and can lead to leakage of firms' HA.

Table 10 also shows that HL has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H3_0$ is rejected. The results confirm Stam's (2009) claims that a major advantage of HL measurement and disclosure is that they assist with improving FFP by actually converting to the firm's advantage through shedding the light on human weaknesses and circumstances that have visibly gone out of the firm's control.

Table 10 also shows that RA has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H4_0$ is rejected. This result supports the findings of Youndt and Snell (2004), who claim that RA disclosure affects positively FFP as it reduces organizational costs. However, this result contradicts the findings of Van der Wielen (2010) who claims that excessive disclosure of RA may lead to leakage of processes, innovations, and best practices; this reduces the competitive and absolute advantages of firms.

Table 10 also shows that RL has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H5_0$ is rejected. The results confirm the findings of Harvey and Lusch (1999) that RL must be revealed to improve the organization's ability to anticipate the risk of relational failures and collapses in supply chain systems.

Table 10 also shows that SA has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H6_0$ is rejected. This result supports the findings of Bontis (1998) who claims that there is a valid, reliable, significant, and substantial link between SA and their disclosure on one hand, and business performance on the other hand. Furthermore, the findings of the present research agree with the RBV of the firm, which focuses on internal, firm-specific factors and their strong effect on FFP. However, the results contradict the findings of Hsu and Fang (2009) who claim that SA and their disclosure have a negative effect on organizational performance due to very high spending on information systems and R & D

Table 10 also shows that SC has a significant t-value at $\alpha = 5\%$. Thus, the null hypothesis $H7_0$ is rejected. The results confirm Stam's (2009) theoretical framework, according to which, measurement and disclosure of SL may improve a firm's ability to quantify the structural issues that may lead to organizational decline.

4.4 Implications for research and practice

When compared to existing IC literature, the significance of the findings of the present study shed the light on an IC framework, which if adopted can explain the difference between the success and the demise of firms. The present research has uncovered the statistical significance of the positive relationship between the disclosure of HA, HL, RA, RL, SA, SL and FFP, which agrees in part and disagrees in another with previous studies that show contradicting findings regarding this relationship. It is hoped that the research findings can aid firms with the following:

- Understanding the importance and sensitivity of the recognition, measurement, management, and disclosure of IC related information and the impact on FFP;
- Improving internal firm management;
- Understanding and calculating the true value of the firm;
- Improving measurement and management of a firm's competitive advantage factors;
- Providing insight into the true drivers of sustainable performance; and
- Proving a framework for effective governance of intangible and intellectual elements.

5. Conclusions, limitations, and future research

The purpose of this study is to analyse the impact of 2010 ICD on 2011 FFP in publicly listed companies in the UAE. The independent variables used as proxies for ICD are HA, RA, SA, HL, HL, and SL. ROE is used as a proxy to measure performance. ICD is measured by a disclosure index supported by word count of metrics using a combination of IC terms commonly used in earlier studies. Results of the analysis show that all independent variables have a statistically positive effect on ROE. Therefore, in the absence of a regulatory framework for ICD UAE, it is shown that ICD, whether IA or IL, positively affects the level of ROE in publicly listed firms.

Similar to all empirical studies, the present research is subject to a number of limitations. Apart from the limitations of the study, the present research also provides the opportunity for future research. One of the limitations is the use of the content analysis method. Analysing the annual reports of firms based on the specified list of IC related terms may not provide the whole picture nor adequately describe the ICD practices; firms may use certain words to communicate their IC related activities to investors, prospective investors, creditors, and analysts; however, these words may be different to some degree from the terms used by the academic community. Moreover, the use of annual reports to measure ICD presents a further limitation. Firms might use other modern information sources to reveal IC information, such as web sites or conference calls. Further, there's an additional limitation related to the proxies terms used to count the frequency of IA and IL disclosure. Due to the absence of a common set of terms to test the disclosure of IC, the research utilizes a validated combination of terms from the different frameworks of all a sub-set of the IC studies to ensure maximize full representation of all the IC indicators. Using other terms may have yielded different results. Moreover, as the study is limited to the geography of UAE and to a specific timeframe, the results of the research may not be easily generalizable beyond this scope.

Despite its limitations, the present study significantly contributes to the literature of IC in several ways. First, it confirms as well as contradicts findings of earlier studies. Second, and to the best knowledge of the researchers, this is the first study in the UAE that examines the impact of ICD (IA and IL) on FFP. The findings offer new insights into these relationships in an institutional context that greatly differs from those of the countries considered in the previous literature on voluntary disclosure. Finally, the choice of a large sample, representing 100% of the population of publicly listed companies UAE, contributed in overcoming the limitations of earlier studies that used a small sample relative to the population.

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