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Impact of Global Financial Crisis and other Determinants on Intellectual Capital Disclosure in UAE Banks

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Abstract

The aim of this study is to investigate the impact of global financial crisis, market structure and other factors on the disclosure level of intellectual capital by UAE Banks over the period 2005-2009.

The Multiple Regression Analysis is used to test the relationship between the level of intellectual capital disclosure as a dependent variable and global financial disclosure, market structure and other independent variables. The results show that global financial crisis and market structure variables, which have not been considered in previous studies, have a significant impact on the level of intellectual capital disclosure. In addition, the results show that bank risk, role duality and bank age have a significant impact on the level of intellectual capital disclosure. This paper adds to the literature on the determinants of the level of intellectual capital disclosure in banks. In particular, it tests the new theories that the global financial crisis and market structure have impact on the level of intellectual capital disclosure.

Keywords: Intellectual capital disclosure, Global financial crisis, Market structure, Role duality, Bank risk, Bank age, United Arab Emirates.

Introduction

The appreciation of the management that intellectual capital (IC) is playing crucial role in creating value to the companies lead to increase the importance of it (Abeysekera, 2006). Previous studies of IC disclosure revealed increasing in the trend of disclosing information about intellectual capital among companies (see for instance, Burgman and Roos, 2007; Vergauwen et al., 2007 Guthrie et al., 2006; Oliveira et al., 2006 and Garcia-Meca et al., 2005).

It can be argued that disclosing information about intellectual capital reflects to what extent the management is appreciating the role of intellectual capital in maximizing the wealth of the shareholders. There are different types of benefits which the company can gain from disclosing information about intellectual capital and such as increase the loyalty of the customers to the company and attract highly qualified staff. So investing this issue can help the management to go insight reasons for achieving better performance in terms of success or profitability. In addition knowing the reasons behind varying disclosing information about intellectual capital among companies can help in improving the level of intellectual capital disclosure. To that extent it can be stated that the present study is important because it might help in answering the queries mentioned in the above argument. (see for instance, El-Bannany, 2008; White et .al, 2007; Vergauwen et al., 2007 Guthrie et al., 2006; Oliveira et al., 2006; Garcia-Meca et al., 2005 and Williams, 2001)

Hamid (2004, p.118) stated that "research in a specific industry will allow the researcher to see some specific pattern in disclosure theme for those industries because all disclosure items were treated equally" and this is the case of the present study which focus on intellectual capital disclosure (ICD) in banking.

Previous studies of ICD have ignored the effects of factors such as global financial crisis and market structure. The aim of this study is to fill this gap by investigating the ICD level in UAE banks over the period 2005-2009 (see table 1) and by considering factors which have ignored in previous studies. The period 2005-2009 was chosen to overcome the data availability problem.

Table 1: The study Sample of National Banks in the UAE 2005-2009 (55 Observations)

No.	Bank Abbreviation	Bank Name
1	ADCB	Abu Dhabi Commercial Bank PJSC
2	ADIB	Abu Dhabi Islamic Bank PJSC
3	BOS	Bank of Sharjah
4	DIB	Dubai Islamic Bank PJSC
5	EIB	Emirates Islamic Bank PJSC
6	FGB	First Gulf Bank PJSC
7	IB	Invest Bank PSC
8	MB	Mashreq
9	NBAD	National Bank of Abu Dhabi PJSC
10	NBQ	National Bank of Umm Al Qauiwain
11	RAKB	The National Bank of Ras Al-Khaimah (P.S.C.)

The reminder of the paper is structured as follows: Section II examines the literature on the establishment of intellectual capital disclosure index and explaining the determinants of intellectual capital disclosure. Section III covers the research method. Section IV discusses the empirical evidence on the relationship between intellectual capital disclosure and independent variables. Section V presents the conclusions.

II. Literature review

The purpose of this section is to cover the literature review about how to establish an intellectual capital disclosure index and what are the factors which might help in explaining the differences in the level of intellectual capital disclosure among firms and will be divided into two sections as follows:

II. 1: Establishment of Intellectual capital disclosure index

As argued above the study is focusing on banking industry and hence the ideal index to measure the level of intellectual capital disclosure (ICD) should be the one which include the applicable items to this industry.

Two approaches have been applied in the literature to construct the ICD index and these are the manual and electronic approaches but electronic approach can be considered as more convenient because it is less time consuming and more accurate compared with the manual one (see for instance, Lee & Guthrie, 2010; Kamath, 2008; Vergauwen et al., 2007; Vergauwen & Alem, 2005; Abdolmohammadi, 2005; Vandemaele et al., 2005 and Bontis, 2003) and for these reasons the electronic approach will be adopted for the present study.

Previous studies about intellectual capital disclosure which used banks only or banks among other sectors as study sample will be relied on to choose the relevant items to construct the intellectual capital disclosure index. In addition, studies adopted electronic rather than manual approach in constructing ICD index will be the scope of this section of the literature review.

The intellectual capital disclosure index constructed by these previous studies mentioned above can be classified into two types, the first is using list of several uncategorized items (i.e. intellectual capital, knowledge management, human capital, employee value, employee productivity, economic value added, intellectual capital and intellectual assets) and the second is using a list of several categorized items but under certain heading i.e. (internal structure; external structure (relational) and human capital). The second type of constructing the ICD index which is a categorized based approach can be considered better than the first type which is several uncategorized items based approach because it is more informative and hence will be adopted in the present study (see for instance, Kamath, 2008; Vergauwen et al., 2007; Abdolmohammadi, 2005; Vandemaele et al., 2005; Vergauwen & Alem, 2005; Bontis, 2003 and Bozzolan et al., 2003).

All of the studies discussed in this section, to calculate the value of the ICD index were given one score for the existence of each item of the index in the screened annual reports and zero otherwise and after that adding up all scores to reach the total value of ICD index and this approach will be followed in the present study.

II. 2: The determinants of intellectual capital disclosure level

Previous studies about the determinants of the company's ICD level considered many factors which might affect the level of ICD (See for

instance Vergauwen et al., 2007; White et .al, 2007; and El-Bannany, 2008). The results of the initial regression analysis show that bank risk, role duality, bank age in addition to global financial crisis and market structure are important in explaining changing in ICD in UAE banking market. Hence, these factors will be discussed below and the hypotheses will be formulated and tested:

1. Global Financial Crisis

It can be argued that under abnormal bad circumstances such as the existence of global financial crisis, the management of the companies might need to disclose information to the interested users to show them that their companies can manage to perform well under these circumstances. Information which can be disclosed includes different aspects such as information about liquidity status which can be reflected in disclosing information about relationship with suppliers and/or profitability and financing status which can be reflected in disclosing information about intellectual capital performance and customer relations.

So it can be assumed that the disclosing information about intellectual capital will be higher during and post the global financial crisis period compared to pre global financial crisis period.

Based on the above argument, the First hypothesis is;

H1: there is a positive relationship between the global financial crisis and the level of intellectual capital disclosure.

2. Market structure

In general based on the market conditions, we can distinguish between two types of market structure perfect (open competition) and imperfect market (restricted competition). The conditions of the perfect market allow the free competition between the sellers and buyers but the imperfect market does not. Different dimensions of market structure have been mentioned in the literature but the degree of seller (bank) concentration dimension is more important than others for the present study because it can be linked to the level of information disclosure as argued by El-Bannany (2007) in his study about social disclosure in the UK bank who stated that underlying characteristics of a market (i.e. seller concentration) can affect the behaviour of companies (i.e. conduct) and hence affect the extent of social disclosure level in their annual reports.

The Seller concentration reflect to what extent larger firms in the market have made mutual arrangements to dominate the market and as a result of that the nature of market competition will be affected and this in turn might have impact on the disclosure level (see for instance, Jos, 2010, Board, 2009; Levin et al, 2009 and Magazzini et al., 2009).

Competition should encourage the companies to use different techniques to compete and one of these might be disclosing intellectual capital information in the firms' annual reports as a marketing means to attract better staff or satisfy the customer and hence gain their loyalty but the absence of competition could lead to de-motivate the firms from using disclosing of intellectual capital information in their annual reports.

Holden and El-Bannany (2004) argued that the measure of the degree of market concentration is concerned with chosen the appropriate number of the largest companies, to reflect the degree of concentration in the market. Based on the rule stated by the Monopolies and Mergers Commission in the UK (1996, p.12) which indicated that "the complex monopoly is a situation where individuals or companies, account for at least 25 per cent of the supply or acquisition of particular goods or services, followed by a course of conduct, by agreement or not, that prevents, restricts or distorts competition".

For a mutli-products industry like banking, different sources can be contributed to the market power for large company as argued by Koch (1980) and using of assets which might represent all of these sources compared to others can be seen as convenient to rely on to measure the concentration ratio in the market which should at the same time comply with the criteria mentioned above. Hence, the concentration ratio for the industry based on the largest two banks in year t in terms of total assets (CR2ASSt), will be used to represent the market structure hypothesis.

Based on the above discussion, the Second hypothesis is;

H2: there is a negative relationship between concentration and intellectual capital disclosure level.

3. Bank risks

Drigă et al. (2010) argued that banks are exposure to three main categories of risks and these are financial risks contains credit risk, liquidity risk, interest rate risk, insolvency risk; operating risks includes

operational risk, technological risk, new product risk, strategic risk; and environmental risk includes fraud risk, business risk, competing risk, political and legal risk.

Dealing with the fact that the occurrence of the risk regardless of its nature as a threat will lead to negative effect on the performance of the bank we can presuppose that disclosing information to the interested groups about these risks in the annual reports might help in achieving the financial stability of the bank. In addition, it can be argued that ICD might be used by banks to inform these groups that the bank is having the invisible powers represented by internal, external and human power which can help in protecting from or/and overcome the risks. As a result, it can be assumed that riskier banks in will disclose more intellectual capital information than the un-riskier ones hoping to accomplish the financial stability.

The amount of reserves kept by the bank can be considered as an indictor to the level of the unforeseen risks regardless of their nature faced by the banks (see for instance, Balkrishna et al. (2007); Smith (2007) and Bagnoli & Watts, 2005) and this suggests using total reserves as a comprehensive measure of unforeseen bank risks and hence contribute in solving the problem of finding a suitable all in one measure to reflect the level of total risks exposure by the bank (see for instance, Theodore and Souto 2009, Bonfim, 2009; René, 2008 and El-Bannany, 2002).

Based on the above argument,

The Third hypothesis is;

H3: There is a positive relationship between the level of unforeseen bank risks measured by total reserves and intellectual capital disclosure level.

4. Role duality

Separating of duties for monitoring and controlling purposes is a well established concept in accounting and auditing literature. In general, it means that the person regardless of it is position in the organizational structure should not play more than one role at the same time. That is the person who is having an operational role should not have at the same time a monitoring role (which we call role duality) to avoid the negative effects of this situation such as self interest, self review which might lead to the un-independence threat and this in turn might lead to harm the

monitoring role of that person intentionally or by chance and hence this problem can be avoided by separating the monitor from the operational role (see for instance, Lazarides and Drimpetas, 2011,Yammeesri and Herath, 2010 and Cormier et al., 2010).

Cerbioi and Parbonetti (2007) argued that role duality for the chairman who is acting at the same time as Chief Executive Officer might spoil the capability of the board to monitor the performance of the management. This in turn, might lead to lowering the level of disclosure i.e. intellectual capital disclosure as a defence policy. Gul and Leung (2004) argued and empirically proofed that role duality might harm the independence of the board and hence spoil its governing role, leading to negative disclosure policies.

Role duality will be measured using a dummy variable equal to 1 if the chairman is the CEO for the same company and 0 if otherwise.

Therefore, the Fourth hypothesis is;

H4: there is a negative relationship between the role duality and intellectual capital performance.

5. Bank age

It can be argued that the age of the firm as distinguished factor for the elder rather than younger firms because characteristics can be linked to intellectual capital items such as reputation, customer relations, customer loyalty, supplier relations and goodwill and these can be gained over a period of time and hence can be considered as sources for competitive advantage. Based on this argument it can be assumed that elder rather than younger as a competitive tool will disclose more information about intellectual capital. The study of Hamid (2004) in Malaysia revealed the positive relationship between the bank age and social disclosure level.

The age of the firm is measured by the number of years from when the firm started until each year of the study period.

Therefore, the Fifth hypothesis is;

H5: there is a positive relationship between the age of the bank and intellectual capital disclosure level.

III. Research Method

III.1 Constructing of ICD index

It has been argued that there is no obligatory standards to construct ICD standards (see for instance, Petty and Guthrie, 2000; Bounfour, 2003; Kaufmann and Schneider, 2004) and there are several approaches in establishing the ICD disclosure index as argued in section II.1 which in turn making the process of constructing an index to measure ICD a difficult one. To overcome this problem the study adopted the applicable items approach in banking industry to build up the ICD index.

To implement this chosen approach, a comprehensive ICD index include all items used to establish ICD index by the studies discussed in section II.1was screened in the annual reports of all banks in the study sample for year 2009 and the items which were not existed in these reports were removed from the resulted index shown in table 2.

To minimize the data availability problem, this index has been applied only on the banks in UAE which their annual reports are available on their websites over the period 2005-2009. To calculate the total value of the ICD index, a score of 1 was given for the existence of the disclosure item in the index and 0 otherwise and then adding up scores given to all items in the index to reach the total value of ICD for bank 'i' in year 't'.

Table 2: the ICD index for Banks in the UAE

IC CATEGORY	IC SUBCATEGORY
Internal Structure	
1	Corporate Culture
2	Leadership
3	Communication
4	Management Process
5	Information Systems
6	Information Technology
7	Network

8	Computer Software
9	Telecommunication
10	Infrastructure
11	Innovation
12	Innovative
13	Methodologies
14	Philosophy
15	Knowledge Sharing
16	Software Systems
External Structure (Relational)	
17	Brands
18	Goodwill
19	Intangibles
20	Customers
21	Customer Loyalty
22	Customer Satisfaction
23	Customer Recognition
24	Customer Base
25	Customer Service
26	Market Share
27	Financial Contracts
28	Favourable Contracts
29	Partnership
30	Joint Venture
31	Distribution Networks
Human Capital	

32	Education
33	Employees
Table 2: the ICD index for Banks in the UAE (continued)	
34	Intelligence
35	Knowledge
36	Expertise
37	Training
38	Human Resource
39	Personnel
40	Employee Retention
41	Empowerment
42	Employee Benefits
43	Career Development
44	Human Capital

III.2 The Study Model

The aim of this study is to investigate the impact of global financial crisis, market structure and other factors on the disclosure level of intellectual capital by UAE Banks over the period 2005-2009. The regression technique is used because of it is relevance in investigating the relationship between the dependant and the independent variables [see for instance, Changliang et al. (2010); Johnson & Wichern (2008) and Sprinthall (2007)].

The regression model will be as follows:

LOGICDit = a0 + a1 (GFCt) +a2 (CR2ASSt) +
a3 (LGTRESit) + a4 (DUALit) + a5 (AGEit) + uit

Where:

LOGICDit Intellectual capital disclosure level by bank i in year t, measured by the logarithm of the number of keywords.

GFCt Global Financial Crisis represented by a dummy variable equal to 1

for years 2008 and 2009 and 0 for years 2005-2007.
CR2ASSt The total assets for the two largest banks divided by total assets in banking market in year t to represent the market structure hypothesis.
LGTRESit The logarithm of total reserves of bank i in year t to represent bank risks hypothesis to normalize the distribution of the total reserves.
DUALit A dummy variable equal to 1 if the chairman is the CEO for the same bank i in year t and 0 if otherwise.
AGEit The age of bank i in year t, measured by the number of years for the bank since started in business until each year of the study period.
uit disturbance term.

IV: Analysis of the results

IV.1: Descriptive statistics

Table 3 reports the descriptive statistics for the intellectual capital disclosure level and independent variables used in this study. The intellectual capital disclosure level for the sample banks throughout the study period varies from 1.38 to 2.27 of the logarithm of the number of items forming the intellectual capital disclosure index and the mean for the intellectual capital disclosure level is 1.81. The independent variables represented by global financial crisis; market structure; bank risks; role duality and the age of the bank vary as well and "this gives more credibility to the results of the study" as argued by Naser and Al-Khatib, (2000).

Table 3: Descriptive Statistics for the dependent and independent variables

N= 55 observations

Variable	Mean	SD	Min	Max
Disclosure Index (LGICDit)	1.81	0.21	1.38	2.27
Global Financial Crisis (GFC_t)	0.40	0.49	0.00	1.00
Market Structure ($CR2ASS_{it}$)	0.36	0.01	0.35	0.38
Bank Risks (LGTRESit)	3.11	0.54	2.22	4.04
Role duality (DUALit)	0.09	0.29	0.00	1.00
Bank Age (AGEit)	29.64	8.21	8.00	42.00

IV.2: Test for Multicollinearity and cross-sectional correlation

IV.2.1: Test for Multicollinearity

Vogelvang (2005) argued that multicollinearity will be suspected if some independent variables are predetermined by other independent variables within the same regression equation and this can be examined by different techniques and one of them is correlation matrix. Kiers & Smilde,)2007(argued that if the correlation coefficient between any two independent variables in the correlation matrix is ranged from 0.70 to 0.80, then we should suspect the occurrence of the multicollinearity problem and this problem can be sorted out by removing one of the two highly correlated variables.

The correlation test results (see table 4) show that the highest correlation coefficient value is between LGTRESit and DUALit which is less than 0.70 (it is 0.32), and this means that there is no multicollinearity problem between the independent variables of the study model.

Table 4: The correlation coefficient matrix for the independent variables

Variable	GFCt	CR2ASSit	LGTRESit	DUALit	AGEit
Global Financial Crisis (GFC_t)	-	0.078 (0.570)	0.182 (0.185)	0.000 (1.000)	0.150 (0.273)
Market Structure (CR2ASSit)		-	-0.050 (0.720)	0.000 (1.000)	-0.048 (0.728)
Bank Risks (LGTRESit)			-	0.319* (0.021)	0.158 (0.251)
Role duality (DUALit)				-	-0.297* (0.028)
Bank Age (AGEit)					-

The 2-tailed significance level is shown in brackets.

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

IV.2.2: Test for cross-sectional correlation

Petersen (2009) argued that if the study is relying on data for small firms size study sample over a period of time this will lead to the repeated use of each firm over time, and hence we should suspect the occurrence of

cross-sectional correlation problem which means that the residuals may be correlated across firms and the estimated standard error of coefficients can be biased. He suggested including of dummy variables in the regression equation to represent the firms in the study sample as a way to sort out this problem. The present study is relying on the data for 11 banks over 5 years which means and hence we should suspect the occurrence of this problem and to avoid it bank dummies will be included in the regression model.

IV.3: Regression results and discussion

The regression analysis has been done using the best fit model followed by El-Bannany (Forthcoming, 2008,2002) which can be summarised in choosing of the suitable combination of variables which robust the regression analysis.

The results (see table 5) show that the regression model is significant and explains 80% of the relationship between the ICD level and the explanatory variables and this indicate that the model is suitably well specified.

The coefficients for global financial crisis; market structure; bank risks; role duality; bank age, Abu Dhabi Islamic Bank; Dubai Islamic bank and National Bank of Umm Al Qauiwain are highly significant ($p=0.05$) and the signs on the coefficients of these variables are in line with the hypothesized direction.

The empirical evidence suggests that: global financial crisis measured by a dummy variable equal to 1 for years 2008 & 2009 and 0 for years 2005-2007 is positively related to ICD level and this conforms to the expectation of hypothesis 1. Market structure measured by the total assets for the two largest banks divided by total assets in banking market in year t is negatively related to ICD level and this conforms to the expectation of hypothesis 2. Bank risks measured by log of total reserves of bank i in year t is positively related to ICD level and this conforms to the expectation of hypothesis 3. The relationship between role duality measured by a dummy variable equal to 1 if the chairman is the CEO for the same bank i in year t and 0 if otherwise.

and the level of ICD is positive and this against the expectation of hypothesis 4 and reasons might be that the potential negative impact of the role duality as a corporate governance dimension has been cancelled out by the positive impact of other corporate governance dimensions such as the existence of

audit committee and board size. Bank age measured by the number of years for the bank since started in business until each year of the study period is positively related to ICD level and this conforms to the expectation of hypothesis 5 and contrasts with the results of Hamid (2004) in Malaysia and El-Bannany (2007) in the UK which revealed insignificant relationship. The relationship between the Abu Dhabi Islamic Bank; Dubai Islamic bank and National Bank of Umm Al Qauiwain represented by the dummy variables ADIBit; DIBit and NBQit respectively with the level of ICD are significant.

Table 5: The regression results: dependent variable LGICDit; Number of observations 55

Regressor	Coefficient	t-ratio	Probability
Intercept	1.489	3.194	0.003
Global Financial Crisis (GFC_t)	0.075	2.631	0.012
Market Structure (CR2ASSit)	-3.237	-2.778	0.008
Bank Risks (LGTRESit)	0.145	5.128	0.000
Role duality (DUALit)	0481	6.919	0.000
Bank Age (AGEit)	0.030	7.491	0.000
Abu Dhabi Islamic Bank PJSC ($ADIB_{it}$)	0.554	5.295	0.000
Dubai Islamic Bank PJSC (DIB_{it})	0.106	2.193	0.033
National Bank of Umm Al Qauiwain (NBQ_{it})	0.250	4.380	0.000

R-SQUARED = 0.828 R-BAR-SQUARED = 0.798
F (8,46) = 27.622 Sig. F. = 0.000
N = 55

V. Conclusions

This study investigates the relationship between ICD level and five independent variables (two of them, namely global financial crisis and market structure have not been considered in previous studies) over the

period 2005-2009 using data for the UAE banks.

The main independent variables, which have been considered in previous studies are bank risks, role duality and bank age. The bank risks hypothesis states that there is a positive relationship between the risks level of the bank and ICD level; that is, banks in risky position will disclose more information about IC than banks in normal position. The role duality hypothesis states that there is a negative relationship between the ICD level and the existence of role duality; that is if the chairman is acting as CEO at the same time this might lead to spoil the monitor role of the chairman and in turn has a negative impact on the ICD level. The bank age hypothesis assumes that eldest banks are motivating to disclose more IC information than youngest ones for reasons i.e. competing in the market.

However, none of the previous studies of the determinants of ICD level have considered global financial crisis and market structure as theories to explain the changes in ICD level. Global financial crisis hypothesis presuppose that the occurrence of the crisis should encourage the banks to disclose more information about intellectual capital powers which reflect the capability of the banks to overcome it. Market structure hypothesis assumes that the imperfect market condition will discourage the banks from disclosing information about intellectual capital because of the absence of competition.

The results show that global financial crisis and market structure variables have a significant impact on the level of intellectual capital disclosure. In addition the results show that bank risk, role duality and bank age have significant impact on the level of intellectual capital disclosure.

The following should be considered while doing future research about ICD: First, more evidence is needed on the determinants of ICD level before any generalisation of the results can be made. Second, the empirical tests were conducted only on the UAE bank over the period 2005-2009 and hence the results of the study cannot be assumed to extend beyond this group of banks or to different study periods. Finally, theories such as leadership styles and business culture might be considered for further research as possible theories for explaining changes in the level of ICD disclosure.

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أثر الأزمة المالية العالمية والمحددات الأخرى للإفصاح عن رأس المال الفكري في بنوك الإمارات العربية المتحدة

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ملخص البحث
يهدف هذا البحث إلي دراسة اثر الأزمة المالية العالمية وهيكل السوق والمحددات الأخرى للإفصاح عن رأس المال الفكري في بنوك الإمارات العربية المتحدة خلال الفترة من 2005 إلي 2009.
تم استخدام تحليل الانحدار المتعدد لدراسة العلاقة بين مستوي الإفصاح عن رأس المال الفكري كمتغير تابع وألازمه المالية العالمية وهيكل السوق والمتغيرات المستقلة الأخرى.
أظهرت النتائج أن ألازمه المالية العالمية وهيكل السوق كفرضيات جديدة بالاضافه إلي الفرضيات الأخرى والممثلة لكل من ازدواجية الدور في العمل المهني – المخاطر المصرفية – عمر البنك أثر جوهري علي مستوي الإفصاح عن رأس المال الفكري.
يعتبر هذا البحث اضافه إلي الدراسات في مجال محددات الإفصاح عن رأس المال الفكري في البنوك. بصفة خاصة قام هذا البحث باختبار الفرضيات الجديدة والتي تفيد بأن للأزمة المالية العالمية وهيكل السوق أثر على مستوي الإفصاح عن رأس المال الفكري.
مصطلحات رئيسيه: رأس المال الفكري – الأزمة المالية العالمية – هيكل السوق – ازدواجية الدور في العمل المهني – المخاطر المصرفية – عمر البنك – الإمارات العربية المتحدة.