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The Intellectual Capital Performance of Kuwaiti Banks: An Application of VAIC™[1] Model

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ABSTRACT

The paper uses the Value Added Intellectual Coefficient VAIC™ model, a widely used model, to measure the Intellectual Capital efficiency of the Kuwaiti Banks using a ten years period data set from 1996 *to* 2006. *Three value efficiency indicators, Human Capital Efficiency* (*HCE*), *Capital Employed Efficiency* (*CEE*) *and VAIC™, where used in the analysis. The data set was divided into commercial and no-commercial banks. The non commercial banks were outperformed by almost all the commercial banks in the last* 3 *years*; 2004-2006. *The results of the rankings of the banks for the last year* (2006) *showed that for VAIC™ the top two performers in the study were The Commercial Bank of Kuwait followed by the Gulf bank while the worst performer was Kuwait Real Estate Bank. And the results of ranking based on Human Capital Efficiency* (*HCE*), *showed similar results as that of VAIC™. However, the ranking results based on Capital Employed Efficiency* (*CEE*) *showed the top two performers to be National Bank of Kuwait followed by the Gulf Bank and the worst performer was still the Kuwait Real Estate Bank.*

Keywords: *Intellectual Capital, Performance Measures, VAIC, Knowledge Management, Kuwaiti Banking Sector, Value Creation, Value Creation Efficiency Measuring*

1. Introduction

Despite the fact that intangible assets, such as knowledge assets and customer relations, are the driving force behind business success in today's knowledge economy and global, dynamic and complex business environment, measuring the efficiency of these assets (the Intellectual Capital) remains a challenge at both macro and micro level of economy. It is also a challenge for government which are or becoming less efficient, for corporations which have no reliable indicators for their business success and for the employees who are unaware of their significant role in the value creation process [1]. Unfortunately, the current conventional accounting and performance measurement systems do not provide much help in this matter as they are heavily inclined towards financial and physical resources and lack relevant information on the performance of Intellectual Capital (IC) resources [2].

The Intellectual Capital (IC) of a company consists of all employees, their organization and their ability to create value, which is evaluated at the market. As such, it is not enough to monitor the capital employed but also the intellectual capital efficiency. A company can have the best qualification structure, *i.e.* intellectual potential, but if it creates little value with regard to its resources, its intellectual ability is low [1]. Therefore, the challenge of today's knowledge economy is the efficient management of knowledge, and its relevant form in economy, the intellectual capital (IC). And as such, IC becomes the key factor of value creation.

Although intellectual capital is recognized as a major corporate asset capable of generating sustainable competitive advantages and superior financial performance [3], finding an appropriate measure for IC is still difficult. However, measuring the efficiency of applying knowledge in value creation [1] is possible. A very widely used management tool or model for intellectual capital (IC) performance that has been extensively reported in the literature is VAIC™. VAIC™ was developed, refined, and applied by Ante Pulic and his colleagues at the Austrian Intellectual Capital Research Centre [4-8]. VAIC™ indicates to business mangers and to policy makers how

[1]VAIC™ is the trademark of Ante Pulic of the Austrian Intellectual Capital Research.
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well they are converting intellectual resources into financial wealth and whether their conversion performance is improving or deteriorating [9].

VAIC™ has been applied in many banking sectors around the world and each of these applications is proving the applicability, effectiveness, and crediblelity of VAIC™ in measuring IC efficiency. VAIC™ was applied in Japan [10], in Turky [11], in Malaysia [12,13], in Indian [14], in Greece [15], the Thailand [16] to name a few. VAIC™ was also applied at the firm's level in Finland [17][18], in Hong Kong [19,20], in China [21] as well as Taiwan [22]. For detail coverage of VAIC™ see [1,4-8,23-25] and for a review of literature and detail insight into Intellectual Capital in general see [26-33].

Justifications for using VAIC™ in this study, which were adopted from [10,12,19,22,34,35,] are summarized as follows:

- "It produces quantifiable, objective and quantitative measurements without the requirement of any subjective grading.
- It provides indicators that are relevant, useful and informative to all stakeholders, but not just shareholders, and with which they may also identify and compare the key components of IC in order to assess company performance.
- It uses financially oriented measures so that any indicators, relations or ratios computed may be used for comparison along with traditional financial indicators commonly found in business, which are based on monetarily derived units or measures.
- It uses relatively simple and straightforward procedures in the computation of the necessary indexes and coefficients, which may be simple to understand, especially for management and business people who are accustomed to traditional accounting information.
- It produces a form of standardized measurement. The indicators or indexes computed may be consistently applied to and used for comparison across divisional, company, industry and national level. In other words, benchmarking may therefore be possible.
- It makes use of public or published financial data so that it may enhance the reliability of the measurement, and improve data availability.
- It provides an IC measurement system that is consistent with the stakeholder view and resource-based view by using a value added approach.
- It treats human capital or employees as the most important source of IC, which is consistent with all major IC definitions found in the literature.
- It has a track record in deployment and application in IC research of listed companies in many countries, to which researchers may refer in reviewing published papers. Furthermore, the availability of prior studies in other places in the Asian region comparable with Hong Kong, such as Taiwan, Malaysia and Singapore, add further credibility to the methodology."

Despite the large number of research studies in the area of Intellectual Capital (IC) around the world during the last two decades, and despite the significant number of VAIC™ applications, no study has been reported, to the knowledge of the authors and based on the current review of literature, that investigate the IC situation in general or the application of VAIC™ in Kuwait or in the GCC region as a whole. As such the contribution of our current study, in addition to being the first investigation of its kind, is to motivate IC research in general and to further apply VAIC™ in other sectors of the Kuwaiti economy and the Gulf Cooperative Council (GCC) region.

This study is an application of VAIC™ for measuring the Capital Intelligent efficiency of Kuwaiti banks. We have chosen banks as the subject of our study because banking sector in general provides a rich environment for conducting Intellectual Capital research and because of the availability of reliable data in the form of published accounts (balance sheets, P/L). Banking sector is "intellectually" intensive or knowledge-intensive and its staff are (intellectually) more homogeneous than in other sectors [10,36]. Kuwaiti banking sector is also the most sophisticated sector in terms of the quality of human resources employed, their organization, the quality of training these employees received and the manner in which the sector utilizes the human resources in generating banking services to satisfy their customers.

The rest of the paper is organized as follows: Section 2 covers the methodology, including the VAIC™ model and the data collection. Section 3 the analysis and results and Section 4 covers the conclusion and future research.

2. Methodology

As stated above, the objective of this paper is to assess and analyze the efficiency in which the Kuwaiti banks utilize their intellectual capital using the widely use VAIC™ covering a period of 10 years. The methodology used is similar to the one used in many of the VAIC™ banking applications cited above in the introduction. In the following two subsections the important variables, indicators and coefficients within the VAIC™ Model are operationally defined followed by the data collection subsection.

2.1. VAIC™ Model

The operation definitions of variables, indicators and coefficients for calculating Value Creation Efficiency Index or Value Added Intellectual Coefficient (VAIC™) which are covered in [1,37]. For detail coverage of

VAIC™ see [4-8,23-25] as well. The variables, indicators and coefficients, within VAIC™ model, are defined and discussed as follows:

• Value added (VA): Newly created value, calculated for an institution during a particular fiscal year as:

$$VA = OUTPUT - INPUT$$

where OUTPUT = total income from all products and services sold during the particular fiscal year. And INPUT = The total costs and expenses that incurred by the firm during that particular fiscal year (excluding labor expenses, which are employees' compensation and all expenses that are related to their training and development. In this analysis, labor expenses is considered an investment and not cost.

• Structural Capital (SC): result of Human Capital's past performance (organization, licenses, patents, image, standards, relationship with customers), and it is calculated as:

$$SC = VA - HC$$

where HC(Human Capital) = overall employees' compensations and all expenses that are related to their training and development.

• Human Capital Efficiency (HCE): an indicator which shows how much VA is created on each monetary unit invested in HC.

$$HCE = VA/HC$$

• Structural Capital Efficiency (SCE): an indicator that shows the share of SC in value creation.

$$SCE = SC/VA$$

• Intellectual Capital Efficiency (ICE): an indicator which shows how efficiently IC has created value.

$$ICE = HCE + SCE$$

• Capital Employed Efficiency(CEE): an indicator that shows how much VA is created on each monetary unit invested in CE.

$$CEE = VA/CE$$

where CE(Capital Employed) = Physical and Financial assets.

• Value Added Intellectual Coefficient (VAIC™): it indicates the value creation efficiency of all resources (sum of the previous indicators). It expresses the intellectual ability of a company, a region or a national economy as a whole.

$$VAIC^{TM} = ICE + CEE$$

2.2. Data Collection

The data set for Kuwaiti banks was provided by the Institute of Banking Studies (IBS). Institute of Banking Studies (IBS) is a major source of data in the banking industry here in Kuwait. The data set covers ten Banks in Kuwait as shown in **Table 1**.

Table 1. List of Kuwaiti banks as of 2006.

Institution	established	official website
Bank of Kuwait & the ME	1941	www.bkme.com
National Bank of Kuwait	1952	www.nbk.com
Commercial Bank of Kuwait	1960	www.cbk.co
Gulf Bank	1960	www.gulfbank.com.kw
Al-Ahli Bank of Kuwait	1967	www.eahli.com
Kuwait Real Estate Bank	1973	www.kib.com.kw
Indusial Bank of Kuwait[a]	1973	www.ibkuwt.com
Burgan Bank	1975	www.burgan.com
Kuwait Finance House	1977	www.kfh.com
Boubyan Bank	2004	www.bankboubyan.com

a In 2007 it has been renamed to Kuwait International Bank to exercise its business as an Islamic commercial bank.

The data set covers annual data for four main variables for a period of ten years, from 1997 to 2006. These four main variables are as follows:

• INPUT: the total costs and expenses excluding labor expenses, which are employees' compensations and all expenses that are related to their training and development. In this analysis, labor expenses are considered investment and not cost.

• OUTPUT: the total revenue during a fiscal year for each bank.

• Human Capital (HC): overall employees' compensation and all expenses that is related to their training and development.

• Capital Employed (CE): physical and Financial assets for each bank.

Since our analysis spans a period of 10 years, from 1997 to 2006, Boubyan Bank was excluded from the analysis because it was established in 2004. Furthermore, the Human Capital (HC) data for Kuwait Finance House for the years 1997 to 2004 were missing in the data set provided. Thus, Kuwait Finance House was excluded from our study as well. As such, our study uses data for only 8 Kuwaiti banks categorized as commercial and non-commercial. Six of these banks are commercial and two are non-commercial. Two Islamic banks were also excluded from our study because they had incomplete data.

3. Analysis and Results

3.1. Descriptive Statistics

Table 2 shows the result of computing the yearly average of Value Added Intellectual Coefficient (VAIC™), Human Capital Efficiency (HCE) and Capital Employed Efficiency (CEE) for Kuwaiti banks (commercial, non commercial and overall). The mean VAIC™ for commercial banks was 4.358 and 3.728 in 1997 and 1998, respectively, with a positive trend until 2006 reaching 7.237. As for non commercial banks, if the year 1997

Table 2. The mean of VAIC, HCE and CEE, for commercial, non commercial banks and as well as overall mean, for the year 1997 to 2006.

Variable	1997	1998	1999	2000	2001	1997-2001
VAIC						
Commercial	4.358	3.728	3.840	4.699	5.046	4.334
Non Comm.	6.348	4.368	4.532	4.227	4.474	4.790
All	4.855	3.888	4.013	4.581	4.903	4.448
HCE						
Commercial	3.656	3.068	3.181	3.945	4.270	3.624
Non Comm.	5.487	3.750	3.822	3.542	3.716	4.064
All	4.114	3.238	3.341	3.844	4.131	3.734
CEE						
Commercial	0.019	0.018	0.20	0.025	0.025	0.021
Non Comm.	0.043	0.031	0.032	0.033	0.028	0.033
All	0.025	0.021	0.023	0.027	0.025	0.024
Variable	2002	2003	2004	2005	2006	2002-2006
VAIC						
Commercial	4.795	5.569	6.465	7.226	7.237	6.259
Non Comm.	4.030	4.730	5.050	3.858	4.308	4.395
All	4.604	5.360	6.111	6.384	6.505	4.793
HCE						
Commercial	4.050	4.770	5.623	6.352	6.365	5.432
Non Comm.	3.310	3964	4.266	3.176	3.593	3.662
All	3.865	4.568	5.284	5.558	5.672	4.989
CEE						
Commercial	0.022	0.023	0.030	0.036	0.035	0.029
Non Comm.	0.025	0.031	0.034	0.035	0.036	0.032
All	0.023	0.025	0.031	0.036	0.035	0.030

was excluded, the mean would be stable, with no trend, with an average of 4.368 in 1998 and 4.308 in 2006. This anomaly can be clearly observed in **Figure 1**.

Similarly, **Table 2** also shows Human Capital Efficiency (HCE) for Kuwaiti banks; commercial, non commercial and overall from 1997 until 2006. The mean HCE for commercial banks was 3.656 and 3.068 in 1997 and 1998, respectively, with a positive trend until 2006 reaching 6.365. As for non commercial banks, if the year 1997 was excluded, the mean would be stable, with no trend, with an average of 3.750 in 1998 and 3.593 in 2006. This anomaly can be clearly observed in **Figure 2.**

Furthermore, **Table 2** also shows Capital Employed Efficiency (CEE) for Kuwaiti banks; commercial, non commercial and overall from 1997 until 2006. The mean CEE for commercial banks was 0.019 in 1997, with a positive trend until 2006 reaching 0.035. As for non commercial banks, if the year 1997 was excluded, the mean would be stable, with no trend, with an average of 3.750 in 1998 and 3.593 in 2006. This can be clearly noticed in **Figure 3**.

3.2. Results

Prior to getting results from the data it was necessary to

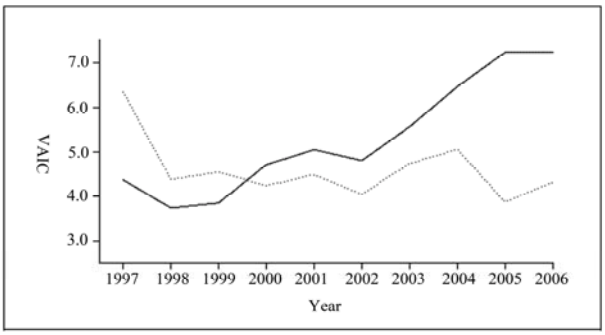

Figure 1. Averages of Value Added Intellectual Coefficient (VAIC) for commercial and non commercial banks for the years 1997 to 2006.

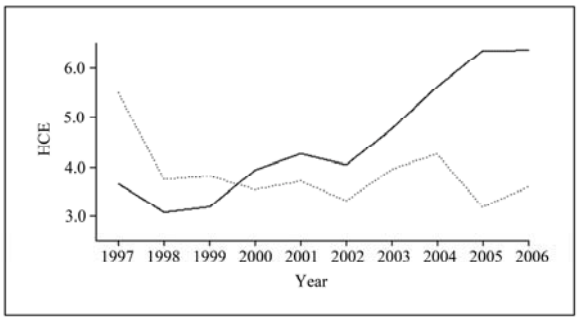

Figure 2. Averages of Human Capital Efficiency (HCE) for commercial and non-commercial banks for the years 1997 to 2006.

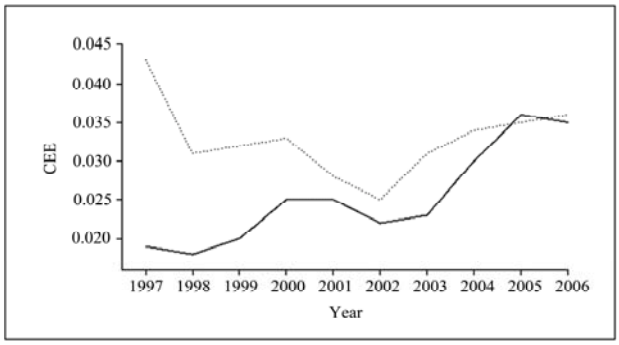

Figure 3. Averages of Capital Employed Efficiency (CEE) for commercial and non-commercial banks for the years 1997 to 2006.

check the reliability of the data. Thus, regression models were applied, using the Value Added (VA) as a dependent variable, and each of Capital Employed (CE) and Human Capital (HC) as independent variables.

Table 3 shows the results for each model for all years from 1997 to 2006. The coefficient of determination (*R2*) is high and considered to be very strong in all years for both models; 1) VA dependent and CE independent, and 2) VA dependent and HC independent. In fact, *R2* is in the upper 90s (between .94 and .98), except for the first couple of years where it is .91 and .92, which is also very strong.

The same regression models were reapplied by adding a dummy variable to take control for any difference be tween commercial and non commercial banks. The dummy variable (NonComm) takes the value one for a non commercial bank and zero for a commercial bank.

Table 4 shows the results for such models which includes the dummy variable (NonComm) for all years from 1997 to 2006. The coefficient of determination (*R2*) is also extremely high and considered to be very strong in all years for both models; 1) VA dependent and CE independent, and 2) VA dependent and HC independent. The value of R2 is between .93 and .99 for both models for all the years, which affirms the reliability of the data in hand.

The results of the rankings of the banks based on the Value Added Intellectual Coefficient (VAIC™) for the last year (2006) are presented in the upper part of **Table 5**. The non-commercial banks were outperformed by the almost all the commercial banks in the last 3 year; 2004-2006. The top two performers of the survey are:

- The Commercial Bank of Kuwait
- The Gulf bank

while the worst performer is:

- Kuwait Real Estate Bank

Furthermore, the results of the rankings of the banks based on the Human Capital Efficiency (HCE) and Capital Employed Efficiency(CEE) for the last year (2006) is presented in the bottom part of **Table 5**.

Based on the HCE, the non commercial banks were

Table 3. Regression results of VA as dependent variable and CE or HC as independent variables.

	1997	1998	1999	2000	2001
CE independent and VA dependent					
Slope	0.023***	0.029***	0.034***	0.033***	0.033***
Intercept	–1.383	–10.831	–13.684	–9.010	–10.047
R2	0.91	0.92	0.95	0.96	0.98
HC independent and VA dependent					
Slope	3.883***	4.268***	5.253***	5.181***	5.459***
Intercept	0.414	–6.985	–13.896*	–9.666	–9.367
R2	0.92	0.95	0.96	0.97	0.97
	2002	2003	2004	2005	2006
CE independent and VA dependent					
Slope	0.028***	0.030***	0.036***	0.043***	0.041***
Intercept	–7.884	–8.278	–7.541	–13.449	–14.091
R2	0.95	0.95	0.94	0.98	0.98
HC independent and VA dependent					
Slope	5.316***	5.237***	5.794***	6.106***	5.759***
Intercept	–10.891	–4.464	–2.467	–3.849	2.286
R2	0.95	0.95	0.95	0.94	0.95

*, **, *** refers to significant levels of 0.05, 0.01 and 0.001, respectively.

Table 4. Regression results of VA as dependent variable and CE or HC as independent variables and a dummy variable that has the value one for non-commercial banks and zero otherwise.

	1997	1998	1999	2000	2001
CE independent and VA dependent					
Slope	0.027***	0.033***	0.039***	0.035***	0.035***
NonComm	16.603	18.723	21.217*	11.167	11.931*
Intercept	–10.336	–21.486*	–25.760*	–15.138*	–16.745**
R2	0.96	0.96	0.97	0.97	0.99
HC independent and VA dependent					
Slope	4.080***	4.483***	5.685***	5.295***	5.592***
Intercept	7.186	8.011	13.957*	4.068	4.603
NonComm	–2.953	–10.781	–21.240**	–11.759	–11.786
R2	0.93	0.96	0.98	0.97	0.98
	2002	2003	2004	2005	2006
CE independent and VA dependent					
Slope	0.030***	0.033***	0.038***	0.045***	0.043***
NonComm	12.414	19.341	14.206	13.061	17.445
Intercept	–14.760	–19.880	–15.817	–21.074	–24.157
R2	0.96	0.97	0.94	0.99	0.98
HC independent and VA dependent					
Slope	5.475***	5.219***	5.666***	5.704***	5.420***
NonComm	5.543	–0.753	–6.172	–28.427	–29.059
Intercept	–13.888	–4.086	0.533	8.998	15.448
R2	0.95	0.95	0.95	0.97	0.97

*, **, *** refers to significant levels of 0.05, 0.01 and 0.001, respectively.

Table 5. The VAIC, HCE and CEE values for all Kuwaiti banks for all years of the study; from 1997 to 2006. The bold numbers within each year represents the highest two values of VAIC, HCE and CEE among the Kuwaiti banks within that year.

Institution	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	All
Commercial banks						**VAIC**					
Commercial Bank	4.970	3.132	4.131	5.319	5.849	**6.099**	**7.758**	**8.000**	**8.869**	**9.429**	6.356
Gulf Bank	6.051	**5.231**	4.694	**5.908**	**6.456**	**6.028**	**6.232**	**8.492**	**8.329**	**8.021**	6.544
Al-Ahli Bank	1.898	2.209	3.216	3.104	3.836	4.840	5.386	5.741	6.934	7.327	4.449
Burgan Bank	4.441	3.549	1.832	4.499	4.407	3.055	4.251	5.484	6.890	6.725	4.513
National Bank	4.712	4.831	**5.663**	5.655	**5.943**	5.776	5.869	6.436	6.783	6.539	5.821
BKME	4.075	3.414	3.507	3.708	3.785	2.971	3.922	4.637	5.555	5.379	4.095
Non-commercial banks											
Industrial Bank	**6.476**	**6.868**	**6.351**	**5.936**	4.742	3.631	3.817	3.933	5.010	5.754	5.252
Real Estate Bank	**6.220**	1.868	2.713	2.517	4.205	4.428	5.644	6.168	2.707	2.862	3.933
Commercial banks						**HCE**					
Commercial Bank	4.187	2.516	3.404	4.515	5.021	**5.263**	**6.873**	**7.099**	**7.953**	**8.506**	5.534
Gulf Bank	5.217	**4.435**	3.926	**5.078**	**5.606**	**5.191**	**5.392**	**7.585**	**7.425**	**7.130**	5.699
Al-Ahli Bank	1.539	1.765	2.588	2.490	3.137	4.066	4.584	4.923	6.070	6.451	3.761
Burgan Bank	3.697	2.881	1.493	3.742	3.660	2.450	3.520	4.675	6.028	5.864	3.801
National Bank	3.941	4.050	**4.837**	4.830	**5.107**	4.951	5.038	5.581	5.910	5.674	4.992
BKME	3.353	2.759	2.838	3.017	3.087	2.378	3.213	3.873	4.729	4.564	3.381
Non-commercial banks											
Industrial Bank	**5.613**	**5.983**	**5.485**	**5.080**	3.960	2.946	3.111	3.217	4.203	4.908	4.451
Real Estate Bank	**5.362**	1.518	2.160	2.003	3.472	3.675	4.816	5.315	2.148	2.278	3.275
Commercial banks						**CEE**					
Commercial Bank	0.0240	**0.0277**	**0.0325**	**0.0318**	**0.0314**	**0.0268**	0.0292	0.0344	**0.0417**	**0.0408**	0.0320
Gulf Bank	0.0218	0.0137	0.0208	0.0254	0.0268	0.0265	**0.0308**	**0.0411**	0.0411	0.0403	0.0288
Al-Ahli Bank	0.0202	0.0176	0.0212	0.0230	0.0225	0.0143	0.0202	0.0221	0.0367	0.0340	0.0232
Burgan Bank	0.0251	0.0212	0.0227	0.0273	0.0283	**0.0292**	0.0248	0.0389	0.0391	0.0315	0.0288
National Bank	0.0152	0.0145	0.0090	0.0246	0.0200	0.0128	0.0153	0.0224	0.0278	0.0315	0.0193
BKME	0.0090	0.0106	0.0147	0.0152	0.0182	0.0202	0.0198	0.0208	0.0291	0.0309	0.0188
Non-commercial banks											
Industrial Bank	**.0413**	**0.0516**	**0.0485**	**0.0523**	**0.0341**	0.0252	0.0276	0.0261	**0.0441**	**0.0496**	0.0401
Real Estate Bank	**.0446**	0.0099	0.0157	0.0137	0.0213	0.0254	**0.0348**	**0.0410**	0.0250	0.0222	0.0253

also outperformed by the all the commercial banks in the last 3 year; 2004-2006. The top two performers of the survey based on HCE are still:

- The Commercial Bank of Kuwait.
- The Gulf bank.

while the worst performer is still:

- Kuwait Real Estate Bank.

However, based on the CEE, the Industrial Bank (a non commercial bank) outperformed all the banks in the last 2 year; 2005-2006, and hence, the top two performers of the survey based on CEE are:

- The Industrial Bank.
- The Commercial Bank of Kuwait.

while the worst performer is still:

- Kuwait Real Estate Bank.

Table 6 summarizes the overall rankings for the past 2 years for all three variables.

4. Conclusions and Future Research

4.1. Conclusions

The paper uses VAIC™ model to measure the Intellectual Capital efficiency of the Kuwaiti Banks. Three value efficiencies, HCE, CEE and VAIC™ indicators were used in the analysis using a data set related to Kuwaiti Banks covering a ten years period from 1996 to 2006. For our analysis, the data set was divided into commercial and no-commercial banks. The results of the rankings of the banks for the last year (2006) showed that for VAIC™, which expresses the intellectual ability and indicates the value creation efficiency of all resources (the sum Capital Employed Efficiency indicator and Intellectual Capital Efficiency), the top two performers in the study were The Commercial Bank of Kuwait followed by The Gulf bank while the worst performer was Kuwait Real Estate Bank. And the results of ranking based on Human Capital Efficiency (HCE), an indicator which measures how much VA is created on each monetary unit invested in HC, showed similar results as that of VAIC™.

However, the ranking results based on Capital Employed Efficiency (CEE), an indicator which shows how much VA is created on each monetary unit invested in Capital Employed (Physical and Financial), showed the top two performer to be National Bank of Kuwait followed by the Gulf Bank and the worse performer still to be the Kuwait Real Estate Bank. And the non commercial banks were outperformed by almost all the commercial banks in the last 3 year; 2004-2006.

Table 6. Rankings' summary.

	VAIC		HCE		CEE	
Institution	2005	2006	2005	2006	2005	2006
Commercial banks						
Commercial Bank	3	3	3	3	6	6
Gulf Bank	6	7	6	7	5	4
Al-Ahli Bank	4	4	4	4	7	5
Burgan Bank	1	1	1	1	3	3
National Bank	2	2	2	2	4	5
BKME	5	5	5	5	2	2
Non-commercial banks						
Industrial Bank	7	6	7	6	1	1
Real Estate Bank	8	8	8	8	8	8

4.2. Future Research

According to the authors knowledge this is the first study in Kuwait applying VAIC™ to investigating the intellectual Capital performance of the banking sector in Kuwait. And as such this pioneering study might serve as a platform for further study on IC research in Kuwait and other GCC countries or the region as a whole. One area of future research could be to extend this study to draw comparison between GCC banks. Another one is to apply VAIC™ on other sectors within Kuwait Stock Market (KSE) and further apply the same to other sectors within the GCC. A third area of future research could be to apply VAIC™ on the national level and draw comparison between GCC countries. The development of a VAIC™ based Decision Support System for Intellectual Capital performance is also underway.

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