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# Assessing the Privatization of Iranian Banking Industry: An Intellectual Capital Performance Perspective

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**Abstract:** Privatization is the full or partial transfer of ownership of public sector assets to the private sector. To assess the banking privatization of Iran, we used the efficiency measures to investigate the impact of privatization on Iranian banking performance. Some of the largest public and private banks of banking industry are studied from Intellectual Capital(IC) point of view. IC has been identified as a set of intangibles that drives the organizational performance. We compared intellectual capital measures across the two sectors to evaluate the impact of privatization on banking performance. The results indicate that there are vast differences in the performance of the two sectors. Our empirical results support the hypothesis that private banks are more efficient than state-owned banks (SOBs). So the privatization has increased the efficiency of Iranian industry.

**Keywords:** Privatization, Performance, Intellectual Capital (IC), Banking Industry, Iran

## 1. Introduction

The term "privatization" may be broadly defined as the deliberate sale of state-owned enterprises (SOEs) or assets to private economic agents.

Bank privatization is a challenge facing many governments in the developing economies. During the past fifteen years, over 250 commercial banks have been fully or partially privatized by governments of 59 countries either publicly through a public offerings of shares, or privately through an asset sale. In almost every case, this has represented a fundamental break with the past periods that there were an emphasis on the role of commercial banking in funding the nation's economic development, and the government's key role in planning and directing that development.

Privatization of banks has been a part of the financial and non-financial reform agendas in Iran during the last two decades. An issue to investigate is whether privatization improves banking performance. The empirical literature provides evidence of the influence of intellectual capital on the performance and on the effectiveness of the banking sector.

This paper surveys the empirical evidence of privatization of some Iranian state-owned banks on an intellectual capital performance perspective.

The purpose of this study is: *(i)* to examine interrelationships among intellectual capital components and banking organizational performance; *(ii)* to study the interaction effects among intellectual capital components and organizational performance ;and *(iii)* to compare two Iranian banking contexts and propose this approach as one of the ways of assessing the privatization policy in banking industry.

## 2. Intellectual Capital Performance

In the modern economy, management deals with intangible resources as well as physical resources. The need to define an appropriate methodology for identifying such a new approach management has flourished academic studies and publications on Intellectual Capital (IC). The concept of Intellectual Capital helps to evaluate the performance of an organization and to explain the managerial development.

In general parlance, IC is defined as any creation of the human intellect or mind. Several researchers have defined and delineated specific concepts of IC in their own way (Roos *et al*., 1997; Stewart, 1997). Intellectual capital has been defined and classified in several ways by several researchers since the concept gained importance. Edvinsson and Malone (1997) defined it as "Knowledge that can be converted to value". Sveiby (1997) first proposed a classification for intellectual capital into three broad areas of intangibles:

(1) Human capital;
(2) Structural capital; and
(3) Customer capital.

This classification was widely accepted until it was later modified and extended by Bontis (1996), who replaced customer capital with relational capital.

Human capital represents the individual stock of an organization as represented by its employees (Bontis, 1998; Bontis *et al*., 2002). Roos *et al*. (1997) argue that employees generate intellectual capital through their competence, attitude and intellectual agility. Competence includes skills and education, while attitude covers the behavioral component of the employees' work. Intellectual agility enables one to change practices and to think of innovative solutions to problems. Even though employees are considered the most important corporate asset in a learning organization, they are not owned by the organization. Edvinsson and Malone (1997) define human capital as the combined knowledge, skill, innovativeness, and ability of the company's individual employees to meet the task at hand. It also includes the company's values, culture, and philosophy. Human capital is the primary component of intellectual capital, because human interaction is the critical source of intangible value in the intellectual age (O'Donnell *et al*., 2003).

Structural capital includes all the non-human storehouses of knowledge in organizations. Edvinsson and Malone (1997) define structural capital as the hardware, software, databases, organizational structure, patents, trade marks, and all organizational capabilities that support the employees 'productivity. Bontis (1999) also argues that structural capital

includes process manuals, strategies, routines and anything whose value to the company is higher than its material value. Roos *et al*. (1997) describe structural capital as what remains in the company when employees go home for the night. According to Bontis (1998), if an organization has poor systems and procedures to track its actions, the overall intellectual capital will not reach its full potential.

Customer capital is both the current value of an organization's relationship with its customers and the potential future value of these relationships. The essence of customer capital therefore lies in the knowledge embedded in the marketing channels and customer relationships that an organization develops through the course of its existence (Bontis *et al*., 2000). Customer capital represents the potential an organization has due to ex-firm intangibles (Bontis, 1999). Some authors (Prahalad and Ramaswamy, 2000) suggest that customers become a new source of competence for the organization because they renew the overall competence of the organization and rejuvenate the knowledge base preventing it from the obsolescence in a turbulent environment (Gibbert *et al*., 2001).

Business performance was divided into organizational performance and financial performance. Organizational performance is a recurrent theme in various domains of management, becoming an important concept in strategic management because performance improvement is the time test of any strategy (Schendel and Hofer, 1979). Furthermore, the findings of earlier studies which have conceptualized and empirically tested the viability of the very concept of intellectual capital and its sub-domains (human capital, structural capital and customer capital) provided some evidence for the correlation of those ingredients of HC with the performance of an organization.

Organizational performance is a subset of organizational effectiveness. The narrowest conception of organizational performance considers the use of financial indicators (e.g., sales growth, return on investment, and return on equity) while the broader concept of organizational performance includes emphasis on indicators of operational performance (i.e., non-financial indicators). We consider in our study both aspects of the organizational performance (i.e., financial and operational indicators).

In this article, findings from the pilot study of intellectual capital done by N.Bontis (1998) have set several lasting implications for the future research which are evaluated, analyzed and also compared to the later studies done by other authors. The findings have reinforced the argument about the contextual (industry-specific) nature of relationship between the intellectual capital and the performance of the organization as well as benchmarking against industry norms. Therefore, this paper should serve as a roadmap for further applications and advancements of the current model explaining why and how the phenomena of intellectual capital is used for assessing the privatization policy in Iranian banking industry. So, the main aim of this article is to analyze how intellectual capital explains the differences between two sectors of Iranian banking industry.

## 3. Research Methodology

### 3.1. Data Collection and Sample

We used the original questionnaire developed by Bontis (1997) and administered in Canada and Malaysia. The instructions in the questionnaire were altered to replace the words "organization", "industry" and "transaction" with "bank", "sector" and "operation", respectively. The ten performance items were reworded in accordance with banking system accounting plan, reflecting a more familiar financial language. Respondents were asked to state how their bank's performance is comparable to that of their competitors. The questionnaire contained 63 statements to which respondents indicated the extent of their agreement on a five-point Likert scale (1= strongly disagree and 5= strongly agree). Content validity was attempted through the depth of literature search and expert opinions.

With a cover letter explaining the concept of intellectual capital, the questionnaire was administered to 130 respondents for each sector (public and private) of Iranian banking industry with a letter from the Bu-Ali Sina University of Hamedan explaining the aims of the study. The respondents were all chief executive officers, regional directors and the directors of functional areas in each sector banks.

### 3.2. Exploratory Phase and Reliability

In this study the Cronbach's alpha test was used to examine the reliability of the data. Cronbach's alpha can be considered as an adequate index of the inter-item consistency reliability of independent and dependent variables (Sekaran, 1992). Nunnaly (1978) suggests that constructs have reliability values of 0.7 or greater. The reliabilities for each of four constructs in both public and private context were adequate since the Cronbach's alpha values for each of them were significantly greater than the prescribed 0.7 threshold. The values varied from 0.726 ("public sector" human capital) to 0.910 ("private sector" organizational performance) showing that the instrument is sufficiently reliable.

Before conducting the exploratory factor analysis (EFA) (construct validity), we tested whether the variables are correlated with each other. In other words, we investigated if it was possible to perform factor analysis. According to Bartlett's Test of Sphericity (sig= 0.000) variables correlate with each other, which means it is possible to perform a factor analysis. Furthermore, the Kaiser-Meyer-Olkin (KMO) measures of sampling adequacy indicated a practical level of common variance and therefore factoring was appropriate. In developing our exploratory factor analysis we used the following criteria. First, only factors with eigenvalues greater than one were extracted. Second, only factor loadings greater than 0.50 were considered in the analysis. Third, items with extractions lower than 0.5 were left outside the analysis. The extraction technique used was principal component analysis (PCA). VARIMAX rotation procedure (using SPSS 15.0) was also conducted on the latent variables items to determine if their concept was multidimensional. The results of the exploratory factor analysis and reliability test are shown in Table I.

**Table I.**
Summary of reliability test and EFA

| Variable | Sector | Cronbach's alpha | K-M-O | Factors | Total cumulative % $R^2$ |
|---|---|---|---|---|---|
| Human Capital | Public | 0.726 | 0.668 | Employee's team work<br>Employee's competence<br>Employee's creativity<br>Employee's satisfaction | 63.061 |
| | private | 0.837 | 0.677 | Employee's attitude<br>Employee's team work<br>Employee's competence<br>Employee's creativity | 74.433 |
| Structural Capital | Public | 0.734 | 0.656 | Operation process<br>Organizational structure<br>Innovation mechanism | 54.783 |
| | private | 0.845 | 0.735 | Operation process<br>Organizational efficiency<br>Innovation mechanism | 69.378 |
| Customer Capital | Public | 0.759 | 0.694 | Customer satisfaction<br>Market intensity<br>Customer loyalty | 53.835 |
| | private | 0.863 | 0.762 | Customer loyalty<br>Market intensity<br>Customer relationship | 66.618 |

| | | | | | |
|---|---|---|---|---|---|
| Organizational Performance | Public | 0.841 | 0.806 | Financial performance Management performance | 60.277 |
| | private | 0.910 | 0.845 | Financial performance Competitive performance | 71.176 |

An initial run of the factor analyses did not result in clear factor patterns. After deleting those items that were not significant or with factor loadings below 0.5 or one more than one, some consistent factor patterns emerged with the measurement scales. As a result, 39 items in public and 40 items in private banks, from the 63 original items, were used in our final test.

**3.3. Confirmatory Phase and Path Analysis**

The data was analyzed using LISREL (Linear Structural Relations) 8.5, a popular software package for structural equation modeling (SEM) (Jöreskog & Sörbom 1999).

The LISREL approach to structural equation modeling is the outcome of combining two well-established approaches to model fitting: the measurement approach of confirmatory factor analysis (CFA) and the structural approach of multiple regression analysis. Thus, the LISREL technique combines two analyses: the confirmatory factor analysis (the measurement model), and the path analysis-extension of regression analysis- (the structural model). The first one, the measurement model, was used to construct the latent variables. The second one, the structural model, was used to explore both the direct and indirect effects of IC elements on organizational performance. Using LISREL, we were able to compare the direct and indirect effects in two sectors of Iranian banking industry. The measurement model specifies how the latent variables or hypothetical constructs are measured in terms of the observed variables. The structural model specifies the causal relationships among the latent variables and describes the causal effects and the amounts of unexplained variance.

LISREL notations: $\xi$ denotes the exogenous latent variable, $\eta$ denotes the endogenous latent variable, $\zeta$ refers to the residual variance of endogenous latent variable, and $\delta, \varepsilon$ indicate the measurement error in a manifest or observed variables.

$$\eta = B\eta + \Gamma\xi + \zeta \qquad \begin{cases} y = \Lambda_y \eta + \varepsilon \\ x = \Lambda_x \xi + \delta \end{cases}$$

$$E(\zeta) = 0; \quad COV(\zeta) = \Psi \qquad E(\varepsilon) = 0; \quad COV(\varepsilon) = \Theta_\varepsilon$$

$$E(\delta) = 0; \quad COV(\delta) = \Theta_\delta$$

The resulting factor structure was verified with a confirmatory factor analysis by using LISREL 8.5. In running the confirmatory factor analysis in LISREL 8.5, we used the covariance matrix of the items. In the first phase, some of the models did not fit the data. The modification indices between the individual items indicated that the models fit could be improved substantially by setting some error covariances between the items free. Then, the models fit improved significantly. The resulting factor structure and models fit was excellent and confirming the factor structure of the modified IC performance models in both sectors(table II). Furthermore, the t-values of the indicators loading on the factors ranged from 4.68 to 10.65 indicating convergent validity among the items measuring the constructs.

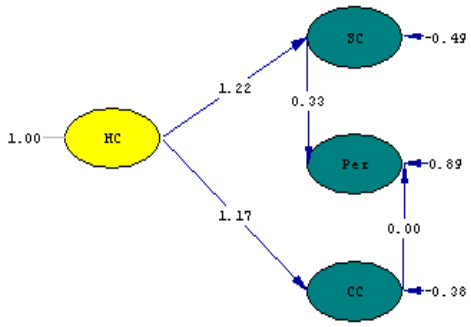
**Table II.**

CFA tests of model fit for IC elements and banking performance

| | | $\chi^2$ | GFI | AGFI | RMSEA |
|---|---|---|---|---|---|
| Human Capital | Public (four factors,10 indicators) | 25.30 (df=29) | 0.96 | 0.93 | 0.08 |
| | Private (four factors,12 indicators) | 77.86 (df=40) | 0.91 | 0.89 | 0.07 |
| Structural Capital | Public (three factors,10 indicators) | 50.78 (df=31) | 0.93 | 0.87 | 0.07 |
| | Private (three factors,9 indicators) | 37.53 (df=18) | 0.94 | 0.85 | 0.09 |
| Customer Capital | Public (three factors,11 indicators) | 57.12 (df=40) | 0.93 | 0.88 | 0.05 |
| | Private (three factors,11 indicators) | 34.84 (df=31) | 0.95 | 0.90 | 0.03 |
| Organizational Performance | Public (two factors,8 indicators) | 40.69 (df=19) | 0.93 | 0.86 | 0.09 |
| | Private (two factors,8 indicators) | 14.37 (df=14) | 0.97 | 0.93 | 0.06 |

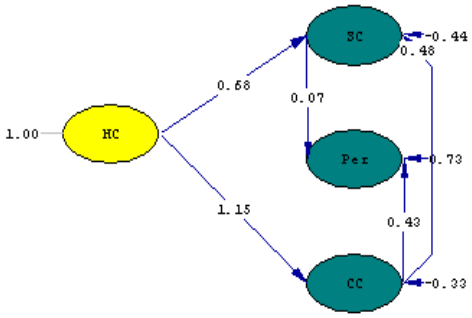
As the measurement model satisfies the criteria for convergent and construct validity, our next step was to evaluate the structural model. We run the structural models, in each sector, presented in Figure I. The results of the survey evolved the structural model specification. To test the structural model included: (*i*) estimated path coefficients, interpreted as standardized beta weights in the regression analysis, and; (*ii*) t-statistics, a nonparametric test of significance.

Model 1- public sector




Chi-Square=113.53, df=50, GFI=0.88, AGFI=0.85, RMSEA=0.090

Model 2- private sector




Chi-Square=173.17, df=49, GFI=0.90, AGFI=0.85, RMSEA=0.088

**Figure I.** Public and private sectors models

As expected, structural capital and costumer capital positively moderates the relationship between human capital and organizational performance. Evidence for this moderation exists when the interaction term accounts for significant residual variance in the dependent variable. Consistent with prior research, significant effects indicate direct and indirect relationships between intellectual capital components and organizational performance in two sectors of Iranian banking industry.

**4. Discussion of Results**

The results in Table III show a positive, substantive and significant beta coefficient for this relationship with organizational performance for the public and private samples. This result implies that IC is more important in private sector banks than in public sector banks. So, privatization has resulted in clear performance improvements in Iranian banking industry. It seems that the large inefficient work force of public sector banks in Iran, had not contributed anything to overall value creation.

Our results indicate that intellectual capital is substantively and significantly related to the organizational performance in the Iranian banking industry. Future research can extend the present work in several directions.

Second, a group of measures were found to converge with those used in the two previous studies (Canada and Malaysia). For research on intellectual capital to be meaningful, valid estimates of constructs and their relationships to one another need to be obtained. Without that, the application of intellectual capital theory may be a perilous undertaking.

Third, our study proves empirically that intellectual capital is a phenomenon of interactions. As suggested by the "value platform" model, value is created when intellectual capital components interact; and as they interact more, more value is generated

**Table III.**

Results for path analysis

| Path from | to | Human capital Customer capital | Human capital Structural capital | Customer capital Structural capital | Human capital Performance | Customer capital Performance | Structural capital Performance |
|---|---|---|---|---|---|---|---|
| Model 1 Public sector | | 1.17 (5.23) | 1.22 (9.96) | -- | 0.41 (4.33) | 0.00 (0.02) | 0.33 (2.75) |
| Model 2 Private sector | | 1.15 (10.48) | 1.23 (11.97) | 0.48 (2.69) | 0.58 (4.32) | 0.47 (4.12) | 0.07 (0.66) |
| Comparison (see Figure I) | | Virtually identified | Virtually identified | Lower for Public sector | Lower for Public sector | Lower for Public sector | Higher for Public sector |

**Notes:**
Top numbers is bets coefficient
t-stat in brackets

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## Research Limitations

Focus group results can not be easily generalized. However, the receiver of the results can make the judgment on whether they can be transferred to another environment (i.e. management level, type of knowledge workers, organizational, and/or cultural) provided the context, research method, audience and other factors influenced this study apply to the new environment (Krueger, 1998). Therefore the results of both the focus groups and structural equation modeling should be interpreted within the scope of the sample population used.

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