

# **The Impact of Intellectual Capital, Social Capital and Psychological Capital on Competitive Advantage of Vehicle Industries in Tehran Stock Exchange (TSE)**

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## **Abstract**

The purpose of this study is to investigate the impact of intellectual capital (IC), social capital and psychological capital (PC) on competitive advantage of vehicle industries in Tehran Stock Exchange (TSE). Considering the features of today world, increasing competitive advantage is absolute challenge of firms because more emphasis on natural resources and relative advantages may not lead to value creation. In this regard, firms should consider competitive advantage and the factors of its creation. The research method of this study is correlation and population consists of four vehicle companies of Bahman Group, Saypa, Irankhodro and Tractorsazi. SPSS software and Pierson coefficient of correlation and multiple regressions are used to test hypotheses. The results of the study show that there is not a significant relationship between IC and competitive advantage. However, there is positive and weak relationship between social capital and competitive advantage. In addition, our findings show that PC explains 13 percent of competitive advantage.

**Keywords:** Intellectual Capital, Social Capital, Psychological Capital and Competitive Advantage.

## **Introduction**

In the past years, IC and its measurement was a subject of the researches only in developed countries, however, nowadays it is a subject of interest in all over the world (Ahagarzadeh, 2010). In today business environment with characteristics like globalization, competition and high rate of changes in technology, tangible assets such as capital, land and raw martial do not create competitive advantage for organizations and they must set intangible assets as a base

for sustainable competitive advantage (Shafieezadeh, 2007). Therefore, it is necessary that key resources, performance incentives and competition in organizations to be determined by managers because increasing knowledge and application of intangible assets help companies to be efficient, profitable and creative (Namazi and Ebrahimi, 2007). This point of view is well-defined when Nerdrum and Erikson (2001) explain IC as individuals' complementary capacity to generate added value and thus create wealth. Resources are then perceived to be both tangible and intangible. This view is an extension of human capital theory to include the intangible capacities of people. This definition demonstrates that IC results in added value which is the main goal of today companies. Moreover, organizations are generally and predominantly assessed according to their financial key figures. However, financial reports hardly cover information about intangible assets, which constitute a relevant share of corporate value. This information asymmetry is a source of possible errors in assessing risks and future developments of an organization and consequently can lead to misallocation of budgets (Alwert et al, 2009). IC includes three primary interrelated components: human capital (HC), structural capital (SC) and relational capital (RC) which are defined as followings: HC subsumes various human resource elements, including cumulative tacit knowledge, competencies, experience and skills, and the innovativeness and talents of people. SC refers to the supportive infrastructure for HC, which includes all of the non-human storehouses of knowledge in organizations, such as databases, process manuals, strategies, routines, culture, publications, copyrights and anything which creates value for organizations. RC represents an organization's relations with its external stakeholders and the perceptions that they hold about the organization, as well as the exchange of knowledge between the organization and its external stakeholders. Examples of RC include the knowledge of market channels, customer and supplier relationships, as well as the understanding of governmental or industry association impacts (Kong, 2010). In traditional view of management development, intellectual, tangible and human capitals have the most important role. However, nowadays we need social capital more than intellectual, tangible and human capitals for sustainable development. In a society without enough social capital, other capitals will be wasted. However, recognition of the effective factors in social capital enhancement and deterioration may help to social capital dimensions and social and economy performance augment (SimarAsl and Fyazi, 2008). The most common definition of social capital regards it as "features of social organization, such as networks, norms and social trust that facilitate coordination and cooperation for mutual benefit" (Putnam, 1996). Scientists argue that social capital inheres in personal connections and interpersonal interactions, together with the shared sets of values that are associated with these contacts and relationships (Fu, 2004). On the other hand, PC denotes an emerging focus on a positive approach to developing and managing human resources in contemporary workplaces (Luthans et al., 2007a). Therefore, negative theories of human incentives are moving toward positive approaches and should be focused on intellectual, social and human capitals to achieve complete ability (Luthan and Youssef, 2004).

### **Literature review**

Karademas (2006) studied the relationship between self-efficacy, social support and well-being using self-efficacy expectations, as a representation of a capable self, and perceived social support, as a representation of a helpful world and satisfaction with life and depressive

symptomatology both as indicators of well-being. The results show that optimism partially mediates the relation of self-efficacy and perceived social support to well-being and optimism predicts daily emotional support and self-efficacy.

Tan et al. (2007) surveyed the relationship between IC and financial returns of companies. Their findings show that: IC and company performance are positively related; IC is correlated to future company performance; the rate of growth of a company's IC is positively related to the company's performance; and the contribution of IC to company performance differs by industry.

Castilla Polo and Vázquez (2008) assert that information of a social nature is dealt with in the different blocks of analysis of intangibles in the IC report. These disclosures share the direct or indirect goal of improving the company's corporate image, which also reflects the links between the two types of reports. They propose incorporating the social report into the IC report. They also assert that benefits of this will be twofold: a reduction in the direct costs of preparing the report, and a simplification of the non-financial information for the different stakeholders.

Min Lu et al. (2009) studied capability and efficiency of IC in fables companies in Taiwan. They suggested that the IC performance rating should be considered as a key element for achieving greater innovation and competitive advantages. In addition, their results show that IC efficiency is better than IC capability for these fables firms; 15.8% of fables firms perform well in both models and these firms can be treated as benchmarks for others; most firms operate at decreasing returns to scale, indicating that firms are facing a highly competitive environment.

Alwert et al. (2009) investigated as to whether IC reporting matter to financial analysts and concluded that if some requirements about structure and content of an IC report are fulfilled, it contributes to a more homogeneous rating than a rating based solely on information from financial reporting. Therefore, IC reports reduce risks for both investors and banks.

Rego et al. (2011) explored authentic leadership promoting employees' PC and creativity. Their main findings show that authentic leadership predicts employees' creativity, both directly and through the mediating role of employees' PC. Moreover, their study empirically validates theoretical arguments that suggest integrating authentic leadership and PC in research, and indicates that both may foster employees' creativity, a crucial resource for helping organizations to face competitive challenges, take advantage of business opportunities, and improve organizational effectiveness.

## **Hypotheses**

H1: there is a relationship between IC and competitive advantage in vehicle industries of TSE.

H1-1: there is a relationship between HC and competitive advantage in vehicle industries of TSE.

H1-2: there is a relationship between RC and competitive advantage in vehicle industries of TSE.

H1-3: there is a relationship between SC and competitive advantage in vehicle industries of TSE.

H2: there is a relationship between social capital and competitive advantage in vehicle industries of TSE.

H3: there is a relationship between PC and competitive advantage in vehicle industries of TSE.

### **Methodology and data collection**

Present study is applied research in objective and in the method is descriptive. In this survey four type of questionnaire including IC with 23 questions, social capital with 13 questions, PC with 29 questions and competitive advantage with 22 questions. Likert scale is used in questionnaires preparation. The population consists of the chief managers of four vehicle companies of Bahman Group, Saypa, Irankhodro and Tractorsazi (400 people according to statistic in 2011).

Using Morgan Table, a sample of 196 people is determined in four industries. After collecting the questionnaires, incomplete ones are excluded which gained us 156 final samples.

Table 1. Full and sample population

Companies	Full population	Sample population
Bahman Group	122	60
Saypa	102	50
Irankhodro	80	39
Tractorsazi	96	47

To test reliability of the questionnaires, Cronbach's  $\alpha$  (alpha), a measure of the internal consistency or reliability of a psychometric test score for a sample of examinees, using SPSS software is tested. This coefficient is 0.89 for IC, 0.92 for social capital, 0.86 for PC, and 0.99 for competitive advantage questionnaires. According to Nunnally (1978) higher values of alpha are more desirable, however, require a reliability of 0.70 or higher. Therefore, the reliability of these questionnaires is accepted.

### **Variables measurement**

#### **IC measurement**

Includes three dimensions of HC, SC and RC which is measured in 23 questions in 5 alternative Likert scale from absolute disagree to absolute agree in 1 to 5 scores.

#### **Social capital measurement**

Includes three dimensions of SC, PC and RC which is measured in 13 questions in 5 alternative Likert scale from absolute disagree to absolute agree in 1 to 5 scores.

#### **PC measurement**

Includes four dimensions of self-efficacy, well-being, optimism and social support which is measured in 29 questions in 5 alternative Likert scale from absolute disagree to absolute agree in 1 to 5 scores, however, it is from 5 to 1 scores in questions of 3, 6, 7, 8, 19, 20, 27 and 29.

#### **CA measurement**

Includes six dimensions of quality, public image, innovation, uniqueness, cost and guaranty which is measured in 22 questions in 4 alternative Likert scale of not important= zero, slightly important=1, important=2, and very important=3.

### **Survey results**

#### **Descriptive statistic**

Descriptive statistic explains the population's parameters so in Table 2 descriptive statistic is presented.

Table 2. Descriptive statistic

variables	observatio n	mea n	Standard deviatio n	skewnes s	mi n	ma x	Coefficien t of variation	percentag e
HC	156	24.67	5.77	-0.7	0	40	40	62
RH	156	20.65	5.91	-1.23	0	35	35	59
SC	156	23.12	6.73	-1.23	0	40	40	58
IC	156	68.46	16.63	-1.21	0	115	115	60
Social capital	156	41.17	9.74	-0.51	0	65	65	63
PC	156	88	16.46	-2.54	0	142	142	73
Competitiv e advantage	156	41.17	9.74	-0.51	0	65	65	63

The results of hypotheses 1 and its sub-hypotheses 1, 2 and 3 are shown in 3. The hypotheses are:

H1: there is a relationship between IC and competitive advantage in vehicle industries of TSE.

H1-1: there is a relationship between HC and competitive advantage in vehicle industries of TSE.

H1-2: there is a relationship between RC and competitive advantage in vehicle industries of TSE.

H1-3: there is a relationship between SC and competitive advantage in vehicle industries of TSE.

The results of this hypothesis test are presented in Table 3.

Table 3. Results of the first main and sub-hypotheses

Variables	H1 IC	H1-1 HC	H1-2 RC	H1-3 SC
competitive advantage	R =0.08 sig =0.26 N=156	R =0.08 sig =0.26 N=156	R =0.08 sig =0.26 N=156	R =0.08 sig =0.26 N=156
Accepted hypothesis	H0	H0	H0	H0

According to Table, significance level in the first main hypothesis is 0.26 (more than 0.05) and Pearson coefficient of correlation is 0.08 showing that H0 is accepted and there is no relationship between two variables. About sub-hypothesis 1, significance level is 0.35 (more than 0.05) and Pearson coefficient of correlation is 0.07 indicating that H0 is accepted and there is no relationship between two variables. About sub-hypothesis 2, significance level is 0.55 (more than 0.05) and Pearson coefficient of correlation is 0.04 indicating that H0 is accepted and there is no relationship between two variables. About sub-hypothesis 3, significance level is 0.15 (more than 0.05) and Pearson coefficient of correlation is 0.11 indicating that H0 is accepted and there is no relationship between two variables. As we can see all the first main and sub-hypotheses is rejected.

H2: there is a relationship between social capital and competitive advantage in vehicle industries of TSE.

Table 4. Results of the second hypothesis

variable	social capital			
	N	R	R <sup>2</sup>	Sig
competitive advantage	156	0.25	0.06	0.001

According to Table, significance level is 0.001 (less than 0.05) and R<sup>2</sup> is 0.06 showing that H1 is accepted and there is a weak relationship between two variables. In fact, social capital explains only 0.06 of competitive advantage.

H3: there is a relationship between PC and competitive advantage in vehicle industries of TSE.

Table 5. Results of the third hypothesis

variable	PC			
	N	R	R <sup>2</sup>	Sig
competitive advantage	156	0.36	0.14	0.000

According to Table, significance level is 0.000 (less than 0.05) and R<sup>2</sup> is 0.14 showing that H1 is accepted and there is a weak relationship between two variables. In fact, PC explains only 0.14 of competitive advantage.

In this point of study we test which one of capitals (IC, social capital, and PC) has the most important role in predicting the level of competitive advantage in vehicle industry of TSE. To do so, step-wise multiple regression is used. The results are presented in Table 6 which shows that only PC is remained in regression model with multiple coefficient of correlation of 0.36, coefficient of determination of 0.13 and adjusted coefficient of determination 0.13 which means that PC explains 0.13 of competitive advantage and, therefore, 0.87 is influenced by other factors.

Table 6. Multiple coefficients of correlation for competitive advantage

	Multiple R	R <sup>2</sup>	Adjusted R <sup>2</sup>	Error term
1	0.36	0.13	0.13	10.85

In addition, the regression is liner (according to Table 7) because the amount of F-statistic for determination of effective factors on competitive advantage is 24.09 with the significance level of P=0.

Table 7. AVOVA for testing regression significance

	Ordinary least square	Degree of freedom	mean square	Ordinary least F	Sig
regression	2837.45	1	2837.45		
residual	18132.1	154	117.74	24.09	0.000
total	20969.55	155			

On the whole, according to Table 8 and with respect to the unstandardized  $\beta$  coefficients (0.26) and  $\alpha = 10.89$ , PC has a significant share on the determination of competitive advantage.

Finally, eliminating  $\alpha$  through standardizing the determination variables, PC with standardized  $\beta$  coefficients of 0.368 has a significant share on the determination of competitive advantage.



Table 8. Remained coefficient of variables in regression model by step-wise method

Order of independent variable entering	Coefficients		standardized $\beta$	T-statistic	Sig
	B	Std.Error			
$\alpha$	10.89	5.67		1.92	0.05
PC	0.26	0.05	0.368	4.9	0.000

## Results and Discussion

After statistical analysis, following results are obtained: First hypothesis is rejected indicating that there is no relationship between intellectual capital (IC) and competitive advantage in TSE; this result is not consistent with the results of Namazi (2009), MojtahedZadeh et al. (2010) and Bontis (1998). These results imply that organizations attempt to set their knowledge and though which structural capital (SC) development lead to competitive advantage (GlichLi, 2006). In addition, sub-hypotheses 1, 2, and 3 are rejected showing that there is no relationship between human capital (HC), rational capital (RC), SC, and competitive advantage in vehicle industry. The results of the second hypothesis show that there is a weak relationship between social capital and competitive advantage in vehicle industries of TSE. The findings of the second hypothesis are consistent with the results of GlichLi (2006). The results of the third hypothesis show that there is a weak relationship between PC and competitive advantage in vehicle industries of TSE. These results are consistent with the views of organization and management scholars who assert that psychological capital (PC) can be considered as a sustainable competitive advantage for organizations in today challenging environment (SimrAsl and Fyazi, 2008). Therefore, positive PC management may be effective in people's talent and psychological capacity to achieve valuable ethical and productivity capacities leading finally to competitive advantage (Luthans and Yousef, 2004).

Moreover, we examined whether as to which one of capitals (IC, SC, and PC) has the most important role in predicting the level of competitive advantage in vehicle industry of TSE. The results show that only PC remained in regression model with  $R^2$  of 0.13 which means that PC explains 0.13 of competitive advantage and 0.87 is influenced by other factors.

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