ISSN: 1839 - 0846

INVESTIGATING EFFECT OF ACQUISITION ON INTELLECTUAL CAPITAL AND FINANCIAL PERFORMANCE OF TARGET COMPANIES IN IRAN

Ahmad Khodamipour
Associate professor, Shahid Bahonar University of Kerman, Kerman, Iran
khodamipour@uk.ac.ir

Zeinolabedin Sadeghi
Assistant professor, Shahid Bahonar University of Kerman, Kerman, Iran
abed_sadeghi@yahoo.com

Mohsen Asgari (corresponding Author)
M.A. Student of Accounting, Kerman Science and Research branch, Islamic Azad University, Kerman, Iran
Mohsen.asgari66@yahoo.com

ABSTRACT

Managers seek to find the most desirable strategy to reach goals of their companies. One of the strategies which assist external growth of companies is merger and acquisition strategy. The goal of this research was to study the effect of acquisition on the intellectual capital and financial performance of (acquired) target companies. The statistical population included the companies admitted in Tehran Stock Exchange between 2004 and 2010, from among which the sample was selected. According to the accounting basis, the research data were calculated for two periods of before and after acquisition and the research hypotheses were tested using the paired samples T test. Test results of the target companies were compared with those of similar non-acquired companies as the control group. The research results indicated significant effect of acquisition on operating cash flow and return on assets and equity of the target companies. Moreover, it was found that intellectual capital increased after acquisition; however, there was no significant relationship with acquisition.

Keywords: *Acquisition, Intellectual capital, Target companies*

1. INTRODUCTION

One of the most important goals of companies is profitability and equity increase. Managers seek to find innovative and desirable methods to achieve this goal. Also, rapid development and its risk are of great importance because companies are in a competitive condition. Managers have different strategies for the growth of companies and should select and apply the related strategy for internal and external growth. One of the advantages of external growth compared with the internal one is rapid development, immediate cash inflows, risk reduction and economic savings. At this time, managers seek to find the most desirable strategy for reaching the goals of companies. One of the available strategies which results in the external growth of companies is the merger and acquisition strategy of companies. This strategy is adopted in order to create value and increase wealth of shareholders.

Now, one should see whether managers reach their goals by selecting acquisition strategy. In order to answer this question, this study investigated the effect of companies' acquisition on intellectual capital, which has become one of the best competitive advantages nowadays. In today's economic world, intellectual capital has turned to one of the main resources for competitive advantage in companies. Moreover, it plays an extraordinary role in underlying factors of production and trade according to new economic knowledge; as a result, intellectual capital is important as a resource which results in the creation of value for companies and the effect of this strategy on the intellectual capital of companies should be evaluated. Furthermore, the effect of merger and acquisition on the financial performance of the acquired and non-acquired companies was studied to see the success level of managers in achieving the goals of companies**.**

2. THE RELATED LITERATURE

2.1 Acquisition

Acquisition is a general concept which refers to the transfer of the target company's control from one group of shareholders to another one. Acquisition includes purchase and acquisition of companies (merging, purchasing shares and assets), vote collection to achieve board of directors and conversion of target companies to the private joint-stock companies (Arefi, 2008).

ISSN: 1839 - 0846

Based on the studies of Segil, there are two types of purchasers (acquirers) in corporate takeover transactions:
Financial acquirer: financial purchasers buy companies for financial investment and use of investment opportunities.
Strategic acquirer: strategic purchasers buy target companies for the development and survival of their business operations.
Strategic acquisition has the following advantages over the financial one:

- Synergy grows.
- Managers of acquiring companies get familiar with activities of target companies.
- Due to the participation of the target company's shareholders and share financing, risk of wrong price assessment and disability for improving status of the target company are reduced.
- The share price profit is high.

2.2 Types of Acquisition

Acquisition is done in different ways such as the following cases: the buyer acquires shares of another company to control it. Control of company means effective control of companies' assets. In this case, the target company continues its commercial activities like before. This form of transactions is performed in spite of the commitments of the target company resulting from continuation of its commercial activities as in the past and admitting all of its risks in commercial environments.

Acquisition may be friendly or hostile. In the first case, companies cooperate in negotiations and, in the second case, the target company does not tend to be sold or the target company's board of directors does not make any negotiation about the offer for sale.

2.3 Advantages of Acquisition

Purchasing and acquiring companies increase market share of the acquiring companies and reduces number of competitors. There are two methods for increasing market share. In the first method, acquiring companies increase their market share via creating new production line or buying active companies in different geographical regions. In the second method, they improve the current production line by increasing production capacity. In some cases, both methods are simultaneously applied by acquiring companies. This assumes that the buyer attracts a great competitor in the market and, therefore, its marketing power increases considering the increased market share for determining prices. In addition to the increased production volume, cost of products and fixed costs are reduced. Decreased cost due to the increased production is called economy of scale. Moreover, tax regulations are one of the economic incentives for the companies' acquisition. In order to benefit from tax exemption resulting from operational loss, damaged companies are good choices to be acquired by profitable companies. Decrease of income tax of the acquiring company is regarded one of the main incentives. A company with high retained and depreciable loss (which transfers it from past to future) is a very suitable and economic choice for the profitable company to be acquired. In competitors' point of view, company acquisition changes its ownership. Internal development leads to the increased capacity and is followed by similar reaction of the competitors. Therefore, company acquisition reduces competition and increases monopoly power by removing the competitor. In the monopoly power, purchaser companies can determine price of the products above the cost of the sold product and other costs of the company. Acquisition is the most rapid way for entering the markets and obtaining new technology in the global business field. Large companies buy the operating companies of destination countries in order to influence the market of different countries rapidly and easily (especially, developing companies) and reduce costs of manpower and raw material. One of the other goals and incentives for acquisition of companies is to reduce risk by entering the market of new products and diversification of the activities of the buyer companies. Managers of the buyer companies claim that diversification helps to stabilize income flow of the company and reduces risk of bankruptcy (Stock Exchange, 2009).

3. RESEARCH LITERATURE

Pazarskis, Vigiatzogloy and Christodoulou (2006) studied post-acquisition performance of 50 companies admitted in the Greek Stock Exchange. The criteria for studying performance in the mentioned research included accounting ratios such as profitability, liquidity and debt. The results demonstrated that return on assets and other profitability ratios reduced after acquisition, which was statistically significant. Ratios of liquidity and debt did not decrease considerably.

Altunbas and Marques (2005) investigated the acquired banks in Europe between 1992 and 2001.
The researchers intended to study the effect of the activity similarity on merging and acquiring banks and divided acquirers into two European and non-European sections. The most important investigated factor was

ISSN: 1839 - 0846

return on capital. The results showed that return on capital improved in the related acquisitions. Increase of return on capital was higher for non-European buyers and was statistically significant.

Ghosh (2001) studied financial performance of the merged companies in America between 1981 and 1995. The above researcher intended to test the operating cash flow and its constituents before and after acquisition. According to the results of this research, there was no sign of the improvement of operating cash flow after transaction of the buyer companies.

Limmack and Rahman (2000) studied financial performance of 97 buyer companies and 117 target companies in Malaysia between 1988 and 1992. This research intended to answer this question that whether acquisition in the developing countries like Malaysia would result in improvement of the performance of transacting parties or not. The criterion for the success of transaction was defined and calculated as the operating cash flow two years before acquisition and combination of financial information two years after transaction based on the data of accounting basis information of the buyer and goal companies. Based on the obtained results, acquisition in Malaysian companies improved long-term operating cash flow.

Kennedy and Limmack (1996) studied 247 target companies admitted in the stock exchange between 1980 and 1989. They studied the relationship between performance of Target Company and displacement and change of their senior management. The results showed that the incentive and goal of transferring managerial skills from the buyer company to the target company cannot create wealth. Therefore, change and replacement of the target companies' managers cannot create value for the buyer company's shareholders.

Tsakalotos, Dickerson and Gibson (1996) studied the effect of long-term acquisition and merger on the long-term performance of British companies. The results of the mentioned researchers demonstrated that acquisition and merger in a long run destroyed values and, consequently, reduced value of the wealth. Based on the research results, internal investment has a more desirable effect on the performance of acquiring companies compared with acquisition (out of organization investment). Companies' acquisition has a negative effect on the short and long term profitability of the buyer companies.

Dogal (1995) studied economic effects of acquisition and merger of Canadian target companies using the industrial organization approach between 1985 and 1987. In this research, performance of internal and external acquirers was evaluated and compared. The results indicated that internal buyers sought short term profitability. Based on the research results, one can say that external acquirers have long-term and constructive attitude in macroeconomics of the target company compared with the internal ones.

S. Cherer and Raven Scraff (1987) studied 96 aggressive acquisitions of companies in America between 1950 and 1997. The research results indicated that pre-acquisition performance and acquisition of target companies were significantly lower than the average level in the related industry. The mentioned companies had lower profitability than the similar companies in the related industry in 1970s. However, no evidence was obtained for the operating cash flow increase in the target company after acquisition.

Devy and Ikeda (1983) studied 49 companies admitted in Tokyo, Osaka and Nagoya (Japan) Stock Exchanges between 1964 and 1975. The research results were presented in three and five year periods; return on equity and return on assets improved by more than 50% and by about 50% in the three-year period, respectively. In the absolute and relative tests of the five-year period, both criteria of profitability (return on assets and return on equity) improved by more than 50%. Indices of efficiency (costs to sale, sale to assets, sale to the number of manpower), growth rate and research and development costs grew by more than 50% in both three- and five-year periods.

Arefi (2009) studied the financial performance of companies' acquisition in an article in Iran and tried to study financial performance of acquisition transactions. He collected information of the performed transactions in research periods of 1997 to 2002 from Tehran Stock Exchange Organization after designing financial evaluation indices. General results of the research indicated that managers of the buyer companies were not able to improve performance and create value for the shareholders and most of the transactions for company acquisition in Iran failed and resulted in transfer of wealth from shareholders of the acquiring companies to the previous shareholders of the target company.

Arefi (2010) studied the economic value added in the acquired companies in Tehran Stock Exchange between 1999 and 2004 using the economic value added index. The research results of the non-acquired

ISSN: 1839 - 0846

companies demonstrated that the economic value added had less reduction after acquisition in the above companies compared with the acquired companies; however, it was not statistically significant. Therefore, managers of the buyer companies were not able to improve performance and create economic value added in the acquired companies using the acquisition strategy and acquisition of the companies in Iran was faced with reduced performance in terms of the above index.

Jahankhani, Saghafi and Arefi (2006) made an attempt to express theoretical and research fundamentals of acquisition and merger and the research including the study of share price behavior, study of accounting basis, managers' opinion poll and case study and concluded that studies related to acquisition and merger of companies in Iran can be done using theoretical fundamentals and the results mentioned in researches and by their modeling and naturalization.

4. EXPRESSION OF THE RESEARCH VARIABLES AND MODEL

Palic mentioned the Value Added Intellectual Coefficient (VAIC) in 1997, expanded it in 1998 and completed it in 2000. Palic used VAIC for measuring intellectual capital of Australian stock exchange companies. In his model, value added was obtained by subtracting outputs from inputs:

Value added (VA) =Outputs –inputs

Inputs refers to the income obtained from the selling goods and services and outputs means all costs applied for the production of goods and services, except personnel salary and wage expenses and depreciation costs because cost payment is a kind of investment in manpower and, as a result, helps to create intellectual and structural value added due to correction of processes and regulations. Depreciation cost is a part of non-cash costs of the companies:

value added = operating profit + personnel salary and wage expenses + Depreciation costs

Value Added Intellectual Coefficient has the following components:

Value Added Capital Coefficient (VACA): this coefficient shows the generated value added as a result of applying tangible physical assets; i.e., for 1 Rial tangible physical asset, several Rial value added Rials will be obtained. This coefficient is obtained by the following relation:

tangible assets CA= total assets – Intangible assets

VACA = VA / CA = value added/ physical tangible asset

Value Added Human Capital Coefficient (VAHU): this coefficient indicates value added caused by the personnel which is obtained by dividing value added by the personnel salary and wage expenses and means that several Rial value added is obtained for one Rial of the personnel salary and wage expenses. This is obtained from the following relation:

VAHU = VA / HU = value added /personnel salary and wage expenses

Structural Capital Value Added Coefficient (STVA): This coefficient indicates value added caused by the processes and structures in the company. It means that some percentage of the company's value added result from structural capital. Structural capital and Value Added Structural Capital Coefficient are calculated by the following relations:

structural capital (SC) = value added– Personnel salary and wage expenses

STVA = SC / VA = structural capital / value added

Therefore, the Value Added Intellectual Coefficient is obtained by summing the above coefficients:

Intellectual capital =structural capital efficiency +human capital efficiency +physical capital efficiency

VAIC = VACA + VAHU + STVA

(Palik, 2000)

Indices of Financial Performance:

ISSN: 1839 - 0846

Calculating the determined ratios and indices of success in target companies. This study's examined variables were defined and calculated as follows:

The company’s sale growth percentage:

$$\frac{\text{this year's sales - Last year's sales}}{\text{Last year's sales}}$$

Average return on equity:

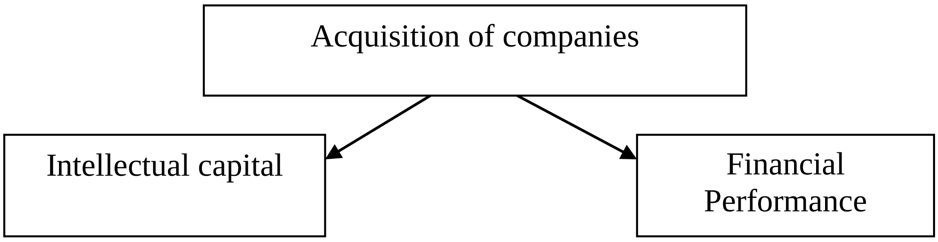
$$\frac{\text{Profit before tax deduction}}{\text{Equity}}$$

Average return on assets:

$$\frac{\text{Profit before tax deduction}}{\text{Total assets}}$$

Operating cash flow (operating profit +depreciation):
Net sales - cost of the sold goods – operating costs +Depreciation cost

The conceptual model of this research was as follows:



(Conceptual model)

5. RESEARCH HYPOTHESES

The hypotheses of this research can be stated as follows:
H1: There is a significant relationship between average intellectual capital of the target companies before and after acquisition.
Control hypothesis1: there is a significant difference between average intellectual capital before and after acquisition in the companies of experiment group and control group.
H2: There is a significant relationship between average return on assets of the target companies before and after acquisition.
Control hypothesis2: there is a significant difference between average return on equity before and after acquisition in the companies of experiment group and control group.
H3: There is a significant relationship between average return on assets of the target companies before and after acquisition.
Control hypothesis3: there is a significant difference between average return on equity before and after acquisition in the companies of experiment group and control group.
H4: There is a significant relationship between average operating cash of the target companies before and after acquisition.
Control hypothesis4: there is a significant difference between average operating cash flows of the target companies before and after acquisition in the companies of experiment group and control group.

6. RESEARCH METHOD, STATISTICAL POPULATION AND SAMPLE:

Since the goal of this research was to study the relationship between acquisition of stock exchange companies and their financial performance, the data extracted from accounting basis of the companies which were acquired (target companies) were investigated considering the necessary conditions. In order to compare the results, the non-acquired companies were used as a control group. After collecting the information, the required indices were calculated to prove the hypotheses.

ISSN: 1839 - 0846

The statistical population included the companies admitted in Tehran Stock Exchange which were merged and acquired in 2007. In this part, 112 companies which were identified by Tehran Stock Exchange as the target companies were studied.

Conditions of the sampled companies and data were as follows:
Financial information of the target companies should be available between 2004 and 2010. Since the selected financial year in which acquisition occurred was 2007, the decision was made to consider 3 periods (financial year) before and after 2007. Therefore, the accounting basis of the companies should be available within these 7 years and this condition was established in 48 companies. In other conditions, the reason for acquisition and merge was revised because, if the goal of these companies is short-term profitability, they will sell the acquired shares during future financial periods (the studied term of research) which will not be a part of the statistical sample in such a case. Thus, the sample size of this study included 70 companies and 7 financial periods for the target companies. After selecting the statistical sample, the control group was studied; the control group was selected considering industry of the experimental group companies.

7. DATA ANALYSIS

First, the means of variables before and after acquisition in the acquired and non-acquired companies are given in Table 1:

Non-acquired companies	Acquired companies	Status of the company	
2.5030	6.4418	Before acquisition	Mean of intellectual capital
2.8051	8.7289	After acquisition	
0.0778	0.1947	Before acquisition	Mean of return on assets
0.0581	0.1345	After acquisition	
0.3426	0.6244	Before acquisition	Mean of return on equity
0.2632	0.3086	After acquisition	
57742.37	228642.82	Before acquisition	Mean of operating cash flow
102506.98	386217.61	After acquisition	

Table 1- Studying the means

As observed from the above table, means of intellectual capital and operating cash flow in the target companies grew evidently after acquisition while other variables reduced. After studying the means, paired t-test was used to analyze data of the target companies. Each variable was placed in two different conditions twice. The analysis of research data was related to indices of financial performance and intellectual capital before and after acquisition on 30 companies within 6 years; then, the difference between variables before and after acquisition was studied in two control and experimental groups as the control hypothesis. The results obtained from the main and control hypotheses are presented in table of the summary of hypotheses tests.

Hypothesis	Description	Significance level	Calculated T	Test results
First hypothesis	Relationship between acquisition and intellectual capital	0.393	0.868	Hypothesis rejection
First control hypothesis	Difference of intellectual capital	0.003	3.068	Hypothesis acceptance
Second hypothesis	Relationship between acquisition and return on assets	0.005	3.064	Hypothesis acceptance
Second control hypothesis	Difference of return on the assets	0/032	2.193	Hypothesis acceptance
Third hypothesis	Relationship between acquisition and return on equity	0.050	2.026	Hypothesis acceptance
Third control hypothesis	Difference of return on equity	0.597	0.532	Hypothesis rejection
Fourth hypothesis	Relationship between acquisition and operating cash flow	0.042	.0.7184	Hypothesis acceptance
Fourth control hypothesis	Relationship of operating cash flow	0.019	2.414	Hypothesis acceptance

Table 2- Testing the hypotheses

ISSN: 1839 - 0846

8. CONCLUSION

According to the paired T test which studied before and after acquisition periods, the results obtained from the accounting basis in studying financial performance showed a significant relationship between acquisition and return on assets, return on equity and operating cash flow of the companies. Moreover, intellectual capital of the target companies increased in the post-acquisition years: however, there was no significant relationship between acquisition and intellectual capital at the significance level of 0.05.

Therefore, one can say that there was a significant relationship between acquisition and financial performance of the companies considering other constant factors which affect financial performance of the company and intellectual capital in accounting basis. Also, no significant relationship was found between acquisition and intellectual capital.

9. SUGGESTIONS

Considering the obtained results and assuming the constancy of other factors (non-financial factors and other financial indices) which affect intellectual capital and financial performance of the acquired companies (target), the following suggestions are given to the users in order to successfully perform acquisition and prevent or reduce the loss caused by the mentioned transactions:

1. Considering increased intellectual capital in target companies after acquisition, managers can be suggested to use acquisition strategy for increasing the efficiency of human resources and intellectual capitals. They can use human capitals of target companies in order to improve conditions of the specialized manpower of the acquiring companies.
2. Since the results showed that managers of the acquiring companies were not able to improve return on equity and return on assets after acquisition of target companies and considering the point that acquisition results in the reduction of shareholders' wealth in buyer and target companies in terms of accounting return, therefore, it is recommended to apply local development strategy (commissioning and developing current activities of the company) instead of acquisition strategy in order to increase and maintain rate of sales' growth and market share and return on equity.

REFERENCES

1. Jahankhani,Saghafi,& Arefi. (2006). Theoretical and research fundamentals of acquistion and merge of companies. Journal of Financial Research (21), 47-74.
2. Arefi .(2009). Studying financial performance of acquistion of companies in Iran. Quarterly Journal of Business (50), 225-245.
3. Arefi .(2010). Economic value added in the aqcuired companies of Tehran Stock Exchange. Quarterly Review of Accounting and Auditing (59) ,47-62
4. Reporting the recognition of aqcuision purchase, Tehran Stock Exchange (2009).
5. Tsakalotos,Gibson&Dickerson. (1996).Expected market reaction and choice of method of payment for Acquisitions. Financial management28 (48), 73-86.
6. Ghosh,Aloke. (2001). Does operating performance really improve following corporate acquisitions? Journal of corporate finance (7), 151-178.
7. Kennedy & Limmack. (1996). Takeover activity, CEO turnover, and the Market for corporate control. Journal of business finance & accounting.
8. Mc- dougall, Gilles. (1995). the economic impact of mergers and acquisition on corporations. Micro- Economic policy analysis Industry Canada Working paper.
9. Rahman, R. Abdul & Limmack R. J. (2000). Corporate Acquisitions and the operating performance of Malaysian companies. Social science.
10. Rarvenscraft & scherer. (1987). Life after takeover. The journal of industrial Economics 36, 147-156.
11. Ikeda & Doi. (1983). the performances of Merging firms in Japanese Manufacturing Industry. The journal of industrial Economics. 16 (3), 257.
12. Bontis, N. (2001). Assessing knowledge assets: a review of the models used to measure intellectual capital. International Journal of Management Reviews, 3(1), 41-60.