



Evaluating a relationship between cash holding and overinvestment in the listed companies in Tehran Stock Exchange

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Abstract: The study aims to investigate the relationship between cash hold and overinvestment in the listed companies in Tehran Stock Exchange. The special and territory domains include the listed companies in Tehran Stock Exchange between 2010 and 2013, respectively. Also, the final sample of 331 companies and 71 companies were selected using a systematic elimination method and Cochran 74, respectively. In this study, the cash holding and overinvestment are considered independent and dependent variables, respectively. The results showed the significant relationship between the cash holding and cash investment in the listed companies Tehran Stock Exchange.

Keywords: cash holding, overinvestment, Tehran Stock Exchange.

INTRODUCTION

Firms always faces with many investment opportunities for which need of an optimal investment decision is reasonable. In fact, the investment in each firm must be carried out, considering limitations and efficiency of resources; but the main issue would be the chosen projects and made decisions of investment opportunities by managers of firms, based on their personal interests. On the other hand, information asymmetry and conflict of interest interfere with an optimized investment (Yang and Jiang, 2008). Hence, to invest in various projects, the firms should consider limited amount of investment due to resource constraints (Modarres and Hesarzadeh, 2008). This is performed through methods of project evaluation such as net present value 5. According to this method, investment in one or more projects is justifiable if net present value of that project is positive. The results of study by Rasaiyan et al., (2010) showed that there is a significant negative relationship between percentage of non-duty board-director members and cash holdings level in Tehran Stock Exchange, but not significant relationship between institutional investors and cash holdings level. There is a significant negative relationship between institutional investors' level and cash holdings level, but not the concentration of institutional investors and cash holdings level (Malekian and Adili, 2013). Generally, Huang et al., (2015) examined the relationship between investing excessively, corporate governance and cash holding and indicated that the value of the cash, in other words, that of the company's liquidity has been significantly influenced under investors' expectations of the cash used in dealing with agency problems arising from the investment. So, the main subject of this study is to investigate the relationship between the cash holding and overinvestments in the listed companies in Tehran Stock Exchange.

2- Literature

Kalami et al., (2013) examined the impact of corporate governance on the management of cash holdings within the listed companies in Tehran Stock Exchange. The results of previous studies show that it can improve firm value by stronger and more effective supervision on the cash holdings by the management. Analyzed results show that there is a significant positive relationship between the non-duty board

members, board size and the percentage of institutional investors with the value of cash holding. Malekian and Adili (2013) examined the relationship between institutional ownership and cash balances in the listed companies in Tehran Stock Exchange. The results indicate that there is a significant negative relationship between institutional investors and cash holdings, at confidence level of 95%. But there is not a significant relationship between the concentration of institutional investors and cash holdings. Lee and Shiv (2010) examined the relationship between investment and cash holding. The firms always confront with great investment opportunities and require optimal investment decisions which are reasonable to make. Hence, the firms to invest in various projects should consider limits and amount of investment due to resource constraints; according to the surveys, the results indicate that there is a negative correlation between the over investments and cash holding. Kasnady (2011) examined the impact of corporate governance mechanisms on the cash holding and firm value. The relationship between the corporate governance mechanisms and cash holding has been investigated due to its combined effect on firm value for the listed companies in the Stock Exchange of Singapore and Malaysia. The results show that an increase in agency conflict between managers and shareholders' minority give rise to the managers to save cash more discreetly. The incremental value of cash holdings is negative for firms with individual leadership structure, pyramidal ownership structure and ownership under the control of the family. Gile and Shah (2012) assessed the determinants of cash holdings within Canadian listed companies in the stock exchange. In this study, relational and non-empirical models have been used. Using 166 sample companies during the three-year period from 2008 to 2010, the results show the ratio of market value to book value, cash flow, net capital, financial leverage, firm size, board size and the duality of directors' responsibility which has a significant effect on cash holding in case of Canadian companies. The results have special effects on the decisions of financial managers, investors and financial managers. Huang et al., (2015) examined the relationship between over investment, corporate governance and cash holding in the company and the results showed that the firm value, in another word, that of company's cash value is significantly affected by the expected cash by the investors used in when facing with agency problems arising from the investment. The results also indicated that the corporate governance plays a moderating role within the negative relationship between over investment and cash holding.

3- Research methodology

3-1- Hypothesis

- There is a significant relationship between cash holding and over investment in companies listed in Tehran Stock Exchange.

3-2- Methodology

The study is a quasi-experimental research using post-event approach (from the past). On the other hand, the study is correlative-descriptive research. Based on the nature of the data, it is a quantitative one. And it is an applied research in terms of objectives. To investigate hypotheses, considering nature of information, data based on the past and being quantitative, the regression test was used.

3-3- Operational definition of variables

3-3-1- The cash holding

(Cash + short-term investments) / book value of total assets (Moradi et al., 2012).

3-3-2- The over investment

Investment efficiency is calculated by the following model (Companies whose over investment is getting more than all the samples in average, and it was considered as over investment company and vice versa):

$$I_x = \beta_0 + \beta_1 * \frac{CFO}{X_{t-1}} + GO + \varepsilon_t$$
$$GO = MBT, SR_{t-1}$$

Where:

I: Investment of company

CFO: Cash flow earned from operations

X: Criterion of investments of company

GO: Company growth opportunities

MTB: Tobin's Q index

SR: Growth of sales revenue at the end of the previous fiscal year (Rezai et al., 2012).

3-3-3- Firm size

It is the natural logarithm of the book value for total assets (Khorasani et al., 2013).

3-3-4- Financial Leverage

It is the ratio of total debt to total assets (Ahmadvand et al., 2011).

3-4- Statistical population and sample

This statistical population consists of companies listed in Tehran Stock Exchange between 2010 and 2013. The sample was selected by systematic elimination method, taking into account the following conditions:

1. It is a manufacturer firm, not included in categories of banks and financial institutions (investment companies, financial intermediaries, holding companies, banks and leasing).
2. The Company's fiscal year ended at March in every year.
3. Company shares are traded on the stock exchange.
4. During the aforementioned financial year (fiscal year), the activities did not change.
5. The information required is available.

Due to limitations imposed on the 421 companies listed in Tehran Stock Exchange, 74 companies were selected using systematic elimination method.

5-3- Data analysis method

In this study, the combined data is used to test the hypotheses. And time series (years under study) and sectional (companies under study) are combined together. The combined data is used due to the increasing number of observations, elevating the degree of freedom, reducing variance dissonance and dynamic study. To estimate efficiency, a regression model was used using panel data, one of the common effects models, random and fixed effects using appropriate tests. First, to determine whether the time series x_t has a static (integration rank of zero) or divergent process (integration rank of 1), the test - Levin is used. Moreover, for reviewing the variables' static, the use of an appropriate method for mixed data compilation is needed. We use modified Wald test for evaluating group variance heterogeneity among the residuals of fixed effects regression model. The F and Hausman tests are used to determine one of two ways including fixed effect or random effect methods. To illustrate the explanatory power of the explanatory variables, to investigate the significance of variables and to evaluate the overall adequacy of the model, an adjusted coefficient of determination (Adjusted R^2), t statistic and F-Fisher statistics will be used. Also, statistical analyses will be carried out using EXCEL and EVIEWS 7 software.

4- Results

4-1- Heterogeneity

To examine heterogeneity of variance for disturbing terms, ARCH LM test was done. ARCH LM test results for the heterogeneity of variance are as follows:

Table 1-1- ARCH LM test results for the heterogeneity of variance

Description	Statistic value	Probability
F-statistic	0.805117	0.205
Obs*R-squared	1.605449	0.205

* 5% error level

According to Table 1-1, F-test statistic is not significant at the 5% level, so the hypothesis of variance homogeneity is confirmed and heterogeneity of variance is rejected for the disturbing terms.

4-2- Testing significance of fixed effects approach

Table 1-2- F Limer and Hausman test

F-Limer			
Description	Statistic value	Degree freedom	Probability
Cross-section F	1.691474	73	0.031*
Cross-section Chi-square	114.187462	73	0.037*
Huasman test			
Description test	Statistic value	Degree freedom	Probability
Cross-section F	6.501628	19	0.007*

* 5% error level

According to Table 1.2, the results of the two tests (F and Hausman) are less than 5%, hence, the fixed effects method should be used in the related regression model.

4-3- Lin & Levin Method

Lin and Levin indicated that based on panel data, using unit root test on these data has enjoyed more power than conventional unit root tests such as Dickey- Fuller, advanced Dickey-Fuller test and Phillips-Perron test. The null hypothesis indicates the unit root variables.

Table 3-1- mass unit root tests on the variables by Lin-Levin method

Variables	Statistics	Probability
Cash holding	5.415	0.0011*
Over investment	2.629	0.0036*
Firm size	-5.291	0.0023*
Financial leverage	3.206	0.00178*

According to Table 1-3, evaluating values of calculated statistics and their probability of acceptance indicates that the null hypothesis can be rejected based on all the variables' non-viability and all the study's variables are placed at viability level.

4-4- Hypothesis testing

Table 4-1- regression test and significance of hypothesis

Variable name	Estimated coefficient	Estimated diversion	T-statistic	Significance level
Fixed	0.629	0.121	5.198	0.0000*
Cash holding	-0.415	0.106	-3.915	-.0025*
Firm size	2.157	0.462	4.668	0.012*
Financial leverage	0.612	0.596	1.026	0.036
Durbin-Watson	1.704			
F-statistic	88.215			
Significance level	0.000**			
Adjusted determination	0.429			

coefficient	
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* 5% error level, ** 1% error level

According to Table 1.4, because the value of Durbin-Watson statistic is placed between 1.5 and 2.5; the correlation between the errors is rejected and the regression can be used. The adjusted coefficient of determination is equal to 0.492; it indicates that 49.2% of the changes in over investment of the companies depend on this equation independent variable. On the other hand, given the significance of the F test (88.215) at the error level of less than 0.01, it can be concluded that the research regression model consisting of independent, control and dependent variables is a good model and a set of independent variables can explain the changes in over investments in companies. The estimated coefficient for variable cash holding to over investment in the companies (-0.415) shows the negative and inverse impact of variable cash holding on over investment done by the companies. On the other hand, considering the significance level of t-statistic for the cash holding comparing with over investment in the companies (0.025), due to less than 5% error level, H_0 is rejected at 95% confidence level, it can be stated that there is a significant relationship between the cash holding and over investment in companies listed in Tehran Stock Exchange. The research model is as follows:

$$\begin{aligned} \text{over - investment}_{it} \\ = 0.629 - 0.415 \text{ cash holdings}_{it} + 2.157 \text{ Size}_{it} \\ + 0.612 \text{ Leverage}_{it} + \epsilon_{it} \end{aligned}$$

5- Conclusion and Recommendations

The result showed a significant relationship between the cash holding and over investment in the listed companies in Tehran Stock Exchange. Therefore, Huang et al., (2015) showed the corporate governance playing moderating role on the negative relationship between over investment and the cash holding. Lee and Lee (2009) showed that a positive relationship between cash holdings and strong management oversight is getting reduced with respect to the structure of the board. Harford et al., (2008) revealed that the corporate governance weakness leads to a reduction in the cash holding. Dietmar and Smith (2007) showed that the corporate governance is a significant positive impact on the value of cash holding. Gynglyngr and Sador (2007) showed that the firms with stronger equities hold higher cash. The results suggest the following:

- Investing decisions (also known as capital budgeting) is one of the major decisions of the business area; managers determine the value of capital investment that a firm commits within the control or possessed limit. Investors and shareholders are recommended to pay attention to the amount of over-and-under-investment of the companies when buying and selling companies' shares in order to reduce their own investment risk.

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