

# Investigation of the excess cash holding on value of firms

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## Abstract

The present research tried to study the effect of the excess cash holding on firm value. The participants of the present research include the companies accepted in Tehran Stock Exchange during the years between 2003 and 2010, which are among the five industries of food, cement, drugs, chemicals, and automobile parts and by using a sampling method 482 year-companies were selected. To test the research hypotheses, two multiple regression models were used, which were first supplied by utilizing a model devised by Opler & *et al* (1999) and it is called OPSW to determine the appropriate level of cash holdings for each company in each year. Then, Lozano's model (2011) was utilized to measure the effect of the excess cash holding on firm value. The results of testing the research hypotheses showed that the excess cash holding affects firm value negatively meanwhile the investment policy.

**Keywords:** Excess cash holding, firm value, investment policy, dividend.

## Introduction

Identifying firm value is one of important factors in investment process. The value of each firm can be determined by regarding its stock value. Thus, the investor can determine his priority in investing regarding firm value (Sameti, 2007, as cited in Hampton, 2009). The market value of a company is affected by several factors whose recognition can help investors, creditors, and oth-

er beneficiaries greatly in determining firms' value and making appropriate decisions.

Regarding the growth of business entities and the establishment of corporate firms and the fact that each of stockholders has different interests and expectations, the final goal and the most common goal will be the maximization of the current value of the investments done in the company. This value can be achieved by the current assets and the operational efficiency. Therefore, the value of owners' equity is composed of two parts of: a) the expected value of holding the current operational resources and b) the value resulted from the expansion of operations or the future operational activities (Zhang, 1992, as cited in Hampton, 2009).

Thus, different studies and research methods were carried out to measure firms, performance measurement criteria, different effective factors in firm value, and stimulation methods, and the compensation of managerial services. Doing these researches which emphasize on the presentation of information and giving the possession of them to the users and the company evenly will result in reducing information asymmetry between companies and markets.

## Theoretical foundations and research literature

The cash reserves held by the company can be changed into a related factor for doing research in the framework of incomplete capital markets which can affect firm value. Although it is possible to think at first that cash holding can make it pos-

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sible to preserve financial resources' flexibility for the company during crisis and unpredicted conditions, considering information asymmetries present among different economic agents, the maintenance of flexibility of financial resources can be expensive (Lozano, 2011).

Kim & *et al* (1998, as cited in Khodae-e-Valezaghard and Zare-e-Teimoori, 2010) carried out comprehensive studies on firms' cash holding determination. They found out that companies differentiate between costs and the benefits of cash holdings in order to determine the appropriate level of cash residuals. They especially confirmed that firms' cash holding has a positive relationship with growth, investment opportunities, research and development costs, and cash flow fluctuations and a negative relationship with the size and capital utilized. On the other hand, Harford (1999, as cited in Khaki, 2009) claims that there are some causes to be concerned about the control of managers excessively on internal cash. He showed that there is a great probability that firms with a lot of cash will be owned and it is probable that their ownership will reduce their value.

A group of the results above stated that there is a positive relationship between cash holding and firm value. Mikkelson & Partch (2003) found out in their research that the continuance of cash holding will not result in weaker performances. Cheng (2008, as cited in Khaki, 2009) stated that the incentives of cash holding in companies include: transactions' costs, preventive incentives, and hierarchical financing theory. Companies hold cash for transaction goals and the excessive costs of gaining cash from the capital market which consider hierarchical financing theory and are resulted from information asymmetry and also the fact that external financing costs are more for external investors compared to internal financing. Also, companies hold cash for caution goals to prevent losing profitable investments and thus cash shortages. In fact cash holding will increase firms' value by reducing financing costs and increasing the times of creating investment value by the company. Boyle & Guthrie (2003, as cited in Khaki, 2009) believe that holding a high level of cash is necessary for potential investments.

On the other hand, a group of evidences show that there is a negative relationship between cash holding and firm value. Previously Harford (1999, as cited in Khaki, 2009) concluded that there is a more probability that the integration and merg-

er of companies with a lot of cashes will decrease their value.

Papaionnou & *et al* (1992, as cited in Shabahang, 2008) stated that managers tend to hold more cash as an advantage. On the other hand, evidences show that the excess of cash holding in firms with less investment opportunities due to the excess of cashes can effectively force managers for excessive investments and this reduces firm value (Easterbrook, 1984; Dittmar & *et al*, 2003). It should also be noted that stock profit payment of the cash held and excessive investment agency costs will be reduced (Jensen & *et al*, 1992, Maria-Teresa and Roberto, 2010). Faulkender and Wang (2006, as cited in Shabahang, 2008) found out that the final value of cash will be reduced by more cash holdings. Pinkowitz & *et al* (2006) stated that the relationship between cash and firm value is much weaker in countries where investors protect weaker compared to other countries.

Factors which affect firms' cash holding are as follows: firm size, financial leverage, investment and risk opportunities, agency costs, etc.

Fresard & Salva (2008) describe the excessive cash as the maintenance of surplus of operational needs and firm investment cashes. Excessive cash is the amount of cash possessed by a company which is not needed. Based on the general guidelines when the current cashes in a company is equal to or more than %20 of the income it has excessive cash.

Firms with temporary excessive cash are those which have had at least once or more temporary excessive cash during the sample period. Firms with permanent excessive cash are those in which it lasts for at least 2 or more successive years (Lee & Powell, 2009).

## Previous studies

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Marchika & Mora (2007) proved in a research paper entitled "Market reactions and investment ability, the perspective of cash holding" that a conservative debt policy notices financial flexibility consistency which can increase the investment capability. Their analysis revealed that following a period of low debt leverage will result in creating lots of expenses by the companies and increase abnormal investment. Isaac & *et al* (2009, as cited in Maria-Teresa and Roberto, 2010) found out in a study entitled "Corporate governance, ownership

structure, cash reserves and firm value in Ghanaian bourse” that the size of board of directors is one of the governance variables. Size of board of directors has a positive and meaningful relationship with stock price compared to other variables of corporate governance while there was not any meaningful relationship between internal organization ownership and stock price. On the other hand, the results showed that a unit of increase in money reserves has not a meaningful effect on stock price. Finally the debt leverage and income fluctuations can determine stock prices meaningfully. Lozano (2011) concluded in a research entitled: “studying the effect of excess of cash holding on financial decisions” that how information asymmetry among the economic representatives of a profit unit can affect cash reserves and how the level of cash reserves can affect the financial decisions of companies and thus stockholders can be fined by investment of this profit unit.

## Methodology

The present research falls within the range of researches related to capital market and regarding its nature, it is among after incidental causative-correlation type. Regarding the relationship with the environment it is quasi-experimental and the type of variables is considered to be quantitative.

### Participants

The participants of the present research includes firms accepted in Tehran Stock Exchange in industries such as: cement, food, drugs, chemicals, and automobile parts which were enlisted during the years between 2003 and 2010 among bourse companies.

This sample includes companies having the following features:

1. Firms considered should have entered stock exchange in the beginning of 2003 and should not be out of Tehran Stock Exchange up to the end of the year 2010.
2. Their fiscal years should end on 29th of Esfand (20th of March).
3. During the study time they should not have stopped operations or change their financial period.
4. In the year under investigations for stock exchanges, they should not have stopped for more than 4 months.

5. Their financial statements should have been published by Tehran Stock Exchange.

6. They should have been profitable during the study period.

7. Financial statements of the companies for 2 years before the investigations should be accessible.

The number of observations by using the systematic deletion method and applying the limitations above should be totally equal to 482 year-company.

### Research Hypothesis

Based on literature and theoretical framework, the following hypothesis was presented:

H: The excess of cash holding affects firm value.

### Research Variables

The variables of the present research include three types of variables including dependent, independent, and control.

#### Dependent variable

Market value (MV) of the company: to calculate firm  $i$ 's value for the year  $t$  (for each year between 2003 and 2010) we calculate the market price of a share at the end of each month in the year intended and calculate the average of the market values of the stocks of the 12 months of the year.

#### Independent variable

*Excess cash holding (ECH)*: to estimate the proper level of cash holding for the firm  $i$  during the year  $t$  ( $CH_{it}^{31}$ ) we used Opler & *et al* (1999, as cited in Mikkelson and Partch, 2003) temporary model for every  $i$  firm in each  $t$  year during the time period between 2003 and 2010. In this model the dependent variable of cash holding is gained directly from financial statements. And includes cash and short-term investments (in Rial and foreign currencies) divided by net current assets. Thus, if the cash calculated by using financial statements for the firm  $i$  during the year  $t$  is more than the proper level of cash based on the model, the company has encountered excess cash holding and in firm value identification model,  $ECH_{it}$  will take the value of 0, or else it would equal 1.

Opler & *et al*'s (1999) model to determine favorable cash levels

$$CH_{it} = \alpha_i + \beta_1 IO_{it} + \beta_2 OCF_{it} + \beta_3 NWC_{it} + \beta_4 VOCF_{it} + \beta_5 LEV_{it} + \beta_6 Size_{it} + \beta_7 DIV_{it} + v_{it} + \eta_{it}$$

### Controlling Variables

*Investment opportunities (IO)*: to determine the level of investment opportunities of companies the variable Q Tobin is utilized as a representative of investment opportunities. Thus, if this ratio for the firm *i* during the year *t* was less than the mean (among the firms under investigation in year *t*) it would have a value of 0 and shows low investment opportunities or else it would be 1 and shows appropriate or excess investment opportunities. The variable Q-Tobin for firm *i* during the year *t* is calculated by dividing total stock market price and the book value of liabilities on total assets (to calculate market value of *i* firm stocks in year *t* the monthly market value of the stock of the company will be calculated by multiplying the market price of stock market by the number of stocks at the end of the month and the total values gained for 12 months will be added and the average will be calculated).

*Operating Cash Flow (OCF)*: to calculate this variable we used the division of operating cash flow into cash assets. By cash assets we mean cash and short-term investments.

*Net working capital (NWC)*: it is current assets minus current liabilities divided by cash assets.

*Cash flow volatility (VOCF)*: it is criterion deviation of cash of firm *i* during a period of 3 years including the year under investigations and 2 previous years.

*Return of operating assets (ROA)*: it determines the relationship between assets of the company and profit and is calculated by net income after subtracting taxation divided by cash assets.

*Growth*: it is used to control investment opportunities and is calculated through the changes of sales annually (sales in current year minus the sales in previous year divided by sales of the previous year).

*Size*: it is the natural logarithm of the number of stocks of a firm.

*Industry effects (V)*: it is used to control industry effects. First we calculate the average inventory flow in each industry for each year and if the inventory flow of firm *i* in the year *t* in the intended industry is more than the average of inventory flow in the intended industry it would have the value of 1 or else it would be 0.

*Institutional ownership percentage (n)*: it is the ownership percentage of the biggest stockholder of the firm *i* in the year *t*. To test the hypotheses we have used a multiple-variable regression model posed by Lozano (2011).

$$MV_{it} = \alpha_i + \beta_1 INV_{it} + \beta_2 INV_{it} * ECH_{it} + \beta_3 LEV_{it} + \beta_4 LEV_{it} * ECH_{it} + \beta_5 DIV_{it} + \beta_6 DIV_{it} * ECH_{it} + \beta_7 Growth_{it} + \beta_8 ROA_{it} + \beta_9 Siz_{it} + \eta_{it} + v_{it}$$

## Result and Discussion

In order to answer the research hypotheses raised for the present research, the data were analyzed as it is shown in table 1.

Regarding the results of testing the first hypothesis, which has been presented in table 1, the meaningfulness level of F statistics (0.000) is less than the acceptable error level (%5) and the total regression model is meaningful. Durbin-Watson's statistics (1.920) is located between 1.5 and 2.5, and thus there is no correlation between the model error elements. Studying the correlation between independent variables show that the special amount equals 0.909 and the status index (1.100) is less than 15. The lower status index and higher amount of the special index and its closeness to zero will result in a regression more appropriate for prediction. The results of the table above show that the special amounts and status indexes are in a state of letting the regression to work. Regarding the low amount

of (P-Value), t statistics of the acceptable error level for the coefficient  $\beta_1$  of the test results show that there is a relationship between excess cash holding and firm value. Because firms encountering excess cash holding have a value of zero and when they do not have excess cash holding they have a value of 1, our research results show that the value of those companies with excess cash holding is higher. Thus, excess cash holding affects firm value meaningfully. Also, the research results show that investment opportunities, cash flow volatility, and firm size have had a direct effect on firm value. The identification coefficient and the adjusted identification coefficient also show that the variables entered into the regression could describe %60 of the changes of the dependent variable.

Because firms encountering excess cash holding have a value of zero and when they do not have excess cash holding they have a value of 1, our research results showed that the value of those companies with excess cash holding is higher. Thus, excess cash holding affects firm value negatively.

This means that stockholders have reacted negatively towards the stocks of those companies which have excess cash holding. The results of the present research accords with the research results of Harford (1999), Pinkowitz (2002), Lozano

(2011), Powell & Baker (2010) regarding the effect of excess cash holding on firm value. Meanwhile these results are different from those in researches done by Isaac & *et al* (2009, as cited in Maria-Teresa and Roberto, 2010).

**Table 1. The descriptive analysis of research data**

Variable	Sign	Number of observations	Average	Criterion deviation	Min	Max
Stocks' market value	MV	482	8923.47	11562.108	681	12766
Operating cash flow	OFC	482	5.6560	10.8920	-14.68	142.65
Net flowing capital	NWC	482	3.0442	15.618	-58.58	177.56
Cash fluctuation	VOCF	482	706.91	1892.055	145.118	1228.93
Size	SIZE	482	18.5793	1.4936	14.96	23.07
Growth	Growth	482	0.2593	0.6873	-0.89	12.30
Return of assets	ROA	482	0.136	0.131	0.010	0.57
Institutional ownership percentage	$\eta$	482	0.4805	0.1794	0.02	0.94
Investment opportunity	IO	482			228	254
Industry effects	V	482			198	284
Excess cash holding	ECH	482			94	388

**Table 2. Statistical analysis of hypothesis testing**

co-linearity tests						
variance amass factor	Tolerance	P-Value	T test	coefficient	variables	variables
-	-	0.000	-9.495	-	$\alpha$	-
1.100	0.909	0.000	3.9	0.123	$\beta_1$ (ECH)	Excess cash holding
1.163	0.860	0.000	4.807	0.156	$\beta_2$ (IO)	Investment opportunity
2.081	0.481	0.250	-1.153	-0.050	$\beta_3$ (OCF)	Operating cash flow
2.508	0.399	0.259	-1.131	-0.054	$\beta_4$ (NWC)	Net flowing capital
1.535	0.652	0.000	11.535	0.429	$\beta_5$ (VOCF)	Cash fluctuation
1.235	0.745	0.332	0.972	0.059	$\beta_6$ (ROA)	Return of assets
1.014	0.986	0.684	-0.407	-0.012	$\beta_7$ (GR)	Growth
1.607	0.622	0.000	10.407	0.396	$\beta_8$ (SIZE)	Size
1.008	0.992	0.662	-0.438	-0.013	$\beta_9$ (V)	Industry effects
1.018	0.925	-0.158	-1.413	-0.044	$\beta_{10}$ ( $\eta$ )	Institutional ownership percentage
Determination Coefficient And modified Determination coefficient			(D-W)	P-Value	F	Overall regression model
R2 = 0.601 AdjR2 = 0.592			1.920	0.000	66.602	

## Conclusions

Considering the acceptance of first major hypothesis and the positive effect of dividends policy and financing by applying cash holding effects,

we can conclude that the lower levels of excess cash holding will lead to more use of companies of the resources of financing and dividends and firm value increases. On the other hand, the results show that investment opportunities (IO),

cash flow volatility (VOCF), and firm size have had a direct effect on the dependent variable of proper level of cash holding ( $CH_{it}$ ) in the model for determining a proper level of cash holding in a company and the more opportunities will lead to more flexibility of cash and a bigger size will increase the amount of cash which can be held by the company.

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