Investigating the Financial Determinants of Corporate Cash Holdings in Tehran Stock Exchange

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Abstract
This paper investigates the financial determinants of cash holdings in listed companies in Tehran Stock Exchange. For testing hypotheses, the multiple pooled data regression method was used. The empirical tests results by using data from the financial statements of 121 listed companies in Tehran Stock Exchange for period 2003 to 2011, indicates that a positive and significant association between leverage ratio, return on equity, liquidity ratio and firm size with cash holdings exists. Otherwise, dividend payout ratio does not have a significant association with cash holdings, and there is a negative and significant association between free float and cash holdings.

The results of this study provide some evidence that leverage ratio, return on equity, liquidity ratio; firm size and free float are important factors in determining cash holdings in listed companies in Tehran Stock Exchange.

Keywords: Cash holdings, leverage ratio, dividend payout ratio, return on equity, liquidity ratio, firm size, Free Float.

1. Introduction

The financial determinants of corporate cash holdings are worthy of study and research, since cash holdings has cost and the managers of companies generally hold cash as a precaution for probable future events and to avoid cash shortage.

However, on the other hand, companies may lose the opportunity of investing in profitable projects with the positive net present value due to holding cash. In reality, the most important cost related to cash holdings is the cost opportunity.

Furthermore, the higher level of cash holdings may create agency problems between the managers and shareholders of the company.

Usually, the managers of economic institutes prefer an optimum level of cash balance which would prevent the company from bankruptcy due to the shortage of cash balances, and on the other hand the opportunities would not lost by holding excessive cash balances, and this is the cash level target of companies which is different for each companies, by considering the various conditions of companies in different time periods. (Aghaei et al, 2009)

2. Theory and empirical base

2.1. Information Asymmetry Theory

According to the aforementioned theory one of the parties to the transaction enjoys information advantage in comparison to others. In economics, such situation is called information asymmetry. Considering the said theory, the consequences caused by the difference between the general and confidential information may be observed in the financial markets. (Scott 2007) Another group of the studies conducted on the analysis of the factors affecting the companies cash balance indicate that the amount of cash held by the companies increased along with the increase of information asymmetry .(Ozkan, & Ozkan, 2004)

2.2. Agency Theory:

Considering the fact that conflicts of interest exists among the managers the stockholders, in the above-mentioned theory, the structure of contracts for the purpose of coordinating the interests of the managers and the stock holders are reviewed(Scott 2007). The problem of agency is one of the most important determinative factors for companies’
cash holding. The results of studies have shown that in the countries where the shareholders’ equity is not protected well, compared to the countries where the shareholders’ equity is well protected, companies hold a greater amount of cash. (Dittmaret al.2003).

Jensen and Meckling (1976) recognized two types of conflict of interests in the firms:

A) Conflicts of interest among managers and stockholders.
B) Conflicts of interest among stockholders and creditors. (Jensen & Meckling1976.).

2.3. The Tradeoff Theory

Based on the above-mentioned theory, the companies determine their optimum cash balance level by creating a balance between the benefit and the cost of holding cash.

The important point of this theory is that there is an optimal level of cash balance for companies in which the managers, with an approach decide on the cash holding issue based on a cost-benefit analysis (Jani et al, 2004). According to this theory, in order to maximize the shareholders’ wealth, the cash balance of the company must be controlled in such a way that the marginal benefits arising from holding cash would be equal to the marginal costs. (Opler et al, 1999)

Based on the Tradeoff Theory, among the factors determining the balance of cash holding by the companies are:

A) Investment Opportunities: To avoid financial crisis, the companies with more investment opportunities, hold a greater amount of cash. (Foroughi et al,2011)
B) Liquidity of Current Assets: Whenever the company faces shortage of cash, the degree of capability of converting current assets to cash can be considered as a replacement of cash (Foroughi et al, 2011).
C) Financial Leverage: The financial leverage increases the probability of bankruptcy and it is expected that leverage firms are more likely to hoard cash due to the higher probability of financial distress. The financial leverage ratio is considered as a factor for determining the ability of a company for issuing new debenture bonds. Therefore, if the power of paying ability of the cost of outside funds is increased in the company, then there is more financial flexibility and the company may keep a lower amount of cash. For this reason, the relation between financial leverage and the amount of cash balance can not be determined with accuracy. (Ferreira& Vilela2004)
D) Size: Considering the fact that bigger companies have more flexibility, a more stable cash flow is expected of them. The large companies have more bank credit and they can borrow cash easier. In addition, the larger companies can always convert their liquid assets to cash and in turn are less likely to hoard cash. (Opler et al, 1999)
E) Cash Flow: Kim et al, (1998) argue that, considering the fact that cash flow provides an available source of liquidity, it can be considered as a desirable substitute for cash balance.
F) Debt Maturity: The effect of debt maturity on the cash balance is not clear. Those companies which rely on short-term debt must extend their credit contracts in each period, and in case of limitations imposed on the extension of credit contracts, they shall face the risk of financial crisis. Therefore, by controlling other factors, we can expect that the debt maturity has an inverse relation with the cash balance. However, Barclay and Smith (1995) showed that the companies with a good credit rating, due to the easiness of debt creation, usually use short-term debt and keep a lower balance of cash which makes the relationship positive.
G) Dividend payments: Those companies which are presently distributing dividends to their shareholders are more able to raise funds at lower costs when needs by reducing their dividend payment. Can finance resources with the lowest cost through decreasing the amount of dividend distribution. Therefore, it is expected that the companies which distribute dividends, compared with the companies which do not distribute dividends, hold less cash. (Ferreira& Vilela2004)

2.4. Pecking Order Theory

According to the above theory, companies prefer internal sources and after that firms will use external sources. (Drobertz et al, 2010). Therefore, companies prefer to use accumulated earnings at first. After that firms favor external funding by debt with lower risk and then external funding by debt with higher risk compared by share outstanding, since debt has lower information costs than equity financing. As a result, considering the fact that management prefers internal sources to the external sources for financing, they
are inclined to accumulate cash in order to be able to provide for their financial needs internally in the first stage and not to use the external sources. (Ferreira & Vilela 2004)

From pecking order theory viewpoint, factors that determine the decision to hoard cash are as follows:

A) Investment Opportunities: More investment opportunities create a demand for accumulation of more cash balance, because the shortage of cash shall cause that the company lose its profitable investment opportunities, unless the access is made to the external expensive financing. (Foroughi et al, 2011)

B) Financial Leverage: Regarding to the subject of pecking order theory, whenever investment exceeds the accumulated profit, the amount of debt decreases, and therefore, the cash balance follows the reverse pattern of this process. That is, whenever the investment exceeds the accumulated profit, the cash balance decreases and when the amount of investment is less than the accumulated profit, the cash balance increases. The relation between this factor and the cash balance, based on the Pecking order Theory, is reverse. (Foroughi et al, 2011)

C) Cash Flow: By controlling the other variables, it is expected that the companies with more cash flow would have a greater cash balance. (Foroughi et al, 2011)

D) Size: By controlling the investment factor, it is supposed that the large company is more successful and as a result would have a greater amount of cash. (Foroughi et al, 2011)

2.5. Free Cash Flow Theory:

According to the above theory propounded by Jensen and Meckling (1986), the internal cash balance mostly allow the mangers to avoid the market control. Under this condition, they do not need the approval of the shareholders and for deciding about investments shall be free to decide as they wish. Managers are not willing to pay cash (for example, dividends).

The conflict of interest between the shareholders and managers regarding to the dividend policies, in particular is greater when the organizations have noticeable free cash flows. Payment to the shareholders decreases the power of the managers, and on the other hand, it is possible that in case of need to finance through the capital markets, they would be faced with control and supervision, while internal financing able the managers to avoid this superintendency. (Jensen, 1986).

From The viewpoint of Free Cash Flow Theory, the factors that determine the decision to hoard cash are as follows:

A) Financial Leverage: By creating debt, managers shall be bound to pay future cash flows and this shall decrease the available cash flow which can be expensed at the discretion of the management, and decrease the agency cost of free cash flows and it shall have a controlling effect. Therefore, the companies with weaker financial leverage are subject to less supervision and control and this condition provides the management with more authority. As a result, it is expected that the financial leverage would have an inverse relation with the cash balance. (Jensen, 1986).

B) Investment Opportunities: Managers of the companies with more investment opportunities are expected to hold more cash in order to assure the availability of cash for investment on projects, even if the net present value of this investment is negative which would cause decreasing of the company’s value and the wealth of shareholders, and finally would have a lower market value to the book value ratio. Therefore, by utilizing the market value to the book value ratio as a factor for investment opportunities it is expected that the relation between the investment opportunities and the cash balance would be negative. (Garcia et al, 2008)

C) Size: Managers are usually more inclined to the company’s growth than to the desirable size of the company, since the growth of the company increases the power of management by increasing the resources under his control. Also, larger companies are more inclined toward more dispersion of ownership of shareholders which gives the management more authorities. (Jensen, 1986).

2.6. The Incentive Of Cash Holding and Its Optimum Level

In the opinion of Keynes (1936), there are three incentives in the companies for holding cash:

A) Transaction minimization,
B) Precautionary motives,
C) Confronting against risky situations.
The present study mostly relies on the first two items, (Keynes, 1936). The incentive of transaction suggested that the firms stockpile cash when rising-costs and opportunity costs are higher. On this basis, we can say that the companies which face shortage of internal resources can increase their resources by selling of assets, creating new debts or issuance of new stocks, or by not distributing dividends. Therefore, it is expected that the companies which face a greater transaction expenses hold more cash assets.

The precautionary motive is mostly concerned with confronting against the risk of cash shortage, utilizing business opportunities, and avoiding bankruptcy. Companies hold cash for encountering unforeseen events and in case the cost of other sources of financing is higher, then the accumulated cash reserves are used for financing the investments. (Ozkan & Ozkan, 2004).

The company which is facing shortage of cash balances, increases its capital through the capital market, converts its assets to cash, decreases its dividends payouts, renegotiates its financial contracts, or engages in a combination of the above actions. Of course, cash holding has also an opportunity cost and on the other hand the shortage of cash balance may impose major losses to the company. As a result of for a specific amount of net asset, an optimum amount of cash balances exists.

In other words, there is an optimum and desirable limit of cash balance, that it would not be more than what is required so the company confront the loss because its investment is remained suspended, or less than the minimum balance needed so that the company would encounter shortage of cash. (Talebi, 1998)

Cash: Cash is only referred to the cash balance and sight deposits with banks and financial institutes including Rials and foreign currency (consisting of short-term investment deposits without maturity). The characteristic sight cash balances regarding the items forming the cash fund would mean that such items could be withdrawn without prior notice.

Long-term investment deposits are not considered cash, because the objective of their holding is the acquisition of profit. (Auditing Organization Technical Committee, 2009)

2.7. Empirical Evidence

Aghaei et al, (2009), studied the factors effective on holding cash funds in companies accepted in Tehran Stock Exchange Market. The result of their research showed that the account receivables, net working capital, goods inventory and short-term liabilities respectively, are the most important factors with negative effects on holding cash balances. On the other hand, company with growth opportunities, dividend payments, fluctuations of cash flows and net profit respectively, are the most important factors having positive impact on cash holding. However, there is not enough evidence on the negative effects of long-term liabilities and the size of companies on cash balance.

Kashanipour and Taghinejad (2009) studied the effect of financial limitations on the changes in the level of cash holdings with changes of cash flows. By using such criteria like the company size, company age, dividend per share ratio and the business group as representative of the presence of financial limitations, they demonstrated that the flow of cash has no significant effect on the level of cash holdings and furthermore that there is no significant difference between the sensitivity of the cash flow of cash balances of companies with and without financial limitations.

Izadinia and Rasaian (2010), in the study of corporate governance monitoring tools, the level of cash holdings and the performance of the companies accepted in Tehran Stock Exchange, concluded that there is no significant relation between the percentage of institutional shareholders and the value of the companies accepted in Tehran Stock Exchange Market. However, there is positive and significant relation between the level of cash holding and the value of the companies accepted in Tehran Stock Exchange.

Garcia et al, (2008) studied the effect of accounting quality on the company cash fund. The results showed that the companies with high level of accrual items, compared with the companies with low level accruals quality, keep a lower level of cash balance.

Harford et al, (2008) analyzed the relations between corporate governance and corporate cash holdings in the United States of America. The results showed that the companies with weak corporate governance have less cash reserves and the companies with low shareholders’ equity and excess cash balance, are less profitable.

Guney et al. (2007) study the behavior of cash holding in French, German, Japanese, English, and American companies. This research concentrates on the relation between the leverage and cash holding. The results of this research also show that the effect of leverage on cash holding is somewhat depends on the characteristics of countries such as the support of creditors and the support of shareholders and the supervision of owners, and high degree of supporting the shareholders is connected to the lower amount of cash balance, and the concentration of
ownership also has a negative effect on the cash balance. Ozkan (2004) concluded that cash holding has an inverse relation with cash equivalents and current assets of the company. The results indicate that companies can use the current assets as a substitute for cash balance. Also, in order to avoid cash shortage for dividend payments, companies hold more cash.

Opler et al, (1999) reviewed the factors that have effect on cash balance of the companies in the United States of America for the period from 1971 to 1994 and found out that the companies with higher growth opportunities and cash flows with higher risk relatively hold more cash compared with the total non-cash assets. Ozkan and Ozkan (2004) studied a sample of English companies during a period from 1984 to 1999 and showed that in particular, the amount of ownership of management in the companies has an important relation with the amount of company’s cash balance and in general, the growth opportunities, cash flows, liquid assets, financial leverage and bank debts are considered as important factors in determining the amount of cash balance.

3. Hypotheses Development

H1: There is a positive association between leverage and cash holding.
H2: There is a negative association between dividends and cash holding.
H3: There is a positive association between return on equity and cash holding.
H4: There is a positive association between asset liquidity and cash holding.
H5: There is a positive association between firm size and cash holding.
H6: There is a negative association between free float and cash holding.

4. Research Methodology

This research is an experimental research type (meaning that it is seeking to establish the relation between independent and dependent variables). With view to the target, the present research methodology is an applied research. Considering the classification based on the research method, the present research is made based on the descriptive and correlation methods. The data used in this research are collected from audited financial statements. For this purpose, a major portion of data is collected from Rah Avard Novin software, as well as through Islamic Studies and Research Management Center of Stock Exchange Market (www.rdis.com) and also the database of this organization.

4.1. Measuring Variables

Dependent Variables:

CASH: Cash which is measured by cash and cash equivalents (cash balances and sight deposits with banks and financial institutes including RLS and foreign currency consisting of short-term investment deposits without maturity) divided by total assets.

Independent Variables:

LEV: The financial leverage ratio measured by the total debt to total assets.

DPR: The dividend payout ratio measured by dividends per share divided by earnings per share.

ROE: The return on equity ratio measured by net profit income divided by the Owners’ equity.

LIQ: The liquidity ratio measured by the total cash balance and short-term investment divided by current liabilities.

SIZE: The size of the company measured by natural logarithm of value of stock market.

Free float: The free float stocks which is equal to:
1) The amount of shares held by each of the shareholders
2) The stocks held by family shareholders
3) The stocks held by legal entities in the same group of direct or indirect ownership in case they are less than 5 percent.

ε: Error
4.2. Method of Testing Hypotheses:

For testing the hypotheses No.1 to 5, the below econometrics model is used:

\[ \text{CASH}_t = \beta_0 + \beta_1 \text{LEV}_t + \beta_2 \text{DPR}_t + \beta_3 \text{ROE}_t + \beta_4 \text{LIQ}_t + \beta_5 \text{SIZE}_t + \epsilon_t \]

For testing the hypothesis No. 6, the below econometrics model is used:

\[ \text{CASH}_t = \beta_0 + \beta_1 \text{LEV}_t + \beta_2 \text{DPR}_t + \beta_3 \text{ROE}_t + \beta_4 \text{LIQ}_t + \beta_5 \text{SIZE}_t + \beta_6 \text{FREE FLOAT}_t + \epsilon_t \]

5. Research Findings:

5.1. Descriptive Statistics:

As shown in Table No.1, the mean and median central index and the dispersion index of standard deviation as well as the maximum and minimum of the tested data have been calculated. One of the important characteristics of the natural distribution is the closeness of the mean and average values. As it can be seen, the mean and average values are closer to each other which indicate that the distribution of variables is symmetrical. It addition, it is observed that the average value plus standard deviation is between the minimum and maximum values. Furthermore, the obtained average for holding cash is 0/056. In other words, on the average, companies hold 5/6 % of their assets in the form of cash.

5.2. Pearson Correlation Test:

As shown in Table 2, there is no strong correlation between independent variables of the research. Therefore, the settlement of these independent variables next to one another shall not create any testing problem in the soundness of fitted regression.

6. Regression Results:

6.1. Test of the first Model Hypotheses:

The following model is used for the first stage of our analysis:

\[ \text{CASH}_t = \beta_0 + \beta_1 \text{LEV}_t + \beta_2 \text{DPR}_t + \beta_3 \text{ROE}_t + \beta_4 \text{LIQ}_t + \beta_5 \text{SIZE}_t + \epsilon_t \]

The results obtained from the analysis of hypotheses No. 1 to 5, are presented in Table 3.

As observed in Table 3, 78/59% of the changes in the cash balance (cash holding) of the companies are explained by the independent variables used in the above model. The value of adjusted R-Squared, considering the size of sample and population is calculated at 75/60%. The statistics of Durbin-Watson is calculated 1/998 which indicates that the components of error in this model has no significant correlation with one another and have independent behaviors of each other. On the other hand there is no correlation between the elements of observation error.

The significance level of Hadri test for every independent variable is less than the accepted level of error (5%). Therefore, every single variable is stationary. The statistical value of F calculated in the fitted regression model is 26/272 and considering the level of significance in the table (0/000), it is observed that regression is significant in general. Considering the level of significance for every independent variable it can be said that the effect of the fixed value of the independent variable on cash holding is -0/087194, negative and significant, the effect of the independent variable of financial leverage ratio on cash holding is 0/049616, positive and significant, and the effect of the independent variable of dividend payout ratio has no significant effect on cash holding, the effect of the independent variable of return on equity on cash holding is 0/02886, positive and significant, the effect of the independent variable of liquidity ratio on cash holding is 0/297903, is positive and significant, the effect of independent variable of the company size on cash holding is 0/006269, is positive and significant.

6.2. Test of the second Model Hypotheses:

To test H6, we run the following model:

\[ \text{CASH}_t = \beta_0 + \beta_1 \text{LEV}_t + \beta_2 \text{DPR}_t + \beta_3 \text{ROE}_t + \beta_4 \text{LIQ}_t + \beta_5 \text{SIZE}_t + \beta_6 \text{FREE FLOAT}_t + \epsilon_t \]

The results obtained from the testing of hypothesis are presented in Table No.4

As observed in Table 4, 78/75% of the changes in cash holding of the companies are explained by the independent variables used in the above model. The value of adjusted R-Squared, considering the size of sample and population is calculated at 75/75%. The statistics of Durbin-Watson is calculated 1/8944 which indicates that the components of error in this model has no significant correlation with one another and have independent behaviors of each other. On the other hand there is no correlation between the elements of observation error.
The significance level of Hadri test for every single variable is less than the accepted level of error (5%). Therefore, every single variable is stationary. The statistical value of F calculated in the fitted regression model is 26/2961 and considering the level of significance in the table (0/000), it is observed that regression is significant in general.

Considering the level of significance obtained which is less than the error percentage (5%), the effect of the independent variable of the free float stocks cash holding, -0/000493, is negative and significant.

7. Conclusion:

The results of this research shows that the independent variables of financial leverage ratio, return on equity, liquidity ratio, size of the company and free float stocks are among the determinative financial factors for cash holding in the companies accepted in Tehran Stock Exchange. Furthermore, the independent variables of financial leverage ratio return on equity, liquidity ratio, and company size have a positive and significant effect and the independent variable of free floating stocks has a negative and significant effect on corporate cash holding. Also, the independent variable of dividend payout ratio has no significant effect on corporate cash holding.

According to the Pecking Order Theory also, it is expected that by controlling the investment factor, the bigger company is supposed to have been more successful and therefore would have more cash.

According to the tradeoff Theory also, it is expected that the company with greater financial leverage would hold more cash to avoid bankruptcy and decreasing the financial risk. (Ferreira& Vilela, 2004)

The company which distributes dividends, by stopping this payment shall easily have access to cash and therefore shall have less cash balance. On the other hand, they should have enough cash to pay dividends. As a result, the effect of this variable on corporate cash holding is not clear.

According to the Pecking Order Theory, regarding to return on equity, profitable companies use their profits as a source of creating liquidity and cash, and therefore are not inclined to hold more cash. (Drobetz et al, 2007). Therefore, there is a positive relation between return on equity and corporate cash holding.

The free float stocks are the stocks held by non-strategic shareholders, and since they are less than 5%, they can easily be converted into cash in the capital market.

Therefore, the more the free float sharers, the less cash balance is held.
References


Table 1. Descriptive Statistics

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<td>0.117182</td>
<td>0.674128</td>
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<td>Mean</td>
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Table 2. Pierson Correlation

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<th>Variables</th>
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<td>0.088559</td>
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Table 3. Test of the first Model Hypotheses

\[
\text{CASH}_it = \beta_0 + \beta_1 \text{LEV}_it + \beta_2 \text{DPR}_it + \beta_3 \text{ROE}_it + \beta_4 \text{LIQ}_it + \beta_5 \text{SIZE}_it + \epsilon_it
\]

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<td>SIZE</td>
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R-Squared =78/59%  Adjusted R-Squared =75/60%
Durbin-Watson =1/998
F- statistic=26/272  Prob (F-statistic)=0/0000
### Table 4. Test of the second Model Hypotheses

\[
\text{CASH}_t = \beta_0 + \beta_1 \text{LEV}_t + \beta_2 \text{DPR}_t + \beta_3 \text{ROE}_t + \beta_4 \text{LIQ}_t + \beta_5 \text{SIZE}_t + \beta_6 \text{FREE FLOAT}_t + \epsilon_t
\]

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<td>-2/665741</td>
<td>11/185     (0/0000)</td>
<td>-0/000493</td>
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<tr>
<td>LEV</td>
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<td>16/005     (0/0000)</td>
<td>0/049900</td>
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<td>DPR</td>
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<td>1/721536</td>
<td>8/013      (0/0000)</td>
<td>0/0000442</td>
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<td>ROE</td>
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<tr>
<td>LIQ</td>
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<td>38/99743</td>
<td>11/367     (0/0000)</td>
<td>0/297319</td>
</tr>
<tr>
<td>SIZE</td>
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<td>2/859224</td>
<td>13/201     (0/0000)</td>
<td>0/007043</td>
</tr>
</tbody>
</table>

R-Squared = 78/75%  
Adjusted R-Squared = 75/75%  
Durbin-Watson = 1/8944  
F-statistic=26/2961  
Prob (F-statistic)=0/0000