The Effect of State Ownership and Concentrated Institutional Ownership on Cash Holding Level in the Listed Companies in the Tehran Stock Exchange

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Abstract

The present study was formulated in order to determine the effect of state ownership and concentrated institutional ownership on cash keeping level in Tehran stock companies from 2009 to 2013. For this purpose, 108 companies (540 year-companies) were selected as the sample of the study. Therefore, panel data (year-company) were used in this study. A panel data approach via f test (Limer) was used to estimate data. Fixed and random effects were chosen by Hausman test and random effects were used. Breusch-Pagan / Cook-Weisberg test was used to determine heteroscedasticity and the results showed that it heteroscedasticity exists in the research models. Therefore, the data were analyzed via linear regression by using Eviews 7. The results obtained from the study revealed that there is no significant relationship between concentrated and non-concentrated institutional ownerships and cash keeping level; however, there is a significant negative relationship between state and non-state ownership and cash keeping level.

Keywords: concentrated institutional ownership, non-concentrated institutional ownership, state ownership, cash holding level.
1- Introduction
Although cash holding in a company might bring about an outcome with low rate, it impedes a higher level of outcome caused by investing the cash in different areas. On the other hand, cash holdings may have two advantages for the company: first, companies can prevent from the costs for attracting financial resources and liquefying other assets; second, companies can make use of cash for financing investment activities when other financial resources are not available or are too expensive (Opler et al., 1999).
These issues do not place any priority between the interests of stockholders and managers; however, managers may perform activities in favor of themselves but in the cost of stockholders. For instance, managers may spend cash for their own use or may overinvest on a worthless project. Recent studies have mostly focused on the relationship between cash holding level and corporate governance (Chen & Chaung, 2009; Harford et al., 2008; Kalcheva & Lins, 2007; Dittmar et al., 2003).
Myers and Rajan (1998) and Caprio et al. (2011) introduced another definition of cash holding cost: cash is an asset with high liquidity and therefore, it is an asset which is most likely considered by politicians and governmental entities. As a result, governmental entities and politicians do not undergo any cost to spend the cash. In this regard, managers may have an incentive to reduce cash (and invest on fixed assets which are hardly considered) in order to protect their assets from governmental seizure. Caprio et al. (2011) stated that companies acting in countries with governmental corruption have lower tendency to hold cash and higher inclination to invest on fixed assets compared with companies acting in countries with lower levels of corruption.
Furthermore, type of investor might influence on cash holding level where institutional investors might have lower tendency to hold cash with regard to their investment goals. Rasaeian et al. (2010) revealed that institutional investors in governance structure and their supervision role in the listed companies in the Tehran Stock Exchange can decrease cash holding level. On the other hand, some other studies have shown that concentration of governance can put big stockholders of companies in a condition where they exploit company’s resources for their own use. These resources could be accumulated cash in the company.
Taken together, the present study aimed at finding an answer to the question whether governmental and concentrated institutional governance in Iran might influence on cash holding level. In this regard, two hypotheses were drawn:
H1: There is a significant relationship between concentrated and non-concentrated institutional ownership and cash holding level in the listed companies in the Tehran Stock Exchange.
H2: There is a significant relationship between state and non-state ownership and cash holding level in the listed companies in the Tehran Stock Exchange.

2- Methodology
The present study is considered a correlational descriptive survey. The statistical population consisted of all the listed companies in Tehran Stock Exchange in a five-year period from 2009 to 2013. The inclusion criteria in the present study were as follows: companies listed in Tehran Stock Exchange from some date before 2009; companies whose fiscal year ends in the last day of...
the year; companies not included in the list of financial institutions, banks, insurance companies, and investment companies; companies with no more than 6 month trade stagnation. Finally, 150 companies remained from which, 108 companies were selected as the study sample with regard to Morgan’s Table.

Theoretical information was gathered by library studies while the data for statistical analysis were collected from the website of Tehran Stock Exchange, companies’ financial statements, and Rahavard Novin 3 Software.

Panel data were used here in order to estimate regression models. In this method, time series and cross-sectional are combined. It has some advantages as follows: possibility of designing more complicated behavioral models; higher flexibility, freedom degree, and efficiency and lower multicolinearity; provision of richer source of information; possibility of detection of unobservable effects; and omission of the deviations caused by accumulation of people or companies (Mehregan & Ashrafzadeh, 2008).

There are complications in estimate of the relationships in which panel data are used. In general, the following model is a model with panel data:

\[ Y_{it} = \beta_{1i} + \sum_{k=2}^{K} \beta_{kit}x_{kit} + e_{it} \]  

(1)

where \( i = 1, 2, \ldots, N \) denotes cross-sections and \( t = 1, 2, \ldots, T \) points to time, \( Y_{it} \) is the dependent variable for the \( i \)th cross-section in the year \( t \) and \( X_{kit} \) is the \( k \)th nonrandom independent variable for the \( i \)th cross-section in the year \( t \).

Assume the mean error term \( e_{it} \) is zero (\( E(e_{it}) = 0 \)) and its variance is fixed (\( E(e_{it}^2) = \delta_{e}^2 \)). \( \beta_{kit} \) is unknown parameter of the model which measure reaction of dependent variable to variations of the \( k \)th independent variable in the \( i \)th cross-section and the \( t \)th year. In general, it is assumed that these coefficients are different in various cross-sectional and time units. However, in many studies, variable coefficients are very limiting for all cross-sections and times and the researcher should specify suitable hypotheses about parameters with regard to the nature of topic. This model can be divided into five conditions (Greene, 2003):

1. All coefficients are fixed and it is assumed that the error term is able to explain all differences between cross-sectional and time units:

\[ Y_{it} = \beta_1 + \sum_{k=2}^{K} \beta_kx_{kit} + e_{it} \]  

(2)

2. The coefficients related to the variables (slopes) are fixed and only intercepts are different in varying cross-sections:

\[ Y_{it} = \beta_{1i} + \sum_{k=2}^{K} \beta_kx_{kit} + e_{it} \]  

(3)

3. The coefficients related to the variables (slopes) are fixed but intercepts are different between cross-sections and times:

\[ Y_{it} = \beta_{1it} + \sum_{k=2}^{K} \beta_kx_{kit} + e_{it} \]  

(4)

4. All the coefficients are different for all cross-sections:

\[ Y_{it} = \beta_{14} + \sum_{k=2}^{K} \beta_{kit}x_{kit} + e_{it} \]  

(5)
(5) All the coefficients are different in terms of both time and cross-sections:

\[ Y_{it} = \beta_{14t} + \sum_{k=2}^{K} \beta_{kit}x_{kit} + e_{it} \]  

(6)

Concerning the methods for estimate of the mentioned models, it can be said that the conditions 2, 3, and 4 are classified into fixed effects or random effects with regard to fixed or varying coefficients (Baltagi, 2005).

A question which arises in applied studies is whether there is evidence regarding equality of intercepts and the intercepts are different for varying cross-sections. The null hypothesis for this test is the equality of intercepts for varying cross-sections. The hypothesis can be considered as a set of linear constraints on the intercept and \( F \) statistic is used to test it as follows:

\[ F = \frac{RSS_2 - RSS_1}{N - 1} \frac{RSS_1}{NT - N - K} \]  

(7)

where \( RSS_1 \) is square root of the remnants from regression with equal intercepts and \( RSS_2 \) is the square root of the remnants from regression with varying intercepts. If \( H_0 \) is not accepted, intercepts of different cross-sections cannot be considered equal (Baltagi & Chang, 1994).

Common method in formulation of panel data model is based upon the fact that the difference between the units can be depicted as the difference between intercepts; therefore, each \( \beta_i \) in should be estimated.

Assuming \( X_i \) and \( Y_i \) include \( T \) observations for the \( i \)th unit and \( e_{it} \) is the vector of error term with \( n \cdot T \) dimensions, it follows:

\[
\begin{bmatrix} Y_{1} \\ Y_{n} \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 \\ 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} \alpha_1 \\ \alpha_n \end{bmatrix} + \begin{bmatrix} X_1 \\ X_n \end{bmatrix} \beta + \begin{bmatrix} \epsilon_1 \\ \epsilon_n \end{bmatrix} \]  

(8)

Fixed effect model is considered logical only if the difference between the cross-sections can be shown as a regression function transfer, which is impossible to be sure of all the time. Therefore, other approaches are taken one of which is random effects approach. It assumes that the constant for different cross-sections is distributed randomly among the cross-sections. Random effects model is defined as follows:

\[ y_{it} = \alpha + \beta X_{it} + u_i + \epsilon_{it} \]  

(9)

where \( u_i \) is the determining attribute of the random component related to the \( i^{th} \) unit and it is fixed with time. In applied studies, the \( u_i \) can be considered a specific characteristic of each cross-section, which is not introduced into the model. It should be noted that the variances related to different cross-sections are not the same and consequently, our model has heteroscedasticity; so, generalized least squares should be used here (Baltagi & Chang, 1994).

Statistic of Hausman test, which is estimated as follows in order to recognize fixed or random differences in cross-sectional units, has a chi-square distribution \( (X^2) \) with a freedom degree one unit lower than independent variable \((k - 1)\).

\[ h = x^2_{(k-1)} = [b - \hat{\beta}] \Phi^{-1} [b - \hat{\beta}] \]  

\[ V ar[b - \hat{\beta}] = V ar[b] - V ar[\hat{\beta}] = \Psi \]  

(11)

where \( b, \hat{\beta}, \) and \( \Psi \) stand for the coefficients from fixed effects approach, the coefficients from random effects approach, and variance-covariance matrix of coefficient, respectively.
In fact, this test determines the heteroscedasticity hypothesis if individual effects and explanatory variables, in which estimates of generalized least squares are compatible in $H_0$ and incompatible in terms of $H_1$. In other words, in the random effects approach in which estimators of generalized least squares are used, $H_0$ shows compatibility of coefficients whereas $H_1$ is based on rejecting this incompatibility. Therefore, if $H_0$ is accepted, random effects approach is prioritized over fixed effects approach. If the calculated statistic is bigger than $x^2(k)$, $H_0$ is rejected and therefore, fixed effects approach is used.

In the present study, Breusch-Pagan / Cook-Weisberg test was used to determine heteroscedasticity and $\alpha$ was considered to be 0.05. what follows is the model to test hypotheses in the present study:

\[
\text{Cash} = \alpha + \beta_1 \text{Institutional} + \beta_2 \text{Non-State} + \beta_3 \text{LEV} + \beta_4 \text{Size} + \beta_5 \text{age}
\]

$Cash_{i,t}$ is the dependent variable which is the cash holding level in company $i$ in year $t$. It is obtained from all cash assets of company reported in the balance sheet.

$\text{Institutional}_{i,t}$ is the independent variable which is a dummy variable and it equals concentrated institutional ownership of company $i$ in year $t$. If a given company has more than two major institutional stockholders (with an overall ownership of over 50%), it is considered to have concentrated institutional ownership and it is considered to be 1 and otherwise, it is 0.

$\text{Non-State}_{i,t}$ is independent variable which is a dummy variable; it is 1 if company has state ownership and otherwise, it will be 0.

$\text{LEV}$ is a control variable of leverage which is obtained by all debts divided by all assets.

$\text{SIZE}$ is a control variable of company size which is acquired from the natural logarithm of all assets.

$\text{Age}$ is control variable of company age which is obtained by the difference of company registration year and fiscal year.

### 3- Results

Table 1 depicts descriptive statistics of the variables including mean, median, maximum, minimum, standard deviation, etc.

<table>
<thead>
<tr>
<th></th>
<th>CASH</th>
<th>INSTITUTIONAL</th>
<th>NON-STATE</th>
<th>LEV</th>
<th>SIZE</th>
<th>AGE</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean</strong></td>
<td>167959.7</td>
<td>0.4889</td>
<td>0.5167</td>
<td>0.6651</td>
<td>6.0488</td>
<td>15.1407</td>
</tr>
<tr>
<td><strong>Median</strong></td>
<td>24219</td>
<td>0.0000</td>
<td>1.0000</td>
<td>0.6500</td>
<td>5.9650</td>
<td>14.0000</td>
</tr>
<tr>
<td><strong>Max</strong></td>
<td>4362650</td>
<td>1.0000</td>
<td>1.0000</td>
<td>3.0600</td>
<td>8.0100</td>
<td>45.0000</td>
</tr>
<tr>
<td><strong>Min</strong></td>
<td>200.0000</td>
<td>0.0000</td>
<td>0.0000</td>
<td>0.1000</td>
<td>4.3900</td>
<td>2.0000</td>
</tr>
<tr>
<td><strong>Std</strong></td>
<td>522309.9</td>
<td>0.5003</td>
<td>0.5002</td>
<td>0.2987</td>
<td>0.6284</td>
<td>8.5934</td>
</tr>
<tr>
<td><strong>Skewness</strong></td>
<td>5.2421</td>
<td>0.0445</td>
<td>-0.0667</td>
<td>3.0527</td>
<td>0.6200</td>
<td>1.3143</td>
</tr>
<tr>
<td><strong>Kurtosis</strong></td>
<td>33.650</td>
<td>1.0020</td>
<td>1.0044</td>
<td>21.3662</td>
<td>3.3832</td>
<td>4.2942</td>
</tr>
</tbody>
</table>

Table 2 shows correlation between study variables at sig≤0.01 and sig≤0.05.

Table 2: correlational matrix of study variables
The study model was estimated by the panel data (year-company) obtained from 108 listed companies in Tehran Stock Exchange. Therefore, a wise decision should be taken on the best method of using panel data before model estimate using them. First, it should be found that whether it is necessary to consider the structure of panel data and whether it is possible to perform pooling on the data from different firms and use them in the model estimate. In unequational estimates, \( F \) test (Limer) is adopted to make the decision. According to the results obtained from the test, decisions are made regarding acceptance or rejection of equality of fixed effects of companies and selection of either classic or panel data approached. Table 3 shows the results of Chow test (\( F \) statistic) concerning the mentioned hypothesis in the study model.

Table 3: \( F \) test (Limer) result to select either pooling approach or panel approach

<table>
<thead>
<tr>
<th>( H_0 )</th>
<th>statistic</th>
<th>Freedom degree</th>
<th>p-value</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Special effects of the company are not significant (pooling approach is suitable).</td>
<td>4.0020</td>
<td>107</td>
<td>0.0000</td>
<td>( H_0 ) is rejected (data panel approach is selected).</td>
</tr>
</tbody>
</table>

As it can be seen in Table 3, \( H_0 \) is rejected at the confidence level of 95% and therefore, data panel approach should be adopted. So, Hausman test is used to select either fixed or random
effects model. Table 4 shows the results of Hausman test. According to the table, fixed effects approach should be used.

Table 4: The results of Hausman test to choose either fixed or random effects model

<table>
<thead>
<tr>
<th>H₀</th>
<th>x² statistic</th>
<th>Freedom degree</th>
<th>p-value</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random effects approach is suitable.</td>
<td>15.8248</td>
<td>5</td>
<td>0.0074</td>
<td>H₀ is rejected (fixed effects approach is suitable).</td>
</tr>
</tbody>
</table>

Table 5 depicts the results of Breusch-Pagan/Cook-Weisberg test to determine heteroscedasticity. The results showed that there is heteroscedasticity in the study model (p<0.05). Therefore, final estimation of the model is done by GLS test to solve heteroscedasticity problem.

Table 5: The results of Breusch-Pagan/Cook-Weisberg test to determine heteroscedasticity

<table>
<thead>
<tr>
<th>H₀</th>
<th>x² statistic</th>
<th>p-value</th>
<th>Test result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Variances are the same.</td>
<td>27.65</td>
<td>0.0000</td>
<td>H₀ is rejected (there is heteroscedasticity).</td>
</tr>
</tbody>
</table>

Table 6 shows the results of estimation of the study model.

Table 6: The results of study model estimation

<table>
<thead>
<tr>
<th>Variables</th>
<th>coefficients</th>
<th>std</th>
<th>t statistic</th>
<th>sig</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>-0.0200</td>
<td>0.0206</td>
<td>-0.9707</td>
<td>0.3322</td>
<td>-</td>
</tr>
<tr>
<td>INSTITUTIONAL</td>
<td>-0.0002</td>
<td>0.0022</td>
<td>-0.1042</td>
<td>0.9170</td>
<td>1.03</td>
</tr>
<tr>
<td>NON-STATE</td>
<td>-0.0124</td>
<td>0.0037</td>
<td>-3.3664</td>
<td>0.0008</td>
<td>1.20</td>
</tr>
<tr>
<td>LEV</td>
<td>-0.0079</td>
<td>0.0027</td>
<td>-2.9595</td>
<td>0.0033</td>
<td>1.02</td>
</tr>
<tr>
<td>SIZE</td>
<td>0.0114</td>
<td>0.0034</td>
<td>3.3563</td>
<td>0.0009</td>
<td>1.14</td>
</tr>
<tr>
<td>AGE</td>
<td>0.0002</td>
<td>0.0002</td>
<td>1.0476</td>
<td>0.2954</td>
<td>1.05</td>
</tr>
<tr>
<td>Fisher statistic (sig)</td>
<td>11.3173</td>
<td>0.0000</td>
<td>Durbin-Watson statistic</td>
<td>2.1442</td>
<td></td>
</tr>
<tr>
<td>Coefficient of determination</td>
<td>0.7480</td>
<td>Standardized coefficient of determination</td>
<td>0.6819</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Multicolinearity is a condition showing that an independent variable is a linear function of other independent variables. If multicolinearity in a regression relation is high, there is a high correlation between independent variables and the model might be of less validity because of high level of R². VIF for all the independent variables in the present study is lower than 5 (Table 6) and therefore, there is no colinearity between independent variables. So, the fitted model has validity.

In order to make sure of the correctness of the results, F test is used to determine significance of the whole model. With regard to the calculated F statistic (0.0000), it can be claimed that the fitted regression model is significant. Also, with regard to the coefficients of determination in the
fitted model, it can be claimed that approximately 75% of the variations in dependent variable of
the model (cash holding level) in defined by the independent variables.
Estimate coefficient of the independent variable INSTITUTIONAL in the above table shows
insignificant relationship between concentrated and non-concentrated institutional ownership and
cash holding level (p>0.05). In addition, Estimate coefficient of the independent variable NON-
STATE shows that there is a negative and significant relationship between state and non-state
ownership and cash holding level (p>0.05). Estimate coefficient of the independent variable LEV
denotes a negative and significant relationship between financial leverage and cash holding level
(p<0.05). Furthermore, estimate coefficient of the independent variable SIZE points to a positive
and significant relationship between company size and cash holding level (p<0.05). Finally,
estimate coefficient of the independent variable AGE shows that there is no significant
relationship between company’s age and cash holding level (p>0.05).

4- Discussion
The present study aimed at determination of the effect of institutional ownership on cash holding
level. The result of testing the first hypothesis revealed that there is no significant relationship
between concentrated and non-concentrated institutional ownership and cash holding level.
Therefore, the first hypothesis is rejected. This is in agreement with the results of Modarres et al.
(2009) and Hassas Yeganeh et al. (2008) but was inconsistent with the results of Noravesh et al.
(2009), Rasaeian et al. (2010), and Yuanto (2011). This discrepancy might be rooted in two
schools of thought about the role of institutional stockholders in companies. One of the schools
denotes that institutional stockholders are inherently short-term-oriented. They are temporary
investors and in determination of stock price, they pay attention to current profit, not to long-
term profit. On the other hand, the other school of thought denotes that when ownership of a
given company’s stock is concentrated between few investors (especially institutional investors),
problems of separation of ownership and control will decrease. Therefore, varying results will be
obtained with regard to the role institutional stockholders play in different companies.
The present study also evaluated the effect of state ownership and cash holding effect. The
results showed that there is a negative and significant relationship between state and non-state
ownership and cash holding level. So, the second hypothesis is accepted. This is consistent with
the findings of Noravesh et al. (2009), Dittmar et al. (2003), Yuanto (2001), and Harford et al.
(2008) whereas it is inconsistent with the results of Hassas Yeganeh et al. (2008), Gao et al.
(2013). This difference of opinions might be due to the fact that there are three incentives to hold
cash, namely necessity of trade, precautionary measures, and coping with risky conditions. The
studies on cash holding in companies put more emphasis on necessity of trade and precautionary
measures. Incentive of trade is mainly due to expensiveness of using other assets (except cash) in
commercial deals. On this basis, it can be claimed that the companies with limited internal
resources can increase their resources by selling assets, making new debts, distribution of new
stock, or not paying cash profit of stock. Therefore, it is expected that the companies with higher
deal costs keep more funds of cash assets. On the other hand, precautionary incentive is mostly
about coping with the risk of cash shortage, using commercial opportunities, and avoiding from
bankruptcy. Therefore, companies hold cash to face with unpredicted events and if the cost of
other article of financial provision is high, they use their held cash to finance their investments. So, companies might have different results in terms of their incentive to hold cash.

The present study faced with some limitations. Lack of dependable and necessary data for estimation of the study variables about some companies resulted in omission of them which adversely influences on the generalization of results. With regard to the limitations on choosing the statistical sample, the number of companies from some industries is very few and some industries are not even included in the sample. Other limitations include economic and political situations, type of industry, activity of company, and national and international regulations.

With regard to the results obtained from the present study, user of financial reports should be aware of the fact that presence of institutional stockholders in a given company cannot provide enough assurance regarding the efficient supervision on cash holding level by companies and therefore, user of financial reports should pay attention to this point. It is recommended to Tehran Stock Exchange to divulge more information on state ownership of companies because as the results of the present study revealed, higher percentage of state ownership leads to more efficient supervision on cash holding level in companies, which can decrease cash holding in the companies.
References