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Information Asymmetry and Cash Holdings

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ABSTRACT

In this research, the relationship between information asymmetry and cash holdings in listed companies in Tehran Stock Exchange is studied. Research method in terms of purpose and data collection is application and descriptive-correlation, respectively. This study uses a sample including 78 companies from Tehran Stock Exchange during the period 1382 to 1390. Research hypotheses are about the existence or lack of a relationship between cash holdings and its constituent factors and also investigate the kind of relationship between information asymmetry and cash holdings. Regression models as well as combinational data are used as the research methods. Results achieved in this study show that cash holdings has a significant relationship with factors such as the amount of cash in year ago, corporate size, relationships with banking institutions, debt maturity structure, financial leverage, cash flow generation capacity, and the company's life. It was resulted that cash holdings has no significant relationship with information asymmetry, the amount of cash, relationships with banking institutions and financial leverage, but it has a significant relationship with other factors.

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INTRODUCTION

In efficient markets, it is assumed that firms can easily provide their needed funds from the capital market. But this assumption with non-efficient markets is not correct and providing cash from the capital market requires much costs. The issue of information asymmetry and asymmetric markets is an important problem and with complexity of goods, services and exchange mechanism its importance has grown. Securities markets is subject to the various threats resulting from information asymmetry and various adverse consequences such as decreased market efficiency, increased trading costs, market weakness, low liquidity and generally reduced earnings from trading in capital markets.

Overall in the condition of asymmetric information, the cash holdings can prevent costs associated to the improper selection which increases with external financing and consequently contribute to the increased value of the company. On the other hand, cash accumulation without efficiency leads to the decline in property and consequently in the company's value.

Research literature:

Kim and Varchiya (1994) published proposed benefits, you can reduce the information asymmetry firms to publish information to the entire market.

They also recognized that asymmetric information in the earnings release remain at a high level, so that some traders are better able to process information. Demelo *et al.* (2008) showed that in situations where information asymmetry is high, companies are trying to hold more cash, rather than financing their. Nohel *et al.* (1998) theory of free cash backs. Finally, Landstrom (2009) explicitly focus on and cash flows of information asymmetry and the results of his research has confirmed the theory of free cash.

Research hypotheses:

First hypothesis:

between cash holdings and its constituent elements are related.

Second hypothesis:

the relationship between information asymmetry and cash holdings is straightforward.

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Third hypothesis:

the information asymmetry and cash holdings are inversely related.

*Research variables and how they are measured:**Definition of variables:*

In this paper, to measure the information asymmetry between investors and Chiang Vnktash model is used to determine the amplitude difference between the bid and offer price for the shares has been designed [11] Iran also Ahmad Pur and Rsayyan (1385) and free Zadeh (1387) to measure information asymmetry pattern are used.

$$\text{Difference amplitude between the sale and purchase price of stocks} = \frac{(AP - BP) * 100}{(AP - BP)/2}$$

Spread:

the price difference between the range and purchasing stock $Qrvsh - AP$ average sale price of shares of firm i in period t and BP Average price offer to buy shares of company i in period t . According to this model, what is the difference between the price of buying and selling stocks with larger numbers indicate greater information asymmetry. In hypothesis testing, the absolute value of this model is used.

Cash holdings:

the various theories associated with cash holdings of firms that are considering either of these theories, factors as determinants of corporate cash holdings are discussed. Based on the theory of information asymmetry accruals quality - based on agency theory, firm size and debt levels of the company - balance theory of investment opportunities, the amount of current assets, liquidity, financial leverage, firm size, cash flow, cash flow uncertainty, the debt maturity financial crisis, pay dividends - according to hierarchy theory, investment opportunities, financial leverage, cash flow, size - and the theory of free cash flow, financial leverage, investment opportunities, size and banking relationship be.

$$\text{CASHit} = \beta_0 + \beta_1 \text{CASHit} + \beta_2 \text{AQit-DDit} + \beta_3 \text{GROWPit} + \beta_4 \text{SIZEit} + \beta_5 \text{LTDEBTit} + \beta_6 \text{BANKDit} + \beta_7 \text{RSPREADit} + \beta_8 \text{LEVit} + \beta_9 \text{LIQit} + \beta_{10} \text{CFLOWit} + \beta_{11} \text{INVit} + \beta_{12} \text{IGEit} + \beta_{13} \text{BUS-GROUPit} + \beta_{14} \text{PDPit} + \beta_{15} \text{ZSCORE}$$

$$\text{WCA}_{it} = \beta_0 + \beta_1 \frac{\text{CFOit} - 1}{\text{AvgAssetsit}} + \beta_2 \frac{\text{CFOit}}{\text{AvgAssetsit}} + \beta_3 \frac{\text{CFOit} + 1}{\text{AvgAssetsit}_3} + \varepsilon$$

Where WCA: working capital accruals of firm i in year t

CFO: Total operating cash flows in year t

AvgAssets: Average assets of firm i in year t divided by total assets of the company in year t and $1 t-2$ is obtained.

ε : indicates that current accruals

Cash past, present and future unexplained and β are the regression coefficients.

$$\text{ZSCORE} = -1.24 - 0.01423\text{WCTA} + 0.003724\text{CACL} + 0.01952\text{PBTA} + 0.01231\text{TETA} + 0.006371\text{STA} + e \quad (2)$$

ZSCORE: the probability of financial crisis

WCTA: Working capital to total assets ratio

CACL: Peak ratio of current assets to current liabilities

PBTA: Earnings before interest and taxes to total assets

TETA: the ratio of equity to total assets

STA: Ratio of sales to total assets (Soleimani Amiri, 1382)

GROUP: Tobin Q is a growth opportunity, which is the ratio of market value to book value of company assets

SIZE: size can be obtained from the logarithm of sales.

LTDEBT: debt maturities structure of long-term debt to total assets ratio is obtained.

BANKD: Relationship banking institutions, which is calculated as the ratio of bank debt to total debt.

RSPREAD: the opportunity cost of capital invested in cash assets, the difference between the efficiency of company assets (ratio of gross operating profit to total assets) and the risk-free interest Nrh (short-term government bonds)

LEV: leverage ratio of total debt to the company whose assets

LIQ: Other assets as cash working capital minus cash divided by total assets

CFLOW: the capacity to generate cash flow is the sum of operating cash flows

PDP: the percentage of the dividend is the dividend of the total profit

INV: ratio of investment in fixed assets, net fixed assets of the first period

AGE: Number of years the company continued its operations

BUS-GROUP: dummy variable that is 1 if the company is not a member of the trade group 0

Population and sample:

A survey is all firms listed in Tehran Stock Exchange. Sampling to select a sample cup is used. The following criteria were considered:

- 1 - The information needed to calculate the variables, the years 1390-1382 are available.
2. Companies Nzraz investment companies and are not mediated.
3. Companies that fiscal year end is March.
4. Companies that fiscal year, they are not changed during the study period.
5. Companies during the financial year, not bad.

Given these circumstances, the companies that had qualified 78 companies that make up sample.

Collect and analyze data:

The purpose of this research is applied and the nature of the descriptive - correlational and the events that followed in this research study is to assess the relationship between two or more variables. Research hypotheses will be tested based on a combination of statistical techniques. This research will use quantitative methods and statistical analysis, including regression analysis. Regression type used in the study will be combined data regression. Regression model used is the same type of linear regression. For analysis and the t-statistic is used to test the hypothesis. Also, the Fisher F test and t-test significance regression model is used. Due to the combination of test data selection methods to estimate also used.

Descriptive Statistics

Descriptive statistics relating to each of the variables in this study, the statistical software EViews, is presented in Table 1, which consists of three distinct parts, namely the central parameters (including maximum, minimum, average) scattering parameters (including variance, standard deviation) and skewness and is a strain.

Table 1: Descriptive statistics for outcome variables

Corporate financial leverage	Opportunity cost of investment in the cash assets	Relationship with banking institutions	Debt maturity structure	Size	Growth opportunity	Working capital accruals	Cash	Statistical indices
5.895	6.333	0.889	0.480	5.601	103395	-4.931	3.40 E + 10	Average
764.4	426.08	13.24	46.43	7.922	43381	68.0	6.90 E + 11	Max.
0.0001	0.170	0.038	0.000	3.062	2/79E-05	-1892.4	317.0	Min.
39.66	158.73	0.584	2.122	0.627	0.1945	73.87	8.14 E + 10	Standard deviation
13.91	26.43	17.68	15.73	0.569	19.87	-23.93	4.322	Skewness
226.4	699.9	345.9	320.6	4.273	409.4	609.0	25.40	Elongation
702	702	702	702	702	702	702	702	Number of observations
		Information asymmetry	The probability of the financial crisis	Cent of dividend earning	The ratio of investment in fixed assets	Other cash assets	Cash flow generating capacity	
		0.615	2.227	0.101	0.171	0.069	0.461	Average
		0.984	26.78	0.552	0.731	0.565	6.505	Max.
		0.096	0.382	0.000	-0.129	-0.870	-25.67	Min.
		0.170	1.993	0.089	0.113	0.107	0.632	Standard deviation

		-0.438	4.945	1.622	1.119	-0.967	-10.25	Skewness
		2.831	47.69	0.419	5.463	16.71	148.67	Elongation
		702	702	702	702	702	702	Number of observations

Test of normality of the dependent variable:

In statistical methods, data normality particularly dependent variable of importance is minimal. To test the normality test data Kolmogrof-Smirnov is used. If the level is significantly smaller than the value of the statistic is greater than the default assumption is rejected and if accepted. To investigate this assumption of normality of residuals histogram is used.

Table 2: normality test of data

Information asymmetry	Cash		
580	559	Number of observations	
-2.779	-1.001	Average	
1.215	1.174	Standard deviation	
0.120	0.105	Absolute value	
0.067	0.076	Positive	
-0.120	-0.105	Negative	
1.888	1.487	k-s statistic	
0.054	0.068	significance	

Test, Table 2 shows the output. According to the KS test the significance of each variable that is more than 5% of its assumption of normality is accepted. But if the claim is less than 5% of normally distributed variables will be accepted. Now, given the above description we can conclude the test output variable cash due to information asymmetry larger than the 5% significance level are normally distributed.

The results of testing hypotheses:

The first hypothesis

Hypothesis 1: The relationship between cash holdings and its constituent elements are

To test this hypothesis, the following regression model is used:

$$\text{CASH}_{it} = \beta_0 + \beta_1 \text{CASH}_{it} + \beta_2 \text{AQ}_{it} - \text{DD}_{it} + \beta_3 \text{GROW}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LTDEBT}_{it} + \beta_6 \text{BANKD}_{it} + \beta_7 \text{RSPREAD}_{it} + \beta_8 \text{LEV}_{it} + \beta_9 \text{LIQ}_{it} + \beta_{10} \text{CFLOW}_{it} + \beta_{11} \text{INV}_{it} + \beta_{12} \text{IGE}_{it} + \beta_{13} \text{BUS-GROUP}_{it} + \beta_{14} \text{PDP}_{it} + \beta_{15} \text{ZSCORE}$$

In this model, the variable cash, the companies studied were chosen as the dependent variable and the remaining variables as independent variables have been considered. In the second stage to determine whether the estimates of the fixed effects model, we used a random effects, the Hausman test we use. As before, ' said the test also checks the following assumptions:

H0: Consistent estimates of random effect,

H1: Consistent estimates of fixed effects.

Calculated to test the significance level of 0.000 and less than 5%. So, assuming H₀ is rejected and it is concluded that the best kind estimated fixed effects method

Table 3: Regression combined data for all observations using fixed effects

Significance level	Statistic t	Standard error	coefficient(β)	Model component
0. 0000	20. 48	2. 04E + 10	4. 19E + 11	Intercept
0. 0022	-3. 05	0. 017	-0. 054	The amount of cash in the year ago
0. 8898	0. 138	36352	50367	The ratio of working capital on total assets
0. 8210	-0. 22	639. 9712	-144. 75	Growth opportunities
0. 0000	-15. 5	2. 84E + 09	-4. 40E + 1	Company size
0. 0000	-7. 88	1. 55E + 09	-1. 22E + 10	Maturity structure of debt
0. 0177	2. 371	2. 00E + 09	4. 75E + 09	Relationship with banking institutions
0. 0722	-1. 797	1. 67E + 08	-2. 99E + 08	Investment cost in cash property
0. 0000	7. 767	1. 40E + 08	1. 09E + 09	Financial Leverage
0. 0000	11. 63	0. 017	0. 198	Cash flow generation capacity
0. 2052	1. 267	502. 11	636. 18	Other cash assets
0. 0686	-1. 820	10394806	-18926	The ratio of investment in fixed assets on the net fixed assets of early of period
0. 0000	-5. 396	1. 64E + 08	-8. 85E + 08	Company's life
0. 2074	1. 260	2. 23E + 09	2. 81E + 09	Business Member
0. 7674	-0. 295	1. 61E + 08	-47562	Cent of dividend earning
0. 2667	1. 110	8. 67E + 09	9. 63E + 09	Probability of financial crisis

Table 4: Significance test of the overall model

Hasman test	Limer test	Doorbin-Watson test	Significance level	Statistic F	Coefficient of determination (R ²)	Adjusted coefficient
0.00	0.00	1.866	0.000	721.7	0.572	0.571

Table 3 results model study demonstrates the use of cross section data, eliminating of the method of least squares generalized is used as can be seen the statistic t computed values of 95% in Table 1 indicate is that all variables of cash next year, company size, maturity structure, banking institutions, leverage, cash flow generating capacity equal, age was a significant relationship with cash (the dependent variable) are. Leveraging the capacity to generate cash flow, banking institutions, have a direct and positive relationship of age with cash as well as cash from next year, the negative relationship between firm size and cash are inversely

Watson statistic the other side of the camera for the first regression model was calculated to demonstrate the value of (5/1, 5/2) is there any prove component regression model.

The second hypothesis - the relationship between information asymmetry and cash holdings are directly or inversely. Pearson correlation test was used to test the hypothesis that the results are as follows:

Table 5: Results of correlation test

Other cash assets	Cash generating capacity	financial leverage	Opportunity cost of investment in the cash assets	Relationship with banking institutions	Debt maturity structure	Size	Growth opportunity	Working capital	Cash		
-0.115*	-0.391**	-0.550	-0.191**	-0.150	-0.217*	0.317*	-0.117*	0.176**	0.017	correlation coefficient	Information asymmetry
0.047	0.001	0.341	0.001	0.935	0.320	0.410	0.044	0.002	0.773	Significance level	
298	298	298	298	298	298	298	298	298	298	Observations	

The ratio of investment in fixed asset	the percent of dividend profit	Company's life	Business membership	Financial crisis		
0.243**	0.343**	-0.177**	0.241**	-0.282**	Pearson correlation coefficient	Information asymmetry
0.000	0.000	0.002	0.000	0.000	Significance level	
702	702	702	702		Observations	

the financial crisis is smaller than 5% and the acceptance of the null hypothesis is that there is a relationship Mndary.

Similarly, information asymmetry with growth opportunities, debt maturity structure, other financial assets are less than 1% and the acceptance of the null hypothesis is that there is a relationship

Conclusions and recommendations:

The first research hypothesis, using a regression model, the relationship between cash holdings and forming and influencing factors were studied. According to the results of the statistical significance of the regression model and t, the amount of cash years ago, Size, associated with banking institutions, debt maturity structure

and financial leverage, cash flow generating capacity and lifetime maintenance company faces significant association with were reviewed. The relationship between the variables associated with banking institutions, financial leverage, cash flow generating capacity to maintain a positive cash and cash variables related to the previous year, as the company's debt maturity structure and life Company had negative cash holdings. There was no significant relationship between cash holdings and other variables.

The second hypothesis is that the main goal of the research is, to examine the relationship between information asymmetry and firm cash holdings allocated. To investigate this relationship and type, the Pearson correlation coefficient was used.

According to the results, the relationship between information asymmetry ratio of working capital to total assets (at 99 percent), opportunities for growth (95 percent), firm size (at 95 percent), the maturity structure of debt (in 95%), the opportunity cost of capital invested in financial assets (at 99 percent), other assets: Cash (95 percent), corporate life (at 99 percent) and probability of a financial crisis (at 99%) is negative and significant. Information asymmetry with respect to current production capacity - Cash (at 99 percent), the ratio of net fixed assets investment in fixed assets in the first period (at 99 percent) and to join trade group (at 99 %) were positive (direct) and significant. The information asymmetry with respect to the variable amount of positive cash flow (non- significant) and variables related to information asymmetry associated with banking institutions and financial leverage, negative (insignificant) to be.

Review the results of previous research:

In relation to this hypothesis by comparing the results with other studies are can say that these results are inconsistent with the results Baharaz and colleagues (2009), Astglyz & Weiss, 1981; Myers and Mjlvf (1984), Booth *et al.*, 1987; Santmrv Martin, 1977; Hvlmstrn and Tirole, 1988 and Hong *et al.* (2010) to be (relationships with banking institutions and financial leverage). Cash flow is the life of enterprise and conflict with the study by Hong and colleagues (2010), in terms of company size agrees with the study by Hong and colleagues (2010), and Diamond Vrkchya (1991), heris (1994), Azkan and Azkan (2004) and Khodami Poor and Qadir (1389) is. Of the growth opportunities consistent with Smith and Watts 1992 to be. In relation growth opportunities associated with banking institutions and inconsistent cash flow and the company's size and financial leverage consistent with the results of Ferreira and Vylla (2004). Also consistent with results Azkan and Azkan (2004), the effect size according to research Raytz and Grvnyng (2010) and consistent with the results Khanvla Saddvr (2006) of the financial instrument. The study results are consistent with research Kashani -Poor and internal Taghinejad (1388) and the debt maturities and cash flows in accordance with *et al.* research (1388) and the working capital and profit sharing opportunities growth was also inconsistent with the results. It also contradicts the result of dividends paid after the victim and Adil (1391) is.

Suggestions for future research:

- 1 - Evaluation of other factors affecting cash holdings by company
- 2 - Effect of new financial instruments and the amount you wish to maintain the amount of cash invested.
- 3 - The effect of information asymmetry on investment cash flow sensitivities.

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