



# Investigating the Effect of Management Entrenchment on Speed of Cash Holding Adjustment in Companies Listed in Tehran Stock Exchange

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## ABSTRACT

In this study, the effect of management entrenchments on the speed of cash holding adjustment in Iran has been investigated. After designing the management entrenchment evaluation indicators, the transaction information was collected from the Stock Exchange in the five-year period of 2011-2015. The statistical sample consists of 155 companies selected by systematic deletion method. In this research, linear regression and correlation have been used to investigate the hypotheses of the research. Also Eviews software was used to analyse the data and test the hypotheses of the research. What can be summarized in the overall conclusion of the research hypothesis test is that the indicators of management entrenchments including deviation from target cash, deviation from target cash in companies with high financial leverage, deviation from target cash in companies with high free cash flows, deviation from target cash interacting the company size and deviation from target cash interacting the firm performance have a significant effect on the speed of cash holdings adjustment

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## 1 Introduction

In recent years, a large amount of financial research literature has suggested that cash holding will have costs and benefits. Companies with prudential motives for holding cash use liquidity funds as a defensive shield against cash flow shock or investment opportunities; therefore, companies that tend to maintain more cash balances are faced costly external financing when their liquidity fluctuates more and their investment opportunities will be more [4]. Many recent studies have tried to investigate the large holdings of liquidity in companies. These studies generally assume that companies examine the benefits of fluid assets, such as guaranteeing funds for investment without having to bear the cost of foreign capital transactions, against potential costs, such as over-investment. For example, a company like Apple may maintain its liquidity primarily for having strategic opportunities and upgrading them, while the company R.A.M as a competitor may preserve his liquidity as a safety valve

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against uncertainty in demands. However, both companies may waste any liquid that is beyond the limits, especially when there are no disciplinary mechanisms [12]. This study focuses on what companies are considering when their cash adjustment is undesired; where the priority of companies and managers is in line with liquidity policy. So, the speed at which companies reduce the gap between real and target liquidity ratios from one year to the next is examined. Accordingly, the adjustment speed reflects three main factors: deviation from the target ratio, liquidity adjustment costs, and the willingness of the managers to make adjustments to the costs of deviations from the target ratio, including the costs associated the financial crisis, if which these ratios are very low, the investment is under-investment, and if the ratios are very high, the investment is over-investment. Since the types of costs are too different for deficits against liquidity levels, the range and limits will vary. Adjusting the liquidity ratio is costly. If the liquidity ratio is lower than the target, it can also increase with a decrease in investment or an increase in new capital, both of which impose costs on the company. Similarly, if the liquidity ratio is higher than the target ratio, additional liquidity can be paid for debt repayment or through dividends or redemption to shareholders.

This adjustment is also costly, because shareholders will be forced to pay dividend income and capital earnings. Accordingly, the cost of increasing the liquidity ratio will be higher than the cost of reducing it; in this case, the adjustment speed will be faster than when liquidity ratio is higher than the target ratio. Speed adjustments can be related to measuring financial and operational risk, such as financial risk measurement. In this research we used the leverage and whether or not the company has a debt. If the leverage is low and the company has a debt, the company can easily attract more capital. For this reason, managers are less concerned about liquidity balance. Conversely, if the financial leverage is high and the company does not have debt, the low liquidity balance will be harmful, and managers will begin to take corrective action quickly [12].

In summary, in this research, we will try to investigate the relationship between moderation of cash holdings and management entrenchments using Jiang and Lie's [12] research and then the factors affecting them and the indicators related to the variables studied. The main findings of the research will be explained following the explanation of the methodology of the research. Finally, after discussion and conclusion, the research will be completed by presenting some practical suggestions. Regarding the aim of this study, considering the possibility of collecting homogeneous information from all members of the community and the lack of any reliable information sources regarding access to financial information of companies, the statistical population of this research includes all companies listed on Tehran Stock Exchange. With reference to the above, this research seeks to answer the question 'Do management entrenchments affect the speed of cash holdings adjustment?'

## 2 Theoretical Literature

There are rival hypotheses about the impact of management entrenchments on the speed of cash adjustment. On the one hand, Oppler et al. [17] argued that managers are inherently willing to accumulate excess cash because they are risk averse or want more flexibility to achieve their own goals, which can hinder the timely use of cash or the use of cash saved to maximize the company's value in the absence of external pressure; consequently, the acceleration observed among established companies should be adjusted at the high cash levels. On the other hand, Jensen [11] argued about management entrenchments that directors are interested in inefficient cash investments, and they can even increase management tools because of current negative value projects, so these managers likely con-

sume too high cash in investments and mergers rather frugality in cash. Harford et al. [12] also argued that managers of more stable firms tend to limit the cash reserves, because such reserves can lead to unwanted attention of active shareholders. The notion of this argument is that the speed of adjustment at high cash levels in stable companies is faster than other companies.

Along with this speculation, Harford and his colleagues found that in companies that restrict their cash reserves, it is more likely to occur squander of excess liquidity flows through collection and capital costs toward other companies. Similarly, Dittmar and Mahrt-Smith [5] found that corporate governance has a greater impact on cash use than cash accumulation and holding, and managers are actively considering the target for the company's cash flow, although the annual adjustment of cash flow to this target cash is not exact and perfect and also the speed of cash adjustment will be faster if the cash level is higher than the target cash. Oppler et al. [2] and Bates et al. [17] reviewed the motivation of the company to hold cash. Jiang and Lie [12] argued that, with regard to the rate of cash adjustment in relation to financial and operational risks, it is possible to use a financial leverage as an indicator of whether a company has a debt or not, and we expect that if the leverage is low or company has debt, the company can easily attract more cash. As a result, it can be argued that managers are less worried about the cash flow of the company and are less in the search for additional cash. Conversely, if the leverage is high or the company has no debt, a low cash flow can turn into a loss for the company, and as a result management will seek rapid remedial treatment. Existing evidence supports the assumption that at low levels of cash (not in high cash), adjustment of speed will be faster for companies with high leverage and debt.

Faulkender et al. (2012) found that the adjustment speed depends on proxies of adjustment costs. Companies with very high or very low free cash flows, which are likely to have relatively low marginal costs for leverage adjustments, have the fastest adjustment speed [8]. Ferreira & Vilela (2004) reported on the positive effects of growth opportunities and free cash flows on the level of cash holdings by examining factors affecting the level of cash holdings of EU companies [9]. Also, according to hierarchical theory, with the assumption of controlling other variables, companies with more cash flows are expected to have more cash. Mikkelsen and Partch [15] concluded that high sustained cash holdings did not lead to poor performance, indicating there is no conflict of interest between managers and shareholders. Their evidence agrees with the assumption that cash reserves increase the value of the company. In contrast, Dittmar and Smith [6] and Low [14] identified continuous high cash holdings as a factor in poor performance of the company.

Also, Jiang and Lie [12] believed that any investment decisions affect the company's performance and value, and optimizing financial activities requires the maintenance of a certain level of cash. Companies maintain a sufficient amount of cash on their balance sheets for specific purposes. Since the size of a company, financial resources, dividend, return on investment, and other resources and expenses of a company differs based on companies life, and the value of the company and cash holdings are also related to the above, in each of the stages of the company's life, according to the needs of the organization and its characteristics, as a result of the need for cash holding in each of these steps, may be different that this change in the desire to hold cash can be affected by the perspectives and life of the company. Moino din et al. [16] explored the relationship between financial constraints and cash flows with cash holdings. The findings of the research indicated that cash flow sensitivity in companies with positive cash flows has a significant difference with companies with negative cash flows, and the importance of cash flow sensitivity for companies with financial constraints is different from

companies with no financial constraints. Ahadi Sarakani et al. [1] investigated the internal and external factors affecting cash holdings in listed companies in Tehran Stock Exchange during 13981 to 1390. The results of the analysis of 95 companies during the years 1381 to 1390 using the correlation analysis and using the multivariate regression model at 95% confidence level indicated that the variables of operating cash, company size, fixed asset volume, dividend, inflation rate, volume of liquidity and exchange rate have a significant relation with the level of cash holdings of the company. Also, these results indicated that there is no significant relationship between the variables of ownership concentration, gold price and oil price with the level of companies' cash holdings. Fakhari and Rouhi [7] have investigated the effect of cash holding and management of working capital on stock returns of companies.

Beliss et al. [4] examined and analysed the changes in payment trends of companies, investment, and cash holding before and during the financial crisis, and their findings suggested that the reduction in payments by companies with the higher financial leverage, the higher growth options and the lower cash balance, the more firms are more susceptible to the negative consequences of external financing shock. Kroes & Manikas [3] investigated the relationship between cash flow management and financial performance of manufacturing companies. According to the analysis carried out in this study, changes in the metrics of the cash cycles are not related to company performance changes; however, changes in operational cash flow metric that have less prevalence is significantly related to the changes in the Q-Tubin. Therefore, given the theoretical foundations, the main hypothesis can be presented as follows:

The main hypothesis: management entrenchments affect the speed of cash holdings adjustment.

### 3 Methodology

This research is an applied study in terms of its purpose and is descriptive-correlative in nature. To analyse the data and test the hypotheses, based on the Jiang and Lie [12] research, we used the combined data and multivariate regression method.

Time domain of this research is from 2011 to 2015. Data collection was done using Rahavard-e-Novin software and database of Tehran Stock Exchange (CODAL). In this research, systematic elimination method has been used for sampling. Therefore, companies with the following characteristics and conditions are selected as statistical samples:

**Table 1:** The companies and their characteristics

Different steps of sampling	Numbers
Number of companies acquired in Tehran Stock Exchange at the end of 2015	538
The number of companies that have gone out of stock in this period	(93)
The number of companies entered in the stock in this period	(37)
The number of companies that have changed their fiscal year	(31)
The number of companies whose financial information was not available at the time of the research	(57)
The number of companies that have been intervals in business for more than 3 months at the time of the research	(113)
The number of companies whose financial year does not end at 29/12	(52)
Number of companies in the statistical society	151

### 4 Research Methodology

The proposed model used throughout this paper is as follows:

$$it/ it-1= + \textit{1Devit}+ \textit{2Devit} \textit{*levit}+ \textit{3Devit} \textit{*FCFit}+ \textit{4Devit} \textit{* Log (Real size) it}+ \textit{5Devit} \textit{* Qit-Tobin's} + \textit{6Devit} \textit{*Ageit}+ \textit{7Assetsit} + \textit{8Div} \textit{it} + \textit{9Acqit} + \textit{it}$$

where

$it/ it-1$ = Ratio of the adjustment speed of cash in current period to the previous period,

$Devit$ = Deviation from the target cash,

$Devit * Lev$  = Deviation from target cash in companies with financial leverage,

$Devit * FCF$ = Deviation from target cash in companies with high free cash flow,

$Devit *Log (Real size)$  = Deviation from target cash in interaction with company size,

$Devit * Qi t Tobin's$ = Deviation from target cash in interaction with company performance,

$Devit *Ageit$ = Deviation from target cash in relation to company life,

$Assetsit$ = Total assets,

$Divit$ = Dividends,

$Acqit$  = Takeover activity.

The dependent variable:

$it/ it-1$ = Ratio of the adjustment speed of cash in current period to the previous period

In the context of studies on the appropriate and balanced cash holdings, there are two models of static balance and dynamic balances. Given that the purpose of this article is to explain the speed of cash adjustment, we will work on the basis of the dynamic balance model:

According to the theories stated in this research, the optimal cash inventory( $c_t, h_{it}^*$ ) is influenced by several corporate variables that can be summarized as follows:

$$C \quad h_{it}^* = \beta' X_{it}$$

In this regard, the variable  $X_{it}$  represents the exogenous factors affecting the company's cash balance. Given the relationships expressed by replacing the factors affecting the target cash-flow( $\beta' X_{it}$ ) instead of the target's cash level( $c_t, h_{it}^*$ ), the final adjustment model can be illustrated as follows:

$$C \quad h_{it} = \alpha_t + \phi \quad h_{it-1} + \theta' X_{it} + \epsilon_{it}$$

Where in fact  $\phi = 1 - \lambda$  is the speed of adjustment, and  $\theta = \lambda$  ; so with estimation of the relation 4 and obtaining the parameter  $\phi$  it is possible to obtain the speed of adjustment of the companies where X is a vector including the following variables:

$$\lambda = 1 - \phi$$

$Log (Real size)$  = Company size

$QTobin'$ = Q-Tubin ratio

Dummy = earning payment

Asset beta = systematic risk

This is part of the total risk of the portfolio of securities that is unalterable and due to factors that affect the price of the entire securities. Stock price index is used to calculate the systematic risk (which represents the general level of stock prices in the stock exchange). The beta coefficient for a particular share is determined by comparing the systemic risk ranking of that share with the systematic risk of the stock exchange price index:

$$\beta = \frac{Cov(R_i, R_m)}{\sigma^2 R_m}$$

$R_i$  = stock returns of the company

$R_m$  = stock returns of market index

$\sigma^2 R_m$  = variance of  $R_m$

Independent variable:

Devit = Deviation from objective cash (independent) (difference between actual cash from target cash)

Devit \* Lev = Deviation from target cash in companies with high leverage (independent)

Financial Leverage: This can be calculated by dividing the total debt of the company into the total assets of the company.

LEV = DEBT / ASSET

LEV: Financial leverage

DEBT: Total Debt

ASSET: Total assets

After calculating the financial leverage, we divide it into two halves, half higher than the middle are companies with high levels of financial leverage and are determined with a single number, and the rest of the companies account for zero.

Devit \* FCF = Deviation from target cash flows for companies with high cash flows (independent).

To calculate the Free Cash Flow (FCF), we used the Lehn and Poulsen Measurement Model. This model is as follows:

$$FCF_t = (I_t - C_{it} - T_{it} - X_{it} - I_{it} - P_{it} - P_{it} - V_{it} - C_{it}) / Ta_{i,t-1}$$

Where in this model:

FCF: Free cash flow

INC: Operating earnings before depreciation cost

TAX: Total income tax.

INTEXP: Financial costs (interest) paid.

PSDIV: Premium paid dividends.

CSDIV: Ordinary dividend paid.

Ta: Total assets

Source [3]

After calculating free cash flow, we divide it into two halves, half higher than the middle are companies with high free cash flow and are identified with a number and the rest of the companies account for zero.

Devit \*Log (Real size) = Deviation from target cash in interaction with firm size (independent)

The size of the company can be calculated through the logarithm of the total assets of the company.

SIZE = LN (ASSET)

SIZE: size of the company

Asset: total assets

LN: Natural Logarithms

Devit\* Qi t Tobin's = Deviation from target cash in interaction with firm performance (independent)

Book value of company assets / (market value of company stocks + book value of company debts) = Q-Tubin

Devit\*Ageit= Deviation from target cash in relation to company life (independent)

The life of the company is equal to the difference between the date of the company's establishment and the current period.

In a study, the effect of all variables on each other cannot be studied simultaneously; therefore, it must control or neutralize the effect of some variables, so such variable is called control variables.

Assets = total assets

Div = earning payment

Acq = takeover activity

The dummy variable is equal to one if the company has acquired the company throughout the year and otherwise equal to zero.

## 5 Research Findings

### 5.1 Descriptive statistics

Descriptive findings in relation to the research variables are shown in Table 2. Table 2 contains the main indicators of centralization and dispersion. The average, which represents the equilibrium point and the distribution centre and is a good indicator of the centrality of the data, is equal to -0.776, for adjustment speed of cash holdings. Median is another central indicator that is -0.88 for the cash-flow adjustment. The standard deviation is one of the most important dispersion indices, which is equal to 0.428 for the variable of adjustment speed of cash holdings.

**Table 2:** Indicators describing the variables of research

	Adjustment speed of cash holdings	Deviation from target cash	Deviation from target cash in companies with high leverage	Deviation from target cash in companies with high free cash flow	Deviation from target cash in engagement with company size	Deviation from target cash in interaction with company performance	Deviation from target cash interacting the company age	Total assets	Earning payment	Takeover activity
Average	-0.08	136707	46574.7	70222.5	2772817	300517	28186	5939682	778	0.58
Median	-0.08	24700	147	0.00	353516	38188	74020	1052651	300	1
Maximum	1.00	2948722	2498722	2533586	54653382	11941235	7686849	1.98E+08	9000	1.00
Minimum	-0.97	12.43	0.00	0.00	1499.36	499.16	441.81	26018	0.00	0.00
Standard Deviation	0.43	39448	202276	265533	8158303	940218	695644	18699369	1253	0.49
Skewness	0.12	4.8825	8.44898	6.26821	4.25838	6.1002	5.402	5.8879	3.21	-0.32
Kurtosis	2.71	28.696	83.2329	46.5378	21.6907	51.864	37.865	43.592	15.7	1.10
Jack-Bera test	4.64	24402	217092	66285	13623	81908	43021	57686.15	6525	130
Significance level	0.1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Observation	775	775	775	775	775	775	775	775	775	775

The amount of asymmetry of the curve is called skewness. Based on the values given in Table (1-4), since the values of the meaningful level, the variable adjustment speed of cash holdings is more than 5%, so the null hypothesis, that is, the normality of the variable is verified; therefore, the variable adjustment speed of cash holdings has normal distribution.

Considering that the significance level of the F-limmer and Hausman test obtained from Table 2 is less than 5%, it indicates that data are panel data and the effects are constant.

### 5.2 F-Limer and Hausman test

**Table 3:** F-Limer and Hausman tests

	F-limmer test	Significance level	Result	Hausman test	Significance level	Result
Total model	0.6029	0.999	Combined	-	-	Constant effects



### 5.3 Analysis of main hypothesis

The main hypothesis: management entrenchments affect the adjustment speed of cash holdings.

H0: Management entrenchments do not affect the adjustment speed of cash holdings.

H1: Management entrenchments affect the adjustment speed of cash holdings.

The results of the estimation show that the probability of the t-statistic for the constant coefficient and the coefficients of the variables of deviation from the target cash, the deviation from the target cash in the companies with high leverage, the deviation from the cash in the companies with high free cash flow, deviation from objective cash interacting the company size, deviation from target cash interacting the company's performance and total assets on the adjustment speed of cash holdings is less than 5%; therefore, the above-mentioned relationship is statistically significant and the coefficient estimated by the software for the variables of deviation from the target cash and deviation from the target cash in interaction with the firm's performance on the speed of the violation is positive and for target deviation variables in companies with high financial leverage, deviation from target cash flows in companies with high free cash flow and deviation from cash interacting the company size is meaningful.

The adjustment speed of cash holdings is negative and significant; and the probability of t for the variables of deviation from the target cash in relation to the company's life, earning payment and acquisition activity is more than 5% on the adjustment speed of cash holdings.

Therefore, the estimated coefficient of these variables is not statistically significant; therefore, with 95% confidence, this variable is meaningless in the regression model.

The adjusted adjustment coefficient shows the explanatory power of the independent variables, which can explain 46% of the variations of the dependent variable. The probability of the F statistic is that the whole model is statistically significant.

Considering the hypothesis that the variables of objective deviation, deviation from target cash flows in companies with high leverage, deviation from target cash in companies with high free cash flow, deviation from target cash in interacting with the size of the company, the deviation from the target cash in the interaction with the firm's performance and the total assets is significant on the rate of moderation of cash holdings in the model.

**Table 4:** Testing the main hypothesis

	Variables	Coefficients	Standard error	t-statics	Significance level	Result
y-Interception	$\alpha_0$	-0.092952	0.025828	-3.598930	0.0003	Positive
Deviation from target cash	Devit	3.06E-05	8.89E-06	3.441510	0.0006	Positive
Deviation from target cash in companies with high leverage	Devit* Lev	-1.82E-05	8.85E-06	-2.058671	0.0399	Negative
Deviation from target	Devit *	-1.81E-05	7.86E-06	-2.303616	0.0215	

cash in companies with high free cash flow	FCF					Negative
Deviation from target cash interacting company size	Devit *Log(Real size)	-4.01E-06	8.23E-07	-4.872306	0.0000	Negative
Deviation from target cash interacting company performance	Devit* Qit Tobin's	2.18E-05	3.62E-06	6.015213	0.0000	Positive
Deviation from target cash interacting company age	Devit*Ageit	2.32E-06	2.82E-06	0.825020	0.4096	Meaningless
Total assets	Assets	5.35E-05	1.95E-05	2.744880	0.0062	Positive
Earning payment	Divit	7.07E-06	1.23E-05	0.574879	0.5655	Positive
Takeover activity	Acq	-0.003949	0.031477		0.9002	Meaningless
Determination coefficient	0.462895	F-statics	5.704931			
Adjusted Determination coefficient	0.456576	Significance level	0.000000			
	Durbin-Watson	2.362762				

Therefore, the assumption of H0 is rejected, that is, management entrenchments affect the adjustment speed of cash holdings.

$$it/ it-1 = -0.092952 + 3.06E-05 \text{ Devit} - 1.82E-06 \text{ Devit} \cdot \text{levit} - 1.81E-05 \text{ Devit} \cdot \text{FCFi} - 4.01E-06 \text{ Devit} \cdot \text{Log}(\text{Real size}) + 2.18E-05 \text{ Devit} \cdot \text{Qit} + 2.32E-06 \text{ Devit} \cdot \text{Ageit} + 5.35E-05 \text{ Assets} + 7.07E-06 \text{ Divit} - 0.003949 \text{ Acq} + \text{error term}$$

## 6 Discussion and Conclusion

Regarding the tests and analyses that were carried out through regression and correlation, we conclude that based on the results, the management entrenchments indicators including deviation from target cash, deviation from target cash flows in companies with high leverage, deviation from target cash in the companies with high free cash flow, the deviation from target cash interacting the size of the company and the deviation from the target cash interacting the company's performance on the adjustment speed of cash holdings have a significant effect, therefore, this hypothesis is generally accepted and It can be said that management entrenchments affect the adjustment speed of cash holdings. Dittmar and Duchin [6] investigated the relationship between managerial experience and how they confronted financial problems affecting cash management decisions of companies. Their research results showed that companies whose chief executive officer experienced past financial problems in the past hold more cash than other companies, which in some ways is in line with the results of the study.

The results of this study are in line with theoretical foundations and research background, there are

rival hypotheses about the impact of management fronts on the speed of cash modification. On the one hand, Oppler et al. [17] argue that managers are inherently willing to accumulate excess cash (for example, keeping cash above the company's maximum value) because they are risk averse or want to have more flexibility to achieve their own goals, which can prevent the timely use of cash or the use of cash saved to maximize the value of the company in the absence of external pressure; consequently, the observed acceleration among Stabilize companies at high cash levels.

On the other hand, Jensen [11] argues about management fronts that their directors are interested in inefficient cash investments and even can increase management tools because of the current value-added projects, so these managers are quite likely to be in place of saving Cash, over-the-money cash flows into investments and mergers. According to the results of testing the main hypothesis, management entrenchments have an effect on adjustment speed of cash holdings; therefore, investors are aware of the stock exchange; corporate governance frontiers can guarantee a modification of the company's cash holdings, hence it is suggested that booklets in order to inform investors in the stock exchange about the importance of the components of management entrenchments will be published; holding training courses can also be useful in this regard. It is recommended that the developers prepare the theoretical foundations for financial reporting of financial accounting standards.

It is recommended that the results of this research and similar studies be considered and the features of management entrenchments including deviation from target cash, deviation from target cash in companies with high financial leverage, deviation from target cash in companies with high free cash flow, deviation from target cash in interaction with company size and deviation from target cash in interaction with company's performance in the capital market of the country.

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