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Deviation from Target Cash Holding and the Failure Probability of Firms: Examination and Analysis

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ABSTRACT

The purpose of this study is to examine the effect of deviation from target cash holding on failure probability of firms. Excessive cash after the optimal level leads to stagnant resources of the business unit while holding cash less than the optimal level leads to loss of projects and suppliers of raw materials. For this purpose, data from 137 firms listed in Tehran Stock Exchange during the period of 2005-2019 are collected, for which the panel data approach is used. The results show that an increase in deviation from target cash holding significantly increases the failure probability of the firms, a finding which in line with the trade-off theory.
Keywords: Target Cash Holding, Financial Failure, Panel Data

Introduction

In studies on capital structures, one of the methods for determining an optimal level of cash holding is to see if and to what extent firms are moving toward an optimal level of cash hold over time. In the framework of business theory, the managers of a company adjust the cost and benefits of holding cash to determine the optimal (target) cash level that must be maintained to maximize shareholder wealth. In the more dynamic variant of business theory, it often argued that owing to various market frictions and adjustment costs, immediate full adjustment is not always feasible and that process of adjustment towards target level is time-consuming one. Numerous studies on capital structure have argued that firms adjust to target leverage only when costs of non-adjustment outweigh those of adjustments (Faulkender et al., 2012). Faulkender and Wang (2006) revealed that investors highly rate the companies that maintain their liquidity. However, the value of excess cash decreases at the cash level owing to changes in value over time. Their findings clearly indicate that from the investors' point of view, there is a certain optimal value towards which the cash holding should be optimized, as deviating, either positive or negative, from this optimal level reduces the overall value of the company. The increase in the company's cash assets over the past decade has garnered considerable attention from media, investors and academics alike. Bates et al. (2009) reported that the cash-to-equity ratio of US industrial companies has more than doubled from 1980 to 2006, and that since 2003, companies have been able to repay all cash debt with cash assets. Given these findings, the issue of senior management has gained ever-increasing significance, requiring further research on structural management of capital. The financial crisis and the liquidity crisis further outlined the importance of liquidity management and has since integrated another perspective to the

discussions on the optimal level of corporate investment funds. The level of cash assets of companies and its factors are previously described, which is one of the recent significant researches (Opler et al., 1999). In the following, the theoretical foundations and background of the research, methodology, research findings and finally, conclusions and suggestions are presented.

Theoretical Foundations

Regarding cash assets, a significant source of adjustment costs such as transaction costs with the need to raise capital, or withdrawal of cash to shareholders can bring cash assets to the target level. Non-adjustment costs include improving the probability of financial distribution in case the company is short of liquidity, or if the company has excessive cash, offers illicit refunds and has high corporate costs (cash mismanagement or indefinite investment). In general, there is very little literature on how companies manage their cash assets according to their specific policies. As mentioned, companies determine their target cash holding and seek to achieve this cash balance by examining and considering the benefits and costs of maintaining cash assets in the company, as well as according to their specific characteristics (Dittmar and Duchin, 2010).

The static trade-off theory, as applied to the cash assets of companies, implies that companies, in order to maximize their value, should calculate marginal benefits and marginal costs for holding cash and are thus actively engaged in monitoring the levels of cash holdings to reach the desired level. Companies can immediately adjust their liquidity to targeted levels in case an imbalance emerges. However, adjustment costs again prevent actual changes to the balance towards the target levels. Thus, when the level of cash holdings deviates from the desired level, firms gradually adjust the level to the desired level in a process referred to as the compatibility process (Jalilvand and Harris, 1984). Correspondingly, factors that lessen the benefits of minimizing the need for high costs of external financing reduce the optimal level of cash reserves. If the empirical evidence on the association between these corporate factors and the level of cash holdings is in line with theoretical predictions, the theory of trading strategy is considered valid (Taggart, 1977).

According to hierarchical theory, companies prefer financing from within the company to external financing that is sensitive to information. This theory is based on the assumption that people inside the company are more aware than shareholders. Managers may be simply forced to overlook profitable schemes if in-company resources are insufficient for financing optimal investment programs and information asymmetry hinders the process. In this case, cash is a very valuable asset and the only opportunity to issue stocks without losing market value occurs when there is no or very little information asymmetry (Drobetz et al., 2010). However, according to trade-off theory, companies determine the optimal amount of cash by striking a balance between the benefits and costs of holding cash. As such, companies adjust their optimal level of cash by determining the significance of the ultimate projected costs and benefits of holding cash. The significance of this theory is that there is an optimal level of cash for companies for which managers employ active approach based on cost-benefit analysis to decide (Johnny et al., 2004).

Research Background

In international research, Cheung (2016) examines whether and how corporate social responsibility affects cash holdings. Al-Najjar et al. (2011) examine the mutual relationship between corporate cash holdings and dividend policies using a sample of nearly 400 non-financial corporations for the period 1991 to 2008. Their results indicate that cash holdings are affected by profit, leverage, growth, size, risk, profitability and working capital ratio, while dividend policies are highly subject to cash, leverage, growth, size, risk and profit. In simultaneous control, paying dividend does not significantly affect cash registers, yet cash retention affects dividend policies. La Rocca et al. (2016) examine the changing effect of cash holdings on performance. In particular, given the conflicting evidence on warehouse stock value, that can lead to a positive impact rather than a negative one, the role of adjusting determinants that can alter the aforementioned relationship is examined. The results show that the value of cash assets is affected by the specific characteristics of the company as well as factors related to the organizational

context. Tsung-Han Kuan et al. (2012) examined the role of corporate governance and control structure of companies in determining cash holdings and focus mainly on the relationship between additional control rights and cash holdings. The results reveal that companies with less cash assets save more cash reserves to take advantage of investment opportunities.

Farinha et al. (2018) conducted a study on the importance of earnings quality as a determinant of cash assets by companies, in which they examined the nature of revenues (positive or negative) and the level of financial disclosure represented by the market among other factors. The results show that companies with higher levels of profit ambiguity seem to benefit from higher cash holdings to avoid costly external financial dependence. Numerous studies on capital structure have argued that firms adjust to target leverage only when non-adjustment costs outweigh adjusted ones, as is the case in Fisher et al. (1989), Ozkan et al. (2012), and Faulkender & Wang (2006), which indicate that investor ratings are higher for companies that maintain liquidity. However, the value of the excessive cash decreases after optimal levels. Findings of Faulkner et al. (2006) clearly illustrates that from the investors' point of view, there is a certain optimal value towards which the cash holding should be optimized, as deviating, either positive or negative, from this optimal level reduces the overall value of the company. However, the value of the excessive cash decreases after optimal levels. Dittmar, Duchin et al. (2011) reported that the cost adjustment takes place faster in private companies than in state-owned companies due to agency costs, while mature companies have a lower rate of cash adjustment. Bates, Chang and Chi (2017) reported that the rate of adjustment of cash assets has been reduced over time. Arhends et al. (2018) examined corporate cash holdings in transportation companies and generally found that companies involved in the shipping industry are more conservative in managing their cash holdings than their peers. Bick al. (2018) examined fair value accounting and corporate cash holdings. Their findings reveal that there is a positive relationship between employing fair value inputs and corporate cash holdings, as previous research attributed more organizational inconsistencies to higher levels of cash holdings. Hu et al. (2018) studied the effects of stock liquidity on US corporate cash holdings. They showed that companies with stock liquidity have less cash holdings after controlling several characteristics of the company, fixed and annual effects. In domestic research, Foroughi et al. (2011) examined the relationship between earnings quality and cash holdings, the results of which revealed that there is a negative and significant relationship between earnings quality and cash holdings of companies listed on Tehran Stock Exchange. In overall, their findings indicated that about 85% of the changes in the cash holdings of companies listed on the Tehran Stock Exchange can be explained by changes in the variables used in the research model. Bolo et al. (2012) examined the effects of deviation from estimated optimal cash on the future performance of companies (i.e. rate of return on future operating assets), the findings of which illustrate that the research hypotheses, in that there is a significant negative relationship between the deviation from optimal cash and the rate of return on future operating assets, is yet to be confirmed. Khajavi et al. (2012) studied the relationship between the quality of accruals and the level of holding cash assets. The findings of this study show that there is a positive and significant relationship between the quality of accruals and cash holdings, while there is respectively a negative and significant, and a negative and non-significant relationship between the quality of discretionary and non-discretionary accruals of cash assets. The results also show that larger companies and companies with alternative cash assets hold lower cash rates, while firms with higher cash returns hold more cash (opportunity cost of investing in cash assets). Bashiri et al. (2013) examined the relationship between held cash assets and financial flexibility with abnormal stock returns. Abnormal returns refer to the difference between the rate of actual return and that expected by shareholders. The results show that held cash assets have a significant negative effect on the dependent variable, i.e. abnormal return, in that by increasing the level of cash holdings, the amount of abnormal returns is reduced, and vice versa, while financial flexibility has no significant effect on abnormal returns on corporate stocks. By emphasizing the importance of cash adjustment speed in the financial field and reviewing research and providing a dynamic model for cash holdings, Dastgir et al. (2013) offered a detailed and comprehensive explanation of the concept of cash adjustment speed and corporate factors affecting it. Examining foreign research revealed that corporate factors of free cash flow and corporate governance impact the rate of cash adjustment, financial imbalance, including size.

Tavakolnia et al. investigated the curvilinear relationship between financial leverage and the level of cash holdings. They also tested the curvature relationship between cash holdings and firm value. According to the research findings, financial analysts, investors and financial managers are recommended to pay attention to the parabolic effect of financial leverage on the level of cash holdings and do not assume the relationship to be linear and hence not ignore the hierarchical mutual effect of variables. Asadi et al. (2015) experimentally studied the existence of an optimal level of cash holdings that maximizes the value of the company and examined the effect of deviations from the optimal level on the firm value. The results exhibit a concave relationship between the holding cash and the value of the company, hence confirming the existence of an optimal cash level that maximizes the value of the firm. The results also show that a positive deviation from the level of cash, which is estimated based on the specific characteristics of companies, has a positive effect on the value of the firm. Khairollahi et al. (2016) examined the relationship between real earning management (REM) and levels and valuation of cash holding. The results showed that there is a positive and significant relationship between real earning management and cash holdings, and investors tend to reduce held cash levels in firms with high-level real earning management. Matoufi et al. (2017) examined the effect of family ownership on the speed of adjustment of cash holding. The results of the research confirm all the hypotheses and reveal that there is a positive and statistically significant relationship between family ownership and the speed of adjustment of cash holding. In addition, younger family businesses and financially-constrained family businesses are to adjust their cash holdings with more pace.

Research Hypotheses

According to the theoretical foundations and previous researches, the following research hypotheses are proposed:

Hypothesis 1: Positive deviation from optimal cash holdings increases the failure probability of firms.

Hypothesis 2: Negative deviation from optimal cash holdings increases the failure probability of firms.

Research Methodology

In terms of results presented, this study is an applied research, while in terms of design and purpose, it is analytical, quasi-experimental and correlational, and retrospective and post-event data in terms of temporal dimension of data. For the purposes of the research, the new Rahvard database and reports published on the Codal website were employed to collect financial and accounting data used in the research. EViews software was used to analyze the data and regression analysis with combined data was used to estimate the models.

Research Population and Statistical Sample

The statistical population of the study is consisted of all companies listed on the Tehran Stock Exchange during the 15-year period of 2005-2020, with the following inclusion criteria: (1) Fiscal year ending at March 21th, (2) have not altered their fiscal year or field of activity during the period under review, (3) not involved in the insurance industry, banks, financial investments, leasing and holding companies, (4) non-negative book value of shares, and (5) availability of data for calculating research variables. By applying the aforementioned criteria, 137 companies (amassing to 2055 firm-year observations) were selected for the purposes of this research.

Research Models and Variables

Deviation from the optimal level of holding cash

In the first stage, after collecting research data, the following model was derived from Orlova and Rao (2018) to measure the extent of deviation from the optimal level of cash holding:

$$\text{Cash}_{it+1} = \beta_0 + \beta_1 \text{MTB}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{CFO}_{it} + \beta_4 \text{NWC}_{it} + \beta_5 \text{CAPEX}_{it} + \beta_6 \text{LEV}_{it} + \beta_7 CFOVL_{it} + \beta_8 DIV_{it} + \varepsilon_{it+1}$$

Where MTB is the growth opportunities (i.e. market-to-book value ratio),SIZE is company size (i.e. the logarithm of total assets in base 10), CFO is the ratio of operating cash flow to total assets; NWC is the

ratio of net working capital to total assets, CAPEX is the capital expenditures (ratio of changes in fixed assets to total assets), LEV is leverage ratio (the ratio of total debts to total assets), CFOVL is fluctuations operating cash flow in the last three years, and DIV is the dummy variable of cash dividend payments. After estimating the above model, residues are extracted, positive residues (CashDev +) indicate a positive deviation while negative residues (CashDev-) indicate a negative deviation from the optimal levels of cash held by the company.

Probability of Financial Failure of the Company

The model from Charito et al. (2004) was used to calculate the bankruptcy risk of the firm in the incoming fiscal year. This model has also been used in Al-Attar et al. (2008) and Garcia Lara et al. (2009).

$$\text{FAILING}_{it} = \omega_0 + \omega_1 \text{LEV}_{it} + \omega_2 \text{EBITTL}_{it} + \omega_3 \text{CFOTL}_{it} + \varepsilon_{it}$$

Where FAILING is a dummy variable which is assigned 1 for bankrupt companies and 0 otherwise, P is the risk of bankruptcy (BR) next year, EBITTL is the ratio of operating income to total liabilities, and CFOTL is the ratio of operational cash flow to total debt. The above model is estimated using the logit model and the risk of bankruptcy is hence determined.

Model for Research Hypotheses

to test the first and second hypotheses of the research the following models were respectively proposed:

$$\text{BR}_{it+1} = \beta_0 + \beta_1 \text{CashDev}^{+}_{it+1} + \beta_2 \text{ROA}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{SG}_{it} + \beta_5 \text{LEV}_{it} + \varepsilon_{it+1}$$

$$\text{BR}_{it+1} = \beta_0 + \beta_1 \text{CashDev}^{-}_{it+1} + \beta_2 \text{ROA}_{it} + \beta_3 \text{LIQ}_{it} + \beta_4 \text{SG}_{it} + \beta_5 \text{LEV}_{it} + \varepsilon_{it+1}$$

Where BR is the bankruptcy risk of the firm as calculated by Charito et al. (2004), ROA is the return on assets (ratio of net income to total assets), LIQ is the ratio of current assets to current liabilities (hence representing liquidity), and SG is sales growth. According to the first and second hypotheses of the study, it is expected that the coefficient β_1 is positive and significant.

Research Findings

1. Descriptive Statistics

The descriptive statistics of the research, which provide an overview of the central tendency and dispersion of the variables, are presented in Table 1.

Table 1: Descriptive statistics of research variables

Variable	Mean	Median	Max	Min	SD
BR	0.05	0.06	0.26	0.00	0.02
CashDev+	0.10	0.00	1.09	0.00	0.22
CashDev-	0.12	0.08	0.60	0.00	0.12
ROA	0.12	0.11	0.35	-0.15	0.08
LIQ	1.21	1.17	3.05	0.38	0.40
SG	-0.01	-0.01	0.37	-0.42	0.15
LEV	0.62	0.64	0.90	0.19	0.15
CASH	0.03	0.02	0.13	0.00	0.03
MTB	2.75	2.17	9.87	0.68	1.88
SIZE		5.81	5.79	7.25	4.66	0.55
CFO		0.12	0.11	0.36	-0.11	0.10
NWC		0.09	0.09	0.48	-0.41	0.17
CAPEX		-0.01	-0.01	0.22	-0.29	0.09
CFOVL		0.08	0.07	0.22	0.02	0.03
EBITTL		0.27	0.22	1.09	-0.11	0.20
CFOTL		0.21	0.18	0.92	-0.14	0.20
DIV		0.98	1.00	1.00	0.00	0.14
FAILING		0.05	0.00	1.00	0.00	0.07

The results from table clearly reveal that the mean (median) value for probability of financial failure is 0.05 (0.06), 0.10 (0.00) for positive cash deviation, 0.12 (0.08) for negative cash deviation, 0.12 (0.11) for return on assets, 1.21 (1.17) for liquidity of assets, -0.01 (-0.01) for sales growth, 0.62 (0.64) for leverage, 0.03 (0.02) for cash ratio, 2.75 (2.17) for market to book value ratio, 5.81 (5.79) for company size, 0.12

(0.11) for operating cash flow, 0.09 (0.09) for net working capital, -0.01 (-0.01) for capital expenditures, 0.08 (0.07) for cash flow fluctuations, 0.27 (0.22) for operating earnings to liabilities ratio, and 0.21 (0.18) for operating cash flow to liabilities ratio. The results show that on average, 62% of the capital of the surveyed companies is financed through debts. Furthermore, the findings also reveal that cash holdings accounts for about 3% of the total assets of companies and the stock market value of the companies surveyed is about 3 times their book value. In addition, the results show that 98% of the surveyed companies have cash dividends and about 5% of them are facing bankruptcy risk.

Estimation of models and testing of hypotheses

1.Estimation of model (1) and calculation of deviation from the optimal level of cash holding

In order to calculate the deviation from the optimal level of cash holding, model (1) is estimated with mixed data approach, the results of which are presented in Table 2. Significance of f-Limer value (2.75) indicates the preference of the fixed effects model over the mixed (constrained) model. However, the non-significance of f-Hausmann value (11.83) indicates that employing a random effects model is preferable to using a fixed effects model. The results show that the value of y-intercept (0.37) and the values for variables of growth opportunity (0.05), the ratio of operating cash flow (0.47), net working capital (0.29) and fluctuations of operating cash (0.59) are significant at 1% level, while the value for company size (-0.04) is significant at 5% level.

Table 2: Model (1) Estimation Results

Variable	Coeff.	t-student value	Sig.	VIF
y-intercept	0.37	2.72	0.01	-
MTB	0.01	2.92	0.00	1.09
SIZE	-0.04	-2.03	0.04	1.01
CFO	0.47	6.19	0.00	1.17
NWC	0.29	5.36	0.00	1.34
CAPEX	-0.13	-1.81	0.07	1.06
LEV	0.08	1.28	0.20	1.40
CFOVL	0.59	4.21	0.00	1.04
DIV	-0.01	-0.15	0.88	1.04
Adjusted coefficient of determination	68.53		f-Limer coefficient (significance)	2.75 (0.00)
Fisher coefficient (significance)	37.37 (0.00)		f-Hausmann coefficient (significance)	11.83 (0.16)
Durbin-Watson coefficient	1.89		Random effects model	

The value of the variance inflation index (VIF) also indicated that the independent variables of model (1) are not suffering from severe collinearity. The significance of Fisher coefficient (37.37) at the level of 1% indicates the overall significance of the estimated model. To avoid variance heterogeneity, model (1) is estimated using the generalized least squares method. The Durbin-Watson coefficient (1.89) indicates the absence of the first-order serial autocorrelation problem in the model disturbance elements. The adjusted coefficient of determination also reveals that the independent variables are cumulatively able to explain about 69% of the changes in the dependent variable. After estimating model (1), the residues are extracted. Positive residuals (CashDev +) indicate positive deviation and negative residuals (CashDev-) indicate negative deviation from the optimal levels of cash holdings.

2.Estimation of Model (2) and evaluation of financial failure of firms

To calculate the bankruptcy risk (probability) of firms in the coming year, model (2) is estimated using the logit model and the results are presented in Table 3, the figures reveal that the y-intercept (-8.11) and the coefficient for variables of leverage ratio (6.39) and ratio of operating profit to total liabilities (-14.78) are significant at the level of 1%, indicating that liabilities are directly correlated to the probability of bankruptcy while the operating profit of firms is inversely related to the bankruptcy risk. The value for the VIF also shows that the independent variables of model (2) are not suffering from severe collinearity

either. The significance of the likelihood coefficient (96.13) at the level of 1% indicates the overall significance of the model. McFadden's coefficient of determination also shows that the independent variables were able to predict about 26% of the changes in the dependent variable.

Table 3: Model (2) Estimation Results

Variable	Coeff.	t-student value	Sig.	VIF
y-intercept	-8.11	-4.62	0.00	-
LEV	6.39	2.85	0.00	1.03
EBITTL	-14.78	-6.90	0.00	1.17
CFOTL	-0.82	-0.68	0.50	1.14
likelihood coefficient	68.53			
McFadden's R^2	25.89%			
Hosmer-Lemeshow GFI	4.55 (0.71)			

To determine the integrity of the model prediction, the Hosmer-Lemeshow (1989) goodness-of-fit test was employed, which tests whether or not the observed event rates match expected event rates in subgroups of the model population, hence indicating the capacity of the prediction model in explaining variables. The value for the Hosmer-Lemeshow test (4.55) show that the null hypothesis in that the actual cases of bankruptcy are equal to the predicted cases at the 1% level is not rejected. This shows that the research model is very accurate in predicting bankruptcy cases. After estimating model (2), the amount of failure probability of firms is determined.

3.Estimation of Model (3) and testing of the first hypothesis

To test the first hypothesis of the research, model (3) is estimated using mixed data model and the results are presented in Table 4. The non-significance of Limer value (1.16) indicates the preference of the mixed effects model over the fixed effects one.

Table 4: Model (3) Estimation Results

Variable	Coeff.	t-student value	Sig.	VIF
y-intercept	0.02	0.64	0.52	-
$CashDev^+$	0.03	2.55	0.01	1.01
-0.07	-7.96	0.00	1.24	
-0.07	-0.85	0.40	1.39	
SG	-0.05	-1.50	0.40	1.39
LEV	0.02	8.61	0.00	1.59
Adjusted coefficient of determination	42.97%		f-Limer coefficient (significance)	1.16 (0.30)
Fisher coefficient (significance)	109.67 (0.00)			
Durbin-Watson coefficient	1.93		mixed effects model	

The non-significance of the f-Limer value (1.16) indicates the preference of the mixed effects model over the fixed effects model. The presented results indicate that the coefficients for the variables of positive deviation from the optimal cash level (0.03), return on assets (-0.07) and leverage ratio (0.02) are significant at the level of 1%. The VIF values also shows that the independent variables of model (3) are not suffering from severe collinearity. Significance of Fisher statistic (109.67) at the level of 1% indicates the overall significance of the estimated model. To avoid variance heterogeneity, model (3) is estimated using the generalized least squares method. The Durbin-Watson coefficient (1.93) indicates the absence of the first-order serial autocorrelation problem in the model disturbance elements. The adjusted coefficient of determination also indicated that the independent variables are cumulatively explain about 43% of the changes in the dependent variable. The positive and significant variable coefficient of positive deviation from the optimal cash ratio (0.03) indicates that with increasing the amount of positive

deviation from the optimal level of cash holding, the probability of financial failure of the firm increases. This indicates that the first hypothesis of the research has not been rejected, and hence accepted.

4.Estimation of Model (4) and testing of the second hypothesis

To test the second hypothesis of the research, model (4) is estimated using mixed data model and the results are presented in Table 5. The non-significance of Limer value (1.18) indicates the preference of the mixed effects model over the fixed effects one. The non-significance of the f-Limer value (1.16) indicates the preference of the mixed effects model over the fixed effects model. The presented results indicate that the coefficients for the variables of negative deviation from the optimal cash level (0.01), return on assets (-0.04) and leverage ratio (0.15) are significant at the level of 1%. The VIF values also shows that the independent variables of model (4) are not suffering from severe collinearity. Significance of Fisher statistic (339.78) at the level of 1% indicates the overall significance of the estimated model.

Table 5: Model (4) Estimation Results

Variable	Coeff.	t-student value	Sig.	VIF
y-intercept	-0.10	-1.58	0.11	-
CashDev-	0.01	2.62	0.01	1.02
ROA	-0.04	-21.06	0.00	1.25
LIQ	0.01	0.88	0.38	1.40
SG	-0.03	-5.19	0.00	1.00
LEV	0.15	16.46	0.00	1.59
Adjusted coefficient of determination	48.18%		f-Limer coefficient (significance)	1.18 (0.29)
Fisher coefficient (significance)	339.78 (0.00)			
Durbin-Watson coefficient	1.99		mixed effects model	

To avoid variance heterogeneity, model (4) is estimated using the generalized least squares method. The Durbin-Watson coefficient (1.99) indicates the absence of the first-order serial autocorrelation problem in the model disturbance elements. The adjusted coefficient of determination also indicated that the independent variables are cumulatively explain about 48% of the changes in the dependent variable. The positive and significant variable coefficient of negative deviation from the optimal cash ratio (0.01) indicates that with increasing the amount of negative deviation from the optimal level of cash holding, the probability of financial failure of the firm increases. This indicates that the second hypothesis of the research has not been rejected, and hence accepted.

Discussion and Conclusion

Companies are on a never-ending quest to find the optimal level of liquidity that does not cause major losses to the company from lack thereof, while, by maintaining additional cash, opportunities are not missed. Due to the different characteristics of companies and different time periods, firms employ different adjustment speeds to achieve this so-called target cash holding. Cash is important in that it allows the company to look for opportunities to increase stock value. Usually, managers are looking for a level of cash balance that is optimal in terms of the advantages and disadvantages of maintaining it. It is often accounted for a significant percentage of corporate assets. Cash must be maintained at a level that balances the cost of maintaining cash with the cost of insufficient funds. In other words, the liquidity of companies is greatly affected by the nature of the activities of the firm. Managers often plot a time-table for their cash holdings and try to achieve it (Badavar Nahandi and Dorkhor, 2013).

The present study examined the effect of deviation from the optimal level of cash holding on the probability of financial failure of the firm. In the first hypothesis of the research, it is predicted that positive deviation from the target cash holding increases the probability of failure of the company. The results of model estimation indicate that the coefficient of variation for positive deviation from the target cash is positive and significant. Therefore, increasing the amount of cash holding from its optimal amount

significantly increases the probability of failure. These results are consistent with the findings of Farinha et al. (2018) and Hu et al. (2018). In the second hypothesis of the research, it is predicted that negative deviation from the target cash holding increases the probability of failure of the company. The results of model estimation indicate that the coefficient of variation for negative deviation from the target cash is positive and significant. Hence, decreasing the level of cash holding from its optimal amount significantly increases the probability of failure. These results are consistent with the findings of Farinha et al. (2018) and Hu et al. (2018). According to the research findings, managers are advised to avert or mitigate deviation from the optimal level of holding cash to avoid financial failure of the company and to try to benefit from the benefits of the optimal level of cash. In all stages of the present research, the authors sought to select and implement procedures that would yield results with graceful generalization capacities. However, limitations may prevent this from happening. For instance, the model representing deviation from optimal cash was extracted from Orlova and Rao (2018). using other metrics to measure deviations from the optimal level of cash may lead to different results. Moreover, the model from Charito et al. (2004), which is a logistic model, was used to measure financial failure in this study. Using other methods for calculating the probability of failure can have different results. In addition, the dynamics nature of the relationship between deviation from the optimal level of cash and financial failure was not considered in this study. Taking this into account may change the results.

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