Advances in mathematical finance & applications, 2 (1), (2017), 97-106

Published by IA University of Arak, Iran
Homepage: www.amfa.iau-arak.ac.ir

The Survey Relationship between Growth Opportunities, Corporate Risk and Changes in Cash Holdings

Zahra Amirhosseini [a,*]***, Mahtab Nameni*** [a]

[a]*Department of management, Shar-e-Qods Branch, Islamic Azad University*

ARTICLE INFO

Article history:
Received 14 December 2016
Accepted 18 February 2017

Keywords:
Growth opportunities
Changes in the firms
Cash holdings
The company's risk

ABSTRACT

The aim of this study was to investigate the relationship between growth opportunities, risks, and relative changes in the Company's cash assets. This study is a literature study and analysis was based on an analysis of panel data. In this study, a financial data of 112 companies listed in Tehran Stock Exchange during the period 2009 to 2014 have been reviewed. The results in relation to the first hypothesis of the present study suggest that between growth opportunities and significant relationship of changes in cash holdings is straight forward. Also according to the analysis done in relation to the second hypothesis, we determined that between now and the risk of changes in cash holdings is an inverse relationship.

1. Introduction

The good investment is one of the basic principles of any business and the investors who want to invest are often looking for maximum efficiency, so any inputs by which they can predict and promote the amount of the firm's growth, will be considered as well [12]. Also, the optimum usage of the existing investment opportunities leads to increase success and it is essential to identify the effective factors on corporate growth opportunities [2]. Investors should always consider the risk in their investment making decisions, because what will lead to success is the optimum use of the opportunities available for which it would be better to identify the effective fiscal policies on growth opportunities development in the business units [18]. In managing the risk of a business unit there are different policies that are resulted from the compilation of the current assets, current liabilities, cash and the storage assets [13]. The directors should select the appropriate policies, so that they can efficiently manage their current liabilities and assets, increase the company's return, maximize the shareholders equity and decrease the corporate risk [6]. Now, the financial management focusing on topics such as the relationship between the risk-return and maximizing returns and investment opportunities has been at risk [19]. Therefore, the research main question is whether two variables of the company's growth and risk opportunities have any effect on the changes ratio in corporate cash holdings or not? Cash holdings management interacts with corporate risk and profitability. Poor liquidity management also leads to excess investment in current assets and to reduce company profitability and finally to increase

* Corresponding author. Tel.: 02146896000
E-mail address: *z.amirhosseini@qodsiau.ac.ir*

company's risk [14]. At the other hand, poor liquidity management will lead to imbalance in current assets and short-run liabilities and consequently generates financial problems and finally, will put the company in danger [16]. Thus, to avoid this essential point, Bigelli and Vidal [9] considered cash holdings structure and combination in private companies in a research. The results showed that cash holdings significantly relate to the smaller size of the company, higher risk and lower effective tax rates. Waet [30] took the impact of financial barriers on the relationship of the commercial credit and cash holdings in the companies listed in China Stock Exchange into consideration. The consequences represented that the commercial earnings and payments have asymmetric effect on cash holdings and they found that the earnings ratio is a good alternative for maintaining extra cash as well. In a study on 34 companies, Aboret al. verified the impact of investment opportunities and financing sources on dividend policy and the results showed that the investment opportunities have had negative effect on dividend policy [1]. On the other hand, financing sources of the company have had a little effect on dividend policy and more likely that profitable companies will split the profits among its shareholders. Anderson [3], examined the effects of corporate diversification on corporate risk. They announced that corporate risk will not be decreased by diversification. Kevin and Vicki [22] reviewed the relationship between the profit quality and investment capital assets. The results showed that the lower profit the companies have, the smaller stock returns they will have and investing in their capital assets are less sensitive to input cash flows. Likewise, the above mentioned companies allocate less their sources to the capital assets than the other companies and have lower "rate of assets returns." Lambert stated that in the models with full competition, the accuracy of information (rather than information asymmetry) is the benchmark data set of risks that affects the cost of capital [23]. Nekrasov and Sheroff, examined a fundamentals-based risk measurement and announced that accounting numbers are useful in determining a company's risk [25]. Sunder and Myers investigated the four factors effect including the assets visibility, growth opportunities, the corporate tax situation and profitability on capital structure (debt ratio)in 157 companies presented[27]. The findings indicate a positive relationship between debt ratio and asset visibility in one hand, and negative relationship between leverage and profitability of the companies, at the other hand. There is also no significant relationship between two variables of growth opportunities and tax state with debt ratio. Shelly Howton-Steven. Perfect showed that there is an inverse relationship between the market reaction to the issuance of debt and the cash level and investment opportunities of debt Issuer Company. KashaniPour and Rasekhi [21], presented through a study the levels of cash can be interpreted as a direct representative of severe financial constraints existing. Aghaee et al [5], indicated through a research that the receivable accounts, net working capital, inventory of goods and short run debts are the most important factors that have a negative impact on cash inventory maintaining, respectively. Broumand studied the relationship between the investment opportunities and dividend policies and found that there is a significant relation between them. In their study, Karimi and Sadeghi [20] examined the capital asset investment and domestic and foreign financial restrictions in companies listed in Tehran Stock Exchange. The results show that there is a significant and positive relation between the firm size and the investment sensitivity to the cash flows, thus, by increasing foreign financial restrictions, the investment sensitivity to the cash flows will be incremented. They also showed that there is a negative and significant relationship between the operating cash flow and investment sensitivity to the cash flow. Hemmati probed the residual income risk, the intrinsic value and the share price and found that the accounting numbers along with residual income valuation can be used in calculating and measuring the firm's risk and tacit risk discount share price. Eslami-Bidgoli et al. [15] performed a research on the return

contrast and the alternative opportunities risk of investment in Iran. Eventually it became clear during the study period, the stock index returns have been more than of other investment opportunities. Although, the risk is higher as compared to other opportunities, it was indicated that relative risks and returns of these investment opportunities are more favorable than the others. ZamanPour [29] indicated in a research that there is an inverse relationship between investment opportunities and borrowing policy and there is a positive relationship between dividend policy and the capital increasing. Ahmad-Pour [4] by considering the systematic risk prediction model and using accounting information showed that there is a positive relation between financial leverage and the systematic risk and a negative relationship between the size of company and the systematic risk, but there was no relationship between the operating leverage and sales. ShafiZadeh [24] has found in a research that a nonlinear relationship can better explain the linkage between the systematic risk and stock returns than a linear one. This means that the assumption of linearity rejects the relationship between systematic risk and stock returns. So, growth opportunities are equal to the created tendencies due to the new investment regarding the predictable constraints and the level of corporate liquidity [17], corporate risk representing the increase or decrease in the company's performance associated with the fluctuations in cash [10], and the ratio of changes in cash assets equals to the cash assets growth rate (cash, short term investments and …) of the companies.

3. Methodology

The aim of the present study is of applied research and its research method is descriptive and retrospective type. The research population consisted of all the companies listed in Tehran Stock Exchange.

3.1. Research Hypothesis

The Main Hypothesis

There is a significant relationship between growth opportunities, the company's risk and the ratio of the changes in the cash assets of the companies.

The first Sub-hypothesis

There is a significant relationship between growth opportunities, and the ratio of the changes in the cash assets of the companies.

The second Sub-hypothesis

There is a significant relationship between the company's risk and the ratio of the changes in the cash assets of the companies.

According to the official website of the Tehran Stock Exchange, all of the listed companies have been consisted of 520 companies in 37 industrial groups by the end of 2014. Therefore, in the present study all the companies listed in Tehran Stock Exchange for a period of six years, from 2009 to 2014, are the statistical community.

Screening method was used for sample selection and the sample consisted of 112 firms. This study is based on theoretical basis of the literature review and research background, articles and websites, and data collected in the framework of inductive form for confirming or rejecting the hypotheses. In this study, a multivariate linear regression model was used to test the hypotheses. The statistical method used in this study is a panel data approach.

3.2. Dependent Variable

Dependent variable of the present study is the compared changes in equity cash ($C \quad h_{i,t}$). According to the Harford et al. [18] research, compared changes in the company's cash assets will be estimated through the following model:

$$Cash_{i,t} = \sim + \sum_{K} \quad {}_{K} X_{K,i,t} + \ll_{i,t}$$

Where,

$$X_{i,t} = \frac{c\ \ a \quad i\ t\ y \quad p \quad t\ c \quad y \quad -c\ a \quad i\ t\ c \quad y}{c\ a \quad i\ t\ y \quad p \quad t\ c \quad y}$$

3.3. The Independent Variables

1) **Growth Opportunities** ($G \quad {}_{i,t}$)**:** according to the Foley et al. [17] research, growth opportunities of the company will be calculated through the following equation:

$$X_{i,t} = \frac{sha \quad ho \quad m \quad v}{sha \quad ho \quad b \quad v}$$

2) **Firm's risk (**$R \quad {}_{i,t}$ **):** CAPM1 states that the expected rate of return equals to the risk-free rate of return plus a risk premium which is shown as below [10].

$$E(R_i) = R_f + \lfloor E(R_m) - R_f \rfloor * \ {}_{i}$$

$$\Rightarrow R_{it} = R_{ft} + (R_{mt} - R_{ft}) \ {}_{i} + e_{it}$$

3.4. Control Variables

Liquidity growth rate of firm i in year t is calculated by dividing the cash assets of the current year minus the previous year's cash assets [19]. If there is a tax rebate, tax effects of the firm i in the year t will be 1, otherwise tax will be considered [10]. If the firm paid a dividend, artificial variable of dividend of the firm i in the year t will be 1, otherwise it will be [13].

The duration of the conversion cycle of the cash of the firm i in the year t: if the duration of the conversion cycle of the cash of the firm is less than 1 year, tax effects will be equal to 1, otherwise it will be considered [19]. The bank debt of the firm i in the year t will be obtained by dividing the bank loans on book value of current assets [6]. Net working capital of the firm i in the year t is calculated by subtracting current assets and current liabilities [10]. R & D expenditures of the firm i in the year t is equal to 1 if the firm has R & D costs, otherwise it will be [14].

4. Findings

4.1. Data Normalization Test

First, the Kolmogorov–Smirnov Test is used to verify the normality of the dependent variable of the research. The results are summarized in Table 1.

Table 1: The normality of the dependent variable

Sig	K-S	N	variable
0.000	**4.173**	**672**	changes in cash holdings

The results listed in Table 1 show that the level of statistics significance K-S for the ratio of changes in cash holdings is less than 0.05, so the assumption H_0 of the distribution normality of these variables is rejected at the 95% confidence level. It indicates that the variable is not a normal distribution of changes in cash assets. Therefore, we will use Johnson Transfer Function to normalize the data whose results are given in Table 2.

Table 2: Results of normality test of the dependent variable after normalization

Sig	K-S	N	variable
0.835	**0.621**	**672**	changes in cash holdings

After normalization of the data by Johnson Transfer Function, the level of significance (Sig.) of Kolmogorov-Smirnov statistics for the dependent variable is greater than 0.05 (0.835), so the hypothesis H_0in 95% confidence level was confirmed, indicating that the variable of ratio of changes in cash assets will have normal distribution after normalization process.

4.2. Pearson Correlation Test

Regarding to normality of the research dependent variable, Pearson Correlation Test is used to evaluate the correlation between the variables in the research.

The results in Table 3 are as follows:

Table 3: Pearson correlation coefficient matrix between the research variables

	Cash $_{i,t}$	Gro Opp.	Risk	Cash $_{i,t-1}$	EffTaskRate	FinDef	PayDum	LenCasCon	BanDeb	NetWorCap	CasR&D	DiffCos
Cash $_{i,t}$ (P-Value)	1											
GroOpp. (P-Value)	-0/023 (0/543)	0 1										
Risk (P-Value)	0/015 (0/700)	0/020 (0/609)	1									
cash $_{i,t-1}$ (P-Value)	0/017 (0/666)	0/020 (0/608)	0/005 (0/898)	1								

DiffCos (P-Value)	CasR&D (P-Value)	NetWorCap (P-Value)	BanDeb (P-Value)	LenCasCon	PayDum (P-Value)	FinDef (P-Value)	EffTaskRate (P-Value)
-0/017 (0/668)	0/027 (0/484)	0/140 (0/000)	-0/070 (0/071)	0/044 (0/251)	0/029 (0/458)	0/039 (0/311)	0/001 (0/981)
0/014 (0/709)	0/008 (0/836)	0/020 (0/601)	0/013 (0/738)	0/054 (0/163)	-0/053 (0/168)	0/023 (0/554)	-0/016 (0/675)
-0/099 (0/010)	0/062 (0/111)	0/127 (0/001)	-0/102 (0/008)	0/015 (0/702)	0/010 (0/789)	0/056 (0/150)	-0/058 (0/130)
0/014 (0/714)	0/015 (0/697)	-0/012 (0/754)	-0/036 (0/353)	0/009 (0/810)	-0/021 (0/580)	0/024 (0/542)	0/027 (0/490)
0/049 (0/204)	0/131 (0/001)	-0/018 (0/645)	0/050 (0/197)	-0/384 (0/000)	-0/218 (0/000)	0/006 (0/873)	1
-0/008 (0/841)	0/057 (0/140)	0/000 (0/992)	0/052 (0/175)	-0/008 (0/844)	0/056 (0/145)	1	
0/049 (0/204)	-0/005 (0/907)	-0/015 (0/700)	-0/021 (0/592)	-0/196 (0/000)	1		
-0/052 (0/182)	-0/068 (0/077)	0/064 (0/099)	-0/017 (0/666)	1			
0/337 (0/000)	-0/039 (0/314)	-0/381 (0/000)	1				
0/065 (0/092)	0/035 (0/366)	1					
-0/010 (0/801)	1						
1							

As the results show, the variables of each company's growth opportunities and risks are correlated directly with each other; the correlation between these variables is very strong. So, regarding the problem of multi-collinearity among these variables, the simultaneous entry of variables in a model is impossible and may need to check and its test may perform in separate models.

Given the lack of strong correlations with other variables, we can say that there is no problem of multi-collinearity between them and their simultaneous entry will not cause multi-collinearity problem in model.

In order to determine whether using panel data would be effective either in a given model or not, the Chow Test or F-bound has been used and in order to determine which approach (fixed effects or random effects) is better to estimate (fixed detection or random variations of sectional units), we will use Housman Test.

4.3. Chow and Housman Test

Table 4: Results of Chow and Housman test for model (1)

P-Value	**df**	**ϴ**	**θ**	**N**	**Test**
0.0106	111.549	2.0486	F	672	**Chow**
0.0171	11	12.6460	X^L	672	**Housman**

The results in Table 4 are as follows: According to the results of the Chow Test and the P-Value (0.0106), the hypothesis $H_0$of the test is rejected at the 95% confidence level, indicating that the panel data approach may be used. Also, according to the results of the Housman Test and the P-Value (0.0171) which is less than 0.05, it is necessary to estimate the model using fixed effects approach.

4.4. Statistical Hypotheses Test

In order to test primary and secondary hypotheses of the research, we choose multiple regression which its results shown in Tables 5 and 6.

Table 5: Results of the tests of the statistical assumptions of the model (1)

Ramsey		Durbin-Watson	Breusch-Pagan		Jarque-Bera	
P-Value	F	D	P-Value	F	GB	X^L
0.6206	**0.4774**	**1.95**	**0.0192**	**2.0897**	**0.1940**	**3.2793**

Table 6: Results of the first sub-hypothesis test of the research using fixed effects

Dependent variable = Cash $_{i,t}$ N=112 company				
Relation	P-Value	t	r	variable
0	0.1547	-1/4251	-0.1194	Fix
+	0.0310	1.0866	1.003	Gro Opp.
-	0.0410	-1.8771	-0.0326	Risk
0	0.2281	1.2065	0.0193	Cash $_{i,t-1}$
+	0.0464	1.9966	0.0576	EffTaskRate
0	0.8378	-0. 2047	-0.055	FinDef
+	0.0139	2.4678	0.0688	PayDum
+	0.0069	2.7140	0.0795	LenCasCon
0	0.7268	0.3471	0.0323	BanDeb
+	0.0001	3.9652	0.4214	NetWorCap
0	0.7036	0.3806	0.0103	CasR&D
+	0.0065	2.7318	0.3003	DiffCos
0.3208	R^2			
1.02754 (0.0366)	F (P-Value)			

Considering the significance of the entire model regarding the amount of F statistics probability is smaller than 0.05 (0.0366), the entire model being significant is confirmed at 95% significance level. Determining factor of model suggests that 32.08 percent of the changes ration cash holdings is explained by the variables in the model. Since the probability of t-statistics is smaller than 0.05 (0.0310) for variable coefficient of growth opportunities, thus, the result of a significant relationship between growth opportunities and the proportion of changes in cash holdings is approved at 95% confidence level.

Since the t-statistics probability for the risk variable coefficient of the firm is smaller than 0.05 (0.0410), the result of a significant relationship between the firm's risk and the ratio of changes in cash holdings could be confirmed at 95% confidence level. To test the normality of the line sentences, Jarque-Bera Test was used and the results showed that the probability of the test (0.1940) could be greater than 0.05 at 95% confidence level. To check homogeneity of variances, Pagan Cutting Test was used, and given that the results indicate a lack of homogeneity of variances, Generalized Least Squares Estimation Method (GLS) is used. To test residuals being not correlated, Durbin-Watson Test (DW) was used and the results showed that the residuals are independent of each other.

Ramsey's Test was used to check the linearity, as respects that the level of significance of Ramsey's test (0.6206) is greater than 0.05; the model does not explicitly contain Specification Error.

5. Discussion and Conclusions

Thereupon, the first hypothesis is accepted and we can say with 95% confidence that there is a significant relationship between growth opportunities and the ratio of changes in cash assets. Positive coefficient for this variable (1.0030) suggests a direct relationship between growth opportunities and the ratio of changes in cash assets, so that with a unit increasing in opportunities for growth, the ratio of changes in cash holdings will be increased at the amount of 1.0030.

Thus, according to the analyses made in relation to the first research hypothesis approval, it may be concluded that there is a direct and significant relationship between growth opportunities and the ratio of changes in the company's cash assets. The results of this study are consistent with the study of Bigelli and Vidal, Sanders and Myers .Thus, the second research hypothesis is accepted and it could be said with 95% confidence there is a significant relationship between the company's risk and the ratio of changes in cash holdings. Coefficient being negative for this variable (-0.0326) implies the existence of an inverse relationship between the risk of the company and the ratio of changes in cash holdings, so that, with an increase of one unit in the firm's risk, the ratio of changes in cash holdings will be reduced at the amount of 0.0326.

Thus, according to analyses conducted in connection with the research second hypothesis approval, it can be concluded that there is an opposite and significant relationship between the company's risk and the ratio of changes in the assets of the company. The derived results of this study are consistent with the studies of Nekrasov and Sheroff, Ali shafiZadeh, AhadPour. According to the results of this research and similar studies, Stock Exchange can publish much more comprehensive information about the ratio of changes in the company's cash assets for its shareholders, Accounting Standards Authorities also recommend the optional disclosure of comprehensive information about the value and level of growth opportunities and risks of the companies and the ratio of changes in corporate and firm cash holdings. Because, increasing the value and level of growth opportunities and risks of the companies can have important effects on investment decisions, providing complete and transparent information by the management about growth opportunities and risks for the company and the ratio of changes in cash holdings would be very useful and it would be better that active financial analysts in the capital market, and investment advisors in Stock Exchange along with doing common analyses and techniques to take action on specific analysis based on the status of changes in the company's cash assets and factors influencing it and growth opportunities and risks of the companies regarding to accounting standards.

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