

## The impact of financial constraints on the relationship between cash flow and external financing of companies listed in Stock Exchange

Fariba Vahid<sup>1</sup>, Karim Nemati<sup>2\*</sup>, Mohammad Kheiry<sup>3</sup>

<sup>1</sup>Department of Management, Qeshm Branch, Islamic Azad University, Qeshm, Iran

<sup>2\*</sup>Department of Accounting, Marvdasht Branch, Islamic Azad University, Marvdasht, Iran

<sup>3</sup>Department of Management Accounting and economic, Payamenoor University, Tehran, Iran

Received: 10<sup>th</sup> Jan 2017, Accepted: 23<sup>rd</sup> Jan 2017, Published: 15<sup>th</sup> March 2017

### Abstract

The aim of this study is to investigate the effect of the financial constraints on the relationship between cash flow and external financing of company listed in the Tehran Stock Exchange. This research is an applied-correlation study. Data was collected using information reported in the financial statements of companies listed on the Stock Exchange of Tehran. In order to fulfill the objectives of the study, two hypotheses have been developed. The sample of study included 126 companies over a five-year period from 2008 to 2014. To analyze the data, Excel and Eviews 7 software was used. To measure hypotheses, regression test, Durbin-Watson test, and Hasmer and Fisher test were used. The results of this study indicated significant impact of operating cash flows on external financing. Financing constraints have a significant impact on relationship between operating cash flows and external financing.

**Key Words:** Operating cash flows, Tangible asset, External financing

### Introduction

The ability of companies to determine the appropriate financing resources and making correct decision in this regard is considered as the main success factors of the company. The most important objective that the management should pay attention to it at the time of choosing a financing method is increasing the wealth of shareholders. It means that the company should select the resources that minimize the cost of financing by considering the cost of the different resources of financing and its impact on company's risk and return. The appropriate combination of financing resources is associated with characteristics such lower capital cost and increased rate of return. Investigation of previous studies shows that most of studies on financing methods and their impact on return have emphasized on the relationship between selection of financing resources and return of companies, the preference of external resources of financing over internal resources of financing or vice versa, to achieve an desired capital structure, and the relationship between capital structure and risk (Molanazari, 2009, p 30).

The issue of financial constraints is one of the important and basic for all companies. The common way to investigate the relationship between financial constraints, the value of cash, and investment is classification of companies into two groups of companies with financial constraints and companies without financial constraints. Farazi et al (1988) argue that companies that have severe financial constraints have greater emphasis on cash flows when making investment decisions. In other words, with increasing difference between the cost of external and internal financing, sensitivity of investment to internal cash flow increases. Some theories also state cash holdings in the company, that these theories include the exchange theory and hierarchical theory. According to exchange theory, companies select desired level of cash holdings based on equilibrium between the benefits and costs of cash holdings. Three major incentives to hold cash can be trading motivation, speculative motivation, and motive and precautionary motivation. Companies often use cash hold in company for speculative motivations and use of investment opportunities.

Among precautionary motivation objectives, we can refer to deal with the crisis and preventing liquidity problems and reducing the cost of financing. According to the hierarchical theory, it is also stated that financing procedures follow a hierarchical procedure and internal resources are preferred over external resources (Badavar and Darkhor 2012, p. 25).

Therefore, the main problem of this study is to find the impact of financial constraints on relationship between operating cash flow and external financing in companies listed on the Tehran Stock Exchange.

### Literature review

Cash holding includes significant percentage of assets of companies. Cash is important because it allows company to seek opportunities to increase stock value. Usually managers are looking for optimal level of cash stocks considering the advantages and disadvantages of cash holding. Cash holding must be kept at a level so that an equilibrium to be established between the cost of holding the cash holding and insufficient cash. In other words, companies are looking for the optimal level of liquidity so that no major losses to be imposed on

company due to lack of liquidity. On the other hand, the additional cash holdings, opportunities are kept and this case is same target level of liquidity at companies, which it varies due to various characteristics of companies and different periods. Companies' liquidity position is strongly influenced by the nature of companies' activity. Managers develop a plan to determine the amount of liquidity in certain period and make an effort to achieve it (Badavar and Darkhor, 2012, p. 120).

### **Cash flows**

Investors mainly consider net profit as guide in determining the financial health of the business unit and prediction of further profits obtained in future. This major attention to profit is due to reasons as follows: (Chen, 2001).

1. Profit and its components are the primary objective of financial reporting.
- 2-Profit represents the interests of shareholders who are the main users of financial information.
- 3-Profit rate has been always considered by financial analysts
- 4- Profit information is always available to the public quickly in reliable manner.

Information on cash flows and its resources and uses can have important effects in decision-making processes. On the other hand, information related to cash flows can help users in determining that if company has sufficient cash to pay debts on the due date or not. In specifying the objectives and nature of financial reporting, the subject of superiority of accrual accounting over cash flow accounting becomes the focus of attention. In the area of accrual accounting, the management evaluation process is facilitated and synchronization matching of revenue and expenses is essential. However, accrual system efficiency is under the question.

Haiipkenz and Campbell (2002) report that value determination methods based on profit are not used to analyze securities and determination methods based on cash flows are considered. Many theorists who pay attention to the usefulness of decision recommend that to predict cash flows, cash accounting system based on investor needs to be used. Most proponents of cash flow accounting think that the issue of determination of assets value and calculation of profit is so complex that they need to separate accounting system. They recommend that inclusive cash flow to be included in the report of companies.

### **Importance of cash flow**

The ability of a profit unit to achieve and generate cash is an important criterion for making decisions and judgments about the future of cash flow. Cash can be considered as the starting point and end of the operations circle. This means that each course of business unit operations starts with cash payment

(obligation to pay) and ends with receiving the payment (or obtaining the obligation to pay). Profit items and balance sheet measured on the base of accrual accounting provides useful basis of assessment of institution performance and information related to predicting future activity of business units and dividend payment. Because of the inherent and general orientation resulting from use of allocation methods as well as historical cost of transactions, we are not sure that traditional accounting methods to respond complex economic activities. One of the ways to avoid of such orientations is an emphasis on cash flows reporting that this report along with other information and proper classifications allow users of financial statements to predict the future situation (Yousefi, 2001).

### **Cash flows resulting from financing activities**

This category includes incoming and outgoing cash flows related to financing activities (debt or equity) to receive cash for the business unit. Outgoing cash flows occur when the original value is returned to the owners and creditors.

Examples of items that fall in this category are as follows (Mashayekhi, 2009):

Incoming cash flow from,

The place of stock cash issuance, creditors for the place of issuance of debt

Outgoing cash flow from,

To creditors for the loans and borrowings received, for portion of the lease installments to purchase, repurchase of stock (treasury stock)

### **Reporting cash flows arising from the operation**

The sum of cash flows arising from operating activities is one of the main indicators to evaluate this issue that to what extent business unit operations have led to sufficient cash flows to repay the loans, commercial unit throughput and paying dividends. In addition, to what extent it has facilitated new investments without using financial resources out of business unit. Providing information about the details of the current operational cash flows is useful along with other information to predict future cash flows.

Operational activities include main operational revenue-generating activities of business unit. These activities involve the production, sale of goods, and providing the services and its costs and revenues are considered in the profit and loss. Cash flows resulting from operations include incoming and outgoing cash flows related to the mentioned activities. Examples of cash flows arising from operating activities are as follows:

(A) Cash received from the sale of goods and services

(B) Cash received from royalties, fees, commissions and other operating revenues

(C) Cash payments to sellers of goods and services

(D) Cash payments to employees of business units or on their behalf

(E) Received and paid cash of an insurance company for premiums, losses, pension and other insurance payments

(F): Received cash. Payments related to contracts signed with the business and operational objectives

(G) Cash paid for benefits of employees' service termination and costs of reorganizing

The importance of operating cash flows

If a company wants to stay in business, cash flows obtained from its operating activities should be positive in the long term. Company that has cash flows arising from negative operating activities will not be able supply required cash flow always from the resources. In fact, power of company to supply cash through investment or financial activities is largely dependent on its ability to supply cash from usual operations of the company. Creditors and shareholders are not willing to invest in a company in which enough cash is not supplied from operating activities and there is no certainty in payment of the stock share (Talanah and Moradzadeh, 2003).

**Research hypotheses**

1. Operating cash flows have significant impact on external financing in companies listed in Tehran Stock Exchange.

2. Financing constraint has significant impact on the relationship between operating cash flows and external financing of companies listed on Tehran Stock Exchange.

**Methodology**

As the data used in the current study are historical and factual data, it can be classified among ex post facto studies. In this type of study, researcher investigates its possible occurrence reasons according to the dependent variable. In other words, this is study is a type of retrospective investigation aims to find out the possible cause from the effect (Sarmad, Bazargan and Hejazi, 2007).

In fact, the research design of this study is quasi-experimental using ex post facto approach (through the past data). In this type of study, the researchers examine the subject after occurrence of the events. In addition, there is possibility to manipulate the independent variables of the study (Namazi, 2000). With regard to the measures taken and the achievements of the stock exchange organization in the last decade that has includes wide range of improving the informing situation to public investors and developing the level of transparency in the market and lack of a reliable source of information in the field of access to information of non-stock exchange companies, the population of study was selected among companies listed in Tehran stock exchange.

Therefore, the statistical sample of this study selected by eliminating method includes companies that meet the following requirements:

1. Companies listed in the Tehran Stock Exchange before 2014
2. Companies having the Web site
3. Companies that their period is 29 March of 2008, 2009, 2010, 2011, 2012, 2013, and 2014 and they should not have any change in fiscal period
4. Information required for research should be available in resources.
5. Investment, leasing, banks and insurance companies were excluded from the list of companies.

Considering the above conditions, 126 companies were selected as sample of study.

**Data analysis**

First hypothesis: operating cash flows have significant impact on external financing in companies listed in Tehran Stock Exchange.

To investigate the hypothesis, the following model is used.

$$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \epsilon_{it}$$

Before testing the hypotheses, regression model is selected. First, using F Limer test, integrated data model versus panel data model is selected. The result of F test has been presented in Table below. The probability value of test statistic is less than 0.05. Therefore, to test the hypotheses of study, integrated data method is rejected and panel data method should be used in this regard.

**Table 1: F Limer test results at the 5 percent**

model	$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \epsilon_{it}$		
Type of test	Test statistic	Degree of freedom	Probability of test statistic
F Limer	2.550	(752 and 125)	0.000

After it was found that data are in the form of panel data, it is determined that which of fixed effects or random effects should be used to estimate. Therefore, Hausman test is used in this regard. By conducting this test, the most appropriate method can be used among fixed effect and random effects methods to estimate. In this study, null hypothesis suggests that random effects method is used to estimate the model and the opposite hypothesis suggest that fixed effects method is used to estimate. Test result is presented in Table below.

**Table 2- Hausman test results at 5%**

Model		$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \epsilon_{it}$	
Type of test	Chi-square test	Degree of freedom	Probability of test statistic
Hausman test	98.102	3	0.000

Hausman test and the possibility of accepting the null hypothesis are presented in the table above. As significance level of model test is less than 0.05, it can be concluded that the appropriate approach to estimate is fixed effects model.

**Model estimate results**

After determining the appropriate method to estimate the parameters, we present the results of the model estimate for companies in this section. The results of Eviews software for model have been presented in Table below.

**Table 3: results of regression model estimate**

Research model	$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \epsilon_{it}$				
Research variables	Coefficient	Standard error	T statistic	Significance level	variance inflation factor
Fixed coefficient	-2.072	0.183	-11.280	0.000	--
size of the company	0.180	0.015	11.750	0.000	1.282
Sales growth	0.033	0.007	4.714	0.000	1.297
Operating cash flow	-0.0304	0.036	-8.379	0.000	1.044
F statistic 0.443 Adjusted determination coefficient 0.404	6.183	Probability of Jarque and Bera statistic	4.512		
Probability of F statistic	0.000	Probability of Jarque and Bera statistic	0.120		
Durbin-Watson statistic	1.953				
The coefficient of determination	0.512				
Adjusted determination coefficient	0.498				

According to the F test results for the regression model presented in table above, it is seen that the probability level is equal to zero and less than the desired level of 0.05. Therefore, null hypothesis of test F at 95% probability level is rejected. Therefore, the model was significant and there is a linear relationship between the dependent and independent variables.

In addition, the coefficient of determination value is equal to 0.512, meaning that independent variables explain about 51 percent of changes in the dependent variable. The higher value of coefficient of determination represents the explanatory power of the model in explaining the dependent variable changes by independent variable.

Durbin Watson statistic in this model is between 1.5 and 2.5. Thus, it can be concluded that error components in the model have no significant and they have behavior independent from each other.

Durbin-Watson statistic value is equal to 1.953 and at an acceptable level (between 1.5 and 2.5). In addition, according to the results Jarque and Bera statistic test for fitted regression model is 4.512, and considering that significance level value of test is 0.120 and greater than 0.05, the null hypothesis is not rejected. Therefore, normality of error term is confirmed.

Finally, to examine the lack of linearity, the criterion of variance inflation factor (VIF) was used. The results of this test indicated that value of variance inflation factor of independent and control variables are at the allowed level, and there is no problem in this regard.

Based on the results presented in Table 5-4, the probability of T statistic related to variable of operating cash flows is 0.000 and less than 0.05 and its coefficient is negative. Therefore, it can be concluded that there is negative and significant relationship between operating cash flows and external financing in companies listed in Tehran stock exchange. By increasing operating cash flows, external financing decreases in companies listed in Tehran Stock Exchange. Therefore, the first hypothesis is confirmed at the significance level of 95%.

The second hypothesis: financing constraint has significant impact on the relationship between operating cash flows and external financing of companies listed on Tehran Stock Exchange.

To investigate the hypothesis, we use the following model:

$$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 CASH_{it-1} + \beta_4 COLLATERAL_{it-1} + \beta_4 LEVERAGE_{it-1} + \beta_4 FC_{it} + \beta_5 (FC_{it} * CASH\_FLOW_{it}) + \epsilon_{it}$$

Before testing the hypotheses, regression model is selected. The result of F test has been presented in Table below. The probability value of test statistic is less than 0.05. Therefore, to test the hypotheses of study, integrated data method is rejected and panel data method should be used in this regard.

**Table 3: results of F Limer test at the 5%**

Model		$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 CASH_{it-1} + \beta_4 COLLATERAL_{it-1} + \beta_4 LEVERAGE_{it-1} + \beta_4 FC_{it} + \beta_5 (FC_{it} * CASH\_FLOW_{it}) + \epsilon_{it}$	
Test statistic	Degree of freedom	Probability of test statistic	
2.259	(125,747)	0.000	

After it was found that data are in the form of panel data, Hausman test is used in this regard that results of this test are presented in table below.

**Table 4: Hausman test results at 5**

Model	$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 CASH_{it-1} + \beta_4 COLLATERAL_{it-1} + \beta_4 LEVERAGE_{it-1} + \beta_4 FC_{it} + \beta_5 (FC_{it} * CASH\_FLOW_{it}) + \varepsilon_{it}$		
Type of test	Chi-square test	Degree of freedom	Probability of test statistic
Hausman	58.024	8	0.000

Hausman test and the possibility of accepting the null hypothesis are presented in the table above. As significance level of model test is less than 0.05, it can be concluded that the appropriate approach to estimate is fixed effect model.

**The results of model estimate**

After determining the appropriate method to estimate parameters, the results obtained for the model are presented in the table below.

**Table 5: results of regression model estimate**

Research model	$EXTFIN_{it} = a + \beta_1 SIZE_{it} + \beta_2 GROWTH_{it} + \beta_3 CASH\_FLOW_{it} + \beta_4 CASH_{it-1} + \beta_4 COLLATERAL_{it-1} + \beta_4 LEVERAGE_{it-1} + \beta_4 FC_{it} + \beta_5 (FC_{it} * CASH\_FLOW_{it}) + \varepsilon_{it}$				
Research variables	Coefficient	Standard error	T statistic	Significance level	variance inflation factor
Fixed coefficient	-1.095	0.210	-5.213	0.000	--
size of the company	0.116	0.016	7.199	0.000	1.482
Sales growth	0.036	0.009	4.043	0.000	1.582
Operating cash flow	-0.340	0.034	-9.780	0.000	1.174
Cash ratio	-0.145	0.133	-1.091	0.275	1.127
The ratio of accounts receivable, inventory and fixed assets to total assets	-0.027	0.038	-0.719	0.471	1.287
Financial Leverage	-0.213	0.045	-4.713	0.000	1.838
Limited financial resources	-0.042	0.015	-2.828	0.004	1.63
The multiplication of operating cash flow in supply constraint	0.179	0.039	4.507	0.000	1.394
F statistic 0.443	7.406	Jarque and Bera statistic	5.746		
Probability of F statistic	0.000	Jarque and Bera statistic	0.089		
Durbin-Watson statistic	2.030				
The coefficient of determination	0.568				
Adjusted coefficient of determination	0.519				

According to the F test results for the regression model presented in table above, it is seen that the probability level is equal to zero and less than the desired level of study. Therefore, null hypothesis of test F at 95% probability level is rejected. Therefore, the model was significant and there is a linear relationship between the dependent and independent variables. In addition, the coefficient of determination value is equal to 0.568, meaning that independent variables explain about 57 percent of changes in the dependent variable. The higher value of coefficient of determination represents the

explanatory power of the model in explaining the dependent variable changes by independent variable.

Durbin Watson statistic in this model is between 1.5 and 2.5. Thus, it can be concluded that error components in the model have no significant and they have behavior independent from each other. Durbin-Watson statistic value is equal to 2.030 and at an acceptable level (between 1.5 and 2.5).

In addition, according to the results Jarque and Bera statistic test for fitted regression model is 5.746, and considering that significance level value of test is 0.089 that greater than 0.05, the null hypothesis is not rejected. Therefore, normality of error term is confirmed. Finally, to examine the lack of linearity, the criterion of variance inflation factor (VIF) was used. The results of this test indicated that value of variance inflation factor of independent and control variables is at the allowed level, and there is no problem in this regard.

Based on the results presented in Table 8-4, the probability of T statistic related to variable of multiplying operating cash flows in financing constraint is 0.000 and less than 0.05 and its coefficient is positive (+0.179). Therefore, it can be concluded financing constraint has the significant impact on the relationship between operating cash flows and external financing in companies listed in Tehran stock exchange. Therefore, the second hypothesis is confirmed at the significance level of 95%.

**Conclusion**

**The first hypothesis**

Results of first hypothesis testing show that operating cash flows have significant impact on external financing in companies listed in Tehran Stock Exchange. The probability of T statistic related to variable of operating cash flows is 0.000 (less than 0.05), and its coefficient is -0.304. Therefore, it can be concluded that there is negative and significant relationship between operating cash flows and external financing in companies listed in Tehran stock exchange so that by increasing operating cash flows, external financing decreases in companies listed in Tehran Stock Exchange. Therefore, such companies select mainly cash flow created inside the company as the first solution of financing, followed by debt and stock release respectively.

As profitable companies that have mainly good cash show lower tendency to borrowing, companies with the appropriate operating cash flow use external financing at lower level.

The results of this research are in line with results of studies conducted by Fazari et al (1988), Myers (1984), Garcia and Sugurb (2014), while they are inconsistent with results of George et al (2010), Bagherzadeh (2003).

### **The second hypothesis**

Results of second hypothesis testing show that financing constraint has significant impact on the relationship between operating cash flows and external financing in companies listed in Tehran Stock Exchange. The probability of T statistic related to variable of multiplying the operating cash flows in financing constraint is 0.000 (less than 0.05), and its coefficient is 0.179. Therefore, it can be concluded that financing constraint has significant impact on the relationship between operating cash flows and external financing in companies listed in Tehran Stock Exchange. Therefore, companies faced with financial constraints incur more costs of inappropriate selection and release, while companies without financial constraints are faced often only with the cost of release. As a result, it is expected that sensitivity of external financing on cash flow in companies without financial constraints to be different from that in companies with financial constraints. Companies with severe financial constraints put more emphasis on cash flows in investment decisions. In other words, by increasing difference between internal and external financing costs, investment sensitivity to internal cash increases. The results of this study are consistent with results of studies conducted by Kashanipoor et al (2010), Goldsmith (2014), Garcia and Sugorb (2014), Almeida and Kamplo (2001), Kim (2011) and in line with study conducted by Dicha et al (2012).

### **Recommendations**

Considering to factors the variables affecting external financing, it is recommended that financial analysts and capital market actors to pay attention to these variables in the analysis and investment decision, and to consider the role of these variables in using financial reports for economic decisions. In addition, some applied recommendations of this study are as follows:

Considering the first hypothesis, it is recommended for managers of companies to make use of appropriate financing methods related to type of investment in different types of assets and to pay attention to possibility of creating positive cash flows, beside decision based on special analyses (such as past experiences, the current capital market conditions, interest, etc.).

Considering the second hypothesis, it is recommended for investors and creditors to pay attention to factor of financial constraint since this factor is influential in sensitivity of companies' financing to replacement of fixed asset rather than cash in companies. Accordingly, it can be effective in type and cost of financing and their bankrupt risk.

### **References**

1. Mollanazari, M, and Hijazi, R, Sahraee, M., (2009). investigating the relationship between financing methods (external sources) and the success and failure of companies listed on Tehran Stock Exchange" *Research Quarterly, financial and auditing accounting*, Volume 2, Issue 6.
2. Badavar Nahandi, Y, and Darkhor, S., (2013). investigating the relationship between financial constraints, cash flow and net investment value", *Volume 2, Issue 4, Pages 167-189*.
3. Yousefi, M., (2001). predicting cash flow and providing an optimal model based on cash flow prediction in Tehran Stock Exchange", *Master Thesis, Tarbiat Modarres University*.
4. Mashayekhi, B, Mohammad Abadi, M. and Hesarzadeh, R., (2009), "The impact of accounting conservatism on sustainability and the distribution of profits", *Journal of Accounting and Auditing*, Volume 16, Issue 3.
5. Talaneh, A. and Moradzadeh Fard, M (2003), "A Guide to solve the problems of accounting principles 3", *Tehran*.
6. Sarmad, Z, Bazargan, A, Hejazi, (2005), *Research Methodology in Behavioral Sciences*, Tehran, Agah Publications, eleventh edition, p. 177.
7. Namazi, M, Kermani, A., (2000), the impact of ownership structure on the performance of companies in the Tehran Stock Exchange, *reviews of accounting and auditing*, No. 53, pp. 83-100
8. Bagherzadeh, S. (2003), explaining the capital structure model of companies listed companies in Tehran Stock Exchange, *Journal of Financial Research*, No. 6, autumn and winter.
9. Kashanipoor, M, Rasekhi, S; Naghinezhad, B and Rasaiian, A (2010), Financial constraints and the sensitivity of cash flows to invest in the Tehran Stock Exchange, *accounting developments*, second edition, No 2, 74-51
10. Zarghar, Y, (2013), "The impact of financial constraints and held cash flow on the sensitivity of investment of cash flow", *Master Thesis, International University of Imam Khomeini*.
11. Fazzari, S.M., Hubbard, R.G., and Petersen, B. (1988). Financing constraints and corporate investment. *Brooking Papers on Economic Activity*, 141–195.
12. Chen, Z., Dhaliwal, D. S and Xie, H. 2010. Regulation fair disclosure and the cost of equity capital. *Review of Accounting Studies*. 15(1): 106-144.
13. Garcia J.L, & Sogorb, F. 2014. Sensitivity of external resource to cash flow under financial constrained. *International Business Review*.
14. Myers, S. (1984). The Capital Structure Puzzle. *Journal of Finance*, 39, pp.575–592.
15. George, j., Block, Joern, H. (2010). Corporate Cash Holdinga and their Implications on firm Value in family and founder firms. *Corporate Ownership and Control*, Forthcoming.9(4):309-326.

16. Almeida, H., & Campello, M. (2008). Financing frictions and the substitution between internal and external funds. *Journal of Financial and Quantitative Analysis*, 45(3), 589-622.
17. Kim C. (2011). Product market competition, board structure, and disclosure quality, *Frontiers of Business Research in China*, 5(2): 291-316.
18. Dichu Bao, Kam C, Chan .Weining Zhang, (2012), "Asymmetric Cash Flow Sensitivity of Cash Holdings". *Journal of Corporate Finance* 18, PP. 690-700