LINEAR AND NONLINEAR RELATIONSHIP BETWEEN INFLATION, OPERATING CYCLE AND CASH HOLDINGS: EVIDENCE FROM IRAN

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ABSTRACT

Cash holding strategy is one of the most important factors that firm should take into account to prevent additional charges. On this account, firms should pay heed to those factors that influence cash holding. For this purpose, in this research, the influence of inflation and operating cycle on the level of cash holding in firms is surveyed. The statistical population of this paper include all of the accepted corporations in the Tehran Stock exchange, from which 132 corporations, operating from 2007 to 2014 have been chosen. To achieve the goal of this research, 4 hypotheses have been proposed. The results obtained from the research's hypotheses test which uses non-linear regression model, suggests that there is no significant relationship between the inflation and the amount of cash holding, whereas there is a negative and significant relationship between the operating cycle and the amount of cash holding which in case when the operating cycle reaches a specific level will change into a positive relationship.

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Contribution/ Originality

This study is one of few studies which have investigated the linear and nonlinear relationship between inflation, operating cycle and cash holdings in Iranian firms. So, the results of this study could develop the existent literature about this subject in Iran and other areas.

1. INTRODUCTION

Cash holding is considered as one of the crucial sources for each commercial unit, yet it is counted as one of the assets that could be abused easily. Creating balance between the held cash at the corporation and the need for it, is one the most important factors that leads to financial security and the activity persistence of commercial unit (Saghafi and Hashemi, 2004). To choose between keeping or consuming the cash resources according to the personal interests is a vague issue that faces the managers. Logically, managers have to compare the benefit that drives from spending the cash resources with the amount of flexibility that derives from holding those cash resources. According to the balance theory, corporations determine the appropriate amount of available cash with setting a balance between interests and the costs of cash holding (Hassas *et al.*, 2011).

If cash holding is more than usual amount, it will lead to the rise of opportunity costs of corporation. On the other hand, if the company's cash holding sinks beneath the usual limit, it will lead to the loss of opportunity costs of

corporation which are expected to be created for the corporation in the future. Therefore, if a balance between cash holding and the need for its consumption is not maintained by the managers then it will bring some losses to the corporation (Harford, 1999; Opler *et al.*, 1999).

Inflation is considered as one of the financial factors which can affect many corporative internal equations including the manner and amount of dividend distribution among shareholders, asset's buy and sell and the amount of cash holding. In inflationary conditions, to prevent the reduction of their available cash value and therefore the reduction of the total value of the corporations, corporations have to reduce the level of their cash holding to the minimum possible level and yet do reciprocal actions for the deflation period. Because economically deflation can lead to the increase of the value of cash resources, and vice versa price increase leads to decrease of the value of cash resources (Shajari *et al.*, 2006). Beside inflation, there are other factors that influence the amount of cash holding, one of which is operating cycle of commercial unit. Due to the increase of working capital, the longer an operating cycle of a commercial unit be the lesser cash holding resources will be. Those corporations that have a longer operating cycle need more working capital for advancing their own goals such as meeting the demands of customers on time. Operating cycle of a corporation influences the speed and time of achieving cash profits directly and so it influences the amount of cash holding in corporations (Wang *et al.*, 2014).

In such a condition the role of managers is highlighted, so they have to choose appropriate decisions regarding cash holding. According to the free cash flow theory, most of the managers desire to hold cash so that they could take under control more resources (Ferreira and Vilela, 2004). Therefore managers have to act through shares repurchase and dividend in order to reduce the problems stemming from cash holding and appropriate investment of cash resources. Many studies have been conducted about the factors that affect holding cash resources in foreign countries (Opler *et al.*, 1999; Ferreira and Vilela, 2004; Ozkan and Ozkan, 2004; Garcia-Teruel *et al.*, 2008; Wang *et al.*, 2014; Kusandi *et al.*, 2015). There has been studies conducted nationally as well (Hassas *et al.*, 2011). But the linear and nonlinear relationship between inflation, operating cycle and cash holding has not been studied nationally.

According to International Monetary Fund, Iran has experienced the highest level of inflation within the past few years among Middle Eastern countries; therefore it is crucial that the corporation managers choose appropriate policies and decisions for the amount of available cash so as to reduce the costs of cash holding. thus surveying and studying the effects of inflation level and operating cycle on the corporation policies of cash holding provides useful evidences, because inflation in a country such as Iran can result in the exacerbation of governmental monetary policies. This paper provides a policy for corporations' managers so that they would act more consciously regarding the amount of cash holding.

2. THEORETICAL BACKGROUND

2.1. The Effect of Inflation on Firms' Cash Resources

In the last few years, inflation has grown so steadily that the economy of country has never experienced such inflation.
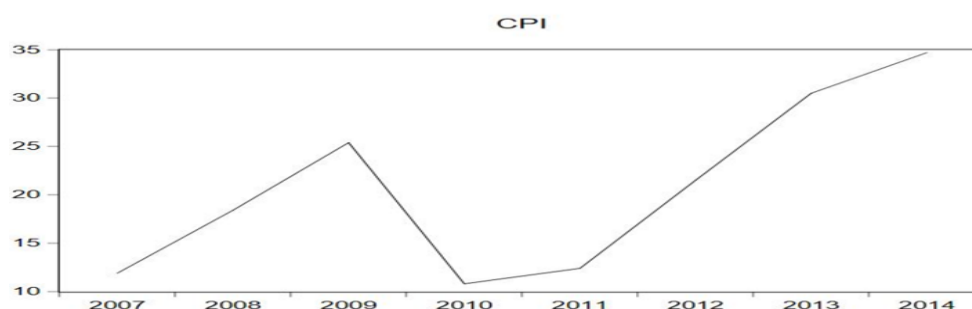

Figure-1. Changes in inflation rate in Iran within the years 2007-2014

Source: Central bank of the Iran

Figure number 1 represents the changes in inflation within the past few years of Iran. Inflation has been defined in many and different ways but all of them indicate that disordered rise of prices could be called inflation. In economy, rate of inflation equals the changes in the price index for which, generally, price index of consumers could be considered an appropriate index.

Rise of prices will undoubtedly effect the financial performance of firms, management status and the need for supplying cash resources; thus in such circumstances, firms must control their cash holding consciously. The amount of cash holding is dependent on a balance between the costs and profits of holding it (Opler *et al.*, 1999; Peng and Zhou, 2006).

A firm's existent cash is considered as a non-profitable asset and what matters is that the available cash should not lose its currency value. when the prices are high, cash holding will cause the commercial unit to lose its power, because in such periods the currency will lose its value steadily, therefore it reduces the purchasing power of the corporations and the more the inflation is, the less the purchasing power will be. A point that should be noted is that in such periods interest rates will increase as well, which will lead to the growth of capital expenditures.

In periods of inflation, corporation have to keep cash holding as high as not to result in the increase of costs, yet keep it as low as not to result in the lack of cash. One solution for corporation to keep such a balance, in periods of price increase, between lack or excess of available cash is to keep such assets that could easily be exchanged with cash. Sale of assets for increasing corporates' cash flow will be more affordable than supplying external financing in cases where corporations keep assets that equals the cash value and yet they are exchanged easily and affordably (Shleifer and Vishny, 1984). Thus, in inflation period's firms have to increase other current assets in the corporation instead of cash holding, for instance they could increase their inventories for avoiding monetarily assets form devaluation.

Another scenario that may face the corporations in the price increase periods is that corporations need more cash to be able to buy that same amount of inventories that they used to buy. Thus they will have to increase their working capital. Many corporations, in such perilous times, tend to invest in the gold market or in the estate business, because they want to increase their profit or avoid loss of purchasing power or prevent extra production. In the capital market, increase of prices can lead to the increase of both profit rate and investment risk, which makes corporations willfully invest in the Bonds with lesser risk, hence earning cash in the capital market will be harder (Friedman, 1977).

Inflation increases governmental public expenditures, therefore it will make the government earn more income or get a loan from the central bank, which gives irreparable blows to the national economy in either cases. When inflation rises to a specific level, government should highlight its own role more than ever and affect the financing environment. Usually in such conditions governments adopt tight monetary policies so as to control the inflations, which are including tightening external financing condition for corporations, rising the deposit rate and profit rate which will result in the development of some limitations for financing the corporations (Stiglitz and Weiss, 1981). Because of sharp drop in the cash of market and scarcity of corporations' cash resources, the entrance of these limitations into the investment arena will increase the cash value and reduces the inflation.

In case of deflation and inflation, corporations have to sell off their resources as soon as possible in order to prevent loss, and then they should increase their cash. These conditions rise cash holding in corporations and its first virtue is that it will protect the corporations more against bankruptcy.

In addition to economic problems that inflation creates there are other issues at hand; inflation affects the political and social conditions as well, and the reason to that is because of the close relationship that exists between the life of societies' individuals and inflation. Thus, inflation can be considered as one of the most sensitive and complicated social and economic issues of the current era, and its analysis can help the answer and explanation to many economic issues that exist in corporations.

2.2. The Effect of Operating Cycle on Cash Holding

The period of buying and selling goods and then receiving the cash is called the operating cycle. In other words operating cycle is a cycle in which the first step towards the producing goods is taken and then the merchandise is sold and the cash resulting from its selling is received (Dechow, 1994).

Length of the operating cycle is under the influence of such factors as the type of industry, the method in which firms is carried out, and the efficiency of that commercial unit. What should be paid attention to is that each commercial unit needs a balance in his working capital in order to continue its activities. From an economic point of view, this balance in working capital can be analyzed from two perspectives: supply and demand. From the demand perspective the shorter commercial unit produces products, the faster the speed of working capital will be. Therefore, the working capital will be retrieved in a short time. So the corporation has to do its investments in production regularly and with a higher speed to meet the needs of customers so that the corporation would be able to complete the cycle of buying, producing and selling with a higher speed. These corporations have to hold more cash to supply their trading needs. This issue has complete compatibility with commercial unit's trading motivation for cash holding. Vice versa, corporations with a longer operating cycle have to spend more time for buying raw material and producing products to meet the needs of customers. From demand perspective, the time period of working capital in production process is long which causes the average of corporation's available cash to decline (Wang *et al.*, 2014).

The other perspective is that of supply. In this perspective if the operating cycle is shorter than the process of buying, process of buying, producing, selling and receiving the resulting cash will take a shorter period of time. In this method the capital accumulation in the corporation is more efficient and after doing this, the corporation can raise its inventories through investing its available cash. Otherwise, either with receiving its accounts receivable or with renewed investments of the owners, the corporation can do its financing which results to the increase of cash holding. But if the operating cycles be longer it means that the cash flow, inventory selling and receiving the accounts receivable will take a longer period of time. This conditions will result in the decrease of corporation's available cash, so the level of cash holding will fall as well (Wang *et al.*, 2014).

One of the other issues is that if the operating cycle's time period increases, the corporations' operational capacities will decrease more and the working capital will face problem. Therefore, the need for producing more products is not met and creates an impasse in the production process and the corporations' good chances for investment might be lost.

Opler *et al.* (1999) surveyed the influence of cash flows and financing capacity's risk on cash holding, and they found out that corporations which have a higher investment risk and have a lesser access to the capital market than the other competing corporations, have more desire to hold cash. And if those corporations are not able to reduce the amount of risk, they will have to hold more cash so that they would be able to support the future trading opportunities that will face them and thus provide for their costumers' demands. So when the operating cycle reach a specific level, corporations will increase their cash holding to prevent more risk, to meet the demands of their customers and to address managerial demands. This increase in cash holding is done through more investment. This act is compatible with the precautionary motive of cash holding's theory.

In another scenario, the increase in operating cycle's time period results in the decrease of working capital efficiency, because in this case more cash will be spent on inventories and accounts receivable and the lower speed of operating cycle will lead to a decrease in the available cash. Nevertheless, on a specific operating cycle level, due to an increase in the product turnover and an increase in the cycle of receiving accounts receivable, corporations might need to increase their available cash in order to stop the risk of bankruptcy or lack of liquidity (Wang *et al.*, 2014).

3. LITERATURE REVIEW

Kusandi *et al.* (2015) surveyed the influence of organizational development and state ownership on cash holding in a series of Chinese firms. The result of their research indicated that nongovernmental firms, in comparison to

governmental firms, hold less cash, and that the positive influence of organizational development and cash holding is higher for nongovernmental firms in contrast to governmental firms.

In a study done on Chinese firm between years 1998 to 2009, Wang *et al.* (2014) found out that a negative and significant relationship exists between cash resources and consumer price index, this relationship continues to exist until it reaches a specific level. They showed a U shape relationship exists between operating cycle and cash holding as well. Simultaneously with changes in inflation this relationship is impacted too.

Chen *et al.* (2014) surveyed the influence of cultural dimensions on corporations' cash holding. First of all, they found out that in international environment, corporations' cash holding has a negative relationship with individualism, while it has a positive relationship with uncertainty avoidance. Secondly, they found out that individualism and uncertainty avoidance influences the precautionary motive for cash holding. Third, they realized that firms which are located in the individualist states of United States of America hold less cash in comparison to non-individualist states of that same country.

Caprio *et al.* (2013) identified other cash holding expenses, among which are these: cash is an asset which can be easily abused and which is accessible easily by the top members of corporations; corporations which are located in the countries with high level of corruption tend to hold less cash, and they invest most of their cash in fixed assets in corporations that are located in countries with low level of corruption.

Drobertz *et al.* (2010) who investigated those factors affecting the corporations' cash balance, proved that both the corporations' tangible assets and the corporations' size have negative relationships with cash balance and also, there is a nonlinear relationship between leverage ratio and cash holding.

Bates *et al.* (2009) by surveying United states' firms between 1980 to 2004, found out that the cash average of these firms has risen considerably within those years and this rise has been more related to firms that have not paid their dividend regularly and the reason to this rise has been because of an increase in risk accepting of those firms.

Harford *et al.* (2008) found out that the corporation's value has a negative relationship with corporate governance and this relationship is highlighted with an increase in cash.

Saddour (2006) found out that corporations that have a higher risk, are doing more cash holding, and yet corporations they have high risk and high level of cash flow they increase their available cash. And he found out that in progress firms, in contrast to large firms, hold more cash.

Ozkan and Ozkan (2004) in a study carried out among English firms between a period of 1984 to 1999, found out that the level of property management in corporations has a significant relationship with the amount of corporation's cash. Thus, they found out those development opportunities, cash flows, current assets, financial leverage and bank debts have a determinative role in the amount of cash holding in business units.

Ferreira and Vilela (2004) with doing a survey between years 1987 to 2000 in Europe union countries, proved that cash balance has a positive and significant relationship with investment opportunities and on the other hand has a negative relationship with liquidity of assets, financial leverage and the bank debt and the amount of the bank debt.

In a study carried out among United States' firms by Opler *et al.* (1999) between years 1971 to 1994, it was found out that firms with higher chances of development and higher risks of cash flow, hold more cash in comparison to other firms.

4. RESEARCH HYPOTHESIS

According to the literature review told above, and according to this paper's goal which is the relationship between inflation's and operating cycle with the amount of cash holding in corporations, these paper's research hypotheses are as following:

H1: changes in the level of inflation have a negative and significant relationship with cash holding.

H2: when inflation reaches a specific level, the negative relationship between changes in the level of inflation and the amount of cash holding alters.

H3: changes in the firms' operating cycle have a negative and significant relationship with the amount of cash holding.

H4: when operating cycle reaches a specific level, the negative relationship between the changes in operating cycle and cash holding alters.

5. RESEARCH METHODOLOGY

In this research, the accepted firms in the Tehran Stock Exchange have been chosen as statistical population. Due to some limitations and inconsistencies and extension of the statistical population, 132 firms were chosen in a time period of 8 years between 2007-2014. Statistical sample of this research were chosen according to the following criteria:

1. Firm's fiscal year should be finished on 20 March (End of solar year)
2. Firms should not have changed its fiscal year between years 2007 to 2014.
3. Firms should not be a part of investment or financial institutions.
4. The data relating to research's variable should be existent and available.

The remaining firms' data were gathered through firms' financial statements and Tehran Stock Exchange software Rahavard Novin 3. The Analysis of data collection was done through Eviews 8 (a software). The data of the consumer price index variable was received from the central bank.

Like Almeida *et al.* (2004) the following method will be used for checking research hypotheses:

$$\Delta\text{Cash}_{i,t} = \beta_0 + \beta_1 CPI_{i,t} + \beta_2 CPI_{i,t}^2 + \beta_3 Cycle_{i,t} + \beta_4 Cycle_{i,t}^2 + \beta_5 CF_{i,t} + \beta_6 Tobinq_{i,t} + \beta_7 Lnasset_{i,t}$$
$$+ \beta_8 \Delta NWC_{i,t} + \beta_9 \Delta SDebt_{i,t} + \beta_{10} Risk_{i,t} + \varepsilon_{i,t}$$

In Table 1, the way of variables' calculation is mentioned. Internal cash flows (CF) is indicative of the firms' performance feedback and the changes in their internal cash flows and influences the cash holding level in firms. The size and growth of investment opportunities can influence cash holding as well. *Tobinq* is control variable that controls the growth level of firms. *Lnasset* is used for controlling the size of firms in order to determine the level of growth and to set some financing limitations, and it may be different for various firms. Financial conditions may influenced the behavior of firms regarding cash holding as well, so for controlling such factors, ΔNWC and $\Delta SDebt$ (changes in the working capital and changes in the current liabilities) have been used so as to neutralize the influence of financial conditions on firms' cash holding (Opler *et al.*, 1999). There is probability that firms may hold cash to reduce future risks, thus for measuring risk, we have used Beta (beta is the regression coefficient of daily stock returns and market efficiency within a fiscal year).

Table-1. Variable definitions

Variable	Definition
ΔCash	The difference in cash and securities investment between year t and year t-1, divided by total assets
CPI	The consumer price index based on the previous year (last year = 100) for firm i
Cycle	Operating cycle divided by 1000 (inventory sales period + accounts receivable payback period)
CF	Cash flow (operating income + depreciation –dividends) divided by total assets
Tobinq	Ratio of market value to book value of assets; market value of assets is proxied by market value of equity plus book value of total liabilities
Lnasset	Logarithm of total assets
ΔNWC	The difference in net working capital between year t and year t-1, divided by total assets in year t
$\Delta SDebt$	The difference in current liabilities between year t and year t-1, divided by total assets in year t
Risk	Beta value (excluding financial leverage) = Beta/(1+debt-equity ratio)

Source: researchers' calculations

6. RESULTS

Quantity statistics of research's variables include average, median, maximum, minimum and standard deviation, which are all represented in Table Number 2. As it is visible in the table number 2, the minimum of CPI Index is 110/8 and the maximum index is 134.7. Thus it can be claimed that within all these under-investigation years the inflation rate has been positive, and the rise of prices has been steadily. Operating cycle, on average, is 294 days, which is relatively high and therefore it can be concluded that the return of liquidity to the firms takes more than usual. Due to the proximity of average and medium to each other, it can be concluded that the variables have a fair distribution.

Table-2. Summary Statistics

Variable	Median	Mean	Max	Min	SD
ΔCash	0.006	0.002	0.172	-0.151	0.040
CPI	120.7	119.95	134.7	110.8	8.403
Cycle	0.295	0.272	0.994	0.045	0.150
CF	0.773	0.731	1.997	-0.058	0.353
Lnasset	11.884	11.812	13.996	10.291	0.613
ΔNWC	0.031	0.026	0.397	-0.329	0.108
Risk	0.077	0.057	4.912	-4.918	0.972
ΔSDebt	0.057	0.056	0.565	-0.380	0.132
Tobinq	1.451	1.237	7.709	0.560	0.732

Source: researchers' findings

Table number 3 presents the correlation between studied variables as follow. According to table number 3, consumer price index (CPI) and operating cycle (Cycle) have a negative correlation with available cash (ΔCash), but this correlation is not significant.

Table-3. The correlation coefficient of studied variables

Correlation Probability	ΔCash	CPI	Cycle	CF	Lnasset	ΔNWC	Risk	ΔSDebt	Tobinq
ΔCash	1.00								
	-								
CPI	-0.0186	1.00							
	0.580	-							
Cycle	-0.0491	-0.0230	1.00						
	0.141	0.497	-						
CF	0.0994	0.0650	-0.5480	1.00					
	0.003	0.052	0.000	-					
Lnasset	0.0165	0.1710	-0.0810	-0.0930	1.00				
	0.620	0.000	0.016	0.005	-				
ΔNWC	0.2215	0.0140	-0.0008	0.1120	-0.1090	1.00			
	0.000	0.682	0.998	0.001	0.001	-			
Risk	-0.0634	0.1670	0.0210	-0.0410	0.0750	-0.0810	1.00		
	0.057	0.000	0.535	0.215	0.025	0.016	-		
ΔSDebt	0.0971	0.1230	0.0010	0.0020	0.1410	-0.4260	0.0390	1.00	
	0.004	0.000	0.986	0.959	0.000	0.000	0.238	-	
Tobinq	0.0640	0.1450	-0.0290	-0.0600	0.0248	0.2340	0.0320	0.0080	1.00
	0.055	0.000	0.384	0.074	0.458	0.000	0.343	0.817	-

Source: researchers' findings

Table-4. Variance Inflation Factors

Centered VIF	Variable
-	C
1.105	CPI
1.494	Cycle
1.544	CF
1.091	Lnassets
1.367	ΔNWC
1.041	Risk
1.280	ΔSDebt
1.117	Tobinq

Source: researchers' findings

Variance inflation factor test: the absence of collinearity among the explanatory variables is one of the other assumptions of regression. To this end, the results of variance inflation factor test (VIF) is presented in table number 4. The value of this statistics is less than 5 for all of the explanatory variables. This important issue indicates the absence of severe collinearity among explanatory variables.

The F-Limer test has been used to investigate the use of Panel Data Approach in comparison to Pooled Data Approach. The hypotheses of this test are as following:

$$H_0: Pooled\ Model$$
$$H_1: Fixed\ Effect\ Model$$

Table-5. Results of F-Limer test

Effects test	Statistic	d.f	Prob
Cross-section F	0.645	(131,756)	0.9989
Cross-section Chi-square	95.165	131	0.9921

Source: researchers' findings

Since the significance level of F-Limer test is higher than 5 percent, H_0 hypothesis gets approved. Therefore, Pooled data Approach is used for estimating the results of research's hypotheses.

The results of regression model estimation by using Pooled Data approach are presented in table number 6. As it is visible the CPI's variable coefficient is not significant (0.9254); regarding the other research variables, it can be claimed that the relationship between CPI^2 variable with ΔCash is not significant (0.8866); but from the significance level of variable coefficient of Cycle (0.0094), it can be inferred that the relationship between operating cycle and cash holding is significant; but with surveying the relationship between $Cycle^2$ and ΔCash, we understand that whenever operating cycle reaches a specific level its relationship with the amount of cash holding becomes positive (0.0085), and therefore the relationship of Cycle with ΔCash is as figure number 2 represents. Therefore, the first and the second hypotheses of the research are rejected but the third and fourth hypotheses are accepted. This shows that the results of the first and second hypotheses are not consistent with Wang *et al.* (2014) but the results of the third and fourth hypotheses are compatible with their results.

Regarding the control variables of this research, it can be said that the relationship between CF and Δ*Cash* is not significant (0.4871). Variable *Lnasset* has no relationship with Δ*Cash* (0.5374). Control variable Δ*NWC* has a positive and significant relationship with the research's dependent variable Δ*Cash* (0.0000).

Table-6. Results of Model test

Variable	Coefficient	t-statistic	Prob
CPI	0.0010	0.094	0.9254
CPI^2	-0.0001	-0.143	0.8866
Cycle	-0.0880	-2.601	0.0094
$Cycle^2$	0.1030	2.638	0.0085
CF	0.0030	0.695	0.4871
Lnasset	0.0010	0.617	0.5374
ΔNWC	0.1320	8.814	0.0000
Risk	-0.0010	-0.993	0.3210
ΔSDebt	0.0770	6.789	0.0000
Tobinq	-0.0010	-0.156	0.8759
C	-0.0210	-0.059	0.9532
R-squared			0.111
F-statistic			11.045
Prob (F-statistic)			0.000
Durbin-Watson stat			2.33

Source: researchers' findings

Another control variable of the research which is *Risk* does not have a significant relationship with Δ*Cash* (0.3210) but the variable Δ*SDebt* has a positive and significant relationship with Δ*Cash* (0.0000). At last, *Tobinq* which is one of the control variables does not have a significant relationship with Δ*Cash* (0.8759).

According to the significance level of F statistic, the model has an appropriate significance. In addition to this, according to the fact that the Durbin-Watson statistic is 2.33, we can understand that there is no correlation among residuals of model.
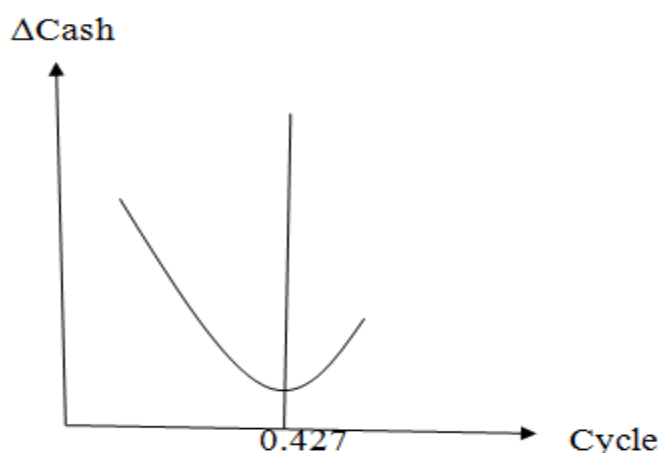

Figure-2. Relation between Cycle and ΔCash
Source: researchers' findings

7. CONCLUSION AND SUGGESTIONS

Inflation phenomenon exists in any type of economics, but what matters is the level of highness or lowness of inflation. According to the inflation rate, corporations have to adopt special policies related to each different level of inflation for cash holding, and they have to try to prevent the business entity from facing cash devaluation. On the other hand, operating cycle is considered as one of the important factors that can influence a corporation's cash holding policies. Thus several hypotheses were developed to survey the impacts of these factors on cash holding. After surveying sample firms, it was found that the relationship of consumer price index (CPI) with cash holding is a negative one, but this relationship is not significant. With checking the second hypothesis, we understand that in high level inflation there is no relationship between inflation and cash holding, so it is possible that the sample firms might

not follow certain policies in inflation periods and therefore, they might suffer extra expenses, and to prevent this, managers might have to follow and perform appropriate procedures. With checking the third hypothesis, it can be claimed that the operating cycle has a negative relationship with cash holding which is significant and until this increase in operating cycle reaches a specific level, the relationship between operating cycle and cash holding remains negative which means that with the increase in operating cycle of a business unit, the amount of cash holding decreases. With surveying the fourth hypothesis, we understood that whenever the level of operating cycle increases greatly, its relationship with cash holding changes to a positive one, and becomes significant as well. These results have compatibility with the results of the research carried out by Wang *et al.* (2014) and this indicates that if the firm's operating cycle become longer up to a specific level, the amount of cash holding in firms decreases, so firms will have to use different financing methods in order to increase their cash holding. But when operating cycle reaches high level, cash holding will increase in firms. Because operating cycle is usually longer in Iran, according to the proportionality on the level of cash holding and operating cycle, managers have to do relevant procedures for the necessary financing resources in order to increase firms' cash holding before they face lack of liquidity. In this research we find out that the relationship of control variables of firms' internal cash flows, firm's size, risk and firm's growth with amount of cash holding is not significant, but the relationship between control variables of working capital and firms' current liabilities and cash holding is positive and significant. According to the results achieved from this research, the following proposals are suggested for carrying out future researches:

1- Studying the influence of the relationship between inflation and operating cycle on cash holding in firms with similar products.

2- Studying the relationship between culture and cash holding

3- Surveying the impact of corporate governance on the amount of firm's cash holding

4- Studying the influence of firm development and the presence of government in corporations on the amount of cash holding.

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