The effect of inflation on development of stock market

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ABSTRACT

The stock market is one of the important financial sectors of the economy that affect it by various forms. Form the view of many experts, the importance of financial sector development emanates from the point that, an efficient financial sector has a key role in mobilizing financial resources for investment, encouraging the entry of foreign investment and optimizing resource allocation mechanism. This study investigates the relationship between inflation and stock market development in Iran during the spring of 1999 up to in late summer of 2008. According to characteristics of the Iranian economy, the used model was based on Boyd, Levine and Smith (2001) models. We first used a linear model to control other economic factors that may have correlations with the performance of financial market. Then the threshold regression has been used to show the nonlinear relationship between inflation and financial market development. In this model, different thresholds have been considered for inflation. With attention to considered variables, the conditional least squares method (CLS) was used to estimate the model, which, by minimizing squares of errors, is a good criterion for selecting the optimal inflationary threshold. The results showed that, in the studied period, first, there is a positive relationship between inflation and indicators of stock market development and second, there is no threshold for effect of inflation on stock market.

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Introduction

The positive effects of securities market on economic development including increasing investment incentives by reducing risk, risk pricing, facilitating liquidity risk, mobilization of deposits, and etc. are so great and sensitive that, some economists believe that, the differences between developed and underdeveloped economies lie beneath the existence of integrated widespread and active financial markets not the developed the technology; the markets which, underdeveloped countries lack. In addition to the impact of inflation on financial markets development, it is also effective on the optimal allocation of resources. Therefore, in order to achieve the development of financial markets, the inflation rate must be guided carefully. Despite the progresses in the literature of relationship between finance and growth, and between inflation and growth, the relationship between inflation and financial development has not been much studied. The exact relationship between two variables is still controversial. A number of recent works have been created an important part of the literature of financial development, inflation, and growth. The results of Boyd et al. (2001), Khan et al. (2001) showed that, there is a threshold level of inflation after the negative significant effects of inflation on the performance of financial sector.

Among the studies that investigated the effect of inflation on financial development, some refer to positive effect and some on negative effects. In order to justify such results, it must be mentioned that, there is a nonlinear relationship nonlinear between these two variables. In fact, there is a threshold for inflation. The mechanism of transition from inflation to financial development can be described with attention to reverse selection issue or ethical dangers issue. in general, we can say that, the increase in transient and permanent rate of inflation can reduce the long-term efficiency of financial assets, cause to ration of credit, and subsequently, the decrease in financial spreading and deepening. When the inflation rate was so low, then the real efficiency rate of assets in long-term will be large enough so that, the brokers will do a replacement between the financial and physical assets. However, in the case of very high rate of inflation, the real efficiency rate of assets will be reduced and lead to credit ration. Therefore, the impact of inflation rate on development of financial system will depend on this threshold level (khan, 2006, pp. 167-169).

The recent experimental studies indicate that, financial markets may be important channel through which, inflation can nonlinearly influence on the growth. Without regards to inflation - finance, the evidences suggests that, there are two threshold levels in the relationship between inflation and financial development. The first threshold level is a special critical rate that higher which, inflation has significant negative effect on financial market and lower which, has no significant effect on financial markets. Boyd and Smith (1999 and 1998) proposed the second critical level. They stated that, in some cases, there is another critical rate. When the inflation rate exceeds the critical level, all damages will simultaneously have been entered into the financial system. Following increments of inflation rates have no extra results for the performance of financial sectors or economic growth. Existing empirical studies indicate that, at the moderate rates of inflation, there is a strong negative correlation between inflation and performance of financial markets and between inflation and economic growth. However, still there is no consensus about the exact structure of the threshold effects in

the relationship between inflation and financial development, but it seems that, there is less ambiguity about the negative and nonlinear relation of inflation and financial development.

Due to the positive, neutral, or negative effect of inflation on financial development, obtaining the final effect on financial development, according to the specific circumstances of each country can be a useful guide for policy makers. In summary, much of studies consider high rates of inflation destructive to financial development; thus the need to control and targeting inflation rate listed as the main objectives.

This study attempts to identify effects of inflation on financial development and levels of inflation in Iran. Our aim is to respond to the following question: How is the relationship between inflation and stock market development how in Iran? Does inflation has the same effect on stock market at all levels of development or the effects are different at different levels? Therefore, this research investigates the relationship between inflation and development of stock market in Iran, during a 10 years period from 1999 to 2008 for capital market. We first designed a model based on the boyd, Levine and smith's model and then, we estimated the linear model for the relationship between inflation and development of stock market in order to control factors affecting development of stock market and at the end, assuming that in the Iranian economy, there are two points for inflation threshold, the nonlinear relationship between inflation and development of stock market have been estimated. According to the results, inflation has positive effect on stock market development indices and there is no threshold for the stock market.

The present study have three sections: first section focuses on the experimental and theoretical studies have been done in the field of inflation and financial development, in the second section first, we will present the necessary theoretical basic and second, we will present the results of model and finally in third chapter, we will present conclusion and policy recommendations, based on the results.

1. Theoretical basics and conducted experimental studies
1.1. Theoretical basics

Many of theoretical studies have attempted to explain that, how the predictable changes of inflation rates nonlinearly affect financial system and subsequently, the long-term growth. Especially, Azariadas and Smith (1996) and Chui et al. (1996) showed that, information friction necessarily plays a major role only when the rate of inflation exceeds certain critical ratios. In the following, we focus on this theoretical mechanism to show how predictable changes of inflation rate nonlinearly affect the financial system and thus, explain the nonlinear relationship between inflation and growth.

Problem of adverse selection and moral hazards in credit markets:

Assume a typical economy with two sets of brokers namely, "inherent lenders" and "inherent borrowers". "Inherent lenders" have access to money to invest, but there are no projects, while "inherent borrowers" have access project that efficiently can convert current resources into future capital, but do not have access to money . The main role of financial system is to create a channel from inherent lenders to inherent borrowers. Since the higher rate of inflation act as a tax on real balances or bank deposits, we assume that, an increase in the inflation rate, not only reduces real rate of money return but also, the real rate of return on total assets, particularly higher inflation rates reduce depositors and real rates of interest that borrowers pay reduces.

This effect, in itself, lead to high number of borrowers and low number of depositors. However, the people who, do not get credit at all are poor quality borrowers i.e. have high risk of late payment. Investors do not interested in lending to poor quality borrowers with low rate of interest and thus, they must do something to avoid them seeking for financing their expenditure. The specific response in this situation is credit market rationing and as we know, it is associated with higher inflation rate. Since credit rationing restricts the access to capital, the financial system will make fewer loans, resources allocation will be less efficient, and the activities of brokers will be reduced.

However, if the inflation will be low enough and if the real rate of deposit return will be high enough, the credit rationing will not essentially force inherent lenders to borrowing instead of lending. If these conditions exist, then at the sufficiently low rates of inflation, then the credit market acts like Walrasian market1. Therefore, in a model that creates a Mandell – Tobin2 effect in the absence of credit rationing, the following occurs: an increase in inflation causes to investment brokers replace cash with physical or human capital. As a result, long-term growth will be prospered. When the inflation exceeds threshold level, the further increments of inflation rates will cause to rationing and other negative results that been previously described. Therefore, there is a critical rate of inflation. Because at this rate, an increase in moderate inflation rate can prosper real activities and financial sector could improve. Above this threshold, increasing of inflation rate will interfere with optimal allocation of capital and consequently, has negative effects on growth (Min lee, 2005).

Theoretical literature explains growth mechanisms whereby, even an increase -expected inflation rate causes a disruption in the financial sector for efficient allocation of resources. Specially, the recent theory emphasized on the importance of asymmetric information in credit markets and showed that, how the increase in the inflation rate can inversely affect credit market frictions and real long-term activities with negative effect on financial sector's performance (bank ¬and stock market)- (Hybens and Smith, 1999, 1998).

Common feature of these theories is the existence of strongly endogenous information conflicts. This characteristic determines that, a rise in inflation, do not shifts down the real rates of return exactly with the cash but with assets. Decreasing in real returns means worsening of the credit market frictions, as this incompatibility of market leads to rationing of credit. Credit rationing will be severely increased along with inflation and as a result, the financial sector lends much less, resource allocation would be inefficient, broker activity would be reduced and therefore, investment will be decreased. Reduction in capital formation has negative effects on long-term investment performance of the economy and stock market activity (Hybens and Smith, 1999, Choi, smith and Boyd 1996).

Existing model also emphasize that, information friction necessarily plays a major role only when, the rate of inflation exceeds certain critical ratios. For example, Azariadas and Smith (1999) and Choi et al. (1996) expressed that: when the inflation rate is very low, market friction may not be binding, as inflation executives do not distort the flow of information or allocation of resources. However, when the inflation is over the threshold, the credit market frictions will be binding and a decline in financial sector's performance there will be created so that, credit rationing will be exacerbated.

From the other hand, the existing models express another threshold for the inflation (Boyd and smith, 1998, Hybens and smith, 1998 and 1999). In some cases, when inflation rate is

more than pre-crisis level, dynamic prediction do not let the economy to get close to active financial system or a high levels of converged real activities . Furthermore, when this happened, the increase of inflation will not have any additional detrimental effects on the financial system. Therefore, in fact, these models indicate that, whenever inflation rate reach the critical threshold, all previous losses that we have on financial sector will be finished and further increase in inflation rate will not have any additional effect on the performance of financial sector or economic growth.

Conducted experimental studies

Roubini & Salaii Martin (1992), in a study concluded that, financial repression policy reduces services of financial sector to the total economy, because it is a potential cheap source for public funds and leads to decreasing of total savings and investments. In addition, the countries with inefficient tax systems and high tax evasion naturally tend to increase real per capita money demand via repressing the financial sector and selecting high money growth. Therefore, financial repression has direct relationship with money growth, inflation, and monetary emission and inverse relationship with economic growth.

Boyd, Levine and Smith (1996), examined the empirical relationship between inflation and financial system for 119. They first, have used a simple linear regression to control other economic factors that may be correlated with financial development. Then, they estimated the mentioned regression via replacing inflation rate with its reverse. They also estimated the threshold regression to show the nonlinear relationship between inflation and financial market development. The obtained results showed that, inflation has negatively correlated with financial market's performance. In addition, for economies with low to moderate average inflation rates, i.e. under 15 percent, they found a strong negative correlation between inflation and different indicators of development of the banking sector and the stock market. However, this partial correlation will be meaningless after rising of inflation rate to above the threshold level of 15 percent.

English (1999), in the paper titled "dynamic relationship between inflation and financial development with endogenous growth" have found cross-sectional evidences supporting the positive effect of inflation on the size of financial sector.
Haslag, J. and Koo (1999), using cross-section and panel data, investigated the relationship between inflation and financial development from 1960s up to 1990s. The results showed that, inflation is correlated with financial repression and there is a negative and even nonlinear relation between inflation and financial development, and inflation only has small negative final effects on financial development. The recognized inflation threshold in this study was 15 percent.

Michelle Barnes (2000), investigated threshold relations between inflation, financial market development, and economic growth for 49 countries during the 6 period of 5 year from 1965 up to 1995.Iin this study, indices of banking sector development were credits granted to the private sector and cash debts. The results showed a significant and negative relationship between inflation, credit, and cash debts. The recognized threshold level of inflation was 14 percent. The inflation relation was strongly negative and significant before threshold but was negative and insignificant after threshold. These results, confirm the works of Bruno and Sterly (1998), Kating (1995), and Hybens and smith (1999).

Boyd, Levine, and smith (2001), studied the effects of inflation on financial sector performance for more than 97

during the period 1960 -1995. They used the data of inflation, banking sector activities, stock market size, liquidity of stock market, and stock returns. The results of threshold model indicate that, at inflation rates lower than 15 percent, there is a strong negative correlation between inflation and a) financial to the private sector lenders, b) assets of the bank, and c) bank liabilities and there is also a significant inverse relationship between inflation and the stock market liquidity and trading volume at lower than average inflation rates. In the other hand, there is no relationship between financial sector performance and inflation at more than 15 percent inflation rate.

Rousseau and Wachtel (2001 ,a) show that, inflation has reverse effect on financial deepening when the inflation rate is below approximately 15 up to 20 percent and have direct effect on economic growth.

Rousseau and Wachtel (2001, b) investigated tripartite relationship between inflation, financial development, and growth using a set of three-dimensional graphs for 84 countries during the 1960 to 1995. This method allows directly and quantitatively determining the growth rate, which can form from combination of financial development and inflation in the chain via two surface and non-surface regression. The results shows that, there is an inflation threshold for the financial – growth relationship which is between 13 and 25 percent. The results also showed that, financial depth inversely changes with inflation at lower inflation environment.

Khan, Senhadgi, and Smith (2006), benefitted unbalanced panel data consisting of 140 countries for 40 years in order to investigate the linear and nonlinear relationship between inflation and financial development. Their results showed that, there is a negative and nonlinear relationship between inflation and financial development. Potential threshold level of inflation was almost 3 up to 6 percent in a year lower which inflation has a positive effect and higher which, inflation has a negative effect.

Manoel F. Bittencourt (2007) investigated the relationship between inflation and financial development for Brazil during the period 1985 up to 2000. In this study, they used m2, m3, variables, total credit granted to private sector, and total credit to GDP as indicators of financial development. The results showed that, high and varying rates of inflation have deleterious effects on financial development.

Dong- Hyeonkimand Shu- Chin Lin (2007) investigated the empirical relationship between inflation and financial development using Shane and smith's (1999) ARDL method for 87 countries during 1960-2005 using unbalanced panel data. In this study, three variables of credits granted to the private sector, cash debt, and assets of the bank considered as indicators of financial development. The results showed that, there is a negative long-term relationship and a positive short-term relationship between inflation and financial development. However, when the data divided into different groups of income or inflation, the results indicate that, the negative long-term relationship and a positive short-term relationship is observed only in low-income countries and the relationship between inflation and financial development will certainly change with economic development. Nevertheless, short-term coefficients of inflation estimations for middle-income and high-income countries are insignificant, but they are positive and significant for low-income countries. Long-term coefficients of inflation estimations for all three sub-categories of income (except low-income countries) are significantly negative. In addition, in this study, countries were divided into three groups of high,

moderate, and low inflation countries and re-estimate had been done for each group of countries. Countries with high annual inflation (over 15 percent), low annual inflation, and the remaining categorized as high, moderate, and low inflation countries, respectively. Short-term coefficients of inflation estimations for low-income countries are significant and positive but, for moderate and high inflation countries, they tend to be insignificant. In addition, such short-term effects of inflation tend to decrease as inflation rises. From the other hand, the long-term estimations of inflation for all subsets of samples, except high inflation sample, are positive and significant. In general, a long-term relationship in the form of reverse u between inflation and financial development was observed, indicating that, the relationship between inflation and financial development is initially positive and financial development reduces as inflation increases.

Yaya Keh (2009) used time series data to test long-term and causal relationship between inflation and financial development in the seven countries in West Africa. Indices of economic development were credits granted to private sector via financial intermediaries and cash debts of financial sector as a percentage of GDP. The results showed that, in two cases, there is no causality between inflation, financial development, in three cases, financial development contributes to inflation, and there is only one case where, there was an inverse relationship between inflation and financial development.

Mohamad Omran, John Pointon (2001) investigated the relationship between inflation and stock market performance for Egypt using error correction method (ECM). They used variables of market activity and liquidity including value traded, trading volume, number of transactions, volume of shares traded to volume of listed shares and stock returns as indicators of stock market performance. Results showed a negative relationship between inflation, market activity, and market liquidity.

Heshmati molayi (2004) investigated the factors influencing financial development in the banking system of Iran during a 31 years period from 1971 to 2001 and used Granger causality in order to investigate the relationship between indicators of financial development and economic growth. The results of this research suggests that, several factors such as technological development of financial instruments, refining instruments' regulations which itself, is influenced by liberalization of financial institutions, desirable compensation of depositors' investment, reducing bank's demands from public sector and optimal development of demand from private sector, and maintaining currency value have significant role on financial and economic development of Iran.

Ali Hossein Samadi (2009), in an article titled "social capital and financial development in Iran" investigated factors affecting long-term financial development with emphasis on the relationship between social capital and financial development. The results showed that, increase of inflation, government spending (as economic factors), distortion of ownership rights, and reduced social capital (as institutional factors), are the barriers of financial markets' development in Iran's economy. At the same time, economic growth, economic development, and degree of economic openness cause its development.

Introduction and estimation of the model

Our hypothesis is that, in the studied period, there is a nonlinear relationship between inflation and the stock market development in Iran along with the threshold levels of inflation to explain the effect of inflation on stock market development.

According to Khan and Senhadgi and Smith (2006), potential threshold level of inflation is almost 3 to 6 percent in a year lower which, inflation has positive effect and higher which, has negative effect. In addition, as suggested by Boyd, Levine, and smith (2001), inflation threshold is approximately 15 percent per year lower which, inflation has negative effect and higher which, inflation has negative but insignificant effects on financial activities. In this paper, we developed a model based on researches conducted by Boyd, Levine, and smith (2001) for the relationship between inflation and development of stock market in Iran.

In order to test the hypotheses, statistical inference, and find appropriate answers to research questions with citation to conducted studies specially, work of Boyd, Levine, and smith regarding the effects of inflation on stock market development, , we tried to estimate a market development model compatible with the structure of financial development in Iran. The linear model of Boyd et al. to show the factors influencing financial development is as follows:

$$FDI = a + bLINCOME + cSCHOOL + d\,DUM + eBLACKMARKET + fGOV + hPI + U$$

Now, our linear model to show the effect of inflation on development of banking sector is as follows:

$$FDI = a + bLINCOME + cSCHOOL + fGOV + gOPENNES + hPI + U$$

Where,

FDI stands for indices of the stock market development. Indices of stock market development include the current value of stock market to GDP ratio and value of shares traded to GDP ratio. LINCOM is the logarithm of real per capita GDP, and SCHOOL is the literacy rate. These two variables were entered to control the level of financial development. GOV is ratio of budget deficit to GDP, OPENNES is the ratio of total exports and imports to GDP as indicator of the degree of economic openness, and PI is inflation rate. Studied period for modeling was from spring 1378 to summer 1387 include by OLS model. The benefitted empirical model to determine the threshold level in the work of Boyd et al. is as follows is:

$$FDI = a + bINCOME + cSCHOOL + fGOV + gPI + hHIPIXX + i[(PI) \times HIPIXX] + u$$

Where,

HIPIXX is 1 for the years with more than 15 percent inflation rate and is zero for remaining.

Our empirical model used to determine the threshold of inflation is as follows:

$$FDI = a + bINCOME + cSCHOOL + fGOV + gOPENNES + \beta^1(p < p^1) * p + \beta^\Upsilon(p^1 \le p$$
$$\le p^\Upsilon) * p + \beta^\Upsilon(p > p^\Upsilon) * p + U$$

Where,

P1 and P2 are threshold levels of inflation in which, inflation has different effects on financial development. It should be noted that, if P1 and P2 were given, it would be possible to estimate the model using ordinary least squares (OLS) method but, since the Pis are not specified, they will be estimated along with other regression parameters. The appropriate estimation method in this case, is nonlinear least squares method (NLLS) called conditional least squares.

However, since when pi entered into the regression, in the nonlinear forms, techniques of searching the degree of co-accumulation in order to apply the NLLS method are inappropriate (khan, 2002) and the estimation will be done by a method which is called conditional least squares.

We first, estimate model with OLS method for each inflation threshold, then the sum of squares of error will be obtained as a function of pi. Estimated least squares of pi will be

obtained via choosing a value of it to minimize the total squares of error as follows:

$$pi = aigMin\{S^1(p), p = 7,....,49\}$$

Where,

S1 (p) is the residual sum of squares. We define two domains for inflation, one for low levels, and another for high levels. The selected domains must cover the total amounts of inflation. For example, we define 6 to 1 8 percent and above 18 percent rates of inflation as low and high domains, respectively. Then, to select the desired rate, we choose rates with minimum Total Square of error.

p <p1: Dummy variable for years in which, inflation rate is below the threshold. For the years, that inflation rate is less than the threshold; the entered number is one and is zero for the rest.
p> p2: Dummy variable for years in which, inflation rate is above the threshold. For the years, that inflation rate is higher than the threshold; the entered number is one and is zero for the rest.

P1 ≤ p ≤ p2: Dummy variable for years in which, inflation rate is between the two thresholds. For the years, that inflation rate is greater - equal and smaller - equal with the threshold; the entered number is one.

Estimation of the model

Before estimating the model, the data examined in terms of durability. Table 1 exhibits ADF test results for variables with intercept and linear trend and with intercept and no linear trend in data. In table 1, GOV and OPENNES variables are stationary and the rest are not.

Table (1): Generalized Dickey-Fuller test for variables

Variable name	With intercept and linear trend					With intercept and no linear trend				
	Calculated ADF statistic	Level of critical value			Durability status	Calculated ADF statistic	Level of critical value			Durability status
		1%	5%	10%			1%	5%	10%	
MCAP	-0.80	-3.62	-2.94	-2.61	Non-stationary	-0.80	-4.23	3.53	-3.20	Non-stationary
VALUET RADED	-0.96	-3.63	-2.94	-2.61	Non-stationary	-0.96	-4.25	-2.54	-3.20	Non-stationary
GOV	-7.13	-3.61	-2.94	-2.60	Stationary	-7.13	-4.22	-3.53	-3.19	Stationary
OPENNES	-3.99	-3.61	-2.94	-2.60	Stationary	-3.99	-4.22	-3.53	-3.19	Stationary
P_i	-0.97	-3.62	-2.94	-2.61	Non-stationary	-0.97	-4.23	-3.53	-3.20	Non-stationary
LINCOME	-2.92	-3.61	-2.94	-2.60	Non-stationary	-2.92	-4.23	-3.53	-3.20	Non-stationary
SCHOOL	-1.71	-3.62	-2.94	-2.61	Non-stationary	-1.71	-4.23	-3.53	-3.20	Non-stationary

The results of table (2) for the first order differentiation of variable show that, with first differentiation, all variables is stationary.

Table (2): Generalized Dickey-Fuller test for first order differentiation of variable

Variable name	With intercept and linear trend					With intercept and no linear trend				
	Calculated ADF statistic	Level of critical value			Durability status	Calculated ADF statistic	Level of critical value			Durability status
		1%	5%	10%			1%	5%	10%	
MCAP	-5.97	-4.23	-3.53	-3.20	Stationary	-6.06	-3.62	-2.94	-2.61	Stationary
VALUET RADED	-5.73	-4.23	-3.53	-3.20	Stationary	-5.72	-3.62	-2.94	-2.61	Stationary
Pi	-5.21	-4.23	-3.53	-3.20	Stationary	-4.49	-3.62	-2.94	-2.61	Stationary
LINCOME	-6.23	-4.22	-3.53	-3.19	Stationary	-6.88	-3.62	-2.94	-2.61	Stationary
SCHOOL	-6	-4.23	-3.53	-3.20	Stationary	-6.07	-3.62	-2.94	-2.61	Stationary

$FDI =$

$a + bLINCOME + cSCHOOL + fGOV + gOPENNES + hPI + U$

(1)

Table (3): Results of estimating model 1 for indices of stock market development (the numbers in the parentheses stand for t)

Financial development index	C	LINCOME	SCHOOL	GOV	OPENNES	Pi	AR1	
MCAP (Eq.1)	-64(-5.35)	-2.79(-3.26)	0.57(5.56)	-1.84(-1.21)	-16.89(-3.55)	0.06(2)	0.41(2.85)	
	R̄2=87 D.W=1.83				R=89			
Financial development index	C	LINCOME	SCHOOL	GOV	OPENNES	Pi	AR1	MA1
VALUET RADED (Eq.2)	-4.34(-2.54(	-0.24(-1.70)	0.033(1.98)	-0.28(-2.01)	-1.20(-2.24)	0.011(2.76)	-0.33(-1.73)	0.94(27)
	R̄2=63 D.W=1.85 R=70							

In the linear models of capital market (1 and 2), inflation has positive and significant effect on the current value of the stock market on the GDP ratio and the ratio of shares traded to GDP. This positive effect can be justified so that, inflationary conditions cause to increased sales in the future years, even without production increase. The increase of company's future profits can be equal or different from inflation. In the case of companies that are able to increase price of their products more than inflation rate and increase rate of operational costs, the profit growth rate will be more than inflation rate and the value of their shares will be increased in the future. Therefore, with the increase of inflation, the current values of stock market and trading value will be increased.

The logarithm of real per capita GDP has a negative effect on both capital market indices, but this negative effect is significant only on the current value of the stock market. This effect negative can be justified so that, with improvement of economic conditions, newer and more profitable investment opportunities will be available. Therefore, people invest their money in more efficient activities and consequently, the current value of stock market will be decreased.

Literacy rate has positive effect on market development indices in the models 1 and 2. This positive effect can be justified so that, increasing education level will increase the individuals' awareness from the stock market and investment in it, i.e. education has positive effects on stock market development.

Budget deficit has negative effect on both capital market indices, but this negative effect is significant only on the value of shares traded. This negative effect can be justified so that, the government attempts to finance its deficit by issuing higher interest bonds. It will cause that, individuals deposits be spent to buy these bonds and consequently, trading volume will be decreased.

As mentioned before, the model to investigate the non-linear relationship between inflation and development of stock market concerning threshold level is as follows:

$$FDI = a + bINCOME + cSCHOOL + fGOV + gOPENNES + \beta^1(p < p^1) * p + \beta^\gamma(p^1 \le p \le p^\gamma) * p + \beta^\gamma(p > p^\gamma) * p + U$$

$$(3)$$

Inflation rate during studied period was varying from 8.8 up 27.4 percent. Therefore, to determine the threshold level for inflation, the theoretical limit for this period was defined between 9 and 27 percent. Accordingly, regression estimated using OLS method and based on hypothetical levels and for various indices of financial development. The results of model estimation using the conditional least squares method for different levels of inflation thresholds were not confirmed by the Wald test and therefore, there is no threshold for impact of inflation on stock market development.

Conclusions

According to the results of this paper, in the studied 10 years period in the Iranian economy (1378 - 1386), budget deficit, economic development, and openness degree of economy are the barriers of stock market development in Iran; meanwhile, inflation and the literacy rate have been contributed to its development. In addition, in this work, we did not find any threshold level for the influence of inflation on stock development, thus, our main recommendation is as follows:

- Due to the fact that, the effect of government's budget deficits on the development of money market is negative, the government is recommended to restrict its budget deficit. Otherwise, budget deficit will have deleterious effects on financial development (capital market).

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