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Uncertainty of Inflation in Iran by Using Mean Reversion Model (1990m3 - 2012m3)[1]

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ABSTRACT

In this Paper, to study the possibility that inflation rates can follow the Mean-Reversion model and to study its impacts on the structure of Iran economy, we have estimated a model with TGARCH (1,1) approach for Iran's economy for the monthly period of 1990- 2012 based on the "Ournestin-Uhlenbeck" theoretical-mathematical model. Variables used in this two-factor model are CPI and PPI growth rates. Finding of this research just like results of OECD countries revealed that inflation in Iran follows Mean-Reversion model with jump diffusion. But since the level of this average is high, uncertainty resulted from instability of inflation rates has become stable and has decreased the consumers' welfare and the results showed that there are asymmetric effects of inflation shocks and inflation response to positive and negative shocks of equal magnitude isn't similar.
KEY WORDS: Inflation, Inflation Uncertainty, Mean Reversion Model, Price Stability, Inflation Persistence
JEL Classification: E31, E37

INTRODUCTION

The consistency of prices is considered almost in all the countries as a major aim of money policy. Reaching to this purpose needs creating precise and purposeful in the process of money policy, which in its level consists of predicting, aiming and finally analyzing policy. The consistency of prices is the necessary point for reaching to the fix level of the economic growth. Getting to low and consistent inflation needs the ability to use of efficient and useful tools in the money policy. Performing the correct money policy and using purposeful of the money tools needs recognizing the main factors which influence on the inflation.

Predicting the inflation and the economic growth is very sensitive in the case of money policy. Although the quantity predictions are the necessity for starting a policy process but the judgment standards are not regarded in the case of the traces of some factors. In this bases, increasing the perception of quantity prediction and mixing it with judgment standards is the base of money policy. Predictions provide us with the possibility of recognizing the amount of performance deviation of the aim variables from the previous factors.

One of the effective ways of creating the inflation process and predicting it is the use of Mean Reversion Model. Many economists believes that most of the economic variables such as the price of the foreign exchange, the price of output of documents in share market, the price of profit, the price of oil and also the rate of inflation considered the Mean Reversion Model. The propose problem in this model is that many phenomena in the world has the propriety of mean reversion and it means that if we study their behavior in the period of time, we can see that when they space from the mean they want to reverse to this mean reversion so in the long time they will volatility around one line. In this models mean is fix equilibrium. We have used this concept in property market many times. For example, whatever the price of a property which considered the process of mean reversion decrease or increase, the possibility of returning the previous mean prices has increased. To consider as a spring connected to a variable which the more pulling it the more further from the average.

Existing the increased rates of inflation and also the inconsistency of the prices impose costs on the economic through the inconsistency of inflation on the economic. It means the inconsistency and high volatility of the prices cause the increase uncertainty of the agent in the case of future inflation and the policies of no inflation and this problem has the decrease of capital motivation and the activity of economic production in the case that economic resources instead of entering to the production parts, absorb the unproductive part of the economy. Now if the inflation process was predictable and firm, the capitalism will have the necessary motivation for capitalist because of the prediction they will have future situation of the market and the economy will have more splendor.

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In this case, the purpose of this article is studying the possibility of accepting the inflation rate from the reversion model to mean. This article wants to consider this problem to understand whether inflation vacillate around equilibrium amount or not. For this reason we have used the monthly data of 1369-1391 and after that we have considered this problems that in the case of confirming the proposed model if this phenomena was with leaping or not in Iran and on the other hand the inflation is in what level in Iran? Because by knowing the process and the situation of inflation, the perception of the quantities predictions have increased and will help the money capitalism in their making decisions. The predictions help us to recognize the expected amount of performance diversion from the pre determined variables for them. In addition for studying the condition of inconsistency of the goods prices and services and the process which inflation follows, we have used the Auto Regressive Conditional Hetroscdastisity models (ARCH). Because the Auto Regressive Conditional Hetroscdastisity models can explain the process with conditional variance according to its previous information.

I. LITRITURE REVIEW

In recent years many mean reversion models were used for determining the behavior of monetary variables which we can refer to the applied models of capital market, foreign exchange market, energy market and inflation. We can mention the following studies which have found that considered inflation on the basis of these models:

Baillie, Chung and Tieslau (1996) in their article with monthly analysis of CPI in the period of after the world war two in ten different countries have the long term memory come to the mean reversion for all the countries except Japan.

Morana (2001) in an article by the name of “core inflation in Europe” by using general ARFIMA Marcove model investigate the event of mean reversion according to the unconditional mean of the variable. In this article, the writer by imposing a “Co-switching” limitation for nominal growth of money and quick inflation can recognize three kinds of regime for the rate of inflation and determining a relationship between long searching of inflation and the growth of money which in this case the core inflation regime is coordinated with the aim of fix prices and after comparing with other models it shows that it is better than other models in the case of the power of prediction.

Vitek (2002) has studied the relationship between inflation and its uncertainty, the desperation of relative prices, and production growth with using a three variables model GARCH. He used monthly data of the price of Canada industrial production and concluded that there is a relationship between the dispersion of prices with the variables of inflation and uncertainty of the inflation.

Yi (2003) in an article by the name of “mean reversion in the inflation rates” has used two tests of the same root for reconsidering of the consistency of inflation rates in thirteen OECD countries. The results of this research have confirmed the studied mean reversion in the inflation rates.

Marques, Carlos (2004) study some subjects about the definition and evaluating the fix inflation by using single variable method. In this article they emphasis that every evaluation of consistency should be under the proposed conditions for the inflation for the long term and this long term inflation (mean level) is different along time. Second in this article, they consider the evaluation of the consistency which studies the relation between consistency and mean reversion. Third, the existed inflation in the United States and Europe depends on the mean reversion. In this article, the existing of fixed mean in the United States was proved.

Beck, Guenter W, and Axel A, Weber (2005-1) investigated dispersion of inflation dispersion in most the countries of the Europe money union before and after the forming of Europe union. The results shows that in every period we have a reversion toward a core mean in the inflation rates. In general the study of searching inflation dispersion shows the considerable consistency in the European inflation rates.

Beck, Guenter W, and Axel A, Weber (2005-2) by using a set of regional inflation rates studying the searching of inflation dispersion in three places of the United States, Japan and the set of the United States and Canada. The results of this study show that dispersion of inflation in all three cases during the period of study was high significantly and also we can find some evidences for proving the significantness of the mean reversion in all of the inflation rates of the samples.

Binette and Martel (2005) have studied the relationship between different parts of the inflation and the dispersion of the price in Canada by Marcove-swiching curve. They show the expected inflation is a part of inflation which has a relationship with the dispersion of the prices. Also in this article they have found a large non symmetry which related to the effect of positive and negative shocks on the relative dispersion according to the “total inflation”. This article concluded this non symmetry is because of factors which related to the proposed shocks and it does not have any relation to removing inflation consistency.

Lee, Chien-Chiang and Chun-ping Chang (2007) have used the Unite root LM test for the integrated data which has non unique structure in order to study the process of mean reversion again in the inflation rates of 19

countries of OECD (in the period of 1960 to 2004). The experimental findings of this research were coordinated with the fix inflation rates.

Charles S. Bos, Siem J. Koopman, Marius Ooms (2007) have studied the time series which is related to the America inflation in the period after the world war two on the basis of a mean reversion model. The results confirm the long mean. In addition it was shown that during the examined period we have considerable changes in the inflation variance, in the degree of aggregation, the characteristics of short term memory and also inconsistency of the inflation.

Diego Romero-Avila, Carlos Usabiaga (2009) by using the mean reversion model have tested the hypothesis of unique root in the inflation of 13 countries of OECD during 1957-2005. The findings although not accepted the unique root strongly, but it shows common searching in the inflation of all the countries which shows many leading in the model. These leaping are observable in 60, 70, 80, 90 decades.

Andreas Reschreiter (2010) has studied the relationship between inflation and short term profit on the basis of a mean reversion process in the England. He has concluded that by changing the time periods, the equivalent mean of short term nominal profit also change but the equivalent mean of real short term nominal profit is fixed during the time.

Leonardo Morales-Arias, Guilherme V. Moura, 2010 has studied the group (G7) countries by considering Auto Regressive Conditional Hetroscdastisity in a mean reversion model and the most correctness of inflation in the group (G7) countries during 1960:1 to 2009:4. The results show that mean reversion process for inflation in countries like France and Canada is faster and is slower in America and Italy.

Bob Nobay, Ivan Paya, and David A Peel, 2010 has studied the inflation phenomena in America during a period of 60 years. They found that universal inflation follow a fix process while the internal inflation of America has a Unite root. In addition, the stability of inflation in this country in the previous period from 1983 is more than the stability of the period after this year.

II. THEORETICAL BASIS

III.1. THE MEAN REVERSION MODELS

In the financial markets this slogan existed that "the price of properties is decreased again after reaching to a maximum point". This statement is actually the simple utterance of the mean reversion process. In several previous decades many of the financial theories are made according to the random walk models of prices, output and profit. But we should consider that the random walk is itself a special state of a broad group of models which is called mean reversion model or mean aversion models. For reaching to a mean reversion model, first we want to start with a Geometric Brownian Motion - GBM model. The following model is a GBM model:

$$dP = \eta\ P(M - P)\ dt + \sigma\ P\ dz$$

In which P is a variable which moves during the time, η the drift term, and σ shows Volatility in P.dz shows a vinery process which follows the $dz = \varepsilon dt^{1/2}$ relation and ε has the standard normal distribution. In this equation the first right side statement ($\eta P dt$) is called the procedure term and the second term ($\sigma P dz$) is changing term or diversion from aim term or uncertainty term. If the above model is written as the following model by adding μ to the model, we get a mean reversion model. This model is written as a geometrical mean reversion process:

$$dP = \eta\ P(M - P)\ dt + \sigma\ P\ dz \quad \rightarrow \quad \underbrace{dP/P}_{\text{inflation}} = \underbrace{\eta\ (M - P)\ dt}_{\text{mean reversion term}} + \underbrace{\sigma\ d\ z}_{\text{Jump term}}$$

Where μ shows the long time equilibrium level (or mean price in long time which prices want to return to its side) and η shows return speed. Other parts have the same concept with geometrical movement. In other discussions π substituted dp/p.

III.2.MULTI FACTOR MEAN REVERSION MODEL

In multi factor multi variables which has an random step and has Geometric Brownian Motion singly are come together and being them together in one model complicate the analysis because each of the random step has an random part for itself.

$$dP = (\mu - \delta)\, P\, dt + P\, \sigma_p dz_p \quad (3)$$

$$dp/p = \pi = (\mu - \delta)dt + \sigma_\pi dz_\pi \quad (4)$$

$$d\delta = \eta(\Delta - \delta)dt + \sigma_\delta dz_\delta \quad (5)$$

In Where Δ is the long run mean convenience yield value, η is the speed of reversion of the convenience yield. The others are as before. These stochastic processes are correlated (positively in this case). The equation is:

$$dz_\delta dz_p = \rho\, dt \quad (6)$$

Where ρ (- 1 to + 1) is the correlation factor for these processes. Schwartz (1997a, p.943, Table IX) finds strong correlation between the oil spot price and the derivation yield (+0.915 for 259 samples and + 0.809 for other 163 samples).

III.3. THE MEAN REVERSION MODEL WITH JUMP

In many cases that variable is with strong volatility (jump) using the mean reversion model with jump is more logical. In these models we have used Poisson process. This model has shown in the following way generally:

$$dP = \eta\, P\, (M - P)\, dt + \sigma\, P\, dz + P\, dq \quad (7)$$

$$dP/P = \eta\, (M - P)\, dt + \sigma\, dz + dq \quad (8)$$

The above equivalent dq is jump term which follows the Poisson distribution. In most of the cases the jump term is zero but with plenty of λ according to the shock (jump) get under zero amounts:

$dq = 0$ *with prob* $1 - \lambda\, dt$

$dq = \Phi - 1$ *with prob* λdt

In these models we have supposed that Viner process (dz) and Poisson (dq) are not correlated together. The size and side of the jump is by random completely which in the above equivalent shows the probable distribution of the jump size.

III. THE INFLATION MODELING ACCORDING TO THE MEAN-REVERTION MODEL

Bernard et al. (2006) has a conditional variance and jump for variables like prices which are random and arch effect is confirmed for them, π_t and the relate equivalent for GARCH $\pi_t = dP_t / P_t$ are stated like these:

Inflation equivalent :

$$\pi_t = \ln(\Pi_t) - \ln(\Pi_{t-1}) \quad (9)$$

$$\pi_t = dP_t / P_t$$

The explanation of GARCH (1, 1) model:

$$\pi_t = \mu + \sqrt{z_t h_t} \quad (10)$$

$$h_t = \alpha_0 + \alpha_1 (\pi_{t-1} - \mu)^2 + \varphi h_{t-1} \quad (11)$$

Here π_t is the normal level of inflation and z_t can have normal distribution or t-student. This model can be written in continuous time and in the price level logarithm with hypothesis like these:

$$\left.\begin{aligned} \ln(\pi_t) &= X_t + \varepsilon_t \\ dX_t &= -kX_t dt + \sigma_x dz_x \\ d\varepsilon_t &= \mu_\varepsilon + \sigma_\varepsilon dz_\varepsilon \end{aligned}\right\} \quad (12)$$

The process with Geometric Brownian Motion

The accidental variables which contains one element of time and one accidental element

$$dz_x dz_\varepsilon = \rho_{x\varepsilon} dt$$

Where ε_t is the of normal logarithm price of producer in t time, x_t the logarithm derivation of user price in t time from normal price and dz_x and dz_ε shows the Brownian motion jump which are correlated. Here the coefficient of mean reversion K shows the speed value which prices return to the normal state. μ_ε is the mean normal price and σ_x and σ_ε shows the short time volatility of the process. For the above estimating hypothesis, we can explain like these:

$$\ln(\Pi_t) = X_t + \varepsilon_t$$
$$X_t = e^{-k} X_{t-1} + \xi_t^X \qquad (13)$$
$$\varepsilon_t = \mu_e + \varepsilon_{t-1} + \xi_t^\varepsilon$$

Chiang at al. (2007) has evaluated similar equivalent of above model for studying mean reversion of inflation rates in 19 OECD countries and estimated them in the GARCH (1,1) way:

$$\Pi_{it} = \gamma_i' X_{it} + \varepsilon_{it}$$
$$\varepsilon_{it} = \phi_{it-1} + e_{it} \qquad (14)$$

Here X is delay external and internal vector of variables, γ_i is vector of the parameters, ε_{it} is the residual term, e_{it} is a residual term with zero mean for conditional variances among the time variables and we supposed that we don't have any cross sectional correlation, ϕ_i is spoiling term variance and shows the different consistency.

In the above model the $\prod_{it}$ variable has two structural breaks and D_{it}, DT_{it}^* (i=1.2) are legal Dummy variables which shows one transfer in the mean and one transfer in the time process. The important side of this model is that it allows us to see the structural brakes under zero hypothesis and opposite hypothesis. So we can have:

$$\Pi_{it} = \gamma_{1i} + \gamma_{zi} t + \gamma_{3i} D_{it} + \gamma_{4i} DT_{it}^* + \varepsilon_{it} \qquad (15)$$
$$\varepsilon_{it} = \varepsilon_{it-1} + e_{it}$$

In the way that for e_{it} we have classical hypothesis and it has Unite root. Then by suing a different form change, this equivalent is solved for ε_{it} like this:

$$\Delta\varepsilon_{it} = \pi_{it} - \pi_{i,t-1} - \gamma_{2i} - \gamma_{3i}\left(D_{it} - D_{i,t-1}\right) - \gamma_{ti}\left(DT_{it}^* - DT_{it-1}^*\right) \qquad (16)$$
$$\Delta\varepsilon_{it} = \Delta\pi_{it} - \Delta D_{it} - \Delta DT_{it}^*$$
$$\underbrace{d\varepsilon_{it}}_{viyner\ process} = d\pi_{it} - \underbrace{dD_{it} - dDT_{it}^*}_{Jump\ Drift}$$

In Chiang's article which has studied the mean reversion models for inflation rates, the X vector is not open which contains the mean reversion element and other explanation variables.

In Munk and Sorensen (2003) article which has studied the mean reversion model for property's market, the mean reversion model of inflation has used in the following way:

$$d\pi_t = \beta(\bar{\pi} - \pi_t)\,dt + \sigma_\pi\, d\varepsilon_\pi \longrightarrow \pi_t = \beta(\bar{\pi} - \pi_t) + \varepsilon_\pi \qquad (17)$$

As it was seen above, inflation consists of one element of the time and the second element which is random and is called vainer process and shows inconsistency of inflation. In the above article equivalents exactly the same mathematical equivalent by Ournestin-Uhlenbeck was used for the mean reversion element. In this estimation the Beta coefficient shows the mean reversion price and the coefficient residual term somehow shows the inconsistency of inflation.

IV.1. PROPOSING THE MODE

In this research with the combination of the existed equivalent in Chiang (2007) article and Munk and Sorensen (2003) the following two factors model is proposed for Iran which is estimated in the next parts of this equivalent in the TGARCH (1,1) way:

$$\pi_t = \eta(\bar{\pi} - \pi_t) + \beta_1 \pi_{t-1} + \beta_2 \pi_{t-12} + \beta_3 \pi_t' + \beta_4 D_{73} + \varepsilon_t \qquad (18)$$

In this relation π refers to inflation in the using part (rCPI), $\bar{\pi}$ the annual mean of long term inflation, η the speed of returning inflation to the long normal mean and π′ shows the inflation in production part (rppI). The tile of two factors is called to the model for the reason that inflation in using part regress on itself variables (first factor) and on inflation variable in production part (second factor). In this article we have used the monthly data of Consumer Price Index (CPI) and Producer Price Index (PPI) in the fix price of 1383 for calculating the inflation rate in the production and using part. Also the inflation rate is calculated through following formula:

$$\pi_t = (\frac{cpi_t - cpi_{t-1}}{cpi_{t-1}}) \times 100 \qquad (19)$$

$\bar{\pi}$ is a key variable in the determining of the result of this research in which case that wrong calculation can influence on the result of the estimation. The findings show that for measuring the long normal mean we should consider the annual mean of the data and using monthly mean data make some problems for the estimation.

TABLE I
STATISTICAL CHARACTERSTICS OF RESEARCH'S DATA

Express	Inflation in Supply side	Inflation in Demand Side	PPI	CPI
Monthly Average	1.46	1.47	66.67	69.6
Annual Average	19.73	19.89	66.8	69.6
Mean	1.17	1.29	55.5	55.65
Max	8.25	7.73	189	211.9
Min	-1.64	-2.04	6	6.50

IV.2. THE UNITE ROOT TEST

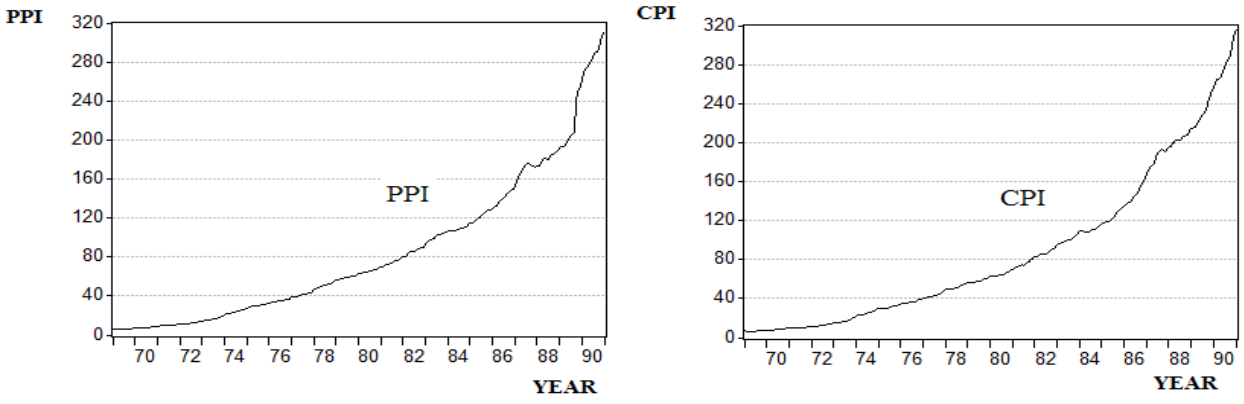
For studying the stationary of used variables we perform Philips-Pron test. Since in the used variables we have serial coefficient using ADF test has some problem. The findings show that PPI and CPI nonstationary and collected variables are the first degree so in this case their inflation is stationary (table 2).

TABLE II
PHILIPS-PRON TEST

P-P test	Adj t-Stat	1% level	5 % level	10 % level	Prob
CPI	7.01	-3.46	-2.87	-2.57	1
PPI	5.84	-3.46	-2.87	-2.57	1
rCPI	-9.89	-3.46	-2.87	-2.57	0
rPPI	-11.55	-3.46	-2.87	-2.57	0

The Figure I shows the time series process of price indexes data and Figure II shows the process on inflation data.

FIGURE I
CONSUMER AND PRODUCER PRICE INDEXES



The Figure II shows the time series of inflation in produce and consumption parts. Since these two variables are the growth rate of the price indexes variables, both of these variables are stationary (table I).

In Figure II we can see clearly that inflation rate in both supply and demand sides are around a specify mean in spite of different jumps.

FIGURE II.a
INFLATION IN SUPPLY SIDE

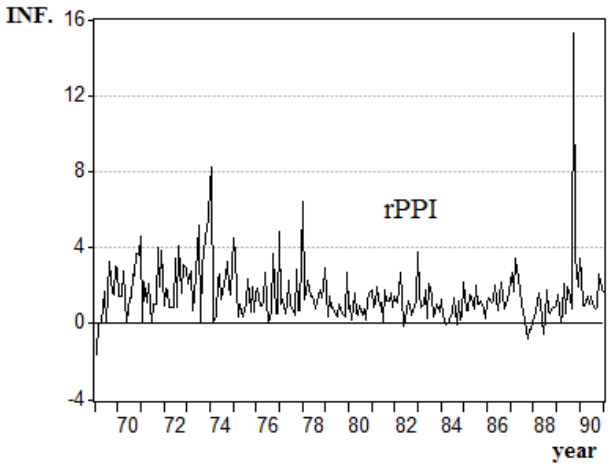
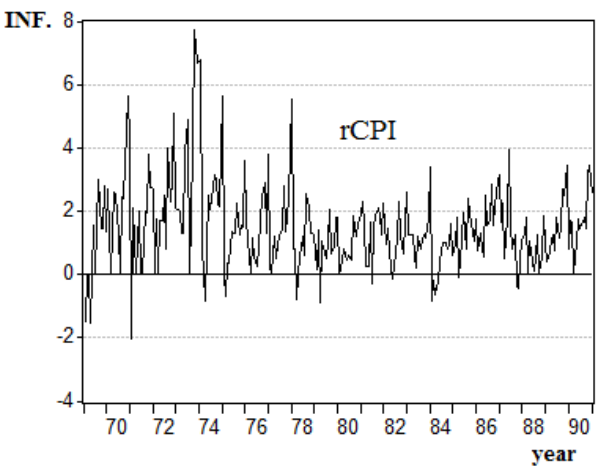


FIGURE II.b
INFLATION IN DEMAND SIDE



In the explanation of mean reversion models we should mention this point that in these models we can observe the returning possibility to the long time normal mean with a random step or whether this mean has a fix, increasing or decreasing process and in the researches it becomes clear that a process with random step mostly regress in itself or on two or three factor.

IV. EVALUATING THE MODEL

For evaluating the proposed model we have used the monthly data of first period 1369 -1391. On this basis the short relationships between the variables by using this data is estimated in this part and the obtained results are studied. For studying the existence or non existence of self coefficient between the residual terms w have used the Q Box and Jenkinz test. The results of Q test shows there is not any autocorrelation between the residual terms. We have also used Lagrange Multiplier (LM) test for studying the serial coefficient in the model.

After performing the first tests on short time model we pay attention to determining and estimating ARCH and GARCH models. First the Auto Regressive Conditional Hetroscdastisity is studied by Brush-Pagan and Goodferi test. As it was shown in the table (3) according to the both F and Obs R*-squared we have confirmed the unequal variance.

TABLE III
BRUSH-PAGAN AND GOODFERI TEST'S RESULT

ARCH Test			
F-statistic	6.4	Probability	0.0001
Obs *R-squered	23.7	Probability	0.0001

Then according to the Akaik-Schowartz criterion the model GARCH (1,1) was considered as the best model. We can show the model in this way:

$$\pi_t = \eta\,(\bar{\pi} - \pi_t) + \beta_1 \pi_{t-1} + \beta_2 \pi_{t-2} + \beta_3 \pi' + \beta_4 D_{73} + \varepsilon_t$$
$$h_t = d + \alpha_1 \varepsilon_{t-1}^2 + \alpha_2 h_{t-1} \qquad (20)$$

Also in order to see the effect of positive and negative inflation shocks with the same broadness on the inflation, we have used the estimation of model TGARCH.

$$h_t = d + \alpha_1 \varepsilon_{t-1}^2 + \lambda \varepsilon_{t-1}^2 I_{t-1} + \alpha_2 h_{t-1}$$
$$I_t = 1 \qquad if \qquad \varepsilon_{t-1}^2 \langle 0 \qquad (21)$$

According to the estimation results in table 4 we can see that all of the obtained coefficients for the first equation is significant for all the variables statistically (in level %99). Since the diversion from the mean is defined as $(\overline{\pi} - \pi_{t-1})$ its signal shows that inflation of t-1 period is higher or lower than normal and if this amount is positive, it shows that previous inflation period is lower than normal mean and long term and vise versa. In this case the signal and amount of coefficient η shows that how inflation in t period react toward this equilibrium. The positive coefficient of η indicates that the model follows a mean reversion process in the way that if the inflation rate in the t period is lower than long time and normal inflation, the t+1 inflation period want to return to long time and normal mean. In the case that if $\pi_t \langle \overline{\pi}$, then $\pi_{t+1} \rangle \pi_t$ and vise versa. If the If the rate of inflation in t period was higher than long time and normal inflation, the inflation in t+1 period will decrease, in the way that $\pi_{t+1} \langle \pi_t$. The quantity of this coefficient shows the speed and normal mean reversion which in the case of difference inflation from the normal and long time amount in every period, come to %25 from this difference for reaching the normal amount.

TABLE IV
ESTIMATION RESULT

Mean Equation				
Variable	**Coefficient**	**Std. Error**	**z-Statistic**	**Prob**
19.7-$^{*}\pi$	0.016	0.004	3.77	0.0002
π_{t-1}	0.24	0.05	4.84	0.0000
π_{t-12}	0.29	0.033	8.58	0.0000
Π'	0.25	0.020	12.50	0.0000
Variance Equation				
ω	0.055	0.13	4.206	0.0000
α_1	0.179	0.073	2.469	0.014
λ	-0.281	0.072	-3.902	0.0001
α_2	0.896	0.041	21.921	0.0000
DW=1.94	**AIC**= 2.89	**S.W**=2.80		

V. CONCLUSION

1-Inflation in Iran follows the mean reversion model and it is increasing during the time, the more the amount of inflation derivation from the long time normal mean, the inflation rates are more in economics and by decreasing this derivation the inflation rate will come near to the amount of long time normal mean. The low amount of the coefficient of this variable shows that because of the special structure of Iran economic, in spite of Iran inflation following the Iran inflation from mean reversion model, this derivation from the mean has low effect on the same period prices and the speed of inflation mean reversion which shows the revision price in every period because of inflation derivation from the long time amount of normal mean and in Iran it is low (about 0.015). This shows that in the monthly periods the normal speed toward normal amount is slow.

2-The positives of the relation between inflation and its conditional variance indicates that in Iran economic the inconsistency or uncertainty from the previous inflation periods caused the increase of inflation process in the future periods. It means that in Iran changing or inconsistency in different economic policies during the different years has a positive influence on the inflation variance with the inflation shocks and by the increasing of institute uncertainty in the conditions and economic situation institutes become sensitive toward the prices and adjust its goods and services prices in many times. The results also show that the effect of positive inflation shocks on inconsistency and uncertainty of the inflation is more than negative shocks with the same broadness.

3- In consumption side the high mean of normal inflation (19.7 percent), impose high prices on the consumer and they users are in high uncertainty toward their purchasing power and the relief of their future life. From now on mean reversion is considered an ideal condition in the case that which the normal mean was fewer than ten percent which in this case by increasing and demanding, we can see more splendors.

4-From the production point of view, knowing inflation follow a mean reversion model in long term, help agents Predicting the future inflations in Iran that has return the predictable rates of inflation in the case that the

external factors of the economic like far, ban,… are not considered (for short time) and in the conditions that the interference of government was low in economic and the markets specify the prices in this case the predictable rates of inflation return the certainty somehow to the market and the production activities become interesting to the investors. Because the producer know the more production today, the more selling the production tools with high price tomorrow and this is in the state that the producer can invest on the buying of primary buying and have more profit from the differences between the yesterday prices (the time of first buying) and tomorrow (the time of selling the product).

VI. PROPOSING THE POLITICAL SOLUTIONS

1- The results show that in Iran the long term inflation is about 20 percent. On the other hand inflation is not the dependent of short term shocks. On this basis we cannot justify the inflation process with the short term policies and we should use the control policy of inflation toward long term and structural policies like adjusting the low budget of the government and consistency of the export incomes and etc.

2- By observing the liquidity stock of money data in the country we can see this macro variable has an increasing process continues which its influence is clearly observable on the demanding and inflation growth. On this basis controlling the amount of money and preventing from more unplanned increasing is very important and liquidity stock of money and growth should have a rule according to the economic.

3- Using financial policies like increasing the taxes and decreasing the expenses of the government and optimizing for the decreasing of government budget.

4- From the obtained results of this research for policy we can refer to this point that for controlling the inflation in Iran we cannot just rely on the money policies and we should consider the key variables of real part of the economic in long term.

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