

Contents lists available at Sjournals



Journal homepage: www.Sjournals.com



Original article

Effective factors on velocity of money in Iran

N. Samadpor*, M. shahsavani, H. Soltani

Department of Management, Neyriz Branch, Islamic Azad University, Neyriz, Iran.

*Corresponding author; Department of Management, Neyriz Branch, Islamic Azad University, Neyriz, Iran.

ARTICLE INFO

Article history,

Received 30 April 2014

Accepted 19 May 2014

Available online 29 May 2014

Keywords,

Velocity of money

Co integration technique

Iran

ABSTRACT

Investigating the factors affecting the velocity of money, that plays an important role as a key variable in the economy. This study aims to investigate the variable behavior of the velocity of money in the economy during the period of 1340-1389, that evaluate the effect of important variables such as national income, real exchange rate, inflation rate, increased liquidity coefficient, the money in the hands of individuals and other factors over through the course by collective model. Based on the results, there is a positive long-run equilibrium relationship between velocity of money and variables such as national income, increased liquidity coefficient, exchange rates and inflation rates. On the other hand the money in the hands of individuals, private sector deposits has a negative impact on the velocity of money.

© 2014 Sjournals. All rights reserved.

1. Introduction

Velocity of money is one of the most important concepts in monetary Economics which has been more considered by economists in recent decades.

Different economic schools have vary opinions about the velocity of money. Classics argued that it does not impact from economic policies and just as a function of real variables such as the efficiency of the financial and banking system, social habits and mode of payment of wages , and consider it fixed . The neoclassical do not seems velocity of money constant in short term, and seems it as a function of

unpredictable financial policies, but they argued that in the long term it has no impact on velocity of its changes is quiet and slow. According to Keynes and neoKeynes, the velocity of money is strictly depended on economic policies, especially Demand-side policies and has extreme volatility. Friedman's theory for money demand or the Chicago school theory, states that, the money demand is a function of successor currency assets return such as bank interest rates, bond return rates, Expected inflation and stock, the rate of Material wealth and human wealth to permanent income .

Jonung (1983), Bordo and Jonung (1981, 1990) and Bordo, Jonung and Siklos (1997) in the numerous studies have examined the velocity of money' fluctuations at different periods and different countries including five American industrial countries , England , Canada , Sweden and Norway. Based on these findings, the hypothesis of stable velocity of money in conventional theories was not confirmed.

Long-term behavior of velocity of money fluctuations is attributed in the real and monetary variables such as production, interest rates of commercial bank deposits, structural changes in the money market and capital and banking system development. Faig and Jerez. (2005), were reviewed the relationship between the precautionary demand for money balances and the velocity of money in America by using a nonlinear least-squares model for the period 1892-2003.

Results showed that the improvements in information technology and the emergence of various credit cards and telephone banking and electronic banking, precautionary money demand has reduced and the velocity of money has increased in recent decades.

Benk, Gillman and Kejak (2008), Kim and Subramanian (2009) also examined the relationship between inflation dynamics and the velocity of money base on the endogenous growth theory in the economy of America for the period 1959 - 2000 and 1951 - 2004.

The results showed that the velocity of money during evaluating periods has significant volatility. Momentum monetary, interest rate and efficiency of production are factors that influence on velocity of money.

2. Materials and methods

Following model has been used to investigate the factors affecting the velocity of money,

$$LV = B_1LRE_t + B_2LNM_t + B_3LPC_t + B_4LDE_t + B_5Lva + B_6LLI_t + B_7INR + B_8LY + D$$

Where the variables are,

LV, Log of velocity of money

LRE, log of the exchange rate

LNM, log of quasi money

LPC, Log of money in the hands of persons,

LVA, (Logarithm of the remaining banking facilities to the private sector)

LLi, log of Equity multiplier

INR, Log of the rate of inflation

LY, Log of national income

D, Dummy variable

LDE, Log of deposits of non-governmental

Information and statistical data required by the model variables as annual time series (1389-1340) are drawn from the World Bank website. Johansson co integration techniques are used to estimate the research model. Thus, using this technique, presence or absence of long-term equilibrium relationship between the variables in equation (1) has been tested and if the long-run relationships exist, co integration vector is extracted. Next, using the error correction model, short-term relationship between the model variables estimated and the short-term speed of adjustment towards long term equilibrium relationship will analyzed.

3. Results

3.1. Unit root tests for the variables used

To investigate the variables Stability, Dickey Fuller and Dickey Fuller correction test was used .

The results are given in Table 1 and show that the core values of the variables are non-stationary and first-order differencing is stationary.

Table 1
DF and AD F test results for all variables at 95%.

first-order differencing				core values				variables
Without process		With process		Without process		With process		
ADF	DF	ADF	DF	ADF	DF	ADF	DF	
-3.9	-5.5	-4.28	-5.9	-2.14	-2.56	-1.2	-1.29	LV
3.02	-4.02	-3.2	4.28	0.57	-1.53	-2.17	-2.12	LER
-3.63	-5.19	-3.55	5.08	0.22	0.69	-1.65	-1.69	LNm
-2.49	-4.60	-2.46	-4.54	0.34	0.21	-1.15	-1.12	LPC
3.28	-5.17	-3.34	-5.34	0.99	1.59	2.75	-2.85	LDE
-3.19	-4.85	-3.68	-5.43	1.74	-2.3	-1.41	-1.10	Lva
-3.89	-5.41	-3.95	-5.52	1.01	-1.005	0.97	-1.01	LLi
-7.31	6.35	-7.33	-6.29	-2.71	-2.59	-3.5	-3.3	INR
6.93	-10.37	-7.02	-10.36	-0.38	0.22	-3.17	-3	Ly

Critical value
With process, -3.55
Without process, -2.95

3.2. The test co integration

This test has been made to determine the co integration relationship between the velocity of money and its Determinants. The results of this test, in the significance level of 0.05% and presence of 8 co integration vectors has been approved.

Table 2
Johannes maximum likelihood procedure counteraction LR test based on trace the stochastic matrix.

Hypothesis	options	Statistics	Critical value of 95%
0 = $r >$	1 = $r >$	499.41	202.92
1 = $r >$	2 = $r >$	270.71	165.57
2 = $r >$	3 = $r >$	279.91	131.7
3 = $r >$	4 = $r >$	231.28	102.13
4 = $r >$	5 = $r >$	98	76
5 = $r >$	6 = $r >$	70.22	53.11
6 = $r >$	7 = $r >$	42.17	34.91
7 = $r >$	8 = $r >$	25.57	19.96
8 = $r >$	9 = $r >$	7.81	9.24

3.3. Cointegration technique

Using the co integration method, long-term relationship between the velocities of money' variable and its affecting factors are estimated as follows.

3.3.1. Interpretation of co integration method results

The results of the co integration method indicate that,

In the long term, a 1% increase in the exchange rate, inflation rate, national income and quasi-money increase the velocity of money to the extent of 0.18%, 0.15%, 0.77%, 0.59%.

It was also observed that the national income and sub-funds have a significant impact on the velocity of money.

Table 3

The cointegration model results.

LV	LPC	LRE	LDE	LY	INR	LNLM	LLi	D	The width of the source
-1	-0.28	0.18	-0.25	0.77	0.15	0.59	0.65	-0.37	-1.08

On the other hand 1% increase in private sector deposits and the money in the hands of individuals has reduced the speed of velocity of money as much as 0.28% and 0.25%.

3.4. Error correction model

The general form of the error correction model used in this study is,

$$DL_v = \alpha_1 DL_{pc} + \alpha_2 DLRE(1) + \alpha_3 DLDE(1) + \alpha_4 DLY + \alpha_5 DINR + \alpha_6 DLNM + \alpha_7 DKva + \lambda u(1) + \alpha_8 D + A$$

Where the variables are,

DLV, first order difference of the velocity of money logarithm.

DLPC (-1), first order difference money in the hands of individual’s logarithm.

DLRE (-1) first order difference of the exchange rate logarithm with a flashback.

DLDE (-1) first order difference of non-governmental sector deposits logarithm with a flashback.

DLY (-1) first order difference of national income logarithm, with a flashback,

DLNM (-1), first order difference of the money increased liquidity logarithm with a flashback

DINR (-1), first order difference of the inflation rate logarithm with flashback

DLVa (-1) first order difference of remaining facilities to the private sector logarithm with a flashback.

D, Dummy variable.

U (-1), Disruption of a long-term model with a lag time

A, constant value,

Table 4

The Results of the Estimated Error Correction Model.

Variable	Coefficient	Deviation from the mean	Statistic t (probability level)
DLY (-1)	0.17	0.03	[000] 4.58
DLNM (-1)	-0.218	0.11] 0.06 [-1.88
DLDE (-1)	-0.13	0.1] 0.32 [0.99
DLva (-1)	-0.25	0.11] 0.05 [-1.95
DLRE (-1)	0.45	0.085] 000 [4.16
DLpc (-1)	0.15	0.089] [0.09 1.70
DINR (-1)	0.002	0.001] 24 [1.17
U(-1)	-0.45	0.0718] 000 [-4.94
D	-0.09	0.02] 0.002 [-3.41

R. Squared , 64%

Adj R Squared , 55%

2.5 , Durbin – Watson

] 000 [6.9 , F.Statis tic

[0.002] 2.91 Serial Correlation ,

3.4.1. Interpreting the results of error correction model

1-Increase in national income, exchange rates, inflation rates and currency in the hands of individuals with a flashback increases the velocity of money in short term .

2- The increase in quasi money remained facilities to private sector, deposits with a flashback, also reduces the velocity of money .

3-The coefficient of the short term variable hysteresis with a latency period suggests that 35% of adverse shocks incurred in the course of the each period are adjusted by the system itself.

4. Conclusions

In this study we examined the velocity of money in the period 1340 - 1389 through an econometric model.

The results show that the national income, the increased liquidity coefficient, significantly affects the velocity of money in long term. Also, exchange rates and inflation rate also has a positive effect on the velocity of money .

Finding a significant behavioral pattern for this variable, enables policy maker to predict the optimal size of the money supply to achieve a certain level of inflation. On the other hand the money in the hands of individuals, private sector deposits has a negative impact on the velocity of money

References

- Benk, S., Gillman, M., Kejak, M., 2008. Money Velocity in an Endogenous Growth Business Cycle with Credit Shocks. *J. Money. Credit Bank.*, 40(6), 1281–1293.
- Bordo, M.D., Jonung, L., 1990. The Long-run Behavior of Velocity, The Institutional Approach Revisited. *J. Pol. Model.*, 12(2), 165-197.
- Bordo, M.D., Jonung, L., 1981. the Long Run Behavior of the of the Income Velocity of Money Five Adv. Countr., 1870-1975, An
- Bordo, M.D., Jonung, L., Siklos, P., 1997. Institutional Change and the Velocity of Money, A Century of Evidence. *Econom. Inqu.*, 35(4), 710-724.
- Faig, M., Jerez, B., 2005. Precautionary Balance and the Velocity of Circulation of Money. University of Toronto. Dep. Econom. Work. papers Ser. data maint. RePEc Maint.
- Jonung, L., 1983. Monetization and the Behavior of Velocity in Sweden, 1871-1913. *Explorat. Econom. Hist.*, 20(4), 418-439.
- Johansen, S., 1988. Statistical Analysis Cointegration Vectors *J. Econom. Dynam. Control.*, Vol.12, 231-254.
- Kim, H.C., Subramanian., 2009. Velocity of Money and Inflation Dynamics, *Appl. Econom. Lett.*, 16(18), 1777-1781.