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Investigating the Effects of Islamic Banking Contracts on Economic Growth of Iran

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ABSTRACT

This paper has aimed to investigate the effects of Islamic banking loans thereby different contracts which are permitted by sharia on GDP of Iran during (2000 to 2010) with seasonal data. In this research for estimating the function of long run relation, we use ARDL[1] and VAR[2] approach .Result in the former case reveals that there is a meaningful and positive effect of contracts on GDP. It also shows that the Qard Hasan (beneficence loans) elasticity of GDP is significantly different from other contracts. As in long run Qard Hasanhas the most effect on GDP afterward participating contracts and direct investment (financing) and finally trading contracts has the least effect on GDP.While in the latter case results show that the impacts of a permanent shock to the growth rate of loans on economic growth are or so positive for all contracts. And that shock will be wasted after ten periods (seasons). The impact of structural shock to the loan on liquidity is positive but decreasing. According to the results we can declare that an increment in participating contracts and Qard Hasan would enhance the GDP and influence it positively. If we decrease the dependency of trading contracts and increase the participating contracts and Qard Hasan, economic growth won't necessarily decrease.

Keywords: Islamic baking; GDP; Islamic contracts; ARDL and VAR Approach

JEL Classification: E23, P24, E42

1. INTRODUCTION

Nowadays we cannot imagine the process of economic growth with no heed to banking development. With this persistent progression; banks are after the optimized profit. In conventional banking system, management should charge more interest rate to deposits in order to attract and increase the banking resource. While this increment is compensated by loans lent thereby more interest rate. In this way we can profess that the above banking system doesn't serve the real investment and actual sector of economics.

On the other hand, the Islamic banking system criterions reveal that loans through the supernumerary contracts (between bank and costumers) help the real investment. Because these criterions emphasize on contracts don't yield debt but they bring about the wage for Islamic banks. Moreover, it can be seen in the practical pattern that how stimulus such as

[1]Auto-regressive Distributed lags
[2]Vector Auto-regressive

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enhance of efficiency or reduce of liquidity loss risk and finally decrease of bankruptcy risk leads to persuade people to use Islamic banking services. As the result of this persuasion real investment stimulus change and this optimized banking resources allocation produces a new form of utility function and finally enhancement of economic growth.

This paper has aimed to response these questions, first identifying the long relation between Islamic banking loans and economic growth, then investigating fluctuation share of Islamic banking loans to justify fluctuation of economic growth and finally testing the effects of a permanent shock to loans on economic growth. For responding, we used ARDL and VAR approach. In the second part of this paper, we briefly review the literature. The econometric methodology is discussed in the third part. Section four reveals empirical results. Finally part five concludes the paper.

2. LITERATURE REVIEW

Abduh and Azimi Omar, 2012, studied the short and long run relevance between Islamic banking and economic development through Co-integration and ECM models in Indonesia (2003-2010). They concluded there is a meaningful long run relation between Islamic banking system and economic development. Furqani and Mulyany, 2009, studied the dynamic contrast between Islamic banking and economic growth in Malaysia through ECM model (1977-2005). The results reveal there is a mutual Granger casualty between fixed capital and Islamic banking boom. But then in the long run there is two-way relevance between fixed capital and Islamic banking and economic growth. Spears, 1991, showed that embryonic stages of bank system and financial intermediary enhancement in African countries cause the economic growth. Monge Naranjo & Hall, 2003, investigated how companies in Costa Rica get to bank loans. They use Logit and Probit model .Finally with four equationsthey show that the access of bank credit and loans has a positive effect on employment and performance of those companies.

3. RESEARCH METHODOLOGY

This paper purposes to pursue the impacts of Islamic banking contracts on economic growth. So we choose relevant variables on economic growth along with loans according to theoretical foundations. We use gross domestic production as sign and index for economic growth and some independent variables such as Islamic contracts and also two controlling variables to estimate long term and ECM result through ARDL. To gain Impulse Response and Variance Decomposition function we use VAR method.

3. 1. ARLD Approach

The spurious regression is for the sake of no stationary variables. In this situation, we must use methods which lead us to estimate accurate pattern.one of the best method consider the short dynamic reaction between variables (The Engle-Granger's method, 1987, suffer from lack of this feature) and doesn't have bias in estimation is ARDL.

3. 2. Bound Testing for Co-integrating

If we want to investigate and take for grant to long term relevance between variables, we must estimate model like 1-1 and use F-statistics calculated by Pesaran et al, 2001 .But the distribution of this relation is not standard.

$$\Delta LOG(GDP)_t = \mu_0 + \sum_{i=1}^{p} \lambda_i \Delta LOG(GDP)_{t-i} + \sum_{i=1}^{p} \varphi_i \Delta LOG(LIQ)_{t-i} + \sum_{i=1}^{p} \eta_i \Delta LOG(Inch)_{t-i} + \sum_{i=1}^{p} \psi_i \Delta LOG(participating)_{t-i} + \sum_{i=1}^{p} \theta_i \Delta LOG(GHARZ)_{t-i} + \sum_{i=1}^{p} \Phi_i \Delta LOG(Direct\ Inv)_{t-i} + \sum_{i=1}^{p} \beta_i \Delta LOG(TAX)_{t-i} + \phi_1 LOG(GDP)_{t-1} + \phi_2 LOG(LIQ)_{t-1} + \phi_3 LOG(Inch)_{t-1} + \phi_4 LOG(participating)_{t-1} + \phi_5 LOG(GHARZ)_{t-1} + \phi_6 LOG(Direct\ Inv)_{t-1} + \phi_7 LOG(TAX)_{t-1} + \varepsilon_t \qquad 1-1$$

The null and aforesaid hypothesis will be as follows:

$H_0 = \emptyset_1 = \emptyset_2 = \emptyset_3 = \emptyset_4 = \emptyset_5 = \emptyset_6 = \emptyset_7 = 0$

$H_1 = \emptyset_1 \neq 0, \emptyset_2 \neq 0, \emptyset_3 \neq 0, \neq \emptyset_4 \neq 0, \emptyset_5 \neq 0, \emptyset_6 \neq 0, \emptyset_7 \neq 0$

The calculated critical levels have two bottom and upper limits. If F statistics goes higher than the upper limit H_1 (aforesaid hypothesis) asserts long term relation, will be accepted.

4. EMPIRICAL RESULTS

4. 1. Unit root test

First of all, is to grant that all variables would become integrate by one differentiation (I (1)). So we use Augmented Dickey Fuller test.

Table 1. Unit Root Test.

Variables	Calculated ADF Level	Prob	Calculated ADF First Difference	Prob
LOG(GDP)	-2.214555	0.46	-12.18628	0.00
LOG(LIQUIDITY)	-1.973993	0.59	-4.103272	0.01
LOG(TRADING)	-0.502141	0.97	-5.593298	0.00

LOG(PARTICIPATING)	-2.100842	0.53	-4.280898	0.00
LOG(QARD HASAN)	-2.350133	0.39	-3.528467	0.04
LOG(DIRECT INVESTMENT)	-2.899099	0.17	-7.417997	0.00
LOG(TAX REVENUE)	-0.499713	0.97	-9.789470	0.00

4. 2. Co-integration Test

Table 1 reveals that all variables become (I (1)). Ipso fact we can use Pesaran et al F test. According to the result of co-integration test (with intercept and no trend) shown by Table 2, the calculated F is bigger than critical levels calculated by Pesaran. So H_0 is rejected and long run relevance is accepted.

Table 2. F-Statistics Co-integration Test for Level Relationship.

Calculated F-statistics	Level 97.5 %		Level 99 %	
6.02	I(0)	I(1)	I(0)	I(1)
	2.82	4.06	3.26	4.54

4. 3. Estimating of coefficient

The pattern investigates the impacts of Islamic banking loans on GDP will be as follows:

a) Long run relation:

$(GDP)_t = a_0 + a_1LOG(Liquidity)_t + a_2LOG(Trading)_t + a_3LOG(participation)_t + a_4LOG(QARD\ HASAN)_t + a_5LOG(Direct\ Investment)_t + a_6LOG(Tax\ Income)_t + \varepsilon_t$

b) Error Correction Model (ECM):

$$\Delta LOG(GDSP)_t = \mu + \sum_{i=1}^{p} \lambda_i \Delta LOG(GDP)_{t-i} + \sum_{i=1}^{p} \alpha_i \Delta LOG(Trade)_{t-i} + \sum_{i=1}^{p} \psi_i \Delta LOG(participation)_{t-i} + \sum_{i=1}^{p} \beta_i \Delta LOG(\text{QARD HASAN})_{t-i} + \sum_{i=1}^{p} \gamma_i \Delta LOG(DIRECT\ INV)_{t-i} + \sum_{i=1}^{p} \eta_i \Delta LOG(LIQ)_{t-i} + \sum_{i=0}^{n} \theta_i \Delta LOG(TAX)_{t-i} + \varepsilon_t$$

Table 3 shows succinctly that all Islamic banking contracts elasticity is positive in long run so that the Qard Hasan elasticity of GDP is significantly different from other contracts .As in long run Qard Hasan has the most effect on GDP afterward participating contracts and direct investment and finally trading contracts has the least effect on GDP. Moreover according to ECM results, we can proclaimthat economic growth is influenced by growth of contracts (first difference of variables). It means effects of loans on GDP don't rely on merely current period of contracts.[3]

Table 3. ARDL results (4, 2, 4, 4, 3, 4, 4).

LONG RUN Coefficient, Dependent Variable: Log(GDP)			ECM RESULTS		
Variables	Coefficient	T-Value	Variables	Coefficient	T-Value
LOG(Liquidity)	-0.99891	-2.3493	DLQARD HASAN[4]	0.64123	2.9571
LOG(Tax)	0.34366	2.1987	DLQARD HASAN1	-0.72791	-2.4218
LOG(Trading)	0.15424	2.1941	DLtrading 1[5]	0.48397	2.5930
LOG(participating)	0.31895	2.3296	DLparticipating 1	-1.1087	-3.3788
LOG(Direct Inv)	0.30762	2.6412	DLparticipating 2	-0.41648	-2.1048
LOG(QARD HASAN)	0.62311	4.7639	DLparticipating 3	-0.76045	-3.9090
Intercept	8.1701	5.1400	DL Direct Inv 1	-0.29446	-3.0199
Diagnostic Test			DL Direct Inv 2	-0.22910	-2.5556
			DLLiq	0.54866	0.63791
R-Squared	99%		DLTax	0.46176	4.9937
R-Bar-Squared	96%		D(Intercept)	12.6518	3.1774
F-Stat	40.81(0.000)		ECM(-1)	-1.5485	-3.6988

5. VAR APPROACH

The vector autoregression (VAR) is commonly used for forecasting systems of interrelated time series and for analyzing the dynamic impact of random disturbances on the system of variables. The main goal for estimating of this approach is to gain impulse response and variance decomposition functions (IRF and VDF). Therefore we use first difference of variables (stationary mode). First of all we must compute various criteria to select the lag order of an unrestricted VAR. Schwarz information criteria shows optimized lag is one. Before estimating, some tests must be put to the test

[3]Those variables which are not meaningful are not reported.
[4]dLGHARZ = LGHARZ-LGHARZ(-1)
[5]dLtrading1 = Ltrading(-1)-Ltrading(-2)

5. 1. Pairwise Granger Causality Test

It tests whether an endogenous variable can be treated as exogenous. The table is for testing the null hypothesis that the coefficients of the lagged values in the block of equations explaining the variables are zero.

Table 4. Shows that we can reject H_0.

level of significance	Prob	Calculated statistics
95	0.02	14.8347

5. 2. VAR Stationary

The estimated VAR is stable (stationary) if all roots have modulus less than one and lie inside the unit circle. If the VAR is not stable, certain results (such as impulse response standard errors) are not valid.

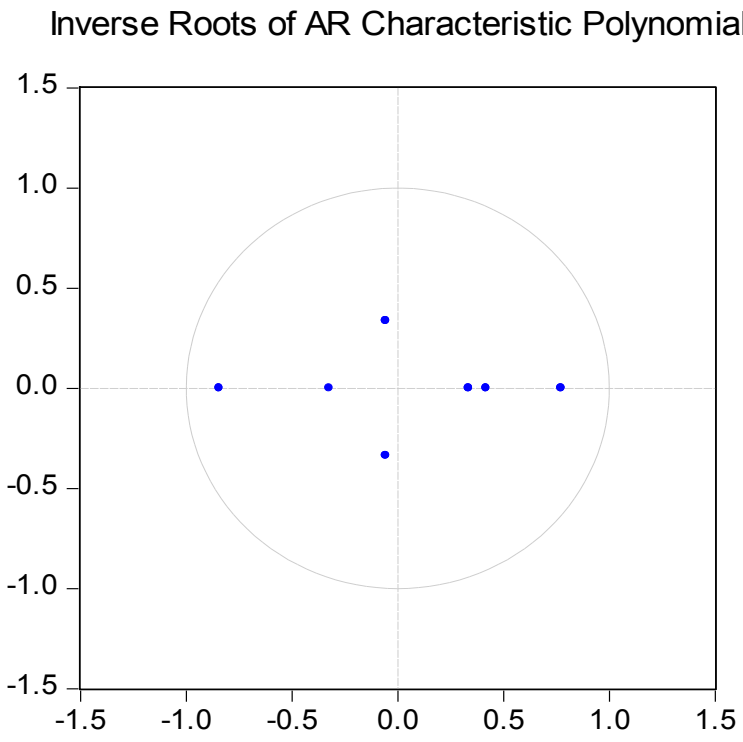


Figure 1. Shows that our VAR is stable. Now we can claim that our model is valid and reliable. So we can calculate IRF and VDF.

5. 3. Generalized Impulse Responses

A shock to the i-th variable not only directly affects the i-th variable but is also transmitted to all of the other endogenous variables through the dynamic (lag) structure of the VAR.

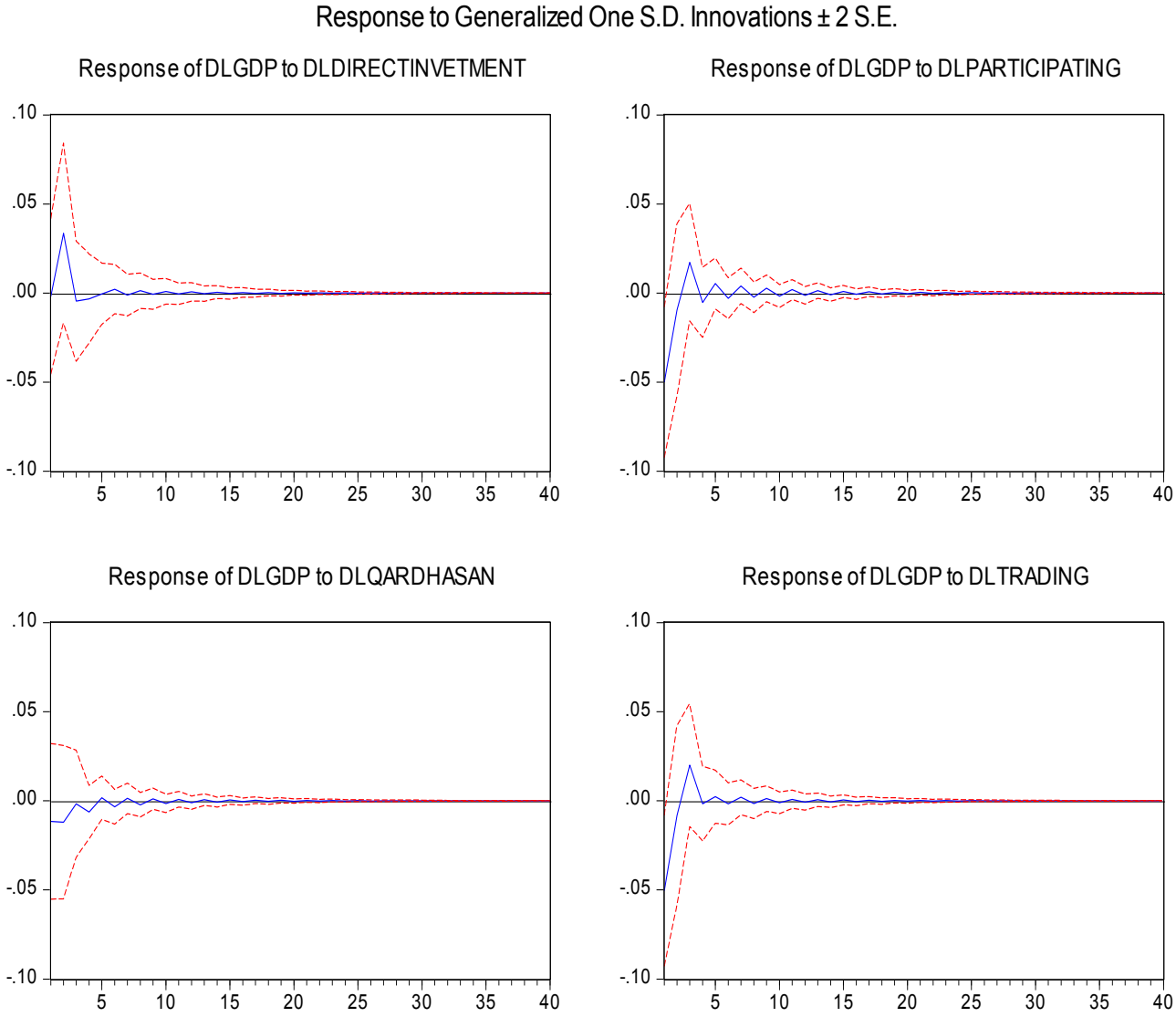


Figure 2.

An impulse response function traces the effect of a one-time shock to one of the innovations on current and future values of the endogenous variables. We set the impulses to Generalized Impulses. As described by Pesaran and Shin (1998) constructs an orthogonal set of innovations that does not depend on the VAR ordering. Figure 2 shows effects of a permanent shock to the growth rate of loans (Trade, Participating, Direct Investment and Qard Hasan) on economic growth for 40 periods.

In brief, the impulse response analysis suggests that growth of Islamic contracts have a positive and significant effect on economic growth with high persistence (about ten seasons).

Figure 3 shows effects of a permanent shock to the growth rate of loans on liquidity growth for 40 periods.

In brief, Figure 3 shows that growth of Islamic contracts has a negative and significant effect on liquidity growth especially participating contracts.

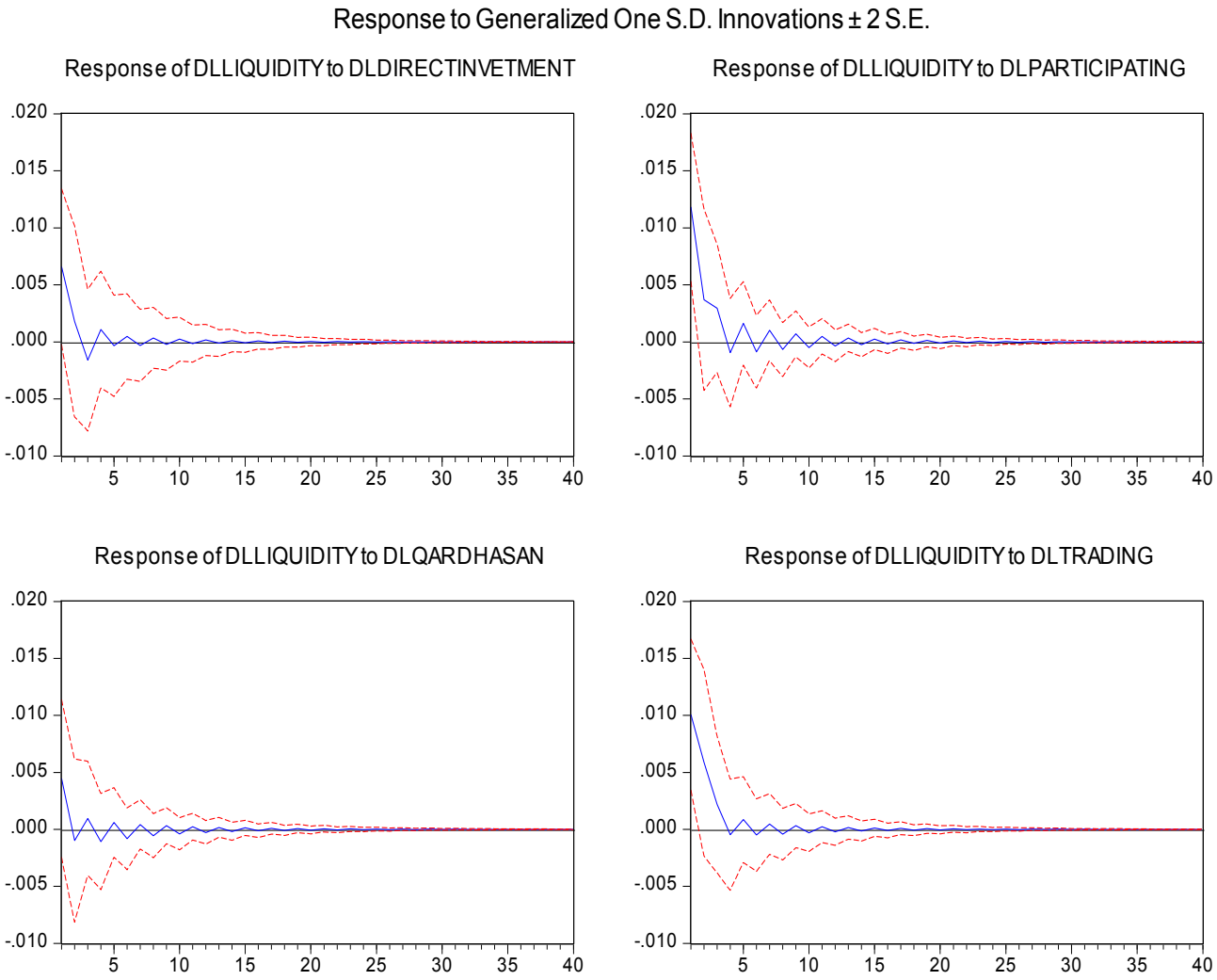


Figure 3.

5. 4. Generalized Variance Decomposition

While impulse response functions trace the impacts of a shock to one endogenous variable on to the other variables in the VAR, variance decomposition separates the variation in an endogenous variable into the component shocks to the VAR. table 5 shows the generalized variance decomposition for three years (12 seasons). It also shows 70-100 percentage of economic growth fluctuation is explained by itself. But trade and participating contracts have a prominent share of this explanation.

Table 5. Generalized Variance Decomposition Of DLOG (GDP).

HORIZON	DLGDP	DL Participating	DLQard Hasan	DLDirect Invest	DLTax	DL Liquidity	DL Trading
0	1.000	0.12534	0.0067216	0.1761E-3	0.2150E-3	0.09666	0.12720
1	0.82343	0.10696	0.0011467	0.046633	0.15890	0.07967	0.10752
2	0.76217	0.10735	0.010431	0.042789	0.20376	0.10943	0.11161
3	0.73598	0.10452	0.011493	0.041651	0.21377	0.12334	0.10774
4	0.71939	0.10311	0.011330	0.040713	0.22303	0.13005	0.10548
5	0.70803	0.10178	0.011548	0.040222	0.22997	0.13393	0.10391
6	0.69981	0.10111	0.011474	0.39793	0.23519	0.13694	0.10280
7	0.69427	0.10050	0.011552	0.039525	0.23845	0.13911	0.10206
8	0.69031	0.10015	0.011524	0.039315	0.24089	0.14056	0.10151
9	0.68758	0.099858	0.011556	0.039184	0.24251	0.14162	0.10115
10	0.68563	0.099682	0.011545	0.039081	0.24372	0.14233	0.10087
11	0.68427	0.099537	0.011558	0.039016	0.24453	0.14286	0.10069
12	0.68329	0.099448	0.011554	0.038965	0.24513	0.14322	0.10056

6. CONCLUSION

The empirical results on long term relation and ECM (through ARDL) have emphasized that the economic growth is effected by Islamic banking loans and also show that the Qard Hasanelasticity of GDP is significantly different from other contracts .As in long run Qard Hasan has the most effect on GDP afterward participating contracts and direct investment and finally trading contracts has the least effect on GDP.VAR results show that these loans has positive effect to economic growth but negative to liquidity. So it grants the strength of Islamic banking operation.It means Islamic banking has some perfect tools in order not to lose and be bankrupt. In brief it can help economy to improve. Hereby Islamic banking causes to happen HARMONY OF INTEREST.

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