

The role of Islamic banks in economic development-“An empirical study on Syria during the period 2008- 2014”

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Abstract:

This study examines the role of Islamic Banks operating in Syria in achieving economic development. This is done by studying two Islamic banks, namely Cham bank and Syria international Islamic bank, by using Vector Error Correction Model (VECM) to see whether Islamic banks influence economic development during the period 2008 to 2014. We used time series data of total investment (INV) and added value (AV) of Islamic banks as independent variables to represent Islamic banks activities and Gross Domestic Product (GDP), Gross Fixed Capital Formation (GFCF) and international Trade activities (TRADE) as dependent variables represent real economic sector and thus economic development. The results of this study indicate that, based on the outcome of VECM, there is long run effects running from total investment and added value of Islamic banks to GDP, GFCF, and TRADE, thereby Islamic banks have long term developmental role. And by using Wald test we note that Islamic banks have short run effects on GDP, and GFCF, but with no effect on TRADE, thus we can conclude that increase in Islamic banks activities will promote economic development, hence Islamic banks have a developmental role.

Key words: *Islamic Banks, economic development, GDP, GFCF, TRADE, AV, INV, VECM.*

1. Introduction:

Banking system consider one of the most important foundations for development, because any developmental process need finance and investments being pumped into the economy, and The ability of banks to attract savings of individuals and to provide funding for projects can help to develop the channels of mobilizing savings and investment financing, thus contribute to economic development (Khalil, 2004). Islamic banks as part of banking system have a distinct developmental characteristics, as they are operating in participation in the profit and loss, so they invest their funds in real projects directly (Miqdad and Hals, 2005), In addition to share the profits and losses with the clients, This policy of investment prompts Islamic banks to look for feasible and

profitable investment, These banks have the ability to increase the number of projects because their returns is linked to the projects that they have contributed to it, which leads to provide additional employment opportunities for members of the community. in addition to that, since these banks substitute dealing with interests with a various Islamic financing and investment tools, they can attract a large number of clients who refuse to deal with traditional banks for the reasons of interest, which will increase the cash inflows into the banking system. Thus as a result of Islamic banks' ability to attract new categories of individuals into the banking business, and to increase investment in the community, they must have role in the achievement of development, and that will be explained in this study.

Contribution of the study:

This study contributes in clarifying the effect of Islamic banks operating in Syrian Arab Republic in economic development by using VECM. Furthermore this study is considered the first study of its kind in Syria which addresses the developmental role of Islamic banks in Syria based on this econometric model.

2. Literature review:

The relationship between Islamic banks and economic development:

Before talking about the relationship between Islamic banks and economic development, it is necessary to identify each one of them. The American Economic development council defined economic development as "the process of creating wealth through the mobilization of human, financial, capital, physical and natural resources, to generate marketable goods and services" (Sarwer et al., 2013). (Nawal, 2005) also defined this proses "all the Organizational efforts to achieve coordination between the available physical and human capacity according to plan and within a specific social frame in order to achieve social welfare by increasing the national income level per capital income, raise the standards of living, and improve the economic life in all aspects of education, health and others". According to(hamadani 2009), This process should not be limited to a certain period of time, but it must lead to continuous improvement in the distribution of income, and raise the standard of living over a long period of time.

While Islamic banks have been defined by (Al- tamimi, 2013) as"financial institutions aimed at pooling funds and savings from all those who don't want to deal with Reba (interest), and then work to employ them in different fields of economic activities". (mhanna, et al. 2011) report that the Legislative Decree No. 35 of 2005 in Syria specialized in the creation of Islamic banks has defined these banks as" the banks which their establishment contract and statutes include to engage in banking activities permitted on the basis of non-interest bearing and tenders, According to the formulas of banking transactions that are not inconsistent with the provisions of Islamic Sharia law, whether in the field of accepting deposits, providing other banking services, or in the field of finance and investment". From the previous definitions of , it can be seen that Islamic banks focus on working within the sharia, Attract resources from various individuals, and invest deposits in various projects, which will be reflected positively on the standard of living for members of the community, and on the economy as a whole. Islamic banks employ

their funds in various short and long term financial and investment tools and the most important tools are:

1- Participation tools, which include:

Al Musharakah: it is a contract between two or more parties agreed to contribute in a particular project, and this contribution is not required to be equal. With the distribution of profits if achieved between the parties according to the agreed ratio, while in the case of loss, this loss distribute between parties according to the contribution of each one in the capital. This contract is suitable for financing long-term projects, and consider non-exploitative and equitable for all parties.

Al Mudarabah: Al Mudarabah is a contract under which the owner of the capital can develop a partnership relationship with the client (al mudareb), who has the experience of using the capital in real economic activities, with the agreement between the parties to share the profit, but in the case of loss, it is bears by the owner of Capital only, without the ability to intervene in manage the funds. (Delpachitra, 2013). This tool is suitable for financing craftsmen, professionals and small businesses.

Al muzaraah: it is a contract between two parties, one of them offers the ground, while the other party work and cultivate it. Each party gets a certain percentage agreed from what comes out of the ground. (gharbi, 2013)

Al musaqah: It is a contract where someone offers his fruit trees to another party to nurture them in return of known part from its fruit. (Nasser, 1996)

Al mugharasah: Al mugharasah is a contract between two parties, the first one is the capital owner of his land, and the other is the worker who instills his fruit trees and under his patronage. (Hussain, 2011)

2- Sales tools: these tools contain:

Al salam: It is a sales contract in which the purchases price is paid in advance when hiring, but with the postpone the delivery of purchases, whether it was goods or services, at a specified time in the future. (Iqbal, 2013)

Al Murabahah: under this contract, the bank buy a specific item, then sale it to the client in a price contains a Profit margin. The bank must own the item before sell it, and anything contrary to the agreed terms appears in the item, the bank assumes this flaw, in addition to the guarantee of the item in the case of drowning, damage and fire and theft. (Miqdad& Hals, 2005).

Istisna: is a contract between two parties for the manufacture of a particular product, the manufacturer hereby undertakes to deliver a certain output to the beneficiary (Al mustasnaa) according to the specifications that were agreed upon between the parties and at a specific date and time, and if the recipient does not require the manufacturer to make the product, the manufacturer can maker that appoint someone else to do it and then handed over to the Mstsna. (Al- rae, 2011)

3- Leasing tools: these tools include

Ijarah: It is a contract whereby the bank purchase real estate and equipment required by its client and lease them to this client for rental fees. With agreed in advance on the rent and the duration of his contract. The ownership of the assets stays to the Bank. This contract is suitable for financing fixed assets such as machinery, automobiles. (Dusuki, 2008). Islamic banks provide most of the services offered by traditional banks without interest, and seeks to make profit, but it is not their primary objective, because they have an economic and social developmental message Working on its performance by employing the funds in areas that meet the essential needs of the community members, and all aspect that contribute to the growth, stability and prosperity of society, and we can clarify this role through:

First: By depending on financing and investment tools based on participation (Al Musharakah, Al Mudarabah, Al muzaraah, Al musaqah, and other formats), this will give them high ability to pool investable funds and thus provide the necessary funding for development. As a result of the work of Islamic banks in accordance to participation, depositors in these banks, in contrast to the depositors in the conventional banks do not get a fixed return "interest", but they get profit determined by the success of the investment project which their funds are invested in it, and they may bear losses (Ahmed, 2010). This means that the income is directly linked to the results of the project, it may be high or low, and may be higher than specified interest of conventional banks, and whenever person predicted higher return, the more he stimulated to invest his funds, thus increasing savings in the banking system. And there is another point which is because Islamic banks don't deal with interest, they can attract savings of categories avoid dealing with conventional banks and thus providing the economic activity with frozen funds (AL-oqool, 1993). And the greater is the savings of these banks, the more they are able to invest by providing these funds to investors through various investment pools (Al-Mashhrawi & Ashour, 2006), thus contribute more in the development.

Second, commitment to prioritize in the employment of the funds, through which works to adjust and rationalization investment toward some essential projects not inconsistent with the provisions of Islamic law and away from all the aspects legitimately forbidden, Islamic Banks are development banks in the first place, so they must directed their funds towards the production of goods and services that benefit the community and its members.

Third, distribution the available resources to the best possible uses for the purposes of economic development: Islamic banks consider working as the main way to earn money, and not by dealing with interest (Hussain, 2011), Depending on participation in the profit and losses, which based on the distribution of the operations results between all parties involved in the contract (al- rae, 2011), therefore they do not look only to the financial solvency of the client when distributing their cash resources (Yasri, 2005), But also look at the feasibility of the project and its expected profitability. Islamic banks as a result of employing their resources in real projects by using different Islamic financing and investment tools (al- Amari, 2005), They are directly affected by the outcome of projects, which lead them to look for successful investment opportunities, and study the economic feasibility of new projects before starting out (al-rrafiei et al., 2012). So the more

financing operations carried out by Islamic banks are associated with largest rates of expected profits, the more they can lead to the effectiveness of the allocation of cash resources, and thus further contribute to the achievement of development.

Fourth, fairness distribution of national income and investable funds during the process of economic development. Since Islamic banks do not look only to the solvency of the client, but the feasibility of the project and confidence in its owner (Ahmed, 2010), they do not refrain from financing emerging enterprise if it is found they are able to achieve high returns, so all individuals have equal access to funding, which can contribute to equal distribution of funds, and better distribution of national income. From the previous description we can conclude that the Commitment to the economic and social development is a necessary condition must abide by Islamic banks during the employment of funds, and these funds must directed toward aspects that drive the development process forward, in addition, Islamic banks investment should cover all economic and social activities (agricultural, industrial, commercial and service, etc.), and distributed in all areas. Given the importance of the developmental role that Islamic banks can play, the interest of this study is to investigate how Islamic banks could effect in economic development. This would serve Cham Bank and Syria international bank to promote their performance to enhance economic development.

3. Methodology:

3.1. Study sample:

Syrian Islamic banking system contain three Islamic banks namely Cham Bank , Syria International Islamic Bank, and AL BarakaBank, but we exclude AL BarakaBank from the sample because its late start in Syrian banking sector (which is at the end of 2010), so our sample include only Cham Bank and Syria International Islamic Bank.

3.2. Variables:

This study consists of five variables two of them are independent and three dependent variables as follow:

Independent variables

Total investment of Islamic banks (INV): Total investment represent the amount of investment that pumped to economy during specified period. Increasing these investment will lead to increase the developmental roll of these banks. Added Value (AV): Added value is the contribution of economic unit that create in economy, increasing this value will stimulate economic activities to rise, thus achieve development.

These two variables represent Islamic banks activities.

Dependent variables

Gross domestic product (GDP): GDP is a common statistic for representing the income level of a particular country within a certain time range. Gross Fixed Capital Formation (GFCF): We use GFCF as a representation of investment in order to measure net new investment during an accounting period.

International Trade Activities (TRADE): international trade activities involves export and import. These three variables represent economic development.

3.3. Data analysis:

This study used quarterly time series data (from 2008:Q1 to 2014:Q4), which were obtained from the annual reports of Syrian Islamic banks, in addition to the data published by the United Nations. These data were analyzed using VECM to measure the relationship between gross domestic product (GDP), gross fixed capital formation (GFCF), and international trade activities (TRADE) as dependent variables, and total investment (INV), added value (AV) of Islamic banks as independent variables using cointegration tests, but the application of this model requires doing some tests.

stationarity test

According to (Abubakara et al. 2013) this test is very important to check the stationarity of time series, to make sure they are integrated at the same order before application of cointegration test. (Asari, 2011) argued that if series are non-stationary, the regression that will be obtained when applying Ordinary Least Squares (OLS) is a spurious regression. In this study we use Augmented Dickey Fuller test (ADF) to test the stationarity.

Co-integration test

Johansson co-integration test is used to identify the number of integrated vectors. The aim of this test is to examine the existence of long term relationships between variables (Al-Tayeb et al., 2011). According to this test, the economic variables do not diverge from each other if there is a long-term balanced relationship between them, and this divergence is corrected by economic forces restore these variables towards equilibrium level. (Allawi, 2013). And this test is a necessary condition for the application of VECM.

Vector Error Correction Model (VECM)

After making sure that time series are co-integrated, VECM can be applied. The importance of this model is through its ability to estimate short-term and long-term effects of a certain time series on another time series (Best, 2008). In other words, measuring the dynamic relationships between variables, i.e. analyzing variables behavior in the short term, which leads to long-term equilibrium (Achouch & Arbid, 2015). If the sign of error term is negative and significant, we can say there is a long term relationship between variables.

4. Results:

In this section we shall discuss the results of the unit root test, co-integration test, and VECM to measure the relationship between independent and dependent variables, Practical results were found to be as follows:

4.1. Stationarity test

This test is very important to examine the stationarity of time series, ADF test is applied, and presented in table 2. The values in the table represent (P-value), From that table it can be seen that (p-value) for all variables is more than 5% at levels which mean that all

variables have unit root, but after taking the first difference we note that (P-value) became less than 5%, which means that all series are found to be non-stationary at levels and stationary at their first difference, that is, all variables are integrated in the same order $I(1)$, based on this result one can expect that these series may be co-integrated as well.

4.2. Co-integration test

Co-integration test aim to measure the long-term relationship between Islamic banks and economic development, and it is a necessary condition for the application of VECM. After applying Johansson co-integration test, which presented in table 3. And By looking at trace test and max Eigen test value for the first and second group of series and compare it with the critical value in all hypothesis, and by looking to (P-value). We find that the trace test and max Eigen value is more than critical value, and (P-value) is less than 5%, so there are three co-integrations, while in the third group of series we can see that trace test value is more than critical value and (P-value) is more than 5% in all hypothesis, but when we compare max Eigen test value with critical value, We can reject null hypotheses in (none), but we accepted it in (at most one), so there is co-integration between variables, i.e. there is at least one co-integration between variables in the third group of series. In general, we can conclude that Islamic banks influence economic development by increasing GDP, GFCF, and TRADE. Consequently, since there are co-integration between Islamic banks activities and GDP, GFCF, and TRADE, we can proceed with VECM.

4.3. Applying Vector Error Correction Model (VECM)

This econometric model is used to measure the effects of independent variables (INV) and (AV), on dependent variable (GDP), (GFCF) and (TRADE). The sign of error term must be negative and significant so that we can say there is a long-term relationship between variables, because error term process will have the opposite direction and distance itself from the long-term equilibrium relationship in the absence of verification negative condition (Achouch & Arbid, 2015). We applied this test for each dependent variables, as following:

Applying VECM on GDP as dependent variable

Table 4 present the outcome of applying VECM on GDP, from that table it can be seen that error correction term which is represented in $C(1)$ is negative and significant. So the correction of the GDP variable which resulted from the deviation from the equilibrium value due to the fluctuations in the independent variables (investment, added value) of Islamic banks adjusted in the long period of time. This implies that Islamic banks have a long term effect on GDP. As growing of Islamic banks activities will increase investments which lead to more demand for labor, more job Opportunities, rise the standard of living of people, increase the demand for goods and services, promote productivity, and eventually contribute in economic development. In order to measure short-term effects of independent variables on the dependent variable we conducted Wald test in table 5 and conclude that (P-value) for independent variables is less than 5%, therefore we can reject

the null hypothesis, i.e. there is a short-term relationship running from AV and INV of Islamic banks, to GDP.

Applying VECM on GFCF as dependent variable

Table 6 present the outcome of applying VECM on GFCF, from that table it can be seen that error correction term is negative and significant. This indicate that added value and total investment of Islamic banks have long term effect on gross fixed capital formation, as increase in Islamic banks investment and added value stimulate an entrepreneurial response in the productive sector and promote more investment. To measure the short-term effect of independent variables on the dependent variable, we conducted Wald test in table 7 and conclude that since (P-value) is less than 5%, we can reject the null hypothesis, i.e. AV and INV of Islamic banks have short term effect on GFCF.

Applying VECM on TRADE as dependent variable

After applying VECM on TRADE as in table 8, we can see that Error correction term is negative and significant, which indicate that added value and total investment of Islamic banks have long term effect on trade activities. To examine the short term effect, we used Wald test, table 9 show the result of Wald test, from that table we can see that (P- value) is more than 5% for both variables, so we accept the null hypotheses, i.e. INV and AV of Islamic banks don't have short term effect on TRADE.

5. Conclusion

This study investigated the effect of Islamic banks operating in Syria in economic development during the period from 2008 to 2014 using VECM, the empirical results indicate that Islamic banks play a developmental role in long term, based on VECM, added value and total investments have long term effect on gross domestic product (GDP), gross fixed capital formation (GFCF), And trade activities (TRADE), because the error term is negative and significant, and This is an expected result because any rise in the total investment and added value of Islamic banks will lead to increase and promote investment in the community, and therefore enhance (GFCF) in addition to enlarge goods and services which have a positive impact on (GDP). Expanding in the production of goods will lead to grow in exports, which in turn will promote trade activities (TRADE). In addition to this long term effect, according to "Wald test", total investment and added value have short term effect on (GDP), and (GFCF), But this test did not refer to any influence of Islamic banks on trade activities in the short term, this, we suspect, might be due to the fact that most of Islamic banks investments are local, in addition the negative impact of the crisis which led to obstruct the work of banks outside Syria because of external constraints imposed by outside parties, in addition to lack of necessary experience of Islamic banks (they started working in Syria from 2008).

Although we find that Syrian Islamic banks play a developmental role, But this role is limited because most of Islamic banks working in Syria invest their funds in "Murabahah", banking services and deposits in other banks, so these investments have not been in the areas of serving the development process (financing or investment),

but in the form of deposits and banking services (changing currencies, for example), and despite the importance of these investments, but they do not contribute to the development process, and don't lead to the creation of new projects, neither growing in the gross domestic product nor creating jobs, in addition to that, these banks did not rely on medium and long-term investment tools such as "Mudarabah" or "Musharakah" which play a developmental role because they lead to increase projects and reduce dealing on interest (the main reason of inflation). Although Islamic banks employ the funds in "Istisna" and "Ijara muntahia bi tamliki", but these investments marginal and limited to Syria International Islamic Bank.

6. Recommendation

- Educate members of the community on Islamic banking and what distinguishes it from conventional banks in order to attract individuals who do not want to deal with interest, which will increase the resources of Islamic banks and thus their opportunity to invest the money.
- Focusing on medium and long-term financing tools such as "mudarabah" and "musharakah", because these tools work on attract savings from individuals and employ them in real investment, which has a positive impact on productivity, prices, quality of products on the market, jobs and the economy as a whole, and these tools also encourage to achieve social solidarity. Syrian Islamic banking role in the development can be greater through the investment of funds in such tools, and not only on "Murabaha", which cannot achieve the desired developmental results, or may not lead to the development, as in the case of Syria International Islamic Bank.
- Increase employing the funds in investment and financing tools based on sales such as "salam" "Istisna" and "Murabahah", with diversification in these investments, in addition to invest in various companies in order to increase the total investments, thereby increasing the impact on development, and on the other hand, increasing the investments in profitable projects could lead to increase the profits of depositors, shareholders and other areas that are affected by added value (such as increased ability to raise wages) for these banks, which increase their impact on development.
- The need for qualified administrative staff to manage liquidity, because these banks suffer from poor liquidity management with a focus on the employment of graduates of Finance because they are best placed to understand the Islamic banking business.

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Table1:investment tools used by Syrian Islamic banks

Year	2008	2009	2010	2011	2012	2013	2014	average
Al Mudarabah	0	0	0	0	0	0	0	
Al Murabahah	15,228.5	23,356.1	45,565.9	37,357	34,693	34,141.4	43,516	
Al Musharakah	0	0	0	0	0	0	0	
Istisna	96.8	66.48	119.26	113.18	110.72	35.55	21.01	
Ijara muntahia bi tamliki	4.59	35.52	395.88	383.03	357.05	315.64	269.69	
other tools	0	0	0	0	0	0	0	
total investment tools	15329.85	23458.13	46081.01	37853.61	35160.77	34492.59	43806.72	
the ratio of murabahah to total investment tools	99.34%	99.57%	98.88%	98.69%	98.67%	98.98%	99.34%	99.07%
the ratio of istisna to total investment tools	0.63%	0.28%	0.26%	0.30%	0.31%	0.10%	0.05%	0.28%
the ratio of Ijara muntahia bi tamliki to total investment tools	0.03%	0.15%	0.86%	1.01%	1.02%	0.92%	0.62%	0.66%

Table2: results of unit root test (p- value)

Variables	ADF TEST	
	At levels	At first difference
GDP	0.99	0.02
INV	0.14	0.0007
AV	0.31	0.02
GFCF	0.06	0.0005
TRADE	0.1	0.0001

Table3: Co-integration test

First group of Series: GDP INV AV						
Hypothesized No. of CE(s)	Trace statistic	5% Critical Value	Prob.	Max-Eigen Statistic	5% Critical Value	Prob.
None	71.7821	29.79707	0.000	38.28396	21.13162	0.0001
At most 1	33.49815	15.49471	0.000	25.1311	14.2646	0.0007
At most 2	8.367049	3.841466	0.0038	8.367049	3.841466	0.0038
Trace test & Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level						
Second group of Series: GFCF INV AV						
Hypothesized No. of CE(s)	Trace statistic	5% Critical Value	Prob.	Max-Eigen Statistic	5% Critical Value	Prob.
None	83.70705	29.79707	0.000	54.41556	21.13162	0.00
At most 1	29.29148	15.49471	0.000	23.75272	14.2646	0.0012
At most 2	5.538765	3.841466	0.0186	5.538765	3.841466	0.0186
Trace test & Max-eigenvalue test indicates 3 cointegrating eqn(s) at the 0.05 level						
Third group of Series: TRADE INV AV						
Hypothesized No. of CE(s)	Trace statistic	5% Critical Value	Prob.	Max-Eigen Statistic	5% Critical Value	Prob.
None	55.07943	29.79707	0.000	35.61255	21.13162	0.00
At most 1	19.46689	15.49471	0.012	13.68224	14.2646	0.0616
At most 2	5.784643	3.841466	0.0162	5.784643	3.841466	0.0162
Trace test & Max-eigenvalue test indicates at least 1 cointegrating eqn(s) at the 0.05 level						

Table 4: VECM results- GDP dependent variable

Vector Error Correction Estimates Dependent Variable: D(GDP) Method: Least Squares $D(GDP) = C(1)*(GDP(-1) - 208.819826428*INV(-1) + 826.826468799*AV(-1) + 949030.234029*@TREND(08Q1) - 2317030.55836) + C(2)*D(GDP(-1)) + C(3)*D(GDP(-2)) + C(4)*D(INV(-1)) + C(5)*D(INV(-2)) + C(6)*D(AV(-1)) + C(7)*D(AV(-2)) + C(8)$					
Error Correction:		Coefficient	Std. Error	t-Statistic	Prob.
CointEq1	C(1)	-0.001855	0.00025	-7.41115	0.0000
D(GDP (-1))	C(2)	1.607244	0.050244	31.98896	0.0000
D(GDP (-2))	C(3)	-0.700872	0.04691	-14.9407	0.0000
D(INV (-1))	C(4)	-0.215676	0.040995	-5.26109	0.0001
D(INV (-2))	C(5)	-0.143373	0.032821	-4.36829	0.0004
D(AV(-1))	C(6)	0.700698	0.186662	3.753829	0.0016
D(AV(-2))	C(7)	0.734891	0.177854	4.131988	0.0007
	C(8)	-817.6833	402.4466	-2.03178	0.0581
Durbin-Watson stat 1.92998 Log likelihood -215.1 R-squared 0.999328 Adjusted R-squared 0.999051					

Table 5: Short run causality test- GDP dependent variable.

Wald test			
	null hypothesis		p-value
INV	C(5)=C(6)=C(7)=0	Chi-square	0.000
AV	C(8)=C(9)=C(10)=0	Chi-square	0.000

Table 6: VECM results- GFCF dependent variable.

Vector Error Correction Estimates Dependent Variable: D(GFCF) Method: Least Squares $D(GFCF) = C(1)*(GFCF(-1) + 16.9761456281*INV(-1) - 197.108441505*AV(-1) - 640769.783077) + C(2)*D(GFCF(-1)) + C(3)*D(GFCF(-2)) + C(4)*D(INV(-1)) + C(5)*D(INV(-2)) + C(6)*D(AV(-1)) + C(7)*D(AV(-2))$					
Error Correction:		Coefficient	Std. Error	t-Statistic	Prob.
CointEq1	C(1)	-0.001692	0.00029	-5.84166	0.0000
D(GFCF(-1))	C(2)	1.998548	0.029766	67.1422	0.0000
D(GFCF(-2))	C(3)	-1.090264	0.031622	-34.4784	0.0000
D(INV (-1))	C(4)	0.017066	0.007498	2.275991	0.0353
D(INV (-2))	C(5)	0.018488	0.007305	2.53093	0.0209
D(AV(-1))	C(6)	-0.200562	0.065006	-3.08529	0.0064
D(AV(-2))	C(7)	-0.110522	0.06373	-1.73422	0.1000
Durbin-Watson stat 1.8105 R-squared 0.999042 Log likelihood -188.2 Adjusted R-squared 0.998723					

Table 7: Short run causality test- GFCF dependent variable

Wald test			
	null hypothesis		p-value
INV	C(4)=C(5)= 0	Chi-square	0.008
AV	C(6)=C(7)= 0	Chi-square	0.007

Table 8: VECM results- TRADE dependent variable

Vector Error Correction Estimates Dependent Variable: D(TRADE) Method: Least Squares $D(TRADE) = C(1)*(TRADE(-1) - 268.265260613*INV(-1) + 7813.18813735*AV(-1)) + C(2)*D(TRADE(-1)) + C(3)*D(TRADE(-2)) + C(4)*D(TRADE(-3)) + C(5)*D(INV(-1)) + C(6)*D(INV(-2)) + C(7)*D(INV(-3)) + C(8)*D(AV(-1)) + C(9)*D(AV(-2)) + C(10)*D(AV(-3))$					
Error Correction:		Coefficient	Std. Error	t-Statistic	Prob.
CointEq1	C(1)	-0.000429	0.000195	-2.20206	0.0449
D(TRADE(-1))	C(2)	2.246857	0.181375	12.38789	0.0000
D(TRADE(-2))	C(3)	-1.941378	0.305419	-6.35644	0.0000
D(TRADE(-3))	C(4)	0.605895	0.169379	3.577153	0.0030
D(INV (-1))	C(5)	-0.098088	0.11256	-0.87143	0.3982
D(INV (-2))	C(6)	-0.007117	0.088979	-0.07998	0.9374
(INV (-3))	C(7)	0.015238	0.099251	0.153532	0.8802
D(AV(-1))	C(8)	2.326714	1.476013	1.576351	0.1373
D(AV(-2))	C(9)	1.586825	1.101441	1.440681	0.1717
D(AV(-3))	C(10)	1.123362	0.999697	1.123702	0.2800
Durbin-Watson stat	2.08642		R-squared	0.991791	
Log likelihood	-236.4		Adjusted R-squared	0.986513	

Table 9: Short run causality test

Wald test			
	null hypothesis		p-value
INV	C(5)=C(6)=C(7)= 0	Chi-square	0.7
AV	C(8)=C(9)=C(10)= 0	Chi-square	0.45