

Relevance of Islamic Banking System to India in Light of its Effectiveness in Bringing Long Run Causality between Agricultural Credit and Agriculture Gross Value Added in Case of Islamic Banking Countries

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Abstract - India holds world's second rank in the agricultural sector and provides employment to 48.9% of Indian workforce. On the other hand, on an average one farmer committed suicide for every 53 minutes in India between 1997 and 2008. National Crime Records Bureau reported that 2, 474 farmers who have committed suicides out of the studied 3,000 farmer suicides in 2015, have the unpaid loans. MS Swaminathan, the father of green revolution in India, recommended Islamic Banking and Finance (IBF) products to stop farmers' suicides in India. Whether or not, IBF is effective than conventional banking in agriculture sector in bringing long run causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) is the research question of this paper. To test it, three countries are selected viz. India, Pakistan and Iran, of which the first one is based on conventional banking system and the remaining two operate on IBF principles. Two variables i.e. CTA and AGVA in terms of local currency units in millions are selected from the database of UNFAO. They are converted into real values by using a deflator, and then transformed into log, and then Granger causality test is performed. The results evidenced that there is no ganger causality from LRCTA to LRAGVA in case of India whereas causality is found in case of the sample IBF countries i.e. Pakistan and Iran. Hence, it is concluded that Islamic banking and finance is relevant to India in bringing long run causality between LRCTA and LRAGVA.

Key Words: Agricultural Credit, Agricultural Gross Value Added, Granger Causality Test, Islamic Banking, Relevance to India

I. INTRODUCTION

Islamic banking system can be simply described as an En banking system that adheres to the principles of Shariah i.e. the Islamic law. In other words, it can be viewed as a financial system which identifies itself with the spirit of shariah as laid down by the holy Qur'an and Sunnah as regard to its objectives, principles, practices and operations[1]. Islamic banking though has origin from the era of Prophet Mohammad (peace be upon him), evolved as a formal banking system since 1970s. In its modern journey of over 40 years, it has spread to over 75 countries worldwide, about 40% of which are non-Muslim countries. Besides Arab countries, modern, secular and industrialized countries like Britain, Singapore, Japan and Hong Kong have already become hub for Islamic banking and finance. HSBC, Citi Bank etc. have started separate branches that offer Islamic financial products [2].

II. BACKGROUND OF THE PAPER

Indian economy is one of the most happening economies of the world. With the consistent efforts of the successive governments, it is on its way to become an economic super power in the world. India holds world's second rank in the agricultural sector [3]. It provides employment to 48.9% of Indian workforce [4]. India is the world's largest producer of milk, pulses and jute, and ranks as the second largest producer of rice, wheat, sugarcane, groundnut, vegetables, fruit and cotton. It is also one of the leading producers of spices, fish, poultry, livestock and plantation crops. Worth \$ 2.1 trillion, India is the world's third largest economy after the US and China [5]. Paradoxically, there is a continuous growth in the suicides of the farmers in India. The number of farmers who have committed suicide since 1997 to 2008 at all India level was 1, 99, 132. On an average one farmer committed suicide for every 53 minutes in India. National Crime Records Bureau estimated that not less than 2,00,000 farmers committed suicide between the above said period [6]. In a reply to Supreme Court of India, the Indian government said that over 12,000 farmers committed suicide every year since 2013. Monsoon failure, climate change, high debt burdens, government policies, mental health, personal issues and family problems etc. are the reasons for farmers' suicides



in India. National Crime Records Bureau reported that 2,474 farmers who have committed suicides in 2015 out of the studied 3,000 suicide farmers have unpaid loans taken from banks [7]. This is clear enough for drawing the correlation between suicides and unpaid loans. Dr. MS Swaminathan, the father of green revolution in India, recommended Islamic banking to solve this crisis [8]. Further, the government is advancing billions of rupees to agriculture in the form of credit to increase its agriculture gross value added in GDP. In the year 2018 alone, credit to agriculture is estimated at Rs. 87, 669, 726 millions [9]. Now the research question is that whether or not, there is any correlation in general and causation in particular between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of India. If the causality is found, then it is inferred that Indian banking system is effective in bringing causality between CTA and AGVA. If not, it is ineffective. Further, if the causality is found between CTA and AGVA in Islamic banking countries, then, Islamic banking is effective and hence, it is relevant to India. Thus, the focus of this research paper is to assess the relevance of Islamic Banking System to India in bringing the long run causality between CTA and AGVA.

III. OBJECTIVES OF THE PAPER

The following are the objectives of this research paper.

- To assess the relevance of Islamic banking system to Indian agriculture sector
- To recommend the appropriate ways to introduce Islamic banking in India, if it is proved to be relevant.

However, the first objective mentioned above is of abstract nature and hence difficult to test it. Hence, it is transformed into following secondary objectives.

- To ascertain whether there exists or not, any causality (cause and effect relationship) between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of India.
- To ascertain whether there exists or not, any causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of sample IBF countries.
- To ascertain whether or not, Islamic banking is relevant to India in bringing causality between CTA and AGVA.

IV. RESEARCH HYPOTHESES

The above mentioned objectives are transformed into the following testable hypotheses.

 H_{01} : There is no (granger) causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of India. • **H**₀₂: There is no (granger) causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of sample IBF countries.

V. RESEARCH METHODOLOGY

- **Data variables:** In order to test the above two hypotheses, data related to Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) are collected for India as well as sample Islamic Banking and Finance (IBF) countries.
- Data sources: United Nations' Food and Agriculture Organization (UNFAO) has collected and compiled the data of all nations about various agricultural variables from officially recognized international sources. This database is used to collect the data on the above mentioned variables in Local Currency Units (LCU). To have meaningful analysis, these nominal values of CTA and AGVA are converted into real values i.e. Real Credit To Agriculture (RCTA) and Real Agriculture Gross Value Added (RAGVA) by using AGVA deflator which is also collected from the same source. The logarithmic values of these series viz. LRCTA and LRAGVA are computed to make these series stationary at lower level.
- Sample size: Out of the 75 countries in which Islamic banking is operational, only 3 countries claim that they are putting efforts to completely eliminate interest from their economy and comply with IBF principles. They are Pakistan, Iran and Sudan. But the data of Sudan is inadequate. Hence, it is excluded from the study. Thus, the sample size is 2.

Sampling method: Judgment sampling

Data analysis methods: The Karl Pearson's correlation coefficient is used to know the direction and degree of association between the variables. In order to test the causality depending on the case, either Error Correction Model (ECM) or Unrestricted VAR model or Toda and Yamamoto model is used. Before applying them, Augmented Dickey Fuller (ADF) test, Phillips – Perron (PP) test, and Kwiatkowski – Phillips – Schmidt - Shin (KPSS) test are applied to know the stationarity of the series and then, Johansen co-integration test to know the long run equilibrium between the series.

VI. DATA ANALYSIS AND INTERPRETATION

1.1. Case – 1: Testing the causality between LRCTA and LRAGVA in case of India

The calculated value of Karl Pearson's correlation coefficient (r) between Log(RCTA)=LRCTA and Log(RAGVA) = LRAGVA is found to be + 0.81. It means that both these series are positively (directly)



correlated with each other, meaning that increase in LRCTA is associated with increase in LRAGVA and vice versa. But, correlation need not be causation. In order to know, whether there is any cause and effect relationship between these variables (series) or not, Granger causality test is performed which has three steps. The first step is to check for stationarity / unit root / level of integration of these variables. In the second step, if the variables are of same level of integration, Johansen cointegration test is performed in order to trace out the long run equilibrium between these variables. In the third step, Granger causality test is performed to know the cause and effect relationship between the variables. If cointegration is found at second step, Error Correction Model (ECM) is used at third step. If no co-integration is found at second step, then, either Unrestricted Vector Auto Regression (U-VAR) Model or Granger Causality test is performed at third step. Toda and Yamamoto Test is one more test which is used to check the causality when the variables are of different orders i.e. I (0), I (1) and I (2). As an appendage to causality test, the residual tests are also performed to know whether or not, there exist any errors like non-normality, serial correlation etc. in the data. The results of various tests are given in the following section.

6.1.1. Step – 1: Testing for stationarity of LRCTA and LRAGVA series of India: The results of ADF, PP and KPSS tests are tabulated below which clearly indicate that both the series are integrated at first level i.e. I(1) which means they become stationary after first difference.

Table – 1: Unit Root Test Results of LRCTA and LRAGVA series of India

Test	LRCTA Series	LRAGVA Series
ADF Test	I(1)	I(1)
PP Test	I(1)	I(1)
KPSS Test	I(1)	I(1) esearch
*Conclusion @ 5% LOS	LRCTA is I(1)	LRAGVA is I(1)

(Source: Own calculations based on UNFAO's database)

6.1.2. Step – 2: Testing for co-integration of LRCTA and LRAGVA series of India: Since both the series are of order I(1), Johansen co-integration test is applied to trace out existence of long run equilibrium between LRCTA and LRAGVA. The results of Johansen co-integration test are given below for an optimal lag of 4.

Table – 2: Unrestricted Co-integration Rank Test (Trace) for India (LRCTA & LRAGVA)

Hypothesized	Eigen	Trace	Critical Value	Probability	
Number of Co-	Value	Statistic	@ 5%		
integrating					
Equations					
None	0.8055	35.23	15.49	0.0000	
At most 1	0.5848	12.30	3.84	0.0005	
Conclusion: Trace Test indicates 2 co-integrating equations @ 5% level					

(Source: Own calculations based on UNFAO's database)

Table – 3: Unrestricted Co-integration Rank Test (MEV) for India (LRCTA & LRAGVA)

Hypothesized	Eigen	Max	Critical Value	Probability	
Number of Co-	Value	Eigen	@ 5%		
integrating		(ME)			
Equations		Statistic			
None	0.8055	22.92	14.26	0.0017	
At most 1	0.5848	12.30	3.84	0.0005	
Conclusion: Max Eigen Values (MEV) Test indicates 2 co-integrating					
equations @ 5% LOS					

(Source: Own calculations based on UNFAO's database)

Both the tests indicate that there is co-integration between LRCTA and LRAGVA. Thus, it is inferred that LRCTA and LRAGVA may have long run relationship. ECM is used to test it.

6.1.3. Step – 3: Testing for causality: ECM is applied to test causality. However, it can be applied only when the model is non-spurious ($\mathbb{R}^2 < DW$ Statistic) and its residual series is stationary at level. The results of the test found that $\mathbb{R}^2 = 0.66$ and DW Statistic = 0.68. But, residual series of ECM is found to be non-stationary at level. Hence, ECM can't be used. Hence, U – VAR model is used to test the causality after determining the optimal lag which is found to be 4 as per FPE, AIC and HQ criteria. The results of U–VAR model for an optimal lag of 4 are given below.

Table – 4: VAR Granger Causality / BEW Test for India (LRCTA & LRAGVA)

Dependent Variable: D(LRAGVA)					
Excluded	χ^2	dof	Probability		
D(LRCTA)	€0.92	4	0.92		
All	<u> </u>	4	0.92		

(Source: Own calculations based on UNFAO's database)

The result of the test shows that the probability of D(LRCTA) is 0.92 which is greater than LOS i.e. $\alpha = 0.05$; hence, it can be inferred that D(LRCTA) doesn't granger cause D(LRAGVA) in case of India.

6.1.4. Step – 4: Residual Diagnostic Tests: The following residual tests are performed to know whether the data is free from errors or not.

• Normality Tests: The results of VAR residual normality test along the dimensions of skewness, kurtosis and Jarque – Bera are tabulated below. When their joint probabilities are greater than $\alpha = 0.05$, it is inferred that the distribution is normal. All the joint probabilities in the result are greater than $\alpha = 0.05$; hence, the data is normal.

 Table – 5: VAR Residual Normality Tests for India (LRCTA and LRAGVA)
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Component	1	2	Joint
Skewness	- 0.15	- 0.86	
χ^2	0.05	1.74	1.80
degrees of freedom	1	1	2
Probability	0.81	0.18	0.40
Kurtosis	3.01	3.23	
χ ²	5.88e-05	0.03	0.03
degrees of freedom	1	1	2
Probability	0.99	0.85	0.98
Jarque – Bera	0.05	1.77	1.83
degrees of freedom	2	2	4
Probability	0.97	0.41	0.76

(Source: Own calculations based on UNFAO's database)

• Serial Correlation Test: The results of VAR residual serial correlation LM test are tabulated below. If the probability is lesser than $\alpha = 0.05$, then, there exists serial correlation with that lagged term. The result reveals that the data is free from serial correlation up to 8 lags.

Table – 6: VAR Residual SC LM Test for India (LRCTA and LRAGVA)

Lags	1	2	3	4	5	6	7	8
LM	1.31	1.21	3.25	1.58	5.67	2.79	4.38	6.76
Statistic								
Probability	0.85	0.87	0.51	0.81	0.22	0.59	0.35	0.14

(Source: Own calculations based on UNFAO's database and Probabilities are from χ^2 with 4 dof)

1.2. Case – 2: Testing the Causality between LRCTA and LRAGVA in case of Pakistan

The calculated value of Karl Pearson's correlation coefficient (r) between LRCTA and LRAGVA is found to be + 0.79. It means that both these series are positively (directly) correlated with each other, meaning that increase in LRCTA is associated with increase in LRAGVA and vice versa. In order to know, whether there is any cause and effect relationship between these variables (series), Granger causality test is performed in the same manner as applied in the previous section. The results of various tests are given in the following section.

1.2.1. Step – 1: Testing for Stationarity of LRCTA and LRAGVA Series: The results of ADF, PP and KPSS tests are tabulated below which clearly indicate that LRCTA is of order 2 and LRAGVA is of order 1.

Table – 7: Results of Unit Root Tests of LRCTA & LRAGVA series of Pakistan

Test	LRCTA Series	LRAGVA Series
ADF Test	I(2)	I(1)
PP Test	I(2)	I(1)
KPSS Test	I(1)	I(1)
*Conclusion @5% LOS	LRCTA is I(2)	LRAGVA is I(1)

(Source: Own calculations based on UNFAO's database)

The results indicate that the variables are of different order; hence, Johansen co-integration test can't be used. Instead, autoregressive models or Toda and Yamamoto model have to be used to test the causality. In this case, Toda and Yamamoto model is applied.

1.2.2. Step – 2: Toda and Yamamoto Model of Causality: Toda and Yamamoto model has two steps. The first step involves finding d_{max} i.e. maximum order of integration among the variables in the model and optimal lag length (*m*). The maximum order is 2 for this model as highest order is I(2) for LRCTA series. To apply Toda and Yamamoto model, the optimal lag must be greater than d_{max} . The second step is to apply VAR Granger Causality / Block Exogeneity Wald test to trace out the causality. The optimal lag of the model is found to be 4 as per FPE, AIC and HQ criteria. Now, VAR Granger causality test is applied by estimating the model equation with 4 optimal lags plus another 2 extra lags of d_{max} . The results are given below.

Table – 8: VAR G Causality / BEW Test for Pakistan (LRCTA& LRAGVA)

Dependent Variable: LRAGVA						
Excluded	χ^2	dof	Probability			
LRCTA	20.49	4	0.0004			
All	20.49	4	0.0004			

(Source: Own calculations based on UNFAO's database)

The result of the test shows that the probability of LRCTA is 0.0004 which is lesser than $\alpha = 0.05$; hence, it can be inferred that LRCTA granger causes LRAGVA in case of Pakistan.

1.2.3. Step - 3: Residual Diagnostic Tests: The following residual tests are performed to know whether the data is free from errors or not.

Normality Tests: The results of VAR residual normality test along the dimensions of skewness, kurtosis and Jarque – Bera are tabulated below. All the joint probabilities in the result are greater than $\alpha = 0.05$; hence, the data is normal.

Table – 9: VAR Residual Normality Tests for Pakistan (LRCTA & LRAGVA)

Component	1	2	Joint
Skewness	- 0.37	- 0.34	
χ ²	0.34	0.30	0.64
degrees of freedom	1	1	2
Probability	0.55	0.58	0.72
Kurtosis	2.77	2.00	
χ ²	0.03	0.62	0.65
degrees of freedom	1	1	2
Probability	0.86	0.42	0.72
Jarque – Bera	0.37	0.92	1.29
degrees of freedom	2	2	4
Probability	0.82	0.62	0.86

(Source: Own calculations based on UNFAO's database)

• Serial Correlation Test: The results of VAR residual serial correlation LM test are tabulated below. The result reveals that there is a serial correlation with 4^{th} lagged term as its probability is lesser than $\alpha = 0.05$.



Table – 10: VAR Residual SC LM Test for Pakistan (LRCTA and LRAGVA)

Lags	1	2	3	4	5	6	7	8
LM	2.89	2.27	4.27	10.42	5.93	0.31	4.43	3.75
Statastics								
Probability	0.57	0.68	0.36	0.03	0.20	0.98	0.35	0.43

(Source: Own calculations based on UNFAO's database and Probabilities are from $\chi^2 \text{with 4 dof})$

1.3. Case – 3: Testing the Causality between LRCTA and LRAGVA in case of Iran

The calculated value of Karl Pearson's correlation coefficient (r) between LRCTA and LRAGVA is found to be + 0.76. In order to know, whether there is any cause and effect relationship between these variables (series), Granger causality test is performed in the same manner as applied in the previous section. The results of various tests are as follows.

1.3.1. Step – 1: Testing for Stationarity of LRCTA and LRAGVA Series of Iran: The results of ADF, PP and KPSS tests are tabulated below which clearly indicate that both the series are integrated at I(1) i.e. they become stationary after first difference.

Table – 11: Results of Unit Root Tests of LRCTA and LRAGVA series of Iran

Test	L RCTA Series	I BAGVA Series
ADF	I(1)	I(1)
Test	I(1) I(2)	I(1)
PP Test	I(1)	I(2)
KPSS Test		at a second s
Conclusion @ 5%	LRCTA is I(1)	LRAGVA is I(1)
LOS		ati

(Source: Own calculations based on UNFAO's database)

1.3.2. Step – 2: Testing for Co-integration of LRCTA and LRAGVA Series: Since both the series are of order I (1), Johansen co-integration test is applied after determining the optimal lag. It is found from the test that the optimal lag of the model is 7 as per FPE, AIC, SIC and HQ criteria. Further, Johansen co-integration test for this lag is found that there is no co-integration between the LRCTA and LRAGVA.

1.3.3. Step – 3: Testing for Causality by using U – VAR Model: As there is no co-integration, U–VAR model is used to test the causality. The results of U–VAR model for an optimal lag of 7 are given below.

Table – 12: VAR Granger Causality / BEW Test for Iran (LRCTA & LRAGVA)

Dependent Variable: D(LRAGVA)						
Excluded χ^2 dof Probability						
D(LRCTA)	40.52	7	0.00			
All	40.52	7	0.00			

(Source: Own calculations based on UNFAO's database)

The result of the test shows that the probability of D(LRCTA) is 0.00 which is lesser than $\alpha = 0.05$; hence, it

can be inferred that D(LRCTA) granger causes D(LRAGVA) in case of Iran.

1.3.4. Step – 4: Residual Diagnostic Tests: The following residual tests are performed to know whether the data is free from errors or not.

• Normality Tests: The results of VAR residual normality test along the dimensions of skewness, kurtosis and Jarque – Bera are tabulated below. All the joint probabilities in the result are greater than $\alpha = 0.05$; hence, the data is normal.

Table – 13: VAR Residual Normality Tests for Iran (LRCTA and LRAGVA)

Component	1	2	Joint
Skewness	- 0.68	- 0.08	
χ^2	1.50	0.02	1.52
degrees of	1	1	2
freedom			
Probability	0.22	0.87	0.46
Kurtosis	2.78	1.93	
χ^2	0.04	0.89	0.93
degrees of	1	1	2
freedom			
Probability	0.84	0.34	0.62
Jarque – Bera	1.54	0.91	2.45
degrees of	2	2	4
freedom			
Probability	0.46	0.63	0.65

(Source: Own calculations based on UNFAO's database)

Serial Correlation Test: The results of VAR residual serial correlation LM test are tabulated below. The results reveal that there is a serial correlation with 6^{th} lagged term as its probability is 0.04 which is lesser than α = 0.05.

 Table – 14: VAR Residual SC LM Test for Iran (LRCTA and LRAGVA)
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Lags	1	2	3	4	5	6	7	8
LM	1.55	1.34	3.70	7.36	3.67	9.74	7.05	6.12
Statistic								
Probability	0.81	0.85	0.44	0.11	0.45	0.04	0.13	0.19

(Source: Own calculations based on UNFAO's database and Probabilities are from χ^2 with 4 dof)

VII. SUMMARY OF RESEARCH FINDINGS

The following table presents the major findings of this research paper after analyzing the data related to LRCTA and LRAGVA series of three countries viz. India, Pakistan and Iran.

Country	Correlation	Co –	Causality from LRCTA to		
	Coefficient	integration	LRAGVA		
India	+ 0.81	There exists	Doesn't exist		
Pakistan	+0.79	Not	Exists		
		Applicable*			
Iran	+ 0.76	Doesn't	Exists		
		exist			

(*co-integration test can't be applied because the variables are of different orders)



- The values of Karl Pearson's correlation coefficient between LRCTA and LRAGVA for India, Pakistan and Iran are + 0.81, +0.79 and + 0.76 respectively. It is found that all the countries under the study have positive correlation coefficient. It means that increase in agricultural credit (LRCTA) is correlated with increase in agricultural gross value added, irrespective of country and the way of financing i.e. interest based or interest free. It is worth to notice here that India has slightly higher degree of positive correlation than its counterparts in the study i.e. Pakistan and Iran.
- The Johansen co-integration test which is performed to trace out the long run equilibrium between LRCTA and LRAGVA series has found long run equilibrium in case of India, whereas Iran which operates on the basis of IBF principles fails to provide the proof for such cointegration. In case of Pakistan, co-integration test can't be performed as its LRCTA and LRAGVA series are of different orders. Hence, it is inferred that there may exist long run equilibrium in case of India but there may or may not exist such equilibrium in case of Pakistan and Iran.
- Unrestricted Vector Auto Regression (U VAR) model or Toda and Yamamoto Model which is used at the final step to assess causality, failed to identify any significant cause and effect relationship from LRCTA to LRAGVA in case of India. However, these models effectively identified significant cause and effect relationship from LRCTA to LRAGVA in case of the countries which provide credit to agriculture on Islamic banking and finance principles i.e. Pakistan and Iran.

VIII. RESULTS OF THE HYPOTHESES TESTED

The acceptance and rejection position of hypotheses after testing them by using appropriate econometric models are given below.

- The hypothesis (H₀₁) which is framed as "there is no (granger) causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of India" is accepted. It means that change in CTA is not causing a change in AGVA in case of India.
- The hypothesis (H₀₂) which is framed as "there is no (granger) causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) in case of sample IBF countries" is rejected. It means that change in CTA is a cause to change AGVA in the sample IBF countries.
- From the above two findings, it is proved that interest based banking (CTA) in India is ineffective in increasing the AGVA whereas interest free Islamic banking (CTA) in sample IBF countries is effective in increasing the AGVA. Hence, it can be concluded that

Islamic banking is relevant to India in bringing the long run causality between CTA and AGVA.

IX. RECOMMENDATIONS

In light of the above findings, this paper makes the following recommendations.

- It is recommended to introduce Islamic banking in India in agriculture sector to bring long run causality between CTA and AGVA because interest based credit to agriculture sector in India failed to bring long run cause and effect relationship between CTA and AGVA.
- The Government of India to facilitate the farmers may give nod to Indian banks to open separate windows or branches or subsidiaries to deal with Islamic banking products like what HSBC, Standard Charted, Citi Bank et al banks have done by opening Islamic banking subsidiaries viz. HSBC Amanah, Standard Charted Saadiq Bahd, Citi Islamic Investment Bank etc.
- Indian banks have no experience in the field of Islamic banks. Moreover, there are regulatory and supervisory complexities involved in it [10]; hence, it is *recommended* that Islamic banking may be introduced in India in a gradual manner. At the very first, a few simple Islamic banking products which are similar to conventional banking products may be considered for introduction [11].
- Instead of advancing interest based loans to farmers or waiving the loans advanced to them, Indian banks may advance agricultural loans based on Salam, an Islamic finance product which is meant to meet working capital needs of farmers. This has the potential to stop the suicides of the farmers. The drawback of interest based loans is that the farmers are not able to borrow sufficient funds from banks to meet their crop and family needs and hence resorting to domestic borrowing at higher interest rates which they can hardly repay. The drawback of government policies which waive the interest or waive the both interest and principal amount of loan, increase the tax burden to the same extent on the society in general and salaried people in particular. But, when Salam is used for agricultural finance, it will not create tax burden on any segment of the society. In Salam contract, a farmer agrees to supply specific goods (agricultural output) to the buyer (Islamic Bank) at a future date in exchange of an advanced price fully paid to the farmer at spot. For example, a farmer who plans to cultivate ground nuts approaches an Islamic bank for credit. Then, Islamic bank finds from him about the expected yield of the crop and the date of delivery. Let's say it is 1,000 KG after 4 months. Then, the bank estimates the price of the ground nuts after 4 months. Let's say it is Rs. 50 per KG. Then, the bank asks the farmer to sell those 1,000 KG ground nuts to it for Rs. 45/- (say) and



total of Rs. 45,000/- is given to farmer on spot i.e. immediately. The bank after receiving the delivery of the ground nuts from the farmer sells them in the market and makes the profit of Rs. 5,000/- on this agreement. If the crop yield is just 800 KG, then the farmer in order to keep his promise of delivering 1,000 KG to bank, borrows the same from another farmer or buys from the market and provide the same to the bank. Salam is exceptionally good in meeting the needs and requirements of small farmers who need finance for growing their crops and to feed their families till the time of harvest. Salam is beneficial to the farmer as he receives the price in advance and it is beneficial to the buyer also as normally the price in Salam is lower than the price in future date.

- To reduce the burden on banks which is caused due to amount blocked on agricultural outputs in Salam contract, it is *recommended* to the banks that they may adopt any of the following two options [12].
 - **Parallel Salam:** After purchasing a commodity by way of Salam, the bank may sell it to a third party (trader of ground nuts) for the same date of delivery. The difference between the two prices shall be the profit earned by the Islamic bank. The shorter the period of Salam, higher the price and the greater the profit. In this way, banks can manage their short term financing portfolios.
 - Find a Trader and Obtain a Promise from Him to Buy: This can be used when the trader thinks that parallel Salam makes his money blocked. Then, obtain a unilateral promise from him to purchase the Salam commodity, for that he need not pay anything to the bank.
- In order to overcome the risks involved in Salam contract, it is *recommended* to the banks that they may take following measures.
 - **To Overcome Delivery Risk:** Delivery risk takes place when the customer delays the delivery of goods due to non-production of the crop. In order to overcome such a risk it is *recommended* that the banks may (i) wait for some more time till the goods are produced or (ii) cancel the contract and recover the Salam price or (iii) agree on the replacement of goods provided the market value of the replaced goods does not exceed the market value of the original Salam subject-matter.
 - **To Overcome Quality Risk:** The customer may deliver defected or inferior quality goods than the agreed quality goods. As a result bank may fail to sell the goods in the market which leads quality risk. In order to overcome such a risk it is *recommended* that the banks may (i) reject the delivered goods or (ii) accept them at a discounted price.
 - **To Overcome Price Risk:** When the market price of goods decreases after Islamic bank enters a

Salam agreement, it is called as price risk. In order to overcome such a risk it is *recommended* that the banks may (i) enter parallel Salam or (ii) find a third party and obtain the promise to purchase.

- **To Overcome Storage Risk:** Storage risk is also involved in Salam contract because the goods received by the bank from the farmer remain with the bank till they are sold. In order to overcome such a risk it is *recommended* that the banks may minimize the time gap between receiving the crop from the farmer and selling it to the trader.
- If the conventional banks open Islamic banking windows and offer Salam like products to farmers, the banks may face the problem of handling (buying, storing and selling) the goods due to lack of trading experience, limited knowledge etc. Therefore, it is *recommended* to hire the services of a third person or an agency or establish a specialized department for this purpose.
- There are four major acts by which banks in India are governed. They are (i) The Negotiable Instruments Act, 1881 (ii) Reserve Bank of India Act, 1934 (iii) The Banking Regulation Act, 1949, and (iv) The Cooperative Societies Act, 1961. Islamic banks, though meet most of the sections, fail to meet certain sections. Hence, they can't get license to operate as banks in India. It is worth to mention here the statement of D. Subba Rao, former RBI governor, "We got to see that Islamic banking which does not allow charging interest or taking of interest is inconsistent with our existing laws. All that I am saying is Islamic banking is not consistent with current banking laws". The sections which are against Islamic banking are; (i) Islamic banks operate on profit and loss sharing principle but the section 5 (b) and 5 (c) of the Banking Regulation Act, 1949 prohibit the banks to invest on profit and loss sharing basis. (ii) Section 8 of the Banking Regulation Act, 1949 mentions "No banking company shall directly or indirectly deal in buying or selling or bartering of goods", but Islamic banks have to deal with goods in Salam, Murabaha etc type contracts. (iii) Islamic banks use Ijarah contract for home finance in which they own an immovable property. But, the section 9 of the Banking Regulations Act, 1949 prohibits banks to use any sort of immovable property apart from private use, and (iii) Islamic banks do not receive or pay interest. But, the section 21 of the Banking Regulations Act, 1949 requires payment of interest. In this regard, the following recommendations are made.
- It is *recommended* that the government of India may amend these sections just like what the modern developed countries UK, Japan, Singapore, Australia and Hong Kong etc. have done to accommodate IBF in Indian Banking sector which benefits India to attract



surplus from Gulf Cooperation Council countries. Though, India is more attractive to make investment than these countries, GCC business houses are left with no option but to invest in the countries which have amended their laws. India is definitely losing a very big bet due to its indecisiveness. It is interesting to note here that Indian banks like ICICI and Kotak have Sharia compliant windows in their Gulf operations. The major five Indian companies viz. Reliance Industries, Infosys Technologies, Wipro, Tata Motors and Satyam Computer Services are indexed in Standard & Poor's BRIC Shariah Index.

- The word Islam or Islamic might be abhorred by certain sections in the society. Hence, it is *recommended* that not to call it as Islamic banking. Name it as interest free banking or ethical baking or alternative banking or participatory banking or something else. Gulf houses don't look for the title, they are concerned about whether the system complies with Shariah rules or not.
- In addition to banking, financial system of India also comprises of Non-Banking Financial Companies (NBFCs), Mutual Funds, Insurance Companies and Developmental Institutions. Under these sections, Islamic banks can operate without much to change in the sections of the laws. However, NBFCs seem to be the best available option for those Indian banks or individuals who want to start Islamic banks because of easier entry norms, lower capital requirements, lower regulation and flexibility in registration and functioning. Hence, *it is recommended* that Islamic banks can enter India through NBFCs mode just like what the Kerala State Finance Corporation has done.
- It is *recommended* that the government may allow banks to come out with a scheme under which instead of paying interest on deposits, they may convince the depositors to share profits earned out of actual investments in financing infrastructural projects and other core business activities. It is similar to investment on shares in stock exchange.

X. CONCLUSION

In this paper an attempt is made to know whether Islamic banking is relevant to Indian agriculture sector or not. Whether or not, IBF is effective than conventional banking in agriculture sector in bringing long run causality between Credit To Agriculture (CTA) and Agriculture Gross Value Added (AGVA) is the research question of this paper. To test it, three countries are selected viz. India, Pakistan and Iran, of which the first one is based on conventional banking system and the remaining two operate on IBF principles. The results evidenced that there is no ganger causality running from LRCTA to LRAGVA in case of India whereas causality is found in case of the sample IBF countries i.e. Pakistan and Iran. Thus, interest free Islamic banking is superior to conventional banking in bringing long run causality between LRCTA and LRAGVA. Hence, it is concluded that Islamic banking and finance is relevant to India in bringing long rum causality between LRCTA and LRAGVA. In light of these findings, it is recommended that government of India may consider the option of introducing Islamic banking in India with a different title like participatory banking or interest free banking etc. It may make necessary amendments in banking laws to accommodate Islamic banking in India. Initially, the products which are similar to conventional banking products may be introduced. Later on based on its performance, the government may go for further expansion.

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