INVESTIGATION OF CONVERGENCE IN BANK INTEREST RATES IN SELECTED ISLAMIC COUNTRIES

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Abstract - Money market is an essential part of national economy and plays a significant role in economic development. Banks and Financial institutions facilitate trade and business through organizing receipts and payments, and help develop markets. The present study examines absolute beta convergence and bank interest rate sigma of Islamic countries during 2003-2018, using systematic generalized method of moments (SYS-GMM). Results showed convergence of bank interest rate towards average interest rate of selected Islamic countries at convergence rate of 0.41. Convergence coefficient is significant at 1%. No sigma convergence was found for interest rate of selected Islamic countries.

Keywords - Beta Convergence, Sigma Convergence, Bank Interest Rate, Selected Islamic Countries, SYS-GMM

I. INTRODUCTION

Money market is an essential part of national economy and plays a significant role in economic development. Banks and financial institutions facilitate trade and business through organizing receipts and payments, and help develop markets. They transform liquid financial capital to a productive entity, and drive other production agents, such as human capital who are unemployed or have low productivity, towards full employment with high productivity. Banking system is responsible to execute monetary policies of the government to facilitate economic development plans. It also helps economic stabilization and regulation of economic department through credit contraction and expansion. Financial institutes aggregate and optimally allocate capital resources and influence the economy. In other words, development indicators of banks and nonbank financial institutes significantly influence indicators of capital accumulation and efficiency, which in turn affect economy. An efficient financial system transmits capital from savors to borrowers and direct it to profitable and productive investment projects (Farahanifard et al., 2015).

Levine (1997) argues that an essential function of financial market development is to pave the way for optimal allocation of resources and accelerating the process of turning saving resources to investment expenses. Diamond (1984) showed that financial mediators help allocate portfolios to efficient investment plans through providing liquidity for investors, reducing liquidity risks, reducing costs of resource mobilization, and applying participatory control.

Banks aggregate sporadic resources (deposits and savings) and transfer them to investors. This way, they provide the way for investment growth, and increase national income as well as social welfare. This wouldn't be possible without a sound banking system. In developing countries, per capita income is low and overall consumption level is high, leading to less financial resources to harness capital. Therefore, banks and financial institutes play a greater role in harnessing domestic resources and allocating them to productive investment plans (Mojtahed and Hassanzadeh, 2012).

Principles of banking operations are concentration, allocation, and supervision, based on which banking organization structure is developed. Mechanisms of banking operations in any economic system rely on these underlying principles and regulations on bank-client relations. Economic system in Islamic countries, particularly Iran, are expected to comply with Islamic doctrines on economic and social relations and activities. In this regard, Islamic banking is defined as any financing activity including aggregating and concentrating saving resources to invest in different activities to benefit banking system in compliance with Islamic sharia and monetary and credit system, such that interests from these activities is divided between savors, the bank, and the investor (Mojtaheh and Hassanzadeh, 2012).

The present study is organized s follows. Section two is literature review. Section three provides methodology. Section four is analysis of findings. Finally, concluding remarks are given.

II. LITERATURE REVIEW

Regional development worldwide was followed by emergence of economic metrics and planning patterns to reduce local differences, which led to introduction of neoclassic growth patterns such as Solow Growth Model (1956) and Swan Growth Model (1956), and Solow-Swan model. Solow (1956) is a pioneer theorist of convergence of economic growth rate. Economic convergence developed from these models.

Barro and Sala-I- Martin (1991, 1992) were early theorists that explored convergence of economic growth rate in different countries. Beta convergence is realized when countries with low per capita income show greater long-term growth rate than rich countries. Sigma convergence is defined as reduced disparity of per capita income over time. Random convergence shows that per capita income shocks to average per capita is temporary. Nahar and Inder (2002) introduced another model of convergence which focuses on assessment of convergence of each observation about a certain level.

Convergence is assessed in different fields including per capita income, workforce productivity, energy efficiency, price range, inflation rate, interest rate, wages, etc. (Drastichova and Ostrava, 2012). Financial convergence is also important, which can be assessed by price, information, and quantity, as proposed by Baele et al. (2004),

Experimental background of research on convergence is briefly reviewed in the following.

Bianko et al. (1997) used mid-1990s statistics to compare financial systems of 6 developed countries and found that they were convergent.

Schmidt et al. (1999) used beta convergence to assess financial markets in France, UK, and Germany during 1980-2000 and reported that they tend towards stability.

Byrne and Davis (2002) found evidence of convergence of balance sheet structure in UK, France, Germany, and Italy during 1995-2001. Hartmann at al. (2003) studied beta-convergence in financial system of EU economies after 1995 and reported that Bank deposits are divergent in long-term while securities are convergent.

Digiacinto and Esposito (2008) used panel data for 13 selected EU countries during 1995-2003 and showed that development and financial indicators are convergent, but not banking indicators.

Eskenderoglu et al. (2009) studied convergence of returns rate in 8 banks in Turkey during 1998-2009 using unit root test and found no convergence in banking system due to highly competitive settings in which banks were operating.

Bruno et al. (2012) studied convergence of financial assets in OECD countries using beta and sigma convergence and observed beta convergence. Bulut et al. (2015) used Nahar and Inder's model to assess convergence of returns rate in Turkish banks during 2003-2014, and found that only 2 out of 10 banks had convergent returns. Pouraebdollahan et al. (2016) studied convergence of returns of asset markets in Iran during 2002-2015 using Nahar and Inder's model and reported convergence only in 1 asset market.

Zoubi (2016) examined whether the Global Financial Crisis (GFC) has led to a convergence in performance between Islamic and commercial banks in the Middle East, Africa, and Southeast Asia (MENASA) region in recent years. They found that in 2007-2008 Islamic banks outperformed commercial banks, but as the financial crisis spread in 2009, they showed substantial decline in profitability. Beta and sigma convergence tests suggest convergence toward the mean for all banks and all financial ratios. The speed of convergence is generally slower for Islamic banks but the difference has declined in the aftermath of the GFC. The log-t test for convergence shows little convergence over the whole sample period, but for the years 2010–2014, all banks appear to be converging toward similar levels of profitability as measured by ROA and ROE. The log-t test shows convergence in profitability across all banks in the post-crisis period. However, it does not show convergence across all asset composition and risk measure—meaning that IBs and CBs still operate differently even if they are moving toward similar profitability results. Club convergence results indicate a lack of convergence over the whole sample, but quite strong convergence across all banks post-crisis. However, some clusters, such as the Southeast Asia region does not display convergence in profitability ratios.

The present study investigates beta and sigma convergence of interest rate in selected Islamic countries (Albania, Bangladesh, Azerbaijan, Egypt, Guinea, Iran, Iraq, Jordan, Kazakhstan, Kosovo, Kyrgyzstan, Malaysia, Maldives, Niger, Pakistan, Senegal, Tajikistan, Turkey, Yemen And Tunisia) during 2003-2018 using generalized method of moment.

III. METHODOLOGY

Convergence is defined differently in the literature. It is classified as beta, sigma and random convergence (Lee, 1997). Beta convergence is subdivided to absolute and conditional. Absolute beta convergence is expressed by Fernandez and Santos as:

$$(1)\quad \text{Log}\left(\frac{IR_{it}}{IR_{it-1}}\right) = a - \beta \log\left(IR_{it-1}\right) + u_{it}$$

where IR_{it} is interest rate of country i^{th} in the year t, IR_{it-1} is interest rate of country i^{th} in the year t-1. Positive coefficient implies an inverse relationship between initial status and average interest rate. That is to say, countries with low interest rate move at a higher rate than others towards balanced interest rate. Negative coefficient implies divergence. Beta convergence shows convergence arte.

Sigma convergence refers to a reduction in the dispersion of price index over time. It is calculated by standard deviation of price index, which can be regresses. Negative time coefficient implies convergence of pair of prices.

$$(2)\quad \delta_t = \sqrt{\frac{1}{N}\sum_{i=1}^{N}(\log(y_{it}) - \bar{y}_t)^2} \quad \bar{y}_t = \frac{1}{N}\sum_{i=1}^{N}\log(y_{it})$$

where $\bar{y}_t = \frac{1}{N}\sum_{i=1}^{N} \log(y_{it})$. Standard deviation of pair of prices is stable when beta convergence is between 0-1. Rate of growth and dispersion of per capita income depends on standard deviation. Per capita incomes of countries converge when poor nations grow faster. In other words, beta convergence is necessary for sigma convergence but not sufficient (Bruno et al., 2012). In case initial dispersion is less than the stable mode, beta convergence is confirmed without sigma convergence (Quah, 1993).

IV. FINDINGS AND ANALYSIS

The present study examines beta and sigma convergence of interest rate in selected Islamic countries using generalized method of moment. Before model estimation, Sargan test was applied to validate the used instruments. Results are given in Table 1. Then, the model was estimated in terms of instrumental variables. Finally, autoregressive error terms were tested. Results are given in Table 2.

Chi2	207.1302
prob> chi2	0.163

Table 1. Instrument validity test
Source: research findings

Table 1 shows results of Sargan test for instrument validity in the model. Thus, H¬0 on instrument validity is not rejected here and the used instruments are valid.

lag	Z	pr> z
first	-3.84	0.000
second	0.68	0.497

Table 2. Autocorrelation of Arrelano and Bond

Table 2 shows that H¬0 regarding non-existence of autoregressive error terms is not rejected and the z-statistics for autocorrelation lag of first and second order was found to be 0.66 and -1.5, respectively. Thus, H0 on non-existence of second-order autocorrelation at significant level of 10 is not rejected.

Variable	coefficient	z-statistics	Prob
L1	-0.0666	-1/70	0.088
B	0.4133	10.33	0.000
Cons	-0.19023	-6.76	0.000

Table 3. Results of absolute beta convergence
Source: research findings

Results of beta convergence shows that beta coefficient is 0.4133779 and implies convergence of interest rate towards average rate in Islamic countries. Convergence rate is 0.4133779 and convergence coefficient is significant at 1%. Lag value of dependent variable is -0.06, implying its negative effects on convergence of interest rate in selected Islamic countries. Moreover, y-intercept is significant at significance level of 1%.

Variable	Coefficient	t-statistics	Prob
Time	0.067	7.043	0.000

Table 4. Results of sigma convergence

Results of sigma convergence shows that time coefficient is 0.067985, implying no sigma convergence of interest rate in selected Islamic countries. This is to say, interest rate shows no difference over time to realize sigma convergence. Coefficient of this convergence is significant at 5%.

V. CONCLUSION AND SUGGESTION

Considering the significance of establishing Islamic banking and equal distribution of components of Islamic banking in Islamic countries, the present study investigates economic convergence of Islamic justice in selected Islamic countries (Albania, Bangladesh, Azerbaijan, Egypt, Guinea, Iran, Iraq, Jordan, Kazakhstan, Kosovo, Kyrgyzstan, Malaysia, Maldives, Niger, Pakistan, Senegal, Tajikistan, Turkey, Yemen And Tunisia) during 2003-2018 using generalized method of moment and Stata 13 software. Our results show beta convergence towards average rate in 18 countries. Convergence rate is 0.41 and is significant at 1%. Moreover, results of sigma convergence indicate that standard deviation of interest rate doesn't decline and no sigma convergence was observed.

It is suggested that the Union of Islamic Countries work on appropriate plans and polices to homogenize and integrate interest rate and components of Islamic banking.

REFRENCES

[1] Baele, L., Ferrando, A., Hördahl, P., Krylova, E., & Monnet, C. (2004). Measuring financial integration in the Euro area, European Central Bank, No. 14.

[2] Bruno, G., De Bonis, R., &Silvestrini, A. (2012). «Do financial system convergence». Journal of Comparative Economics, 40(1): 134-144.

[3] Bulut, H., Kaya, P., & Kocak, E. (2015). Testing convergence of return on assets: Empirical evidence from the Turkish banking sector, Journal of International and Global Economic Studies, Vol. 8. No. 2, pp. 40-48.

[4] Diamond, D. W. (1984). Financial Intermediation and Delegated Monitoring. Review of Economic Studies, 51: 393–414

[5] Drastichova, M., & Ostrava, V. T. (2012). The relations of real and nominal convergence in the EU with impacts on the euro area participation, Central European Review of Economic Issues, vol. 15, no. 1, pp. 107-122.

[6] Farahani Fard, Saeed., Pashari, Majid and Khanzadeh, Yavar (2015). The Impact of Islamic Banking and Non-Banking Institutions on Iranian Economic Growth (GMM Generalized Torque Approach), Economic Modeling Quarterly, Ninth Year, No. 3, pp. 41-21

[7] Lee, K., Pesaran, M. H., & Smith, R., (1997). Growth and convergence in a Multi- Country empirical stochastic Solow model, Journal of Applied Econometrics, vol. 12, no. 4, pp. 357- 392.

[8] Levine, R. (1997). Financial Development and Economic Growth: Views and Agenda. Journal of Economic Literature, 35: 688-726.
[9] Mojtahed, Ahmad and Hassanzadeh, Ali (2012). Money, Banking and Financial Institutions, Monetary and Banking Institute - Central Bank of the Islamic Republic of Iran
[10] Nahar, S., & Inder, B. (2002). Testing convergence in economic growth for OECD countries, Applied Economics, vol. 34, no. 16, pp. 2011-2022.
[11] Sala-i-Martin, Xavier. (1996). The classical approach to the convergence analysis, The Economic Journal, vol.106, no. 437, pp. 1019-1036.
[12] Solow, Robert M. (1956). A contribution to the theory of economic growth, Quarterly Journal of Economics, vol.70, no. 1, pp.65-94.
[13] Swan, T. (1956). Economic growth and capital accumulation, Economic Record, vol. 32, no. 2, pp. 334-361.
[14] Quah, D. (1993). «Galton`s fallacy and test of the convergence hypothesis». European Review, 40: 75-1353.
[15] Zoubi, D.O.T. (2016). Convergence in bank performance for commercial and Islamic banks during and after the Global Financial Crisis, The Quarterly Review of Economics and Finance, PP. 2-54, DOI: http://dx.doi.org/doi:10.1016/j.qref.2016.06.013

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