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Inflation Behavior in Top Sukuk Issuing Countries: Using a Bayesian Log-linear Model

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Abstract

This paper focuses on developing a model to study the effect of Sukuk issuance on the inflation rate of top Sukuk issuing Islamic economies at 2014. For this purpose, as the available sample size is small, a Bayesian regression model is applied which contains key supply and demand side factors in addition to the outstanding Sukuk volume as potential determinants of inflation rate as the response variable. In the suggested model, inflation rate variable shows an apparent right skewness where the efficiency of the log transformation for this variable is confirmed via Box-Cox approach. To give Bayesian estimators of the regression parameters, we have implemented an MCMC algorithm including 100,000 iterations in the WinBUGS software. The results show that Sukuk volume is a significant determinant of inflation in selected Islamic countries. However, its increase could only decline the rate of inflation in the well-developed capital market economies, where the Sukuk could be used as a policy instrument for controlling inflation. Also the Bayesian estimation of the other regression coefficients shows that the increase of money growth and exchange rate growth lead to higher inflation rates.

1. Introduction

Management of the annual price level changes within a country, known as the inflation rate, is one of the important economic issues for policy makers. Actually, there are a large number of researchers trying to recognize key determinants of the inflation in different countries. From the economic perspective, these determinants have been categorized to supply side, demand side and structural factors. Supply side factors are those economic factors which cause inflation by increasing cost of the production. Some important supply side factors include output growth, capital formation, oil and import prices, tax and wage levels, and exchange rate. Demand side factors lead to higher inflation via creating more buying requests for goods and services in the country. Some important demand side factors are money growth, private consumption

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expenditure and government consumption expenditure. On the other hand, any factor leading to the inflation by deepening the distance between supply and demand in the economy is assumed as a structural factor of the inflation. Inelasticity of supply, rigidity in government expenditure and inability of financial system to absorb and lead savings into the production, are important structural factors which cause inflation in an economy.

When a central bank in the conventional economy issues bond, the volume of money declines and as a result, the inflation rate decreases; but when a company, in Islamic economy, issues Sukuk, the amount of real balance in the economy does not change. Therefore, issuing Sukuk has no direct effect on the aggregate demand of the economy. Although, central bank, even in Islamic economy, could have some Sukuk in its portfolio and conduct open market operation by buying or selling them in the market.

More importantly, since all financial instruments of the Islamic finance system are based on the real sector of the economy, they are expected to reduce the inflation level by directing funds to production. One of the most widely used instruments in the Islamic finance is the Sukuk. All of the funds raised by issuing Sukuk, either domestically or internationally, would definitely be allocated to the production of goods and services which eliminates some structural aspects of the inflation .

In this paper, we try to examine the relationship between the Sukuk and the inflation to see whether the Sukuk could reduce the inflation by absorbing and managing domestic savings. For this purpose, we have chosen top 10 Sukuk issuing countries and constructed a Bayesian linear regression model to assess the inflation behavior in these economies.

There are a vast number of researches, which generally try to find inflation determinants which some are reviewed in what follows. Campillo and Miron (1997) examined the determinants of country-level inflation rates for a sample of sixty-two countries during the period 1973-94. They found out that the prior inflation experience plays an important role in the inflation performance. As another result, they showed that economic fundamentals, such as openness, political instability, and tax policy have large effects in determining the inflation rate. Also, Mohanty and Klau (2001) studied the determinants of the inflation in emerging economies. They used the quarterly changes in the variable data of 14 emerging countries during the 1990s. They found out that the output gap, money supply and wage level as well as some supply side factors like exchange rates, import price and oil price have significant influences on the inflation. Hammermann and Flanagan (2007) performed a panel data analysis for 19 transition economies, during 1995 to 2004. Their model suggests that a central bank's incentive towards higher short-run inflation is a key reason for observed outcomes. Also, the unanticipated shocks to supply and demand are important determinants of cross-country inflation. Kandil and Morsy (2009) studied the determinants of the inflation in the Gulf Cooperation Council during the period 1970 to 2007. To this end, they used two domestic factors, the government

spending and the money supply, and two external factors, the nominal effective exchange rate and a weighted average of the prices in the major trading partners. They described that in both short run and long run, the price level change of the major trading partners is the most influential factor on the inflation rate .

On the other hand, some researchers specifically tried to examine the effects of the financial system on the Inflation. Among them, Zaman et al. (2010), Using a VAR model, examined the relationship between financial development, growth and inflation in Pakistan during 1974-2007. Their results show that there is just an unidirectional relationship between the inflation and the financial development in Pakistan both in the long and short-run. Later, Damian (2012) used the monthly data during 2007 to 2011 to examine the effects of financial crisis on the inflation rate in Romania. Their model suggested that the vulnerability of financial system during the financial crisis period has a positive effect on the inflation rate .

Recently, Eftekhari Mahabadi and Kiaee (2015) developed models to study the influential factors on the inflation rate for a panel of available countries in the World Bank database during 2008-2012. For this purpose, they used the Random effect log-linear and Ordinal logistic models. The results of both models show that money growth, GDP, oil price and income levels of the countries are the significant predictors of the inflation rate. They also suggested that the Ordinal logistic model for the ordinal inflation response variable have the ability to detect more economic factors like government expenditure, exchange rate and capital formation as significant determinants of the ordinal inflation rate.

Finally some Islamic economists focused on the role of the Islamic banking and finance in controlling the Inflation. Hasin and Majid (2011) analyzed the role of the Islamic banks in the monetary transmission mechanism in Malaysia. They fitted ARDL model on the quarterly data from 1991 to 2010 and showed that the same as conventional banking, Islamic banking system in Malaysia could be considered as a channel for monetary transmission mechanism. Shahzad et al. (2012) in a conceptual framework tried to show that the Islamic financial system has the ability to shrink inflation level toward zero. The authors assert that the Islamic economic and financial system support money creation process by real sector of economy which does not lead to the inflation. Sarwer et al. (2013) used interview method to analyze the effects of the Islamic banking on the economic development of Pakistan. According to their results, the Islamic banking could be more convenient for the economic development in Pakistan. Ayuniyyah et al. (2013), using VAR and VECM models tried to examine the effects of the Islamic banking on the Inflation and output in Indonesia during 2004 to 2009. In this paper, authors have used the monthly data of the industrial production index and the consumer price index as representatives of the output and the inflation along with the total Islamic deposits, total Islamic financing and some other variables to represent the Islamic banking performance in Indonesia. Their results show that although all Islamic banking variables are

important determinants of the output, but there is no significant relationship between the Islamic banking variables and the inflation in Indonesia.

All the above-mentioned literature, tried to examine the effect of the Islamic finance solely on the Inflation rate of a single Islamic country. Unfortunately, in the current literature, no researcher examined the effects of the Sukuk on the inflation rate. In this paper, we try to construct and estimate an econometric model to analyze the effects of the Sukuk and some other important economic variables on inflation behavior in top Sukuk issuing economies. Since the available sample size is small (as a result of few number of countries with considerable volume of outstanding Sukuk), we will propose a Bayesian linear regression model, which is preferred over the likelihood approach for smaller sample sizes, to examine the effect of Sukuk in addition to key economic factors on the inflation rate in top 10 largest Sukuk issuing countries. Also, using some graphical and inferential devices, the need for a logarithmic transformation seems necessary for the original inflation rate variable to make its distribution symmetric. In our proposed model, the exchange rate as the supply side factor, money growth as the key demand side factor and the outstanding Sukuk growth as a structural factor are included to study the potential determinants of the inflation. Since Sukuk is a capital market instrument, it seems that the degree of capital market development is a key determinant of the effectiveness of the Sukuk in the economy. So, to analyze precisely the effect of the Sukuk on the inflation, we have included a dummy variable to show the degree of development of the capital market in each country.

The rest of the paper is organized as follows. The description and the exploratory analysis of the Inflation data are given in Section 2. Section3 presents the Bayesian model structure and framework including its prior and posterior distributions to be used for parameter estimation. The proposed model will be applied to the inflation data in Section 4. Also, the posterior point estimation of the parameters along with the graphical and the numerical goodness of fit summaries of the model are presented in this Section. Finally, Section 5 includes some concluding remarks and possible further works.

2. Data Description

Since the main purpose of this paper is analyzing the effect of the Sukuk on the inflation rate, we have chosen the 10 largest Sukuk issuing economies based on the Islamic Financial Services Industry Stability Report (2015) and Thomson Reuters, Sukuk Perceptions Forecast Study 2015 Report. Figure 1 shows the Sukuk outstanding growth in the selected countries at 2014 which are acquired from the mentioned reports. The other variables dealing with in this paper are extracted from the World Bank Data Bank (Available at: http://databank.worldbank.org).

We have used the annual changes in the Consumer Price Index (CPI) of each country at 2014 as the Inflation Rate variable denoted by now on. For the possible predictors of the inflation rates of the selected countries, we have

chosen the most important demand side and supply side factors to cover both demand pull and cost push inflation, in addition to the Sukuk as a structural factor. We have used Money Growth at 2013 as a demand side and the Exchange Rate Growth at 2014 as a supply side factor. Also, we have used the ratio of the market capitalization to GDP to recognize the development degree of the capital markets in each country. Actually, a dummy variable indicating the Capital market Development Rank (CDR) in the selected countries is included in the proposed model. CDR equals 0 when market capitalization to GDP is under 50 percent (mode of the data), which shows under developed capital markets. On the other hand, when the market capitalization to GDP is over 50 percent, CDR equals 1, which means that the capital market is sufficiently developed. Table 1 gives the notations and some brief descriptions of the variables to be used in the data analysis.

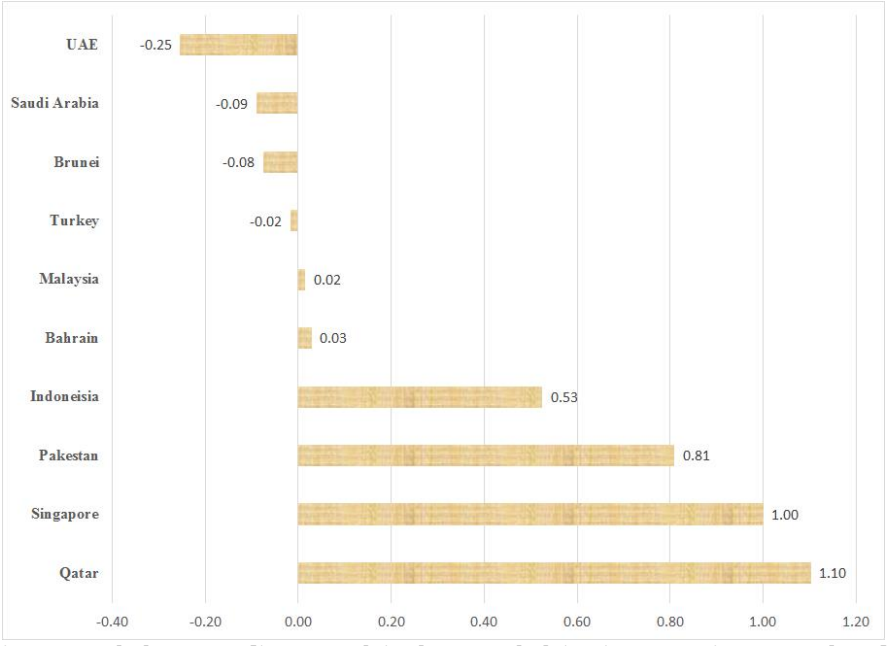

Figure 1. Sukuk Outstanding Growth in the top Sukuk issuing countries at 2014 based on Islamic Financial Services Industry Stability Report (2015)

Table 1. The notation and brief description of the economic factors

Notation	Stands for	Description
MG	Money Growth	Annual changes in the volumes of money
ER	Exchange Rate Growth	Annual changes in the currency value
CDR	Capital Market Development Rank	0: under-developed 1: well-developed
SOG	Sukuk Outstanding Growth	Annual changes in the Sukuk outstanding

2.1 Exploratory Data Analysis

To assess the potential effects of the above-introduced explanatory variables on the inflation rate response variable of the selected Islamic countries at 2014, we should examine the marginal association structure between each variable and the interesting response variable. It should be noticed that Brunei excluded from the sample due to unavailable capital market data which leads to a sample of 9 top Sukuk issuing countries for further analysis .

Figure 2 shows the Box plot of the INF variable which indicates a non-ignorable right skewness and the need for some transformation to make the distribution of this variable symmetric. This high positive skewness is due to the large number of Islamic countries with low inflation rates and a few number of Islamic countries with high inflation rates which fall in the right tail of the distribution.

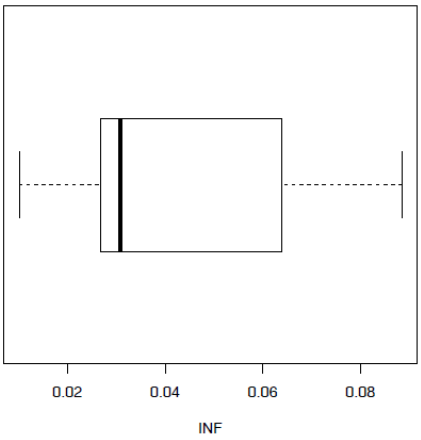

Figure 2. Boxplot of the INF variables at 2014

To study the appropriate transformation needed for the INF, one can use the Box-Cox parametric power transformation proposed by Box and Cox (1964) to reduce anomalies such as non-additivity, non-normality and heteroscedasticity. This family of power transformations is defined for positive variable Y_i, as:

$$Y_i^{(\lambda)} = \begin{cases} \dfrac{(Y_i^{\lambda} - 1)}{\lambda} & if\ \lambda \neq 0 \\ log(Y_i) & if\ \lambda = 0 \end{cases}$$

where λ is an appropriate real valued number which maximizes the profile log likelihood of $Y^{(\lambda)}$. Figure 3 shows the profile log-likelihood plot of the INF variable against the parameter of the Box-Cox power transformation, λ. According to this plot, we can choose the logarithm transformation for the INF variable as the confidence interval is centered around zero value.

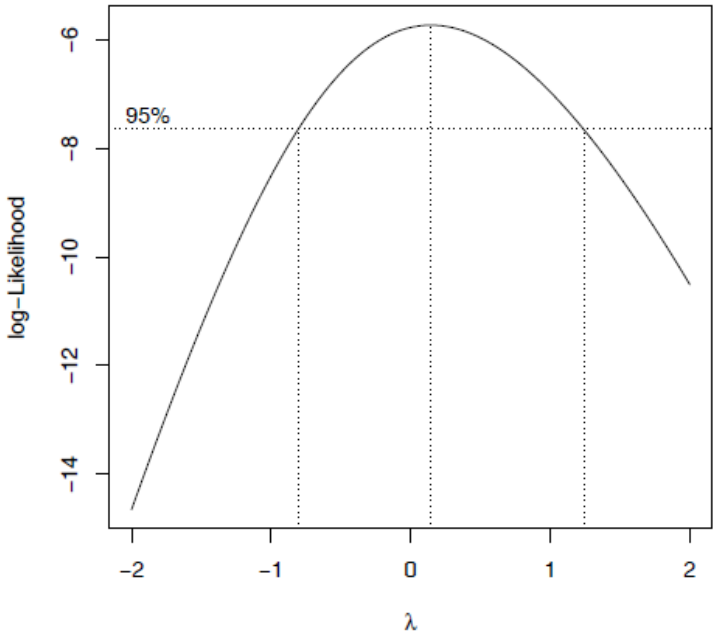

Figure 3. Profile log-likelihood plots of the INF variable for the parameter of the Box-Cox power transformation, λ

Now we study the relationship between different potential factors, which were described in the previous subsection, and the interesting dependent variable. Figures 4, 5, 6 and 7, respectively show bivariate scatter plots of the logarithm of INF variable versus explanatory variables, MG, ER and SOG (both for low CDR and High CDR countries). Also each Figure includes the marginal box plot of the axis variables along with the fitted Least Square line.

Figure 8 graphically represents the correlation matrix for the set of all interesting variables, where the association strengths are illustrated via colors. Actually darker colors mean larger absolute values of the correlations. According to this Figure, all explanatory variables are considerably correlated with the INF variable. Also, some low correlations exist between explanatory variables of interest.

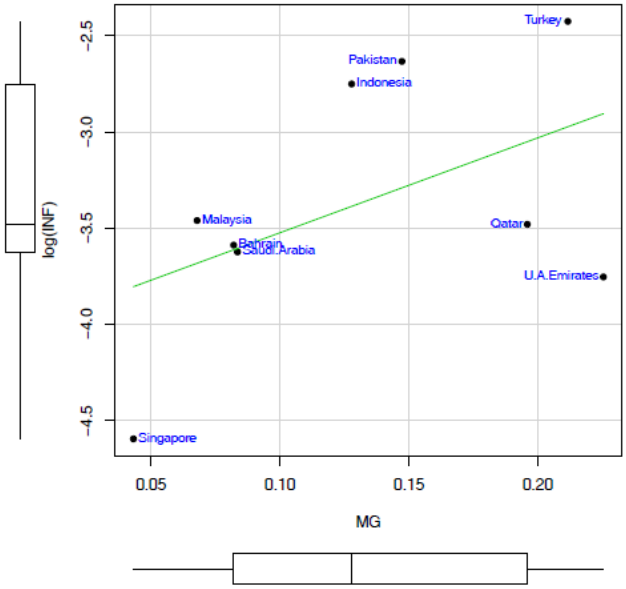

Figure 4. Scatter plot of log(INF) versus MG for Islamic Countries

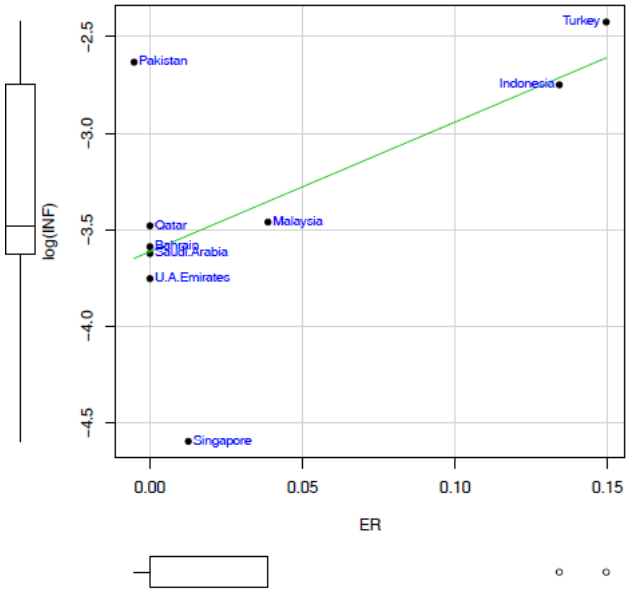

Figure 5. Scatter plot of log(INF) versus ER for Islamic Countries

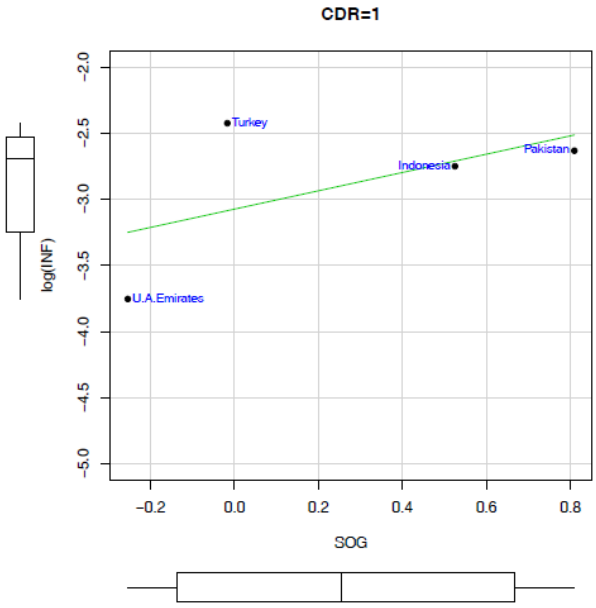

Figure 6. Scatter plot of log(INF) versus SOG for Islamic Countries with low CDR

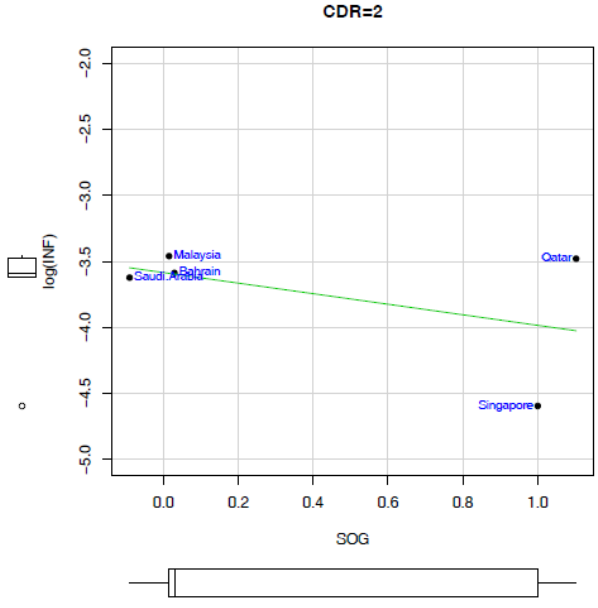

Figure 7. Scatter plot of log(INF) versus SOG for Islamic Countries with high CDR

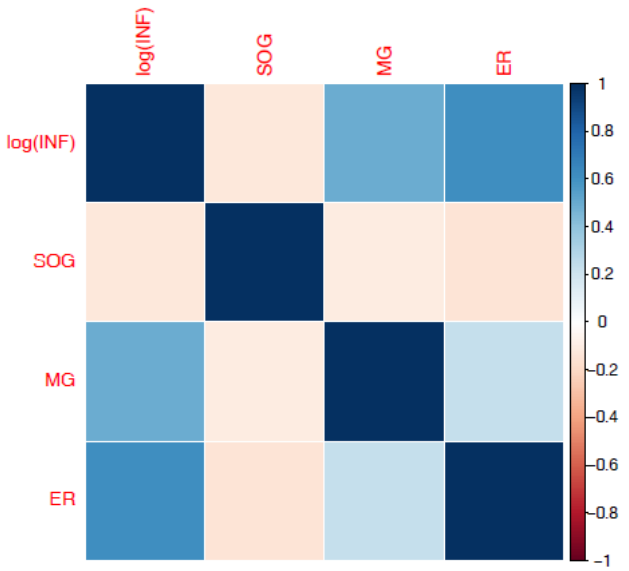

Figure 8. Correlation Matrix of the set of explanatory variables and response variable

3. The Bayesian Linear Regression Model

Normal regression models are the most popular tools for mean response prediction and inference in the statistical science. They are based on the initial work of Sir Francis Galton in the late years of the 19th century (Stanton, 2001). In these models, the response variable is assumed to be a continuous random variable defined in the whole set of real numbers following the normal distribution with the mean parameter as a linear function of the explanatory variables and some regression coefficients.

To analyze the effect of the potential explanatory variables on Log(INF), we will apply a Bayesian regression approach, which is recommended and preferred over likelihood approach when the sample size is small. let us assume the following distribution and model equation for the INF response variable:

$$Log(INF_c) \mid X \overset{ind}{\sim} N(\mu_c, \sigma^2),\ c = 1,...,9 \qquad (1)$$
$$\mu_c = \alpha_0 + \alpha_1 SOG_c + \alpha_2 CDR_c + \alpha_3 SOG_c \times CDR_c + \alpha_4 MG_c + \alpha_5 ER_c,$$

where σ^2 and $\alpha = (\alpha_0, \alpha_1, ..., \alpha_5)$ are the set of regression parameter to be estimated. Also, c is the index of the set of 9 Islamic countries available in the sample. In normal regression models, the popular approach is to assume that all parameters are a priori independent having the structure:

$$\pi(\alpha, \tau) = \prod_{j=0}^{5} \pi(\alpha_j) \times \pi(\tau)$$
$$\alpha_j \sim N(\mu_j^{\alpha}, \sigma_j^2),\ \ for\ j = 0,...,5$$

$\tau \sim Gamma(a,b),$

where $\tau = 1/\sigma^2$ and the gamma prior used for τ corresponds to an inverse gamma prior distribution for the original variance parameter, σ^2, with prior mean and variance given by,

$$E(\sigma^2) = \frac{b}{a-1}$$

$$var(\sigma^2) = \frac{b^2}{(a-1)^2(a-2)}$$

When no information is available, a usual choice for the prior mean, μ_j^{α} is the zero value. This prior choice centers our prior beliefs around zero, which corresponds to the assumption of no effect of explanatory variables, on the response and express our prior doubts about this relationship. The prior variance σ_j^2 of the effect α_j, is set equal to a large value to represent high uncertainty or prior ignorance. Similarly, for τ we use equal low prior parameter values a and b, setting its prior mean equal to one with a large prior variance. Actually, we use the following low informative prior distributions for the vector of the model parameters:

$$\alpha_j : N(0,1000), \quad j = 0,...,5, \quad \tau : Gamma\,(0.01,0.01\ ) \tag{2}$$

where it is assumed that $\sigma_j^2 = 10^3$ to show uncertainty about the value of α_j. Also we have assumed $a = b = 0.01$ which leads to $E(\tau) = \frac{a}{b} = 1$ and $V(\tau) = \frac{a}{b^2} = 100.$ Hence the posterior density function of the vector of parameters $\Theta = (\alpha, \sigma^2)$, would be:

$$\pi(\Theta \mid Log(INF), X) = \frac{L(\Theta \mid Log(INF), X) \times \pi(\Theta)}{\int_{\Theta} L(\Theta \mid Log(INF), X) \times \pi(\Theta) d\Theta}, \tag{3}$$

where the likelihood function is,

$$L(\Theta \mid Log(INF), X) = \frac{exp\left(\frac{-\sum_{c=1}^{9}(Log(INF_c) - \mu_c)^2}{2\sigma^2}\right)}{\sigma\sqrt{2\pi}},$$

and the integral in the denominator is a 6 dimensional integral over all the elements of Θ.

4. Results of the Model Estimation

To obtain the numerical results of the parameter estimation for the previously mentioned model we have implemented an Markov chain Monte Carlo (MCMC) approach, through sampling from the posterior distribution of the parameters in equation (3) based on constructing a Markov chain that has the desired distribution as its equilibrium distribution. The approach was implemented in the WinBUGS software (Ntzoufras, 2009; Spiegelhalter et al. 2003; Gilks et al. 1996). Table 1 presents the results of the Bayesian parameter estimation for the parameters in equation 1. To draw inferences, we have performed the iterative Gibbs sampling procedure in 100,000 iterations, ignoring the first 90,000 iterations as burn-in to get closer to the convergence, so that the inferences about the model parameters are obtained using 10,000 remaining iterations. We use the posterior mean of each parameter as its estimate and the sample standard deviation as the estimated standard deviation of the parameter of interest. Also, Monte Carlo standard errors and the 95% credible intervals for each parameter are presented in Table 2.

Table 2. Results of Bayesian Parameter Estimation of Inflation data

Par.	Posterior Mean	S.D	MC error	2.5% quantile	97.5% quantile
Intercept	-5.26*	0.65	0.007	-6.52	-4.11
SOG	1.56*	0.46	0.040	0.75	2.52
CDR	0.93*	0.47	0.041	0.01	1.93
SOG×CDR	-2.31*	0.59	0.025	-3.21	1.14
MG	8.76*	2.82	0.003	3.25	14.76
ER	5.67*	2.09	0.018	1.27	9.48
σ	0.26*	0.16	0.001	0.12	3.77

*Note: *significant at 0.05*

Also to examine if the posterior simulations of the model parameters have been stabilized, Figure 10 have been plotted using posterior summaries of the model parameters in the last 10,000 iterations. Actually, Figure 10 plots the running posterior mean in the last 10,000 iterations, with 95% credible intervals against iteration number and Figure 9 illustrates the trace plots of the posterior sample values versus iteration for different model parameters. These plots show that for the last 10,000 iterations of the MCMC procedure, the posterior sample values and their means for all the model parameters have a stable state with no considerable fluctuations which means that the chain has been converged acceptably. Figure 11 plots a smoothed kernel density estimate for each parameter. As is expected the posterior density for the regression coefficient are bell shaped and normal and the density for the variance looks like an inverse gamma distribution.

To assess goodness of fit for the suggested model, we could estimate the Bayesian counterpart of the coefficient of determination (the well-known R^2).

We know that the precision parameter, τ (and the variance σ^2), indicates the precision of the model. If the precision τ is high (σ^2 low), then the model can accurately predict (or describe) the expected values of the response variable. Therefore, we can rescale this quantity using the sample variance of the response variable, namely, s_Y^2, using the R_B^2 statistic given by:

$$R_B^2 = 1 - \frac{\tau^{-1}}{s_Y^2} = 1 - \frac{\sigma^2}{s_Y^2}$$

This quantity can be interpreted as the proportional reduction of uncertainty concerning the response variable, achieved by incorporating the explanatory variables in the model. The results of the model fitting leads to $R_B^2 = 0.79$.

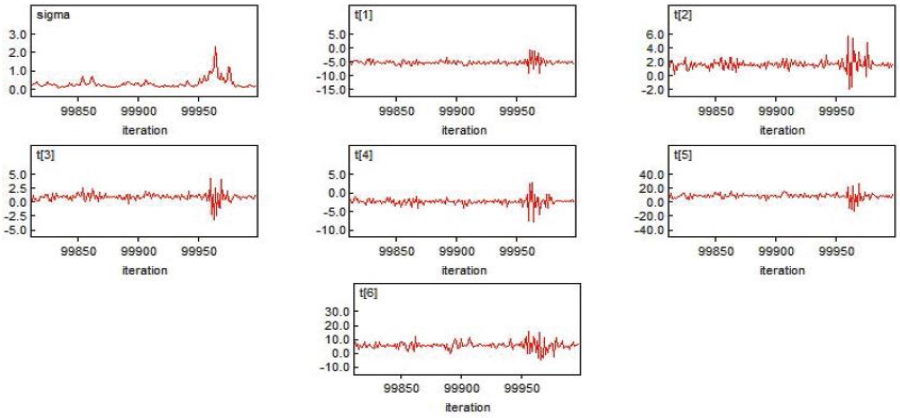

Figure 9. Trace plots of the posterior sample values against iteration number

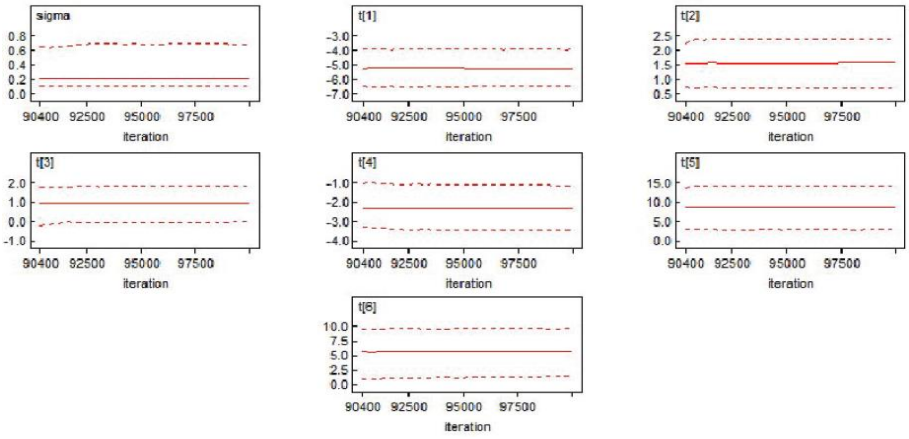

Figure 10. Running posterior mean with 95% confidence intervals against iteration number

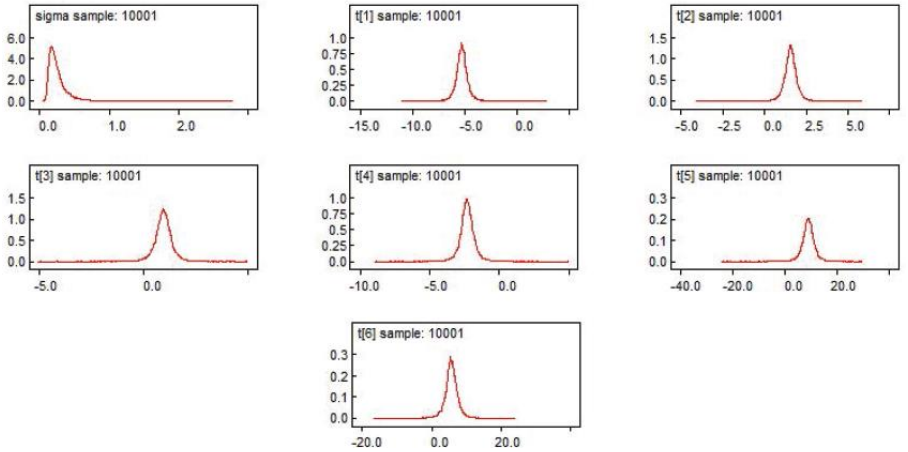

Figure 11. smoothed posterior kernel density estimate for the parameters

To cheek the independence assumption for the residuals, we have calculated the Durbin Watson statistic and its Bayesian P-value, which indicates: $DW = 1.99,\ P-Value = 0.39$ and accepts the independence assumption. Also, the examination of the standard residuals show that all of them are included between -2 and 2, so that there is no outlying observation.

According to the results of Table 1, for well-developed capital market countries, when outstanding Sukuk increases by 1 percent, the expected value of Inflation will be multiplied by (1-0.01) or equivalently the value of inflation will be decreased by 1 percent of the original value. While for under-developed capital market countries, when outstanding Sukuk increases by 1 percent, the expected value of Inflation will be multiplied by (1+0.02) which means that the value of inflation will be increased by 2 percent of the original value. Also the results illustrate that the increase in MG and ER will be followed by a higher average value of inflation rate. Specifically, a 1 percent increase in the volume of money or exchange rate would respectively multiply the expected value of Inflation by (1+0.09) or (1+0.06).

The results presented in Table 1 lead to the following economic interpretations:

- As the results of suggested model indicate, the Sukuk growth is a significant determinant of inflation in both well-developed and under-developed capital market Islamic countries. As was expected, in the well-developed capital market countries an increase in the volume of outstanding Sukuk, as a structural factor, will decline inflation level, while in the under-developed capital market countries the result is reverse and the increase of Sukuk causes higher inflation. In fact,

according to the estimation results, for the successfulness of Sukuk in directing people's savings into production process, the development degree of the capital market is very important.

- The fitted model suggests that money growth is one of the most important determinants of inflation in the selected Islamic countries. This finding confirms the famous Friedman expression, "Inflation is always and everywhere a monetary phenomenon" (Friedman, 1963). So, to manage inflation in the Islamic countries, similar to the other countries, a sound monetary policy is required.
- The model suggests that in the selected Islamic countries, the exchange rate growth is an important determinant of inflation. According to the results, increasing the exchange rate growth or currency devaluation in the selected countries leads to an increase in the inflation.

5. Conclusion

The inflation is one of the most important macroeconomic variables affecting all policy-making measures. This fact motivated many researchers to study the main inflation determinants. These determinates are often categorized into the demand side, supply side and structural factors. One of the main structural factors that affects the inflation is the inability of the financial system to absorb and direct people's savings into production process. Therefore, people try to buy more goods and services, and especially in a case of inelastic supply, this will intensify the distance between demand and supply which deepen the inflation phenomenon. In contrast, an efficient financial system will decline the inflation rate of the economy by leading savings into investment and production.

Here, one of the main questions is that whether the volume of Sukuk, as one of the most important Islamic financial instruments, has been successful in directing money to investment and controlling the inflation in Islamic countries. This paper tried to construct a comprehensive model which considers simultaneous effects of Sukuk and some key demand and supply side factors on the inflation rate in 10 largest Sukuk issuing economies. Since the available sample size of the study is small (due to the few number of countries with considerable volume of outstanding Sukuk), the Bayesian regression model has been applied.

In this model, the annual change of the consumer price index in the selected Islamic countries at 2014 is considered as the dependent variable. Using some graphical and inferential devices, the need for a logarithmic transformation seemed necessary for the original inflation rate variable to make its distribution symmetric. The set of model predictors includes the money growth as a key demand side factor and the exchange rate growth as a key supply side factor. We have also considered the growth of outstanding Sukuk in top 10 Sukuk issuing countries at 2014 in the model as another potential predictor. Since primary

issuance of Sukuk and its secondary transactions all would happen in the capital market, Sukuk is known as a capital market instrument. So, we have also considered a dummy variable in the model to analyze the importance of the capital market development in the successfulness of Sukuk in controlling inflation.

What makes this study different from the previous similar studies are: 1) this study, for the first time, tries to analyze the possible relationship between the volume of the Sukuk issued by the Islamic countries and their inflation level while the previous researches focused on the relationship of the Islamic finance as a whole on the inflation. 2) Our proposed model considered key demand and supply side factors in addition to the volume of the Sukuk but the previous researchers mostly examined only the effect of the Islamic banking and finance on the inflation. 3) Since the sample of considerable Sukuk issuing economies is small, we have used the Bayesian approach to fit the inflation model for these countries but all previous researches had used popular likelihood approach which is reliable for large sample sizes.

To give Bayesian estimators of the regression parameters, we have implemented an MCMC algorithm including 100,000 iterations in the WinBUGS software. The goodness of fitted model is also accepted using some graphical and numerical Bayesian summaries. Particularly, the Bayesian counterpart of R-squared statistic for the suggested model is 79 percent which means that the selected predictors could explain about 79 percent of the total variation in the inflation as the dependent variable. Also the estimation results suggest that the volume of Sukuk is a significant determinant of the inflation in the selected Islamic countries but as expected, the size and the direction depend on the degree of development of capital market in these countries. Actually, in well-developed capital market countries, one percent increase in the annual outstanding Sukuk will decline the inflation by about 1 percent of its original value but in under-developed capital market countries it will increase inflation by 2 percent. This result confirms the idea that when the capital market is sufficiently developed, the Sukuk issuance could efficiently be used by policy makers for controlling the inflation rate. On the other hand, money growth, as a key demand side factor, affects the inflation in the selected countries positively such that one percent increase in the volume of money will increase the inflation level by 9 percent of its original value. According to the estimation results, the exchange rate growth is the other significant determinant of inflation in such a way that one percent increase in the exchange rate, will increase the inflation by 6 percent of its original value.

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