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Exchange Rate Pass-Through Estimates For *Sukuk* Issuing Countries

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Abstract

The aim of the study is to estimate the degree of import and consumer prices exchange rate pass-through for *sukuk* issuing OIC member countries. Exchange rate pass-through is estimated based on *recursive vector autoregresion* (VAR) model. Data are yearly covering the period 1970-2010 and are sourced from International Financial Statistics and SESRIC database. The findings indicate that import and consumer prices pass-through increases in the long horizon in the case of Bahrain and Saudi Arabia. Other countries reported low degree of both import and consumer prices pass-through with no discernible patterns. Policymakers and investors might benefits from the findings since pass-through estimates indicate inflation and exchange rate risk exposure particularly for intra-OIC cross-border *sukuk* issuance.

***Keywords: Sukuk,* exchange rate pass-through, inflation, OIC economies**

1. Introduction

Sukuk refers to Islamic financial instruments, which in economic terms are akin to conventional bonds. For the period 2004 to 2006, the international *sukuk* market is bigger than the domestic *sukuk* market. However, the trend was reversed in 2007. The IIFM, 2010, refers to the situation as "currency effect," in which as a consequences of the financial crisis in 2007 that originated in the United States, there has been a shift away from dollar-denominated issues towards local currency-based issues arising from the GCC countries, Indonesia and Pakistan. Based on the current trend, *sukuk* are most likely to be issued in the Asia and the Far East and the GCC and Middle East economies.

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Exchange rates risk exposure is one of the types of risks present in the *sukuk* structure. The volatility in exchange rates leads to an uncertainty in the foreign exchange market and adversely affects foreign participation in domestic bond and *sukuk* markets. Exchange rates volatility, on the other hand, affects exchange rates stability and the degree of exchange rate pass-through. Exchange rate stability is an important currency attribute in international capital markets in minimizing exchange rate risk exposure due to currency fluctuations. Therefore, the present study contributes to the literature since empirical estimations on exchange rate pass-through for *sukuk* issuing OIC countries are currently under-researched areas.

1.1 Exchange rate pass-through

Exchange rate pass-through (ERPT) describes the relationship between exchange rates and prices. The higher the degree of pass-through, the higher would be the long-run impact on price inflation following exchange rate changes. In general, exchange rates in countries with high (low) inflation tend to have depreciating (appreciating) currency. Currency consideration is one of the important considerations for the ability to attract cross-border issuance. The global financial crisis in 2008 had a negative impact on dollar-denominated *sukuk* issuance. It is expected that with the rising importance of Bahrain and Dubai International Financial Exchange (DIFX), there would be more issuances in riyals and Kuwaiti dinars (SC, 2010).

1.2 Sukuk and exchange rates policy

Exchange rate is one of the key factors affecting *sukuk* market. It is an important indicator for a number of reasons. First, it has a major impact on the ability of exporters to compete. Second, it has a direct effect on an economy's inflation rate due to the impact on import prices. Third, it can affect returns on foreign investments. Fourth, it can affect foreign debt.

Exchange rate volatility and variability are seen as a proxy for risk The volatility in exchange rates leads to an uncertainty in the foreign exchange market and adversely affects foreign participation in domestic bond and *sukuk* markets. Greater exchange rates volatility makes importers wary of changing prices and more willing to adjust profit margins, thus reducing pass-through. Hence, the risk is higher in the case of a low degree of pass-through.

Sukuk industry is affected by the same rules of supply and demand, risk and return and the macroeconomic variables such as exchange rates and inflation. It is also a function of the regional and global debt market. The general rule is that bonds tend to perform well when inflation is low, interest rates are expected to fall and company profits are under pressure. Bond prices rise and fall in cycles, doing well in a low inflationary environment and low interest rates. They perform badly when the two indicators are rising.

Rising inflation is particularly damaging to bonds and *sukuk* because their return is fixed in money terms and inflation erodes their value. At certain times in the stock market and economic cycle, *sukuk* can be a good investment choice since their prices are generally less volatile than shares. Therefore, *sukuk* can be used to reduce the risk and stabilize an investment portfolio.

2. Research Method

For the study, countries selected are Bahrain (dinar), Brunei (Brunei dollar), Gambia (dalasi), Indonesia (rupiah), Malaysia (ringgit), Pakistan (rupee) and Saudi Arabia (Saudi riyal). The selection is based on data availability, OIC membership and the availability of *sukuk* issuance in domestic currencies. At present, there are nine different currencies of *sukuk* issuances; the three largest currencies are ringgit, USD and rupiah. Dalasi, the Gambia's currency was the least amount.

Data are annually covering the period 1970-2010 and are sourced from International Financial Statistics and SESRIC database. The study employs a recursive vector autoregression (VAR) approach as proposed by

McCarthy, 2000. The VAR is constructed such that the ordering of the variables reflects pricing along the distribution chain. The model in reduced-form VAR can be written as follows:

$$Y_t = \beta_0 + \sum_{i=1}^{n} \beta_i Y_{t-i} + u_t \quad (1)$$

where Y_t is a 4x1 vector of variables, Y_t = (*gdp*, *er, imp, cpi*)'. β_i are coefficients matrices of size 4x4 and u_t is the one step ahead prediction error with variance-covariance matrix Σ, β_0 is the intercept. The VAR model can be written as follows:

$$\begin{aligned} gdp_t &= E_{t-1}(gdp_t) + \varepsilon_t^{gdp} \\ er_t &= E_{t-1}(er_t) + \beta_1 \varepsilon_t^{gdp} + \varepsilon_t^{er} \\ imp_t &= E_{t-1}(imp_t) + \lambda_1 \varepsilon_t^{gdp} + \lambda_2 \varepsilon_t^{er} + \varepsilon_t^{imp} \\ cpi_t &= E_{t-1}(cpi_t) + \delta_1 \varepsilon_t^{gdp} + \delta_2 \varepsilon_t^{er} + \delta_3 \varepsilon_t^{imp} + \varepsilon_t^{cpi} \end{aligned} \quad (2)$$

where *gdp* denotes GDP, *er* is bilateral exchange rates against USD, *imp* denotes import prices and *cpi* is consumer price index.

Based on Equation (2), inflation at an import and consumer prices distribution stages, at period *t,* comprises of several different components. The expected inflation at that stage is based on the available information at the end of period *t-1*. The first component is interpreted as the demand shocks, in *er* as exchange rate shocks and in the import and consumer prices as non-oil price shocks and $E(\cdot)$ denotes the expectation operator. Import prices (or consumer prices, Δcpi_i) pass-through coefficient is calculated based on the following formula:

$$\text{ERPT} = \frac{\sum_{t=1}^{t+j} \Delta imp_i}{\sum_{t=1}^{t+j} \Delta er_i} \quad (3)$$

The four variables VAR model is based on the cointegration and stationarity property of each variable. We use Augmented Dickey-Fuller (ADF) tests to investigate the stationary properties of each variable. The results indicates that all variables are I(1). The Johansen co-integration tests are performed to determine the existence of co-integrating vectors. Next, the residuals correlation and covariance matrix are examined to detect autocorrelation problems. The covariance results show no significant figures, meaning that no remaining autocorrelations are being ignored by the model. Thus, the orderings are maintained.

3. Results

Results of the estimations are presented in Table 1 below. The pass-through estimates for import and consumer prices are calculated for the 1, 3, and 5 year horizons to capture the trend. Both Bahrain and Saudi Arabia have higher degree of import prices pass-through with an increasing trend relative to other countries.

Both countries also display higher degree of consumer prices pass-through as compared to others. This might be due to the fact that the Gulf Cooperation Council (GCC) and Middle East countries dominate in terms of number of *sukuk* issuance and percentage of total value for the period 2001-2010. The United Arab Emirates (UAE) has the highest percentage of total value (in USD million) of 52 per cent, followed by Malaysia and Bahrain each contributed 12 per cent and Saudi Arabia with 11 per cent. In addition, both Bahrain and Saudi Arabia peg their currency to USD in addition to being the exchange rate anchor for the monetary policy framework (SESRIC, 2012).

Table 1: Estimates of import and consumer prices pass-through

Country	ERPT Estimates (%)					
	Import Prices Pass-Through			CPI Pass-Through		
	1 year	3 year	5 year	1 year	3 year	5 year
Bahrain	14.04	9.44	16.25	1.88	3.27	7.19
Brunei	2.57	1.56	1.38	2.88	1.44	0.88
Gambia	0.77	0.45	0.39	0.48	0.57	0.68
Indonesia	2.57	1.56	1.38	2.88	1.44	0.88
Malaysia	0.64	0.77	1.03	2.34	1.71	1.38
Pakistan	1.4	1.33	1.23	0.68	0.72	0.76
Saudi Arabia	16.34	18.6	28.41	7.11	3.14	4.08

On the other hand, Brunei, Gambia, Indonesia, Malaysia and Pakistan display low degree of both import and consumer prices pass-through. In some cases, the estimates shows declining trend. Gambia has the lowest coefficient estimates; whereby import prices pass-through is declining while consumer prices pass-through tend to increase in the long run. A close inspection on Gambia reveals that the country floats it currency and adopt monetary aggregate target. The inflation rate is close to 5 per cent and the total external debt to GDP is almost 50 per cent in 2011 (SESRIC, 2012). The level of indebtedness is an important factor consideration in deciding whether to issue short or longer tenor issuance.

However, economic growth in the GCC, Middle East and emerging Asian countries require substantial infrastructure and constructions, especially in real estate and property development, oil and gas and transportation sectors. Exposure to excessive exchange rates fluctuations may be translated into higher degree of pass-through which might have an impact on international trade or cross-border *sukuk* issuance. Empirical evidence suggests that aggregate issuance of international bonds is significantly higher in strong currency than in weak ones. Hence, any OIC countries planning on issuing domestic currencies *sukuk* issuance should first evaluate the strength of their currencies by estimating the degree of exchange rate pass-through into domestic prices.

4. Conclusions

The study examines the impact of exchange rate risk exposure by estimating import and consumer prices exchange rate pass-through for seven *sukuk* issuing OIC member countries. The findings indicate that Bahrain and Saudi Arabia might be better able to insulate themselves from external shocks due to higher degree of pass-through. However, other countries, especially Gambia, need to effectively coordinate and align their exchange rate arrangements and monetary policy framework to minimise the impact of exchange rates risk

exposure. To be a financially open economy, *sukuk* issuing countries should re-evaluate their financial indicators such as financial depth, penetration of financial services and financial openness to promote trade among members. For that purpose, the stability and flexibility of exchange rate regimes is important in enhancing intra-industry trade and cross-border *sukuk* issuance. Therefore, exchange rate policy should strike a balance between domestic monetary policy and international competitiveness. Future research should estimate the degree of exchange rate pass-through into *sukuk* price indexes based on sector-wise intra-OIC trade utilizing trade weighted nominal effective exchange rates.

Acknowledgement

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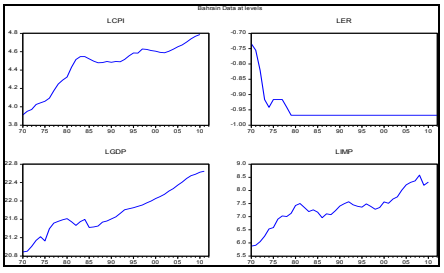
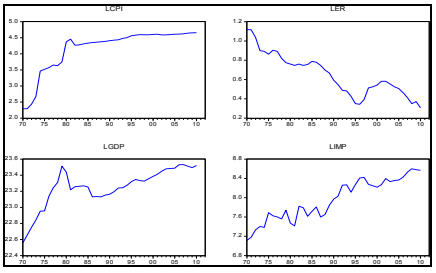
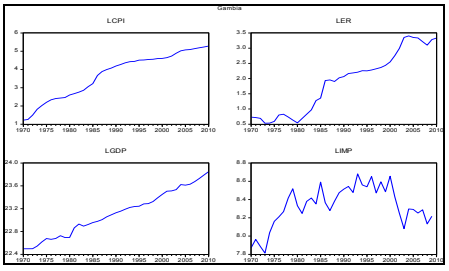
Appendix A: *Visual Plots of GDP, CPI, Exchange Rates and Import Variables for Each Country*



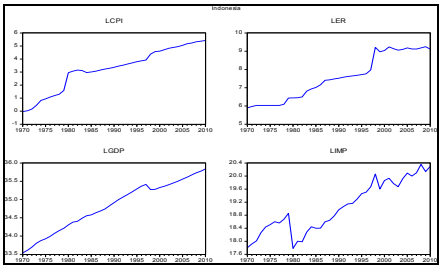
Bahrain



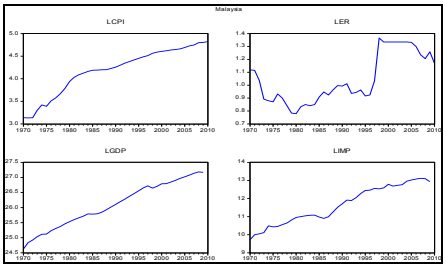
Brunei



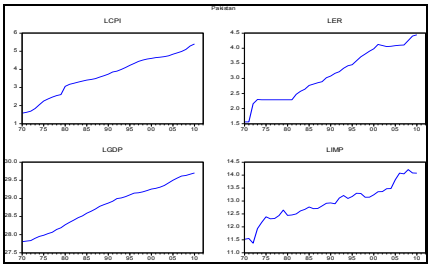
Gambia



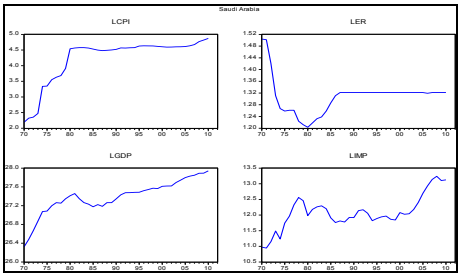
Indonesia



Malaysia



Pakistan



Saudi Arabia

Note: LCPI denotes CPI, LGDP denotes GDP, LER denotes exchange rates and LIMP denotes import. All variables are in log values.