Journal of Financial, Accounting and Managerial Studies
ISSN 2352-9962/E-ISSN 2572-0147
Vol 06, Number 03 – December 2019

OEBUniv.Publish. Co.

The Impact of Exchange Rate Fluctuations on the Performance of the Emerging Islamic Stock Indices for the Period (2010-2019)

أثر تقلبات أسعار الصرف على أداء مؤشرات الأسهم الإسلامية الناشئة للفترة 2010-2019

Besseba Abdelkadir [*1] , Benayad M. Samir[2] , Redif Mostapha [3]

[1]University of Sidi Bel Abbes, Algeria,besseba.abdelkadir@gmail.com

[2]University of Sidi Bel Abbes, Algeria, benayadsamir@yahoo.fr

[3]University of Sidi Bel Abbes, Algeria, redif.cur@gmail.com

Date of receipt: 17/08/2019 Date of revision:30/10/2019 Date of acceptation:17/11/2019

Abstract

The aim of this article is to define whether the exchange rate volatilities affect the Islamic stock returns focusing on the emerging markets, by using a GARCH model via daily data of five countries.

The results show that the return of Islamic stock indices has a negative and significant relation with exchange rate risk exposure in all cases, which can be explained by the decrease of the local currency, can result to losses in the Islamic stock market, therefore decline in returns.

Keywords : fluctuations, exchange, indices, Islamic, returns.

ملخص

تهدف الدراسة إلى وصف ما إذا كانت تقلبات أسعار الصرف تؤثر على عوائد مؤشرات الأسهم الإسلامية بالتركيز على الأسواق الناشئة، باستخدام بيانات يومية لخمسة بلدان على نموذج *GARCH*.

أظهرت النتائج أن عوائد مؤشرات الأسهم الإسلامية لها علاقة سلبية معنوية اتجاه تغيرات أسعار الصرف في جميع الحالات، ويمكن تفسير ذلك بأن انخفاض قيمة العملة المحلية يؤدي إلى آثار سلبية على أسواق الأسهم الإسلامية مما يؤدي إلى انخفاض في عوائد الأسهم.

الكلمات المفتاحية: تقلبات، صرف، مؤشرات، إسلامية، عوائد.

*Corresponding Author: Besseba Abdelkadir, besseba.abdelkadir@gmail.com

1. INTRODUCTION

The analysis of economic variables effects on financial market is has paying attention of the economists since 19th century. The basic macroeconomic variables and stock market fluctuation represent an important part in defining and anticipating the future situation of an economy (chowdhury & Arthanari, 2018, p. 4309).One of these variables, exchange rate, is studied alongside with Stock Market.

Exchange rate volatility has increased radically since the adoption of the floating exchange rate regime in the early 1970s (Mechri, Hamad, Peretti, & Charfi, 2018, p. 2), in addition to the current changes in stock market at international level, like the liberalization of capital markets and financial integration (Hussain & Ur-rahman, 2017, p. 175). As a result, there is more uncertainty in the relationship between foreign exchange markets and stock markets at global level (Mechri, Hamad, Peretti, & Charfi, 2018, p. 2), it becomes significant objective to review the effect of foreign exchange rate changes on the developments of stock markets (Feng, 2018, p. 1).

The emergence of the Islamic financial markets provides cross-border capital flow and funding for investment managers and/or companies who are seeking *Shariah*-compliant investments. *Shariah*-compliant investments refer to financial assets that follow to Islamic doctrines. Although most of the Islamic financial assets are situated in the Middle East and Asian region, conversely of late, there have been sign of these assets focus moving to countries in Europe, US and Latin America.

Since 1999, the world financial market has been characterized by the launch of Islamic indexes, which are created to screen the stocks in conventional indices that have confliction with the Islamic laws, by takes some of ethical considerations for a stock to be ethically suitable. Some of those indexes are Financial Times *Shariah* Indexes Series (FTSE), Dow Jones Islamic Market Index DJIMI, Standard & Poor's S&P *Shariah* Index and Morgan Stanley Capital International MSCI Islamic Index(Khamlichi, Sarkar, Arouri, & Teulon, 2014, p. 1138).

Over the past several decades, many studies have examined the relationship among the stock markets and the exchange rate markets (Yen-Hsien, Ya-Ling, & Tsu-Hui, 2017, p. 96). Conversely, to the best of our knowledge, there is a lack in the literature relating to the investigation of the interaction between Islamic stock markets and foreign exchange markets (Mustapha & Masih, 2017, p. 2). Knowledge of the real trend of connection among share prices (or returns) and exchange rates changes would provide additional information to investors and policymakers in estimating and controlling the performance these markets (Parsva & Tang, 2017, p. 836).

The purpose of this article is to describe whether the exchange rate volatilities affect the Islamic stock returns; we pay attention to the emerging markets, and how the foreign shocks of exchange rates impact this relationship. We attempt to check the hypothesis that, there is a important effect of exchange rate volatilities on Islamic stock returns movement.

To test this hypothesis, we investigate the relationship among Islamic stock returns and exchange rates in five countries i.e. China, Indonesia, India, Malaysia and Thailand, using daily data from 18 May 2010 until 15 February 2019, to capture the comportment of market participants; to make comprehensive observations and credible results.

The rest of the article is planned as follows. Section 2 reviews the theoretical framework and the existing literature; Section 3 describes the data and methodology; Section 4 presents and discusses the empirical results; and Section 5 offers the conclusions and research implications.

2. THEORETICAL FRAMEWORK

One of most important concerns facing international investors is recognizing co-movements of stock prices and exchange rates. This is due to the adoption of free-floating exchange rates by many countries, which reorganized the world financial system and this increased capital movements; global economic incorporation; and diversification (Dahir, Mahat, Razak, & Ariffin, 2018, p. 101).Two main types of exchange rates can be used in this context. While the nominal exchange rate takes into consideration the amount of local currency that can be sold to purchase one unit of foreign currency, real exchange rate expresses how much local goods and services can be exchanged with foreign goods and services (chowdhury & Arthanari, 2018, p. 4309).

The financial theory asserts that in an advanced stock market, the risk of exchange rate change is a portion of the specific risk that can be hedged away (Mahapatra & Bhaduri, 2018, p. 1). Reviewing the link among stock prices and exchange rates is significant for many reasons. First, it may affect choices about macroeconomic policies. Second, the relations among the two markets may use to forecast the tendency of the exchange rate. Third, the currency is frequently being included as a component in investor's portfolio. Fourth, the understanding of the stock price and exchange rate relationship may help to avoid financial crises (Elhendawy, 2017, pp. 29-30).

2.1 Basic Theories

Theoretically, there are two theories that studied the connection between these two markets. One is the international trading effect theory (or the flow-oriented model) determined by the exchange rate based on the micro-level. The other is the portfolio balance theory or the stock-oriented model) that prevails at the macro-level (Feng, 2018, p. 12).

2.1.1 Flow-oriented model (International trading effect)

Dornbusch and Fisher (1980) formulated the flow-oriented model in reference to the goods market (Yen-Hsien, Ya-Ling, & Tsu-Hui, 2017, p. 96). The theory suppose that the exchange rate is mostly determined by the performance of the current account and trade balance, and through that affect competitiveness of the economy (Abimbola & Olusegun, 2017, p. 1) and then the future cash flows of stock markets are influenced by trade and investment (Han & Zhou, 2017, p. 40). The ultimate target is to define the stock prices movement, as it is believed that if the change in exchange rate occurs then it also changes the direction of the stock prices movements (Khatri, Kashif, & Shaikh, 2017, p. 113).

From a theoretical perspective, the depreciation in exchange rates would increase the competitiveness of a company in the global markets, that impact foreign operations of multinational companies and increase the company's earnings and its stock price directly (Parsva & Tang, 2017, p. 836). It also has indirect effect on the domestic companies by impacting the profitability of the local companies as well (Hussain & Ur-rahman, 2017, p. 176). The export-oriented companies benefit from depreciation exchange rates because weak currency values allow to the exporters to export more goods or services and that raise their stock prices. In the other side, the stock

prices of import-oriented companies may fall down due to declining of their earnings, which means that currency depreciation has a negative effect on company' stock prices (Dahir, Mahat, Razak, & Ariffin, 2018, p. 101). We can see that, the strength of the impact of exchange rate movements on stock prices is contingent the importance of external trade in the economy and the balance of payment imbalances at the macro level (Elhendawy, 2017, p. 31).

2.1.2 Stock-oriented model (Portfolio balance theory)

The portfolio balance theory proposed by Branson (1983) and Frankel (1983) assumes that the exchange rate responds to changes in the stock market (Abimbola & Olusegun, 2017, p. 1).The theory suggests that the innovations of stock markets influence the liquidity demand and in turn have an impact on the exchange rates (Han & Zhou, 2017, p. 40). It argues that exchange rates depend upon demand and supply for financial assets. Furthermore, the theory emphasizes that foreign exchange rate is determined by the stock market situation (Dahir, Mahat, Razak, & Ariffin, 2018, p. 103).

A bull (upward moving) stock market will attract the foreign investors to diversify their portfolios by investing in stocks; and hence, the upward movement brings more foreign currency to the country and increases the demand for the local currency, which leads to an appreciation of the local currency (Elhendawy, 2017, p. 31). Moreover, increase in stock prices rise the company's net-worth. The companies will increase their output and sale, therefore rise the total demand in the economy, which will increase interest rate and attract more inflows of capital from abroad. Conversely, a bear (falls) stock market will lead to depreciation of exchange rate (Mustapha & Masih, 2017, p. 2). As a result, a stock price increase (decrease) of the country will lead to appreciate (depreciate) the exchange rate of the country (Parsva & Tang, 2017, p. 837).

2.2 Islamic stock indices

The Islamic stock market has attracted the attention of investors from several Islamic and non-Islamic countries, who are concerned in investing more moneys in socially responsible investments (Arshad & Rizvi, 2013, p. 1). This trend lead many western financial institutions (such as Citibank, Barclays, Morgan Stanley, Merrill Lynch and HSBC) to sell Islamic

financial products (Hassan & Girard, 2010, p. 2), and to the establishment of Islamic indexes (such as FTSE Islamic Index Series, DJ Islamic Market Index, S&P *Shariah* Index and MSCI Islamic Index). Which are aimed to screen out the stocks of corporations in conventional indices, whose business and activities are compatible with Islamic law (Ho, Rahman, Yusuf, & Zamzamin, 2014, p. 111).These developments provides a platform to the integration of Islamic finance with conventional finance (Hassan & Girard, 2010, p. 2).

The *Shariah* researchers who manage the Islamic index defined a set of qualitative (sector) screens and quantitative (financial) screens to identify *Shariah*-compliant equity investments (Derigs & Marzban, 2008, p. 287).

2.2.1 Qualitative screening:

Qualitative screens are sector screens where corporations functioning inside precise business zones that are non-acceptable under Islam and are excluded. Islamic low clearly defines some sides, which are not allowed for Muslims, such as the consumption of alcohol and pork, and thus compliant companies are not permitted to contribute in business profits mainly or even partly from such activities.

2.2.2 Quantitative screening:

The major quantitative screening criteria scan the financial structure of the corporate and benchmark it against some collectively agreed level of tolerance. Financial structures of companies are used to define the participation of these corporations in non-permitted practices. The relevance of this type of screening in the prohibition of *riba* and trading of money according to the *Shariah* (Ho, 2011, p. 96).

2.3 Literature Review

The discussion on whether the exchange rates fluctuations affect stock prices and returns has paying attention of many researchers and most studies have mixed results. Some researches show a positive links between them, although some find a negative relationship, a few studies also disclose irrelevant relations between the two markets.

(Dahir, Mahat, Razak, & Ariffin, 2018) Investigates the connections among foreign exchange markets and stock markets returns changes in the BRICS based on a wavelet analysis. The results reveal that the relationships are positive in the long term, meaning that exchange rates guide stock

returns in Brazil and Russia; a negative relationship in India; bidirectional causality in South Africa; no correlation in the Chinese index.

(Feng, 2018) Reviews the mainly literature on the influence of exchange rate fluctuations on the stock market and the transmission mechanisms, combined with empirical analysis for the China's stock market. The results show that in the long-term, these two variables are not co-integrated. In the short-term relations, the Granger causality between these two variables is one-way, which is from the exchange rate to the stock price.

(Mechri, Hamad, Peretti, & Charfi, 2018) Applied the GARCH model using monthly data of two countries that belong to MENA zone (Tunisia and Turkey). The finding illustrate that in the both cases, the exchange rate volatility have an important impact on stock returns fluctuations.

(Parsva & Tang, 2017) Investigates the causal relations among the two markets in Iran, Kuwait, Oman and Saudi Arabia from January 2004 to December 2011. The result show that the two markets have bidirectional causality in Iran, Oman and Saudi Arabia, but the variables do not interact in Kuwait.

(Hussain & Ur-rahman, 2017) Utilized the OLS and the Quantile regression approach to analyze the same relation using monthly data of Pakistan, China, Russia and Turkey from March 2003 to July 2017. The results demonstrate that none of the country shows evidence of long run equilibrium among the two variables; and there is asymmetric relation among them.

Conversely, with the increasing importance of the Islamic financial markets that work in similar to the conventional stock markets, a question arise as to whether these Islamic markets are impacted by the exchange rates changes or not. (Mustapha & Masih, 2017) Applied a combination of Wavelet transformation model to investigate the linkages among the exchange rate and Islamic stock returns for the ASEAN countries. The analysis shows that the exchange rate changes do not influence the Islamic stock returns of the ASEAN countries, regardless of the regimes, and did not find an important effect from stock returns to exchange rates for all countries, except Thailand.

To the best of our knowledge, there is a lack in the studies connecting to the investigation of the relationships among Islamic stock markets returns fluctuation and foreign exchange markets volatilities.

3. DATA AND METHODOLOGY:

The data used in this paper consist of daily data of exchange rates based on the US dollar and Islamic stock indices denominated in local currency of five countries (China, Indonesia, India, Malaysia and Thailand) covering the sample period from 18 May 2010 until 15 February 2019.

The stock indices studied are the FTSE *Shariah* China (FTSWCHN), the IDX Islamic (JKII), the FTSE *Shariah* India (FTSWIND), the FTSE Bursa Malaysia *Hijrah Shariah* (FTFBMHS), and the FTSE SET *Shariah* (FTFSTSH). The exchange rates were calculated based on USD 1 expressed in the Yuan (CNY/USD), Rupee (IDR/USD), Rupee (INR/USD), Ringgit (MYR/USD), and Baht (THB/USD) respectively. The dataset comes from the website www.investing.com.

The Islamic stock returns ($r_{i,t}$) and the rate of changes in exchange rate ($e_{i,t}$) are computed as follows:

$$r_{i,t} = 100 \times \ln\left(\frac{p_{i,t}}{p_{i,t-1}}\right) \quad \text{..... (1)}$$

$$e_{i,t} = 100 \times \ln\left(\frac{Fx_{i,t}}{Fx_{i,t-1}}\right) \quad \text{..... (2)}$$

Where

($p_{i,t}$) is the Islamic stock price index for the stock market (i) at time (t);

($r_{i,t}$) is the Islamic stock return;

($Fx_{i,t}$) is the exchange rates of currency (i) at time (t);

($e_{i,t}$)is the rate of fluctuation in the exchange rate (nominal appreciation or depreciation).

Table 1 (Panels A and B) shows descriptive statistics for the Islamic indices returns and the exchange rates changes time series. From these summary statistics, numerous features can be recognized. Firstly, Indonesia has the highest mean among the five indices, followed by Thailand, and

Malaysia. Additionally, the selected indices are recognized by higher volatilities due to the standard deviations are significantly higher than the mean. Skewness normality tests show that return distributions are negatively and significantly skewed for all series. Furthermore, high excess kurtosis values meaning all Islamic indices returns distributions are highly leptokurtic relative to the normal distribution. This finding is approved by the Jarque–Berra test statistics that reject the normality hypothesis of the Islamic indices returns at the 5% significance level.

Table 1: Sample statistics for the daily market returns and exchange rate changes.

	China	Indonesia	India	Malaysia	Thailand
Panel A: Islamic stock returns	**FTSWCHN**	**JKII**	**FTSWIND**	**FTFBMHS**	**FTFSTSH**
Mean	0.005305	0.009620	-0.000938	0.007218	0.009391
Std. Dev.	0.593345	0.567034	0.516591	0.261803	0.467686
Skewness	-0.176898	-0.330095	-0.352721	-0.288654	-0.280376
Kurtosis	5.603156	7.220689	5.652021	6.355022	6.485886
Jarque-Bera	655.3639	1693.454	715.1179	1039.188	1113.096
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	**2279**	**2227**	**2279**	**2152**	**2143**
Panel B: Exchange rates	**USD/CNY**	**USD/IDR**	**USD/INR**	**USD/MYR**	**USD/THB**
Mean	-0.000152	0.008080	0.008529	0.004571	-0.000704
Std. Dev.	0.076006	0.162726	0.203396	0.195619	0.128926
Skewness	0.375526	-0.437136	0.295822	-0.392454	0.036756
Kurtosis	14.29284	12.35860	9.643339	7.845237	4.751310
Jarque-Bera	12163.44	8197.931	4224.126	2160.285	274.3477
Probability	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	**2279**	**2227**	**2279**	**2152**	**2143**

Source : Calculated by the authors using Eviews9

Panel B show that the Chinese Yuan and Thailand Baht exhibit a negative mean return or a nominal appreciation against the USD; the others (Indonesian Rupiah, Indian Rupee and Malaysian Ringgit) exhibit a positive mean return or a nominal depreciation against the USD. India suffers from the largest currency depreciation and the most volatile currency. Finally, Jarque–Berra tests show the rejection of the normality hypothesis of the foreign exchange rates changes for all cases.

Table 2 reports the unit root tests results for the Islamic stock indices and the exchange rates time series. We employed three tests: the Augmented Dicky-Fuller (ADF) test, the Phillips-Perron (PP) test and the Kwiatkowski–Phillips–Schmidt–Shin (KPSS) test. From the results of these tests, at the

1% significance level, both stock indices and exchange rates are non-stationary while their first order differences (i.e. Islamic indices returns and exchange rates changes) are stationary. Thus both sets of series are I(1).

Table 2 Unit root tests.

Country		ADF t-tests		PP t-tests		KPSS t-tests	
		Constant	constant and trend	constant	constant and trend	constant	constant and trend
China							
$p_{i,t}$		-2.292	-2.397	-2.152	-2.276	0.933	0.623
$r_{i,t}$		-44.861***	-44.851***	-44.777***	-44.766***	0.054***	0.048***
$Fx_{i,t}$		-1.204	-2.068	-1.337	-2.102	1.662	0.944
$e_{i,t}$		-46.859***	-46.949***	-47.272***	-47.252***	0.493*	0.107***
Indonesia							
$p_{i,t}$		-2.407	-3.464**	-2.349	-3.459**	4.789	0.489
$r_{i,t}$		-23.697***	-3.962***	-48.574***	-48.630***	0.109***	0.020***
$Fx_{i,t}$		-0.404	-2.005	-0.421	-2.092	5.929	0.594
$e_{i,t}$		-43.518***	-43.509***	-43.684***	-43.675***	0.172***	0.174*
India							
$p_{i,t}$		-2.212	-2.366	-2.198	-2.426	2.060	0.421
$r_{i,t}$		-45.136***	-45.127***	-45.126***	-45.117***	0.057***	0.058***
$Fx_{i,t}$		-0.909	-2.103	-1.108	-2.237	5.106	0.866
$e_{i,t}$		-36.591***	-36.586***	-46.503***	-46.496***	0.085***	0.042***
Malaysia							
$p_{i,t}$		-2.420	-1.840	-2.390	-1.768	4.221	1.210
$r_{i,t}$		-42.480***	-42.542***	-42.404***	-42.443***	0.357**	0.021***
$Fx_{i,t}$		-0.584	-1.860	-0.661	-1.973	5.166	0.568
$e_{i,t}$		-45.158***	-45.152***	-45.213***	-45.206***	0.167***	0.153***
Thailand							
$p_{i,t}$		-3.042**	-3.269*	-3.013*	-3.226*	2.779	0.455
$r_{i,t}$		-44.829***	-44.847***	-44.843***	-44.875***	0.154***	0.052***
$Fx_{i,t}$		-1.132	-1.054	-1.272	-1.271	3.147	0.679
$e_{i,t}$		-44.332***	-44.325***	-44.520***	-44.513***	0.183***	0.160***
The critical values	1%	-3.433	-3.962	-3.433	-3.962	0.739	0.216
	5%	-2.862	-3.411	-2.862	-3.411	0.463	0.146
	10%	-2.567	-3.127	-2.567	-3.127	0.347	0.119

Notes: (*), (**) and (***) indicate significance at the 10%, 5% and 1% respectively.

Source : Calculated by the authors using Eviews9

Most empirical studies use Ordinary Least Squares (OLS) method to estimate the effect foreign exchange rate movements on the stock market returns. Hence, the next model is educated with OLS:

$$r_t = \beta_0 + \beta_1 e_t + \mu_t \quad \text{………………………………………} (3)$$

Where:

(r_t) is the Islamic stock indices returns at time t;

(e_t) is the rate of change of the exchange rate;

(β_0) is the intercept term;

(μ_t) is an error term.

The appropriateness of the model is examined with the ARCH test.

The GARCH procedure established by Bollerslev (1986) is used next. The $GARCH\ (1,1)$ process is specified as follows:

$$r_t = y_0 + y_1 e_t + \varepsilon_t \quad \text{..... (4)}$$

$$\sigma_t^2 = \alpha_0 + \alpha_1 \varepsilon_{t-1}^2 + \beta \sigma_{t-1}^2 \quad \text{..... (5)}$$

In addition to the previous considerations, the variance equation contains the long term average volatility (α_0); the ARCH term identify the news about volatility from the periods; the GARCH term identify the preceding period's estimate variance.

The GARCH elaboration needs that in the conditional variance equation, parameters (α_0), (α_1) and (β) should be positive for a non-negativity condition and the sum of (α_1) and (β) should be less than one to secure the covariance stationarity of the conditional variance. Moreover, the sum of the coefficients (α_1) and (β) must be less than or equal to unity for stability to hold.

4. RESULTS AND DISCUSSION

4.1 OLS estimation:

Table 3 reports the results of the OLS estimation. The variables of exchange rate change are negative for all series, and they are statistically significant for all Islamic stock indices returns volatility. Moreover, the results show that the exchange rate change explains a greater proportion of Islamic stock indices return volatility in India, compared to the other cases.

The appropriateness of the model estimates is tested with the ARCH test. If the squared residuals in equation (3) have heteroscedasticity, the null hypothesis will be rejected. From the results of the ARCH test in table 3, a residual serial correlation existed for all the markets level analysis. The existence of residual autocorrelation is a significant break of the Ordinary Least Squares assumption because its existence means that the OLS coefficients are not efficiently estimated and statistical inferences based on

standard t and F-tests would not be reliable. Therefore, GARCH models would seem to be more suitable for this kind of data.

Table 3 Estimates of OLS regression

	β_0	β_1	Adj. R^2	$D.W\ stat$	F-stat	$ARCH(1)$
China	0.005112	-1.262284*	0.025718	1.889335	61.13205*	76.97519*
	(0.6769)	(0.0000)			(0.0000)	(0.0000)
Indonesia	0.019530	-1.226434*	0.123481	2.017877	314.5916*	14.68296*
	(0.0831)	(0.0000)			(0.0000)	(0.0001)
India	0.012230	-1.543737	0.369156	2.073783	1334.037	26.27915*
	(0.1553)	(0.0000)			(0.0000)	(0.0000)
Malaysia	0.009126	-0.417305	0.096806	1.890362	231.5472	56.68474*
	(0.0891)	(0.0000)			(0.0000)	(0.0000)
Thailand	0.008774	-0.876751	0.057976	2.002729	132.8263	49.72263*
	(0.3710)	(0.0000)			(0.0000)	(0.0000)
No of Sig. cases	$0/5$	$5/5$			$5/5$	$5/5$

Note: Numbers in parentheses indicate the P-value.
* Indicates the significance level at 1%.

Source : Calculated by the authors using Eviews9

4.2 Estimation of return with GARCH (1.1) model:

The estimated GARCH (1.1) parameters of the conditional return model are shown in Table 4. The coefficient (γ_1), which measures the effect of exchange rate fluctuations on the Islamic stock returns, is negative and statistically significant in all cases, which means that the findings suggest that the conditional return has a negative and significant relation with exchange rate risk exposure. The effect of exchange rate fluctuations on the conditional mean equation is strongly significant in all cases. The exchange rate fluctuations are found to explain a larger part of conditional Islamic stock returns. The negative relationship with the exchange rate can be interpreted by the depreciation of the local currency may lead to damage in the Islamic equity market may result in a falling of the Islamic stock return.

In a conditional variance equation, the intercept term (α_0) is positive and statistically significant in all cases, indicating that there is a significant time-invariant component in the return generating process. Both parameter, the ARCH (α_1) and the GARCH (β) fulfill the condition of the non-negativity. The GARCH parameter is significantly greater than the ARCH parameter, which implies that the volatility of each Islamic stock return is more sensitive to its own lagged values than it is to new surprises. In other

words, the effects of a preceding period's estimate variance are more persistent. The sum of (α1) and (β) parameters are close to unity for 5 out of 5 cases, stating that shocks to the Islamic stock index returns have highly persistent effects and the reaction of volatility reduce at a slower rate. In particular, Islamic stock returns sensitivities are found to be stronger for exchange rates, meaning that exchange rate change has a significant position in determining the trend of the Islamic stock returns.

Table 4 Estimation of return

	γ_0	γ_1	α_0	α_1	β
China	0.017944	-1.238113*	0.006877*	0.059599*	0.918459*
	(0.1016)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Indonesia	0.018541**	-1.042444*	0.005022*	0.075884*	0.908287*
	(0.0519)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
India	0.013875**	-1.504351*	0.003942*	0.043233*	0.933396*
	(0.0940)	(0.0000)	(0.0004)	(0.0000)	(0.0000)
Malaysia	0.012377*	-0.346320*	0.002329*	0.110368*	0.855416*
	(0.0079)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
Thailand	0.019117*	-0.603306*	0.003336*	0.099680*	0.887719*
	(0.0193)	(0.0000)	(0.0000)	(0.0000)	(0.0000)
No of Sig. cases	$^4/_5$	$^5/_5$	$^5/_5$	$^5/_5$	$^5/_5$

Note: Numbers in parentheses indicate the P-value.
* Indicates the significance level at 1%.
** Indicates the significance level at 10%.

Source : Calculated by the authors using Eviews9

4.3 Autocorrelation, Partial Autocorrelation & Heteroskedasticity tests:

Autocorrelation and partial autocorrelation tests are useful in terms of examining time series behavior. To verify whether there is correlation or not we employ Ljung-Box-Pierce Q-test under the null hypothesis of no serial correlation (Box et al. 1994). The test results are presented in Table 5.

The test is effectuated with lags from 1 to 6 at 5% level of significance. The results indicate that all coefficients of AC and PAC are significant for all cases at 5% significance level. This could indicate the appropriateness of the GARCH model for all cases.

To test for homoscedasticity (i.e. a constant variance in the time series) we shall utilize the ARCH test model of Engle (1982) which test the null hypothesis suggests that the time series is homoscedastic (as opposed to heteroscedastic). The results in the table 6 show clear evidence that residuals are homoscedastic. The critical values of Engle's ARCH and Ljung-Box-Pierce Q-test results are the same. Both test statistics are Chi-

Square distributed. All the last statistical tests give more support to the appropriateness of applying GARCH model.

Table 5 GARCH Autocorrelation and partial autocorrelation tests

	Lags	1	2	3	4	5	6
China	AC	-0.019	0.012	0.029	-0.022	0.020	-0.005
	PAC	-0.019	0.011	0.029	-0.021	0.018	-0.005
	Q-Stat	0.8502	1.1595	3.0395	4.1798	5.0870	5.1438
	Prob.	0.357	0.560	0.386	0.382	0.405	0.526
Indonesia	AC	0.006	0.012	0.015	-0.012	-0.024	-0.006
	PAC	0.006	0.012	0.015	-0.012	-0.025	-0.005
	Q-Stat	0.0752	0.3808	0.9153	1.2320	2.5673	2.6376
	Prob.	0.784	0.827	0.822	0.873	0.766	0.853
India	AC	0.030	0.013	-0.010	-0.010	-0.007	0.005
	PAC	0.030	0.012	-0.011	-0.009	-0.007	0.005
	Q-Stat	2.1170	2.5079	2.7463	2.9721	3.0979	3.1444
	Prob.	0.146	0.285	0.432	0.562	0.685	0.791
Malaysia	AC	0.025	-0.014	0.029	0.004	0.000	-0.063
	PAC	0.025	-0.014	0.030	0.003	0.001	-0.064
	Q-Stat	1.3304	1.7397	3.5462	3.5874	3.5876	12.192
	Prob.	0.249	0.419	0.315	0.465	0.610	0.058
Thailand	AC	-0.015	0.054	0.014	0.035	-0.017	-0.025
	PAC	-0.015	0.054	0.016	0.033	-0.018	-0.029
	Q-Stat	0.4845	6.7035	7.1518	9.7778	10.420	11.751
	Prob.	0.486	0.035	0.067	0.044	0.064	0.068

Source : Calculated by the authors using Eviews9

Table 6 Heteroskedasticity Test: ARCH

	China	Indonesia	India	Malaysia	Thailand
F-statistic	0.848969	0.074965	2.113496	1.327633	0.483267
Prob. F(1,3440)	0.3569	0.7843	0.1461	0.2494	0.4870
Obs*R-squared	0.849399	0.075030	2.113390	1.328049	0.483610
Prob. Chi-Square(1)	0.3567	0.7841	0.1460	0.2492	0.4868

Source : Calculated by the authors using Eviews9

5. CONCLUSION:

The discussion on whether the exchange rates fluctuations affect stock prices and returns has paying attention of many researchers and most studies have mixed results. Some researches show a positive links between them, although some find a negative relationship, a few studies also disclose irrelevant relations between the two markets. Conversely, with the increasing importance of the Islamic financial markets that work in similar

to the conventional stock markets, a question arise as to whether these Islamic markets are impacted by the exchange rates changes or not.

To the best of our knowledge, there is a lack in the studies connecting to the investigation of the relationships among Islamic stock markets returns fluctuation and foreign exchange markets volatilities. In this article, we examine this issue for five countries i.e. China, Indonesia, India, Malaysia and Thailand, using daily data from 18 May 2010 until 15 February 2019, to capture the comportment of market participants; to make comprehensive observations and credible results.

We first use Ordinary Least Squares (OLS) method to estimate the effect foreign exchange rate movements on the stock market returns. Result shows that, in all cases, the variables of exchange rate change are negative for all series, and they are statistically significant for all Islamic stock indices returns volatility. Moreover, the results show that the exchange rate change explains a greater proportion of Islamic stock indices return volatility in India, compared to the other cases. The appropriateness of the model estimates is tested with the ARCH test. A residual serial correlation existed for all the markets level analysis. Therefore, GARCH models would seem to be more suitable.

Next we applied the GARCH (1.1) model, and we find evidence on a negative and statistically significant in all cases, which means that the findings suggest that the conditional return has a negative and significant relation with exchange rate risk exposure. The effect of exchange rate fluctuations on the conditional mean equation is strongly significant in all cases. The exchange rate fluctuations are found to explain a larger part of conditional Islamic stock returns. The negative relationship with the exchange rate can be interpreted by the depreciation of the local currency may lead to damage in the Islamic equity market may result in a falling of the Islamic stock return.

In a conditional variance equation, the intercept term (α_0) is positive and statistically significant in all cases, indicating that there is a significant time-invariant component in the return generating process. Both parameter, the ARCH (α_1) and the GARCH (β) fulfill the condition of the non-negativity. The GARCH parameter is significantly greater than the ARCH parameter, which implies that the volatility of each Islamic stock return is

more sensitive to its own lagged values than it is to new surprises. In other words, the effects of a preceding period's estimate variance are more persistent. The sum of (α1) and (β) parameters are close to unity for 5 out of 5 cases, stating that shocks to the Islamic stock index returns have highly persistent effects and the reaction of volatility reduce at a slower rate. In particular, Islamic stock returns sensitivities are found to be stronger for exchange rates, meaning that exchange rate change has a significant position in determining the trend of the Islamic stock returns. The appropriateness of the model estimates is tested with the Autocorrelation, Partial Autocorrelation & Heteroskedasticity tests. All the last statistical tests give more support to the appropriateness of applying GARCH model.

We conclude from this study, that Islamic stock returns behave in the same way compared to the conventional stocks with regards to foreign exchange returns on the basis of our result. Several implications are inferred from the empirical evidences acquired from this study. For investors, should pay attention to these interactions when they make their decisions and investments policies, and adopt a good strategy to hedge against the foreign exchange rate risk in the international portfolios. For the policy makers, these findings can help to maintain the financial and economic stability as the results can clearly indicate that the Islamic stock indices are macroeconomic driven indices.

6. Bibliography List:

Abimbola, A. B., & Olusegun, A. J. (2017). Appraising the Exchange Rate Volatility, Stock Market Performance and Aggregate Output Nexus in Nigeria. *Business and Economics Journal, 8*(1), pp. 1-12. doi:10.4172/2151-6219.1000290

Arshad, S., & Rizvi, S. A. (2013). The Impact of Global Financial Shocks to Islamic Indices:Speculative Influence or Fundamental Changes? *Journal of Islamic Finance, 2*(1), pp. 1-11. Retrieved from http://journals.iium.edu.my/iiibf-journal/index.php/jif/article/download/6/6

chowdhury, P. R., & Arthanari, A. (2018). Impact of exchange rate fluctuation on stock market volatility - a study to predict the economic scenario in India. *International Journal of Pure and Applied Mathematics, 118*(18), pp. 4309-4316. Retrieved from https://acadpubl.eu/jsi/2018-118-18/articles/18e/28.pdf

Dahir, A. M., Mahat, F., Razak, N. H., & Ariffin, A. B. (2018). Revisiting the dynamic relationship between exchange rates and stock prices in BRICS countries: A wavelet analysis. *Borsa _Istanbul Review, 18*(2), pp. 101-113. Retrieved from http://www.elsevier.com/journals/borsa-istanbul-review/2214-8450

Derigs, U., & Marzban, S. (2008). Review and analysis of current Shariah-compliant equity screening practices. *International Journal of Islamic and Middle Eastern Finance and Management, 1*(4), pp. 285-303. doi:10.1108/17538390810919600

Elhendawy, E. O. (2017). stock prices and exchange rate dynamics: empirical evidence from egypt. *International Journal of Economics, Commerce and Management, 5*(1), pp. 29-43. Retrieved from ijecm.co.uk/wp-content/uploads/2017/01/513.pdf

Feng, Y. (2018). Study of the RMB exchange rate's impact on the Chinese stock market. *International Business*. Retrieved from http://urn.fi/URN:NBN:fi:amk-201805209155

Han, Y., & Zhou, X. (2017). The Relationship between Stock and Exchange Rates for BRICS Countries Pre - and Post - Crisis: A Mixed C - VINE Copula Model. *Romanian Journal of Economic Forecasting, 20*(1), pp. 38-59. Retrieved from http://www.ipe.ro/rjef/rjef1_17/rjef1_2017p38-59.pdf

Hassan, K., & Girard, E. (2010). Faith-based ethical investing: the case of Dow Jones Islamic Indexes. *Islamic Economic Studies, 17*(2), pp. 1-31. www.irti.org/English/Research/Documents/IES/067.pdf

Ho, C. S. (2011). Comparison of Quantitative Shariah-Compliant Screening Methods. *ISRA International Journal of Islamic Finance, 3*(2), pp. 91-110.

Ho, C. S., Rahman, N. A., Yusuf, N. H., & Zamzamin, Z. (2014). Performance of global Islamic versus conventional share indices: International evidence. *Pacific-Basin Finance Journal, 28*, pp. 110-121. doi:10.1016/j.pacfin.2013.09.002

Hussain, N., & Ur-rahman, K. (2017). Relationship between Stock Prices and Exchange Rate in Asian Countries: A Quantile Regression Approach. *The journal of Managerial Sciences, 11*(3), pp. 175-200. Retrieved from http://www.qurtuba.edu.pk/jms/EBM.htm

Khamlichi, A. E., Sarkar, K., Arouri, M., & Teulon, F. (2014). Are Islamic Equity Indices More Efficient Than Their Conventional Counterparts? Evidence From Major Global Index Families. *The Journal of Applied Business Research, 30*(4), pp. 1137-1150. doi:10.19030/jabr.v30i4.8660

Khatri, S. N., Kashif, M., & Shaikh, A. S. (2017). the exchange rate as significant predictor of movement in stock market indices in south asian Countries: econometric analysis. *Journal of Business Strategies, 11*(2), pp. 107-123. Retrieved from http://www.greenwich.pk/PDFs/Articles/BS_V11_N2/Article7-JBS-DEC-17.pdf

Mahapatra, S., & Bhaduri, S. N. (2018). Dynamics of the impact of currency fluctuations on stock markets in India:Assessing the pricing of exchange rate risks. *Borsa _Istanbul Review, xx*, pp. 1-9. Retrieved from http://www.elsevier.com/journals/borsa-istanbul-review/2214-8450

Mechri, N., Hamad, B., Peretti, C., & Charfi, S. (2018). The Impact of the Exchange Rate Volatilities on Stock Market Returns Dynamic. *HAL Working Papers*. Retrieved from https://hal.archives-ouvertes.fr/hal-01766742

Mustapha, I. M., & Masih, M. (2017). Dynamics of islamic stock market returns and exchange rate movements in the ASEAN Countries in a regime-switching environment: Implications for the islamic investors and risk hedgers. *Munich Personal RePEc Archive, MPRA Paper No. 82218*. Retrieved from https://mpra.ub.uni-muenchen.de/82218/1/MPRA_paper_82218.pdf

Parsva, P., & Tang, C. F. (2017). A note on the interaction between stock prices and exchange rates in Middle-East economies. *Economic Research-Ekonomska Istraživanja, 30*(1), pp. 836-844. doi:10.1080/1331677X.2017.1311222

Yen-Hsien, L., Ya-Ling, H., & Tsu-Hui, C. (2017). does hot money impact stock and exchange rate markets on china? *Asian Academy of Management Journal of Accounting and Finance, 13*(2), pp. 95-108. Retrieved from http://web.usm.my/journal/aamjaf/aamjaf13022017/aamjaf13022017_5.pdf