Do islamic indices help portfolio diversification ? application of multivariate GARCH and wavelet coherence

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Do islamic indices help portfolio diversification ? application of multivariate GARCH and wavelet coherence

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Abstract: The global financial crises have made investors rethink their strategies of diversifying their portfolios by allocating their assets/capitals into Islamic equities. The feature of investment based on real assets by the Islamic equity market has made the market more stable during financial turmoil and was seen as investment alternatives. This paper is a study on the performance of Islamic equity indices against that of the conventional indices counterparts on a risk-adjusted return basis and to explore on the opportunities for investors to diversify their portfolio using Islamic equities. The result shows that Islamic equity market index (Dow Jones Islamic) has lower risk as compared to their conventional counterpart of Dow Jones Global and lower return as compared to the benchmarked portfolio (MSCI World) based on the result of the alpha and beta. This shows an advantage to investors or fund manager who pursues a passive approach to managing their portfolios and they're not exposed to market timing ability skills. In addition to that, the results also show that investors and fund managers can diversify their portfolios by allocating their assets/funds in Islamic equities due to the low correlation with their conventional counterparts. Policymakers can also take advantage of this to loosen up their restrictions to foreign investment if there is any policy imposing capital control that is being exercised in their country.

Keywords: Islamic indices, portfolio diversification, MGARCH, Wavelet

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INTRODUCTION

In the past few decades, a notable number of financial crises have hit the financial world and caused significant loss to the wider parts of the economies. The Asian crisis in 1997 that was due to the mismanagement of the banking systems, lack of transparency in the domestic government and the shortcomings of state managed capitalism has badly impacted the fast growing developing economies of the world namely Thailand, Korea, Indonesia, Malaysia and Philippines. The capital invested in all those countries was immediately taken out which in return badly affected all of those countries. A decade passed by and upon recovering from the Asian crisis, the global financial world was hit again with another crisis, and this time it was started from the US. This was due to the expansion of mortgages to high-risk borrowers and coupled with rising house prices, contributed to a period of turmoil in financial markets that lasted from 2007 to 2010[1].

The speculative trading and unsafe lending practices adopted by major international banks were among the major reasons for the global financial crisis (Cyree et al., 2011; Caprio, 2009; Ashraf and Goddard, 2012). This has caused an increase of attention of the academia as well as the mass media towards the Islamic equity investment that is based on the Islamic Jurisprudence (Shari'ah) principles. Shari'ah principles specifically prohibit any type of investment in any company that is engaged in transactions that are based on usury (riba'), excessive risk taking such as trading in derivatives and insurance (gharar), gambling activities (maysir), trading in alcohol (khumar), and/or pork products. Shari'ah principles allow investments in lower leveraged companies and financial instruments linked with real assets (sukuk). The

[1]Subprime Mortgage Crisis 2007-2010 by John V. Duca (https://www.federalreservehistory.org/essays/subprime_mortgage_crisis)

restriction on leverage[2] and trading in financial assets including derivatives may result in a very different risk adjusted performance of Islamic equity investments from that of similar conventional investments during the downturn of capital markets. (Ashraf and Mohammad, 2014).

Nowadays, a lot of major commercial banks and investments institutions globally, both in Islamic and non-Islamic countries, opened up an opportunity to the investors by offering them the investments funds that adhere to the Shari'ah principles. Islamic Equity Indices data are now built and being provided by all major index service providers: Dow Jones, Standard and Poor's (S&P), the Financial Times Stock Exchange (FTSE) and Morgan Stanley Capital International (MSCI) based on independent Shari'ah screening criteria at global, regional and country level. The total number of Islamic mutual funds reached 943 in 2014, up from 828 a year earlier and double the number in 2008. Islamic mutual funds globally now hold $53.2 billion of assets under management, recovering from a low of $25.7 billion in 2008 (Vizcaino, 2015).

The spill-over effect of the global financial crisis has strengthened the position of the Islamic equity markets globally and Islamic mutual funds has been on rise due to recent empirical studies from different countries and regions that shows the resilience of the funds during the economic downturn because the mutual funds engaged in transactions based on real asset and lower leverage (Alam and Rajjaque, 2010; Ashraf, 2013; Hoepner et al., 2011; Merdad et al., 2010). Besides the equity performance, Ashraf (2013) found that Islamic mutual funds managers have more leverage on market timing and stock selection as they do not face heavy draw downs

[2] Shari'ah boards, consisting of Islamic scholars, have allowed up to 33% of capital finance by debt.

during bear periods as profit seeking is not the main investment objective for an investor in Islamic funds. Rather, investors seek to satisfy a broader cause of adhering to their faith. However, Abdullah, Hassan, & Mohamad (2007) and Hayat and Kraeussl (2011) found that the conventional funds outperform Islamic mutual funds during the overall periods and bull periods.

The aim of this paper is to study the Islamic equities performance against their conventional counterparts crisis on a risk-adjusted return basis. The paper would also want to explore on the opportunities for investors to diversify their portfolio using Islamic equities. For this purpose, monthly equity index data for 10 indices (5 Islamic equity indices and 5 conventional indices) for a period of 20 years from global and regional equities has been collected and matched from two major equity index providers: Dow Jones and MSCI from January 1996.

1. LITERATURE REVIEW

Investors and fund managers in the Islamic equity market invest their funds and manage their portfolios in equities of Shari'ah compliant institutions or in equities offered through unit trusts, mutual funds and ETFs that are publicly offered. The Shari'ah boards members consisting of the Islamic scholars determines the compliancy rules based on their judgement while also adhering to the Shari'ah principles. Prior studies on the performance of Islamic equity indices in comparisons to their conventional counterparts using standard performance tools: Sharpe ratio, Jensen's alpha and the Treynor Index.

Hassan et. al, (2005) found that the application of Shari'ah screening in Islamic equity indices was found to not have any adverse impact on investment performance as compared to the conventional indices and Hussein (2004) also found similar result

on the FTSE Global Islamic Index performance. Ahmad and Ibrahim (2002) and Albaity and Ahmad (2008) also found that there was no significant difference in the (risk-adjusted) performance of both indices and concluded that Islamic stocks were not more favourable than the other stocks in the KLSE however Hussein (2004) founds that Islamic index yields statistically significant positive abnormal returns in the bull market period, although it underperforms the counterpart index in the bear market period.

Recent empirical literature shows that on average Islamic equity funds perform better than the conventional investment funds for different markets globally. Jawadi et. al. (2014), studies shows that Islamic funds have outperformed their counterpart especially during bullish periods but conventional funds performed better during bearish periods. Abdullah et. al. (2007) also found similar result in the context of Malaysian Islamic equity funds vis-a-vis conventional funds. Ho et. al. (2014) found that after analyzing four subperiods of crisis and non-crisis, slamic indices outperformed their conventional counterparts during crisis periods but results are inconclusive for the non-crisis periods.

The over-performance of IEFs appeared in the context of global IEFs (Hoepner et al., 2011); European (Alam and Rajjaque, 2010); Malaysian (Abdullah et al., 2007); and Saudi Arabian (Ashraf, 2013; Rubio et al., 2012. However, Hayat and Kraeussl (2011) found that IEFs perform worst in either a bullish or a bearish economic market. They further suggest that managers of IEFs exhibit poor stock selection and market timing abilities. Nainggolan (2011) concurs that Shari'ah compliance results in a lower performance of IEFs. But, Abderrezak (2008) found no significant performance differences between Islamic and conventional funds when comparing the performance of IEFs with conventional funds between 1997 and 2002. Similarly, Abdelsalamet al.

(2013) did not find any statistically significant difference, while comparing the performance of IEFs with socially responsible funds. Elfakhani et al. (2007) suggest that the outperformance of IEFs depends on the measure, benchmark and time period used for performance evaluation. Hoepner et al. (2011) using a global dataset of 265 Islamic mutual funds found that mutual funds for countries with a Muslim majority perform better than mutual funds for countries where Muslims are the minority.

2. DATA AND METHODOLOGY

This section describes the data and empirical methods applied to compare the performance measurements of the Islamic indices and the conventional indices used in this study. Financial investment theory suggests that the aim of any investor is to maximize the return obtained from an investment after taking into account the market risks. Several statistics derived from the Capital Asset Pricing Model (CAPM) to adjust for investment risks includes beta, Sharpe ratio, Treynor Index and Jensen alpha suggested as suitable methodologies and have been widely applied by past researches.

In this study, 10 major global Islamic and conventional Dow Jones indices around the world differentiated by region and markets are investigated, namely the world indices, US indices, Asia Pacific indices, Developing Markets indices and Emerging Markets indices as in Table (1). Dow Jones Islamic indices were selected due to the stringent requirement that needs to be adhered to for stocks to be included in the index. The global conventional and Islamic indices are selected based on the availability of their counterparts to form an equitable comparison of the pair. We also

incorporate the Morgan Stanley Capital International (MSCI) World Index All International indices were used as proxy for the market benchmark for both the conventional and Islamic indices. Furthermore, we use the three-month US Treasury bill rate as a proxy for risk-free rate. All monthly data are taken from Datastream for 21 years starting from January 1996.

Table 1
Lists of global conventional and Islamic indices below represent the selected indices investigated in the study. In order to enable equitable comparisons, the availability of the pair indices in both the conventional and Islamic markets must be present. Ten major global Islamic and conventional indices worldwide are investigated.

Scope	Conventional Indices	Islamic Indices
World	Dow Jones Global Indexes	DJ Islamic
United States	Dow Jones Industrial Average	DJ Islamic US
Asia Pacific	Dow Jones Asia/Pacific	DJ Islamic Asia/Pacific
Developing Market	Dow Jones Developed Market	DJ Islamic Developed Market
Emerging Market	Dow Jones Emerging Market	DJ Islamic Emerging Market

The behaviour of the Dow Jones Islamic index and its sub-indexes in comparisons with the corresponding conventional indices of Dow Jones Global and its sub-indexes will be measured will be tested by calculating the return on a monthly basis by taking the logarithmic difference of the price index, so that:

$$R_{i,t} = \log\left(P_{i,t}\right) - \log\left(P_{i,t-1}\right) \quad (1)$$

Where $R_{i,t}$ is the raw return for index i for the time t, $P_{i,t}$ refers to the price of index i at time t, and $P_{i,t-1}$ is the price of index i at time t-1.

Since the Dow Jones Islamic index and its sub-indices and their index counterparts are not from the same category of risk, and since the raw returns are not adjusted for risk, we utilize the Capital Asset Pricing Model (CAPM) in order to estimate the risk-adjusted returns:

$$\{(R_{i,t} - R_{f,t}) = \alpha_{i.t} + \beta_{i,t}(R_{m,t} - R_{f,t}) + \varepsilon_{i,t}\} \quad (2)$$

where $R_{f,t}$ is the risk-free rate measured by a short-term three-month treasury bill return, $R_{m,t}$ is the monthly return on the market portfolio (World Index All International) in period t, $\alpha_{i.t}$ is an intercept and known as Jensen (1968) measure of performance or Jensen's alpha, and $\beta_{i,t}$ is the risk of index i in period t relative to benchmark, m. $\varepsilon_{i,t}$ is an error term. Note that $(R_{i,t} - R_{f,t})$ is the excess return on the Islamic index i in period t and $(R_{m,t} - R_{f,t})$ is the excess return on the benchmark index m in period t. If β > 1, this indicates that index i has higher risk than the benchmark index m. Furthermore, if α is positive and statistically significant, it indicates that the index i outperforms the market index m. Based on Jensen measure and given $\beta_{i,t}$ from equation (2), the risk-adjusted returns can be calculated as follows:

$$\overline{R_{\iota,t}} = \{R_{i,t} - R_{f,t} - \beta_{i,t}(R_{m,t} - R_{f,t})\} \quad (3)$$

where $\overline{R_{\iota,t}}$ is the risk-adjusted monthly return of index i.

The estimation of β in Equation (1) using the ordinary least squares (OLS) is proven to be problematic. Several studies in the literature found that β is time-varying and the ε as heteroskedastic (Brooks et al., 1998). In such cases generalized

autoregressive conditional heteroskedasticity (GARCH) models can be used to estimate the time-varying betas. The general multivariate GARCH model proposed by Bollerslev et al. (1988) can be specified as:

$$R_{i,t} = Cw_t + e_t \tag{4}$$

$$H_t = s + \sum_{i=1}^{p} A_i vech(e_{t-i}e'_{t-i}) + \sum_{j=1}^{q} B_j H_{t-j} \tag{5}$$

where $R_{i,t}$ is a n × 1 vector of dependent variables, which in our case are Islamic equity index monthly returns. C is a n × k matrix of parameters. w_t is a k × 1 vector of independent variables that contains benchmark returns and p lags of Islamic equity index. $e_t = H_t^{1/2} v_t$. v_t is a n × 1 vector of normal, independent, and identically distributed innovations. H_t is the conditional covariance matrix of Islamic equity index returns, $H_t^{1/2}$is the Cholesky factor of H_t, and vech stacks the lower diagonal elements of a symmetrical matrix into a column vector.

The large number of unknown parameters in the general GARCH model makes it easy to fit any financial time series, but the estimation of these parameters is too difficult. Many studies limit the number of parameters by imposing restrictions on Ht. In this study we use the diagonal vech GARCH model which restricts A and B to be diagonal matrices. The diagonal-vech GARCH model can be specified by replacing H_t in Eq. (5) with Eq. (6)

$$H_t = s + \sum_{i=1}^{p} A_i \Theta vech(e_{t-i}e'_{t-i}) + \sum_{j=1}^{q} B_j \Theta H_{t-j} \tag{6}$$

where Θ is the Hadamard product. The restriction in Eq. (6) implies that the variances in H_t depend on past squared residuals and corresponding past ARCH terms. Such restriction ignores any cross-market dependencies in conditional volatilities. However,

when low-frequency data (such as monthly returns, as in our study) is used such influences can be ignored (Santis and Gerard, 1997).

Cross wavelet power reveals areas with high common power. Another useful measure is how coherent the cross wavelet transform is in time frequency space. Following Torrence and Webster (1998) we define the wavelet coherence of two time series as:

$$R_n^2(s) = \frac{|S\left(s^{-1}W_n^{XY}(S)\right)|^2}{S\left(s^{-1}|W_n^X(S)|^2\right)\cdot S\left(s^{-1}|W_n^Y(S)|^2\right)} \quad (7)$$

Where S is a smoothing operator. Notice that this definition closely resembles that of a traditional correlation coefficient, and it is useful to think of the wavelet coherence as a localized correlation coefficient in time frequency space. We write the smoothing operator S as

$$S(W) = S_{scale}(S_{time}\left(W_n(s)\right)) \quad (8)$$

Where S_{scale} denotes smoothing along the wavelet scale axis and S_{time} smoothing in time. It is natural to design the smoothing operator so that it has a similar footprint as the wavelet used. For the Morlet wavelet a suitable smoothing operator is given by Torrence and Webster (1998)

$$S_{time}(w)|_s = \left(W_n(S) * c_1^{\frac{-t^2}{2s^2}}\right)|_s,$$

$$S_{time}(w)|_s = (W_n(S) * C_2\Pi(0.6))|_n$$

Where c1 and c2 are normalization constants and Π is the rectangle function. The factor of 0.6 is the empirically determined scale decorrelation length for the Morlet wavelet (Torrence and Compo, 1998). In practice both convolutions are done discretely and therefore the normalization coefficients are determined numerically.

3. EMPIRICAL RESULTS

Table 1 reports the descriptive statistics for the US dollar returns of the 5 Islamic equity indices and their respective benchmark indices. The returns for all indices are calculated as the logarithmatic difference between the return of the month and its corresponding lag. The average monthly return for each index under this study underperforms for the entire period. All the values of the average monthly return shows a negative value but six of the indices overperform the market portfolio of MSCI World Index. However, the average monthly return of DJ Islamic US shows the highest value of -.0201927 as compare to the rest of the indices and in comparison with the average monthly return on the market portfolio of MSCI World Index at -.0212701. Figure 1 (appendix) shows the raw return performances of the Islamic equity indices and their respective conventional indices under this study. There is a steep decline in the returns of all Islamic equity indices and their respective conventional indices in 1997-1998 during the Asian Financial crisis and in 2008 during the Subprime Mortgage crisis which is known to be the peak of the global financial crisis.

Table 2
Descriptive statistics of Islamic equities indices and conventional indices. Return is calculated by $\log(P_{i,t}) - \log(P_{i,t-1})$. The data is pooled over period of 01/1996 to 12/2016.

	Mean	Min	Max	Std. Dev.	Skew.	Kurt.
RDJGL	-.0212104	-.1172608	.0462107	.0296522	-.3054003	2.840285
RDJI	-.0206756	-.1082693	.0568401	.0301582	-.2756365	2.886102
RDJAPC	-.022437	-.102355	.0745315	.0329314	-.1876913	2.650942
RDJIAPC	-.0214575	-.112219	.0655428	.0329338	-.3719224	2.941046
RDJUS	-.0204665	-.1072405	.0741857	.0291767	-.0971479	2.847999
RDJIUS	-.0201927	-.1151383	.0562553	.0304097	-.3641552	2.96462
RDJDEV	-.0211564	-.1151476	.0441471	.0294262	-.2968953	2.771524
RDJIDEV	-.0206177	-.1087774	.0545934	.0300244	-.2907578	2.846731
RDJEM	-.0219191	-.2160397	.0708683	.0392251	-.911082	5.179424
RDJIEM	-.0216338	-.1867444	.0886865	.038532	-.58797	4.413101
MSCI	-.0212701	-.1135424	.0428512	.0292185	-.2640206	2.708244

The empirical results on the Jensen's alpha and risk adjusted return beta on the CAPM models are reported in Table 3. The estimation results are obtained using the diagonal vech type of GARCH model. Wald test against the null hypothesis that all

the coefficients on the independent variables in each equation are zero. Here the null hypothesis is rejected at all conventional levels.

Table 3
Empirical estimations based alpha and beta on the CAPM models. This table reports the coefficients of $\{(R_{i,t} - R_{f,t}) = \alpha_{i.t} + \beta_{i,t}(R_{m,t} - R_{f,t}) + \varepsilon_{i,t}\}$ for 10 Dow Jones indices with an international and regional focus from 01:1996 to 12:2016 period. The coefficients $\alpha_{i.t}$ and $\beta_{i,t}$ reflect the Jenson's alpha and systematic risk of index i with respect to their respective benchmark index. Wald χ2(n) reports the standard Wald test for all coefficient equal to zero. Standard errors in parentheses *** p<0.01, ** p<0.05, * p<0.1

VARIABLES	α	β		
RDJGL	0.000319*	1.012***	Distribution:	Gaussian
	(0.000167)	(0.00463)		
RDJI	-0.00778***	0.606***	Number of obs	252
	(0.00190)	(0.0526)	=	
RDJAPC	-0.00771***	0.692***	Wald χ2 (10)	78754.14
	(0.00202)	(0.0560)	=	
RDJIAPC	-0.00777***	0.643***	Prob > χ2	0.0000
	(0.00210)	(0.0583)	=	
RDJUS	-0.00741***	0.614***	Log likelihood =	9493.553
	(0.00179)	(0.0496)		
RDJIUS	-0.00746***	0.599***		
	(0.00194)	(0.0536)		
RDJDEV	0.000230*	1.005***		
	(0.000132)	(0.00365)		
RDJIDEV	-0.00774***	0.605***		
	(0.00189)	(0.0523)		
RDJEM	0.00310**	1.176***		
	(0.00147)	(0.0408)		
RDJIEM	-0.00804***	0.639***		
	(0.00262)	(0.0727)		

Column 2 reports the estimation of the beta coefficient. Beta coefficients for all Islamic and conventional Dow Jones indices are not only significant but also less than unity except for three indices: Dow Jones Global Indexes, Dow Jones Developed Market and Dow Jones Emerging Market, where beta higher than unity which indicates that these indices has higher risk than the benchmark index (MSCI World) which also shows that the indices outperform the market index as the alpha for each are positive and statistically significant.

Based on the calculation of eq (3), the risk-adjusted returns are shown in Table 4. The result shows a slight difference to those obtained in Table 2. Table 4 reports that for the entire period of 01:1996 to 12:2016, the Dow Jones Global Indexes, Dow Jones Developed Market and Dow Jones Emerging Market mean monthly return are higher than the rest of the indices at .000315, .0002201 and .0030945 respectively.

Table 4
Descriptive statistics of Islamic equities indices and conventional indices risk adjusted return beta. The risk adjusted return beta is obtained by the CAPM model. The data is pooled over period of 01/1996 to 12/2016.

VARIABLES	Mean	Min	Max	Std.Dev.	Skew.	Kurt.
RDJGL	.000315	-.0088061	.01205	.0021457	.2388788	7.035377
RDJI	-.0077859	-.0818732	.0684147	.0244045	-.3625231	3.721504
RDJAPC	-.0077181	-.0810764	.0779358	.0259892	-.173857	3.467259
RDJIAPC	-.0077808	-.0930177	.0869	.0270414	-.2184628	3.731317
RDJUS	-.0074066	-.0992046	.0604427	.0230123	-.392904	4.353952
RDJIUS	-.0074519	-.0902235	.0656209	.0248721	-.4291505	3.647158
RDJDEV	.0002201	-.0087361	.0123719	.0016914	1.026662	16.72986
RDJIDEV	-.0077493	-.0822548	.068745	.0242638	-.3635319	3.701745
RDJEM	.0030945	-.0825139	.0670856	.0189047	-.3851474	5.403793
RDJIEM	-.0080422	-.159992	.0912904	.0337051	-.5611287	5.148899

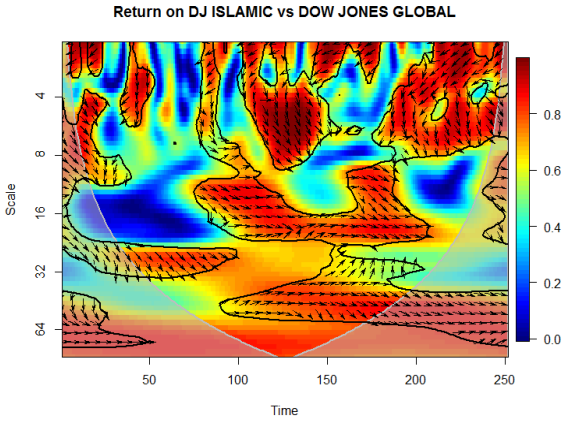
Figures below shows the co-movement from wavelet squared coherency and wavelet phase-difference across Islamic equity markets and conventional markets. Wavelet coherency is displayed through a contour plot. The horizontal axis displays the time components, while the vertical axis shows the frequency components which is converted to time units (days). The coherency of the series are measured through the degree of co-movement ranges from the warmer colors (red) representing regions with significant interrelation to colder colors (blue) signifying lower dependence between the series. Cold regions beyond the significant areas represent time and frequencies with no dependence in the series. Regions of high coherency between two equity indices indicate strong local correlation. The thick black line in the coherency plots will designate the statistically significant area at the 5% significance level estimated from a Monte Carlo simulation. Therefore, the cross-wavelet

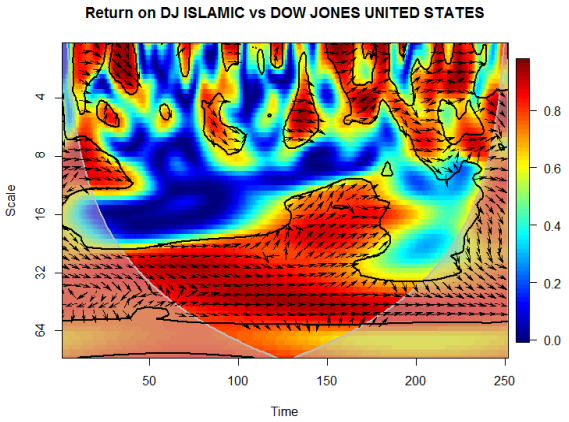
coherency has the power to investigate the varying characteristics of the relationship between index returns in the time– frequency domain. Also, pointing arrows represent wavelet phase-difference, which reveals the information of the lead–lag relationship (market dynamic) in time–frequency space.

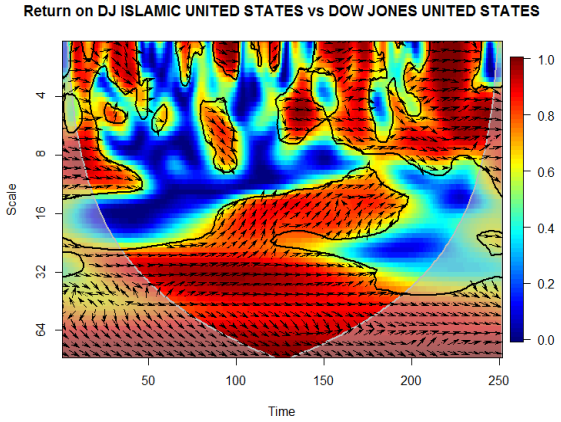
For the interpretation of the result, the graph shows the interrelation between pairs of indices for a period of 20 years going through a number of crises globally. We can see from the result that the DJ Islamic index is highly correlated with the Dow Jones Global index and Down Jones Developed Market during the lower scale of year 2008 when the Subprime Mortgage crises took place. It might have been due to the housing bubbles thus the effect was fast and because Islamic investment based on real assets, it explains that during that time the DJ Islamic index was moving in the same way as the other two indices. DJ Islamic Index is also highly interrelated to Dow Jones US Industrial Average and Dow Jones and Dow Jones Developed Market at the higher scale region. As opposed to that, the result shows that the Dow Jones Islamic is not highly interrelated to the Dow Jones Asia Pacific and Dow Jones Emerging Markets.

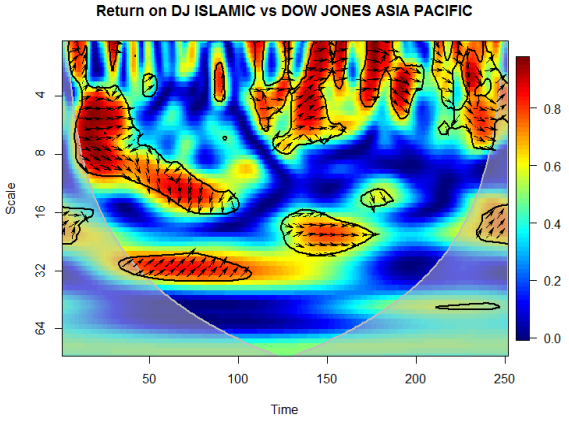
During the 1997 Asian Financial Crisis, the result shows that the Dow Jones Asia Pacific and Dow Jones Emerging Market are not highly interrelated to any other indices be it in the lower scale or the higher scale region. This result shows that the effect of the crises does not affect the US or developed market region at the time the crises happened or in the long horizon. For the entire frequency period, the result also shows that the Dow Jones Islamic Asia Pacific index is not highly correlated with the Dow Jones Islamic United States index which shows similar result to the correlation between Dow Jones Islamic Developed Markets and Dow Jones Islamic Emerging Markets.

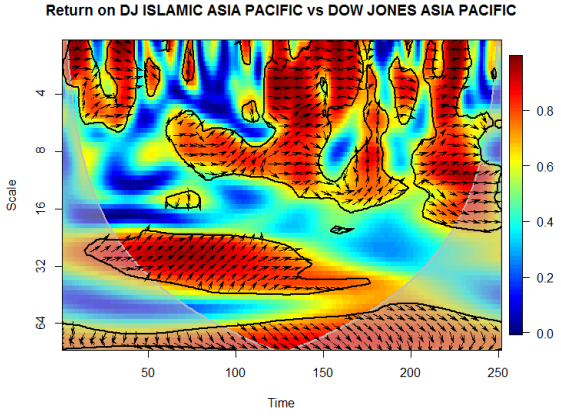
In addition to that, the Dow Jones US Industrial Average index is highly correlated to the Dow Jones Islamic Index and the Dow Jones Islamic US Index during the higher scale which also shows similar results to the Dow Jones Developed Market Index and its counterpart especially throughout the Subprime Mortgage crisis period in 2008.

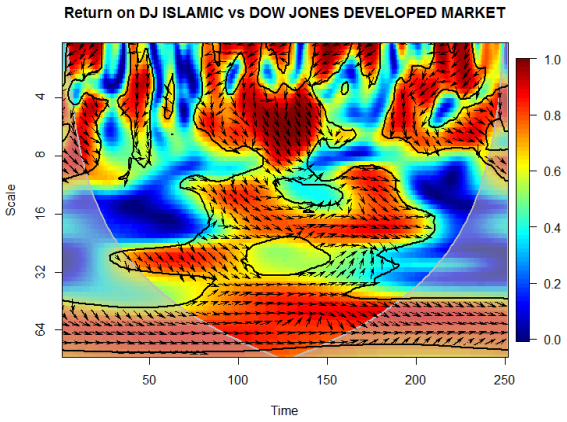


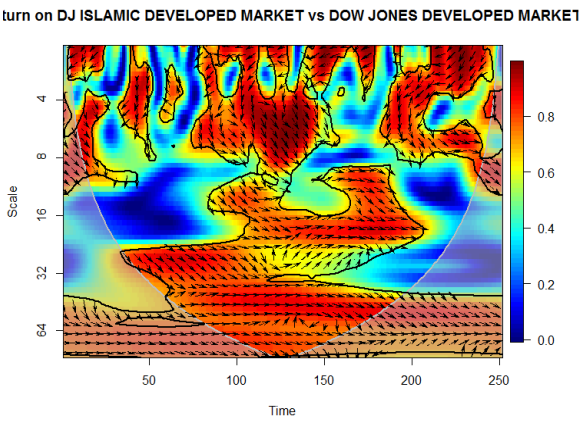


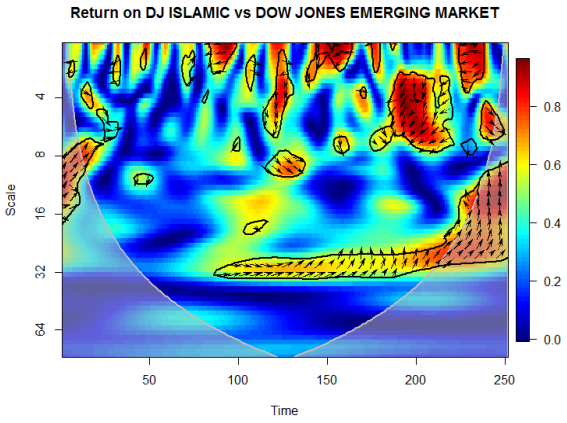


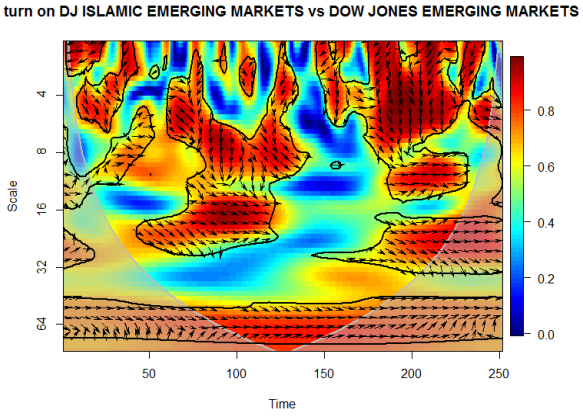


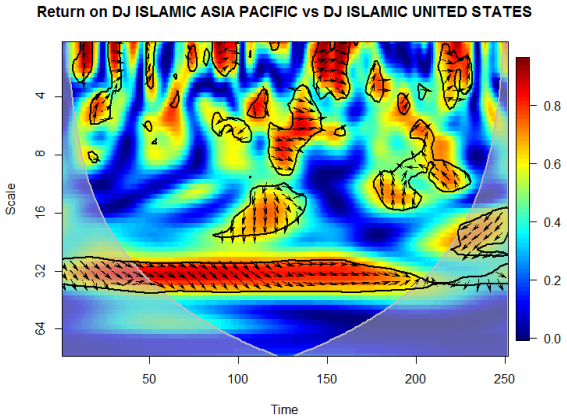


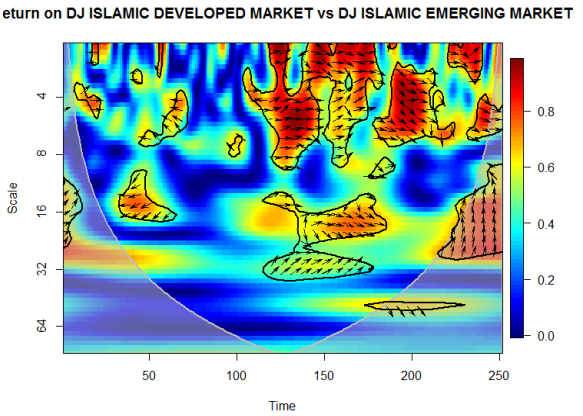












4. CONCLUSIONS AND POLICY IMPLICATIONS

Islamic equity funds through the investment in unit trusts, mutual funds and ETFs have become alternatives for investors and fund managers alike to invest their capital and manage their portfolios respectively by diversifying their risk and return in Islamic

equities. This was due to the stability of the Islamic equity funds during the global financial crisis that took place in 2008. Islamic equity fund was seen as an opportunity for them to reduce their loss in case major crises take place.

The result found from this study shows that Islamic equity market index (Dow Jones Islamic) has lower risk as compared to their conventional counterpart of Dow Jones Global and lower return as compared to the benchmarked portfolio (MSCI World) based on the result of the alpha and beta. This shows an advantage to investors or fund manager who pursues a passive approach to managing their portfolios and they're not exposed to market timing ability skills. In addition to that, the results also show that investors and fund managers can diversify their portfolios by allocating their assets/funds in Islamic equities due to the low correlation with their conventional counterparts. Policymakers can also take advantage of this to loosen up their restrictions to foreign investment if there is any policy imposing capital control that is being exercised in their country.

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