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Resilience of Islamic Equities against Uncertainty

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Abstract

This research aims to analyze the resilience of Islamic Equities against the economy and non-economic uncertainty within the past decades. Islamic Equities are represented by the developed, emerging, and frontier market S&P BMI Shariah Index. The World Uncertainty Index and economic policy uncertainty measure uncertainty. This paper uses a time-series approach utilizing the Vector Autoregressive (VAR) model to estimate the resilience of Islamic equities based on quarterly stock return, the World Uncertainty Index, and the Economic Uncertainty Index from 2013 to 2023. It shows that Islamic equities are resilient to economic uncertainty but not non-economic uncertainty.

Keywords: World Uncertainty Index; Economic Uncertainty Index; resilience; Islamic Equities;

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1.0 Introduction

In Islam, uncertainty can be classified into two types: uncertainty related to hereafter matters that affect one's relationship with God and uncertainty that relates to worldly issues such as economic and financial risk (Mustafa et al., 2016). Uncertainty can be experienced in economic and financial aspects that hamper the macroeconomic indicators of any economy (Saeed Meo et al., 2021). Uncertainty is a broad concept including uncertainty over the path of macro phenomena like GDP growth, micro phenomena like the growth rate of firms, and non-economic events like war and climate change (Bloom, 2014). Economic uncertainty shows unexpected changes that influence the financial ecosystem and how such changes in fiscal, monetary, or other government policies affect corporations (Al-Thaqeb et al., 2020).

Fernandez-Perez et al. (2021) state that a country's tolerance for uncertainty will impact investment performance, especially during a crisis. Generally, financial markets are vulnerable to uncertainty, including pandemics, terrorist attacks, and others (Salisu & Shaik, 2022; Tahir et al., 2020). Furthermore, Word Uncertainty strongly impacts regional Islamic stock indices (Saeed Meo et al., 2021). Islamic index is affected by a crisis and is open to financial contagion in the long run (Abduh, 2020; Abdullahi, 2021). Additionally, Islamic stocks are not immune to financial and economic turmoil (Hasan et al., 2021). However, the Islamic index is less volatile during the crisis (Abduh, 2020). Moreover, there is evidence that Islamic equity provides resistance during extreme market downturns and is more resilient to COVID-19 shock (Ashraf et al., 2022; Mirza et al., 2022).

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According to Delle Foglie & Panetta (2020), the research on Islamic equity or Islamic Indices tends to focus more on showing decoupling, contagion, interdependence, or relationship between Islamic Equity and its conventional counterparts without scientific, absolute, unanimous conclusions, and complete certainty about whether Islamic indexes provide cushion to the investor during the turmoil. Moreover, the current research on the performance of Islamic equities against uncertainty specifically examines a single event, i.e., Financial Crises, pandemics, and none, using a comprehensive event with a specific period. Thus, this paper aims to analyze the resilience of Islamic Equity against Uncertainty. This paper uses the quarterly uncertainty index, the Word Uncertainty Index, and Economic Policy Uncertainty as the proxy to capture both economic and non-economic uncertainty from 2013.3 – 2023.1. Moreover, this paper utilizes global data (S&P shariah) for frontier, emerging, and developed markets to analyze worldwide impact since it is rarely used in the current research of Islamic equities performances. This paper seeks to determine the impact of uncertainty on the performance of Islamic Equities. Thus, it can illustrate Islamic Equities performance as the investors' basic guideline for making investment decisions.

2.0 Literature Review

2.1 Economic Uncertainty and Islamic Equity

Economic uncertainty is an unexpected change that affects the economic ecosystem and how such changes in fiscal or monetary policies or any other government policies affect corporations (Al-Thaqeb et al., 2020). Baker et al. (2016) developed a new proxy index for economic Uncertainty, Economic Policy Uncertainty (EPU), that captures uncertainty from news, policy, market, and economic indicators. EPU is associated with greater stock price volatility and reduced investment (Baker et al., 2016).

Economic policy uncertainty shocks significantly and negatively affect the Islamic stock markets (Hammoudeh et al., 2015). Furthermore, EPU negatively affects Islamic Equities at lower-middle quantiles (Godil et al., 2020a). Moreover, (Fiti & Hadhri, 2019) found causal relationships between the underlying variables (EPU) and Islamic stock returns in several time frequencies. Thus, this study proposes Islamic Equities' return in non-resilience towards economic uncertainty.

H1: Economic Uncertainty Affects Islamic Equities' Return

2.2 Non-Economic Uncertainty and Islamic Equity

Aside from economic uncertainty, non-economic uncertainty also plays a role in Islamic security resilience. Non-economic uncertainty comprises uncertainty arising from non-economic factors, i.e., politics, market conditions, and pandemics. Ahir et al. (2018, 2022) established the IMF's World Uncertainty Index, which focuses on the count of the word uncertainty in geopolitical reports. Lin & Su (2020) declared that negative linkages exist between OVX (oil market uncertainty) changes and Islamic stock returns. Furthermore, Geopolitical Risk (GPR) negatively affects Islamic stock prices (Godil et al., 2020a). Moreover, Saeed Meo et al.(2021) confirm the strong negative impact of world uncertainty and world pandemic uncertainty on regional Islamic stock indices. Thus, the hypothesis proposed by this study is Islamic Equities' return in non-resilience toward non-economic uncertainty.

H2: Non-Economic Uncertainty Affects Islamic Equities' Return

3.0 Methodology

This research uses a quantitative approach to analyse the resilience of Islamic securities indices against uncertainty, economics, and non-economics. Uncertainty is measured by the logarithm natural of the Economic Policy Uncertainty Index (EPU) retrieved from (Baker et al., 2016), available at <https://www.policyuncertainty.com/> and logarithm natural of the World Uncertainty Index (WU) retrieved from (Ahir et al., 2018) that available in <https://worlduncertaintyindex.com/data/>. Islamic securities in this research are represented by the return of the S&P BMI Shariah Index, comprised of developed markets, emerging markets, and frontier markets retrieved from S&P websites.

The data are quarterly data from Q3.2013 to Q1.2023. The sample starts from Q3.2013 to avoid the taper tantrum period around Q2. 2013. The Vector Autoregressive (VAR) analysis measures Islamic equity's resilience against economic and non-economic uncertainty. The VAR model is chosen since it is a multivariate time series analysis that can describe the dynamic behavior of economic and financial time series (Zivot & Wang, 2003). It involves a stationary test, a cointegration test, VAR estimation, variance decomposition, and impulse response. Moreover, this study uses a robustness check to examine the structural validity by modifying the economic and non-economic uncertainty variable proxy. It examines the behavior of regression coefficient estimation when the regression specification is modified (Lu & White, 2014). The following equation illustrates the Vector Autoregressive model.

$$y_t = \alpha + \sum_{t=1}^m \beta_{st} y_{t-1} + \beta_1 EPU_{t-1} + \beta_2 WUI_{t-1} + \varepsilon_t$$

whereby $y_t = \begin{pmatrix} sDM \\ sEM \\ sFM \end{pmatrix}$ is 3 x 1 vector endogenous variables, and

sDM: natural logarithm developed market return

sEM: natural logarithm emerging market return

sFM: natural logarithm frontier market return
 EPU: natural logarithm of economic policy uncertainty index
 WUI: Natural logarithm world economic uncertainty index

4.0 Findings

4.1 Stationary Data Test

Stationary data must be tested in time series data to avoid spurious regression in analysis (Gujarati, 2004). Each variable's stationarity is tested using the Augmented Dickey-Fuller (ADF) and Philip Perron (PP) unit root test. The VAR analysis approach is applied if the data is stationary. The result of the Unit Root Test is given in Table 1.

Variable	Level		1 st difference	
	ADF	PP	ADF	PP
sDM	-2.825491	-2.858339	-7.264796*	-7.274203*
sEM	-3.733127**	-2.558087	-6.520483*	-6.525286*
sFM	-3.489277***	-2.528488	-3.996577**	-6.702597*
EPU	-3.393303***	-3.377741***	-8.762712*	-9.029561*
WUI	-3.962144**	-4.081262**	-8.677073*	-8.747980*

Notes: The lag order of the ADF test equation is based on the Schwartz Information Criterion (SIC). It includes the trend and constant terms for level and first difference in the test equations. The Null hypotheses are sDM, sEM, sFM, EPU, and WUI, which have unit root tests. *, ** and *** denotes significance at 1%, 5%, and 10%.

Table 1 depicts the result of the ADF and PP for all variables. Both tests are conducted using trend and intercept. The ADF and PP result tests assert that the equity return (sDM, sEM, and sFM) and uncertainty indices (EPU and WUI) series are stationary at first difference within 1%, 5%, and 10% significance levels.

4.2 Order Selection Criteria

Choosing the optimal lag length is essential prior to running VAR models. If the lag length is too small, the model can be misspecified; if it is too large, it can be over-parameterized (Wooldridge, 2015). The lag length optimum criteria are tested using LR, FPE, AIC, SC, and HQ tests. The results are given in Table 2

Lag	LogL	LR	FPE	AIC	SC	HQ
0	72.99878	NA	2.70e-08	-3.238037	-3.031172	-3.162213
1	198.2997	214.8016*	2.30e-10*	-8.014272*	-6.773080*	-7.559326*
2	215.8438	25.89848	3.45e-10	-7.659231	-5.383711	-6.825163
3	238.2037	27.68369	4.50e-10	-7.533512	-4.223665	-6.320322

* Indicates lag order selected by the criterion

Table 2 depicts the LR, FPE, AIC, HQIC, and SC tests. It suggests a lag length of one; hence, the VAR model is run based on this lag length.

4.3 Cointegration Test

Following Table 1, the stationarity test showed that the data are stationary at first difference. Therefore, it is necessary to carry out a cointegration test to see whether the endogenous variables have a long-term relationship (Pratama, 2015). If the cointegrating relations are present in a system of variables, the VAR is not convenient to use (Lütkepohl, 2004). Meanwhile, when there is cointegration, it utilizes Vector Error Correction Model (VECM) analysis to estimate the long-run relationship among variables (Herdayanti & Hariyanto, 2022). The result of the cointegration test is available in Table 3.

Unrestricted Cointegration Rank Test (Trace)				
Hypothesized	Trace		0.05	
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**
None *	0.544572	108.5523	79.34145	0.0001
At most 1 *	0.515893	76.30506	55.24578	0.0003
At most 2 *	0.431987	46.56161	35.01090	0.0020
At most 3 *	0.254050	23.37154	18.39771	0.0093
At most 4 *	0.241901	11.35458	3.841465	0.0008

* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

The cointegration test is determined by comparing the trace value and the critical value of 5% and rejecting the null hypothesis when the value is greater than the critical value (Lütkepohl et al., 2001). Table 3 illustrates the results of the Johansen cointegration test. The result indicates that trace values are greater than critical values among the series; sDM, sEM, sFM, EPU, and WUI. The trace test indicates five cointegrations at the 5% level. Abusharbeh (2020) states that the Vector Error Correction Model (VECM) is a more appropriate analytical technique if the data are cointegrated.

4.4 VECM Estimation

VECM is a VAR model for data that is non-stationary at level but has cointegration among the variables, which can estimate the short and long-run effect (Lütkepohl & Krätzig, 2004). The summary of VECM estimation is in Table 4.

Error Correction	D(sDM)	D(sEM)	D(sFM)
Long Run			
sDM (-1)		24.82698*	-1.996974*
sEM (-1)	0.040279		-0.080436
sFM (-1)	-0.500758*	-12.43230*	
EPU (-1)	-0.120572*	-2.993439*	0.240779*
WUI (-1)	0.101447*	2.518618*	-0.202587*
Short Run			
sDM (-1)	0.191573	0.455351	0.073821
sEM (-1)	-0.095355	-0.515675**	0.285804
sFM (-1)	-0.365700*	-0.250040***	-0.831061*
EPU (-1)	-0.100590**	-0.102520***	-0.079439
WUI (-1)	0.089851*	0.052127	0.066659

Notes: *, ** and *** denotes significance at 1%, 5%, and 10%.

Table 4 illustrates the result of VECM estimation for sDM, sEM, and sFM. The result showed that the sDM is significantly affected by the initial condition of other variables in the short and long run. In the long run, sEM, sFM, EPU, and WUI affect sDM. Meanwhile, in the short run, sFM, EPU, and WUI affect sDM. It shows that the economy and non-economic uncertainty affect the return in the developed market. Thus, it is non-resistance.

Moreover, the emerging market is quite similar, whereby the return of equities is affected by the return of developing market and frontier market, economic uncertainty, and non-economic uncertainty in the long run. Meanwhile, in the short run, non-economic uncertainty does not affect the return of equities in the emerging market. It shows a slightly different effect of economic and non-economic uncertainty toward sEM.

Furthermore, in the frontier market, there are different results. In the long run, sFM is affected by sDM, sEM, EPU, and WUI. Meanwhile, in the short run, none of them affect sFM. Thus, in the frontier market, the economy and non-economic uncertainty affect the return in the long run, while it has no effect in the short run.

4.5 Variance Decompositions

Variance decomposition measures the percentage of forecast error of variation explained by another variable in the short-run dynamics and interactions (Lütkepohl, 2010). It does not provide information on how the variable of interest responds to shocks or innovations in other variables. The result of variance decomposition is available in Table 5, Table 6, and Table 7 for sDM, sEM, and sFM, respectively.

Period	S.E.	D(sDM)	D(sEM)	D(sFM)	D(EPU)	D(WUI)
1	0.079169	100.0000	0.000000	0.000000	0.000000	0.000000
2	0.098956	70.05610	2.046181	18.97458	1.138179	7.784961
3	0.124336	70.32542	1.607682	17.71225	1.181721	9.172929
4	0.131381	72.07230	1.533964	16.86102	1.058749	8.473966
5	0.146543	69.93188	1.352763	18.11393	1.287948	9.313478
6	0.157319	69.46389	1.174077	18.56975	1.227658	9.564623
7	0.166947	70.11708	1.064524	18.23732	1.191372	9.389706
8	0.176572	69.75031	0.986133	18.55335	1.190538	9.519662
9	0.185928	69.62413	0.899453	18.67726	1.184947	9.614215
10	0.194322	69.72887	0.837906	18.66917	1.165680	9.598374

Table 5 illustrates that sDM, aside from its condition, is highly affected by the return of the frontier market (sFM). Moreover, the non-economic uncertainty contributes approximately 9% of the sDM changes, while the economic uncertainty only contributes around 1% over the return of the Developed Market during the period.

Period	S.E.	D(sDM)	D(sEM)	D(sFM)	D(EPU)	D(WUI)
1	0.090335	51.14222	48.85778	0.000000	0.000000	0.000000
2	0.109752	38.51609	38.98315	14.44777	0.011892	8.041094

Period	S.E.	D(sDM)	D(sEM)	D(sFM)	D(EPU)	D(WUI)
3	0.135996	38.98485	41.02777	12.46268	0.164117	7.360583
4	0.147070	38.64530	42.89734	11.41826	0.272954	6.766137
5	0.162124	38.15472	41.58170	12.59489	0.326238	7.342447
6	0.175513	37.53711	42.32248	12.44280	0.278426	7.419183
7	0.186632	37.68524	42.59555	12.21672	0.246972	7.255518
8	0.197740	37.43379	42.66826	12.32328	0.225007	7.349661
9	0.208466	37.31417	42.74387	12.35224	0.204861	7.384858
10	0.218276	37.24965	42.94337	12.27004	0.187964	7.348978

Table 6 shows that sEM is highly dominated by sDM aside from sEM self-condition from the 1st until the 10th period. Moreover, non-economic uncertainty contributes around 8% of the sEM changes during the period, while economic uncertainty contributes less than 1%.

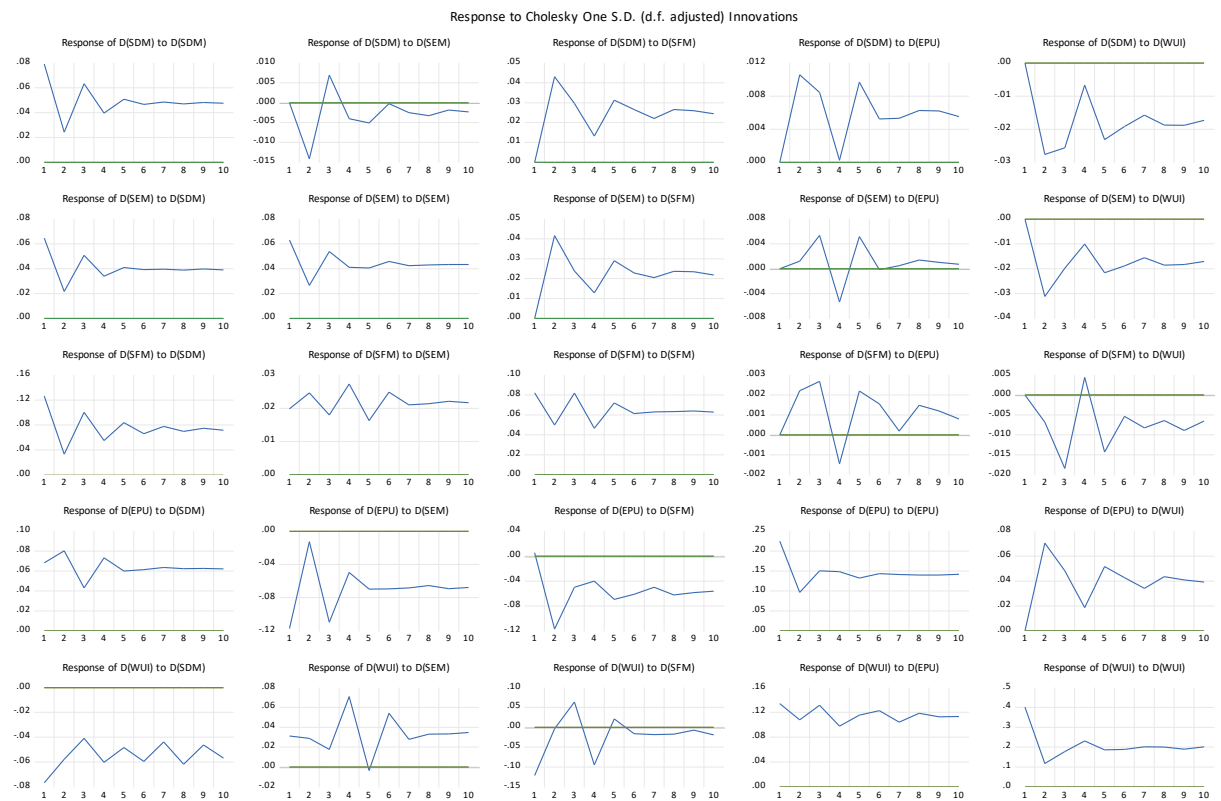
Table 7. Variance Decomposition sFM

Period	S.E.	D(sDM)	D(sEM)	D(sFM)	D(EPU)	D(WUI)
1	0.152088	69.04369	1.708676	29.24764	0.000000	0.000000
2	0.165480	62.31761	3.661984	33.83347	0.017838	0.169101
3	0.211685	60.51966	2.962869	35.62661	0.027048	0.863820
4	0.225329	59.35020	4.091109	35.72909	0.028029	0.801579
5	0.251876	58.50788	3.695001	36.80231	0.030066	0.964736
6	0.268646	57.41404	4.105300	37.56321	0.029766	0.887677
7	0.287469	57.38789	4.119719	37.60944	0.026040	0.856914
8	0.303257	56.81164	4.200139	38.14739	0.025790	0.815043
9	0.319716	56.56676	4.258099	38.34031	0.024615	0.810219
10	0.334350	56.30315	4.313226	38.58125	0.023085	0.779290

As for sFM, table 7 illustrates that it is affected mainly by the return of equity in the developed market and the sFM itself. As for the uncertainty, economic and non-economic uncertainty only contributed less than 1%; thus, it is a non-significance contribution.

4.6 Impulse Responses Function

Impulse responses simulate the dynamic effects of the different structural shocks; thus, it shows the over-time effect of the shocks on the variables at issue (Neusser, 2016). This study uses the impulse responses function to see the Islamic Equities' return resilience over economic and non-economic uncertainty shocks. The impulse response is available in Figure 1.



Based on the impulse response function results, the EPU and WUI shocks bring different responses from the return of Islamic equities. The sDM responds positively to the shock from the EPU in the 1st to the second period and then fluctuates in the following

period until it stabilizes in the sixth period. The sEM also experienced the same thing. It responded positively to the shock in the EPU variable until the third period, then decreased in the fourth period and began to stabilize in the eighth period. The same is true for the sFM, which also responds positively to the shock in the EPU in periods 1 to 3, drops to negative in the fourth period, rises again in the fifth period, and fluctuates until the 10th.

Meanwhile, the sDM responded negatively to the shock from the WUI variable in periods 1 to 2, then rose in the fourth period and only started to stabilize in the eighth period. Likewise, the sEM responded negatively to the WUI shock at the beginning of the second period, rose again in the fourth period, and stabilized in the eighth. The sFM also responds negatively to a shock to the WUI at the beginning of the period until the third period. It then rises in the fourth period and only starts to stabilize or return to the balance point in the sixth, although it is still relatively volatile.

5.0 Discussion

Islamic equities are a form of investment that adheres to Islamic principles. It is considered more socially responsible and ethical than its conventional counterparts (Mauro et al., 2013). It is a viable investment option for socially responsible and ethical investors seeking competitive returns. However, examining whether it is resilient toward uncertainty is necessary as it is proven not immune to global factors (Hammoudeh et al., 2014).

Following the result analysis, economic and non-economic uncertainty generally significantly impacts Islamic Equities' return in the long run in the developed, frontier, and emerging markets. It is in line with the findings of (Ahir et al., 2018, 2022; Ftiti & Hadhri, 2019; Godil et al., 2020b; Hammoudeh et al., 2014; Lin & Su, 2020b; Saeed Meo et al., 2021) that Islamic equities are not resilient toward economic and non-economic uncertainty. Moreover, the contribution of non-economic uncertainty to the return of Islamic equities is larger than economic uncertainty.

The uncertainties affect Islamic equities negatively in the long run. The higher the non-economic uncertainty, the lower the return of Islamic equities in the developed, frontier, and emerging markets. It is consistent with the findings of (Lin & Su, 2020a; Saeed Meo et al., 2021). On the other hand, even though Islamic equities responded positively to economic uncertainty in the short run, they declined in the third period. They showed that economic uncertainty also hurts Islamic equity's return. It is consistent with the findings of (Godil et al., 2020c; Hammoudeh et al., 2015). The results show a reversed economic and non-economic uncertainty effect on Islamic equity's return.

The impact of uncertainties on Islamic Equities validates the theory of Knight (2014), who explained that uncertain events adversely affect stock markets. Thus, the findings verify the strength of uncertain events (economic and non-economic uncertainty) on Islamic equities return following the theoretical framework by noticing the negative impact of economic and non-economic uncertainties on Islamic equities.

5.1 Robustness Check

The result shows that the return of Islamic equities in developed, frontier, and emerging markets depends on economic and non-economic uncertainty. This study uses alternative economic and non-economic uncertainty proxies to examine the structural validity. It aims to check whether different proxies of variables have a similar impact on Islamic equities return with the same model analysis. This study uses the implied volatility index (VIX) as the alternative for EPU and the oil market volatility index (OVX) as the alternative for WUI. The results are available in Table 8.

Table 8. Robustness Check VECM Estimation Result

Error Correction	D(sDM)	D(sEM)	D(sFM)
Long Run			
sDM (-1)	1.0	-2.716267*	-2.393113*
sEM (-1)	-0.368152	1.0	0.881030***
sFM (-1)	-0.417866**	1.135035**	1.0
VIX (-1)	0.021596*	-0.058662*	-0.051683*
OVX (-1)	-0.008967*	0.024355*	0.021458*
Short Run			
sDM (-1)	-0.800784***	-0.757713	-0.127726
sEM (-1)	-0.358949	-0.998256*	-0.049905
sFM (-1)	0.413550**	0.591883*	-0.347347
VIX (-1)	0.004209	-0.001251	0.010554
OVX (-1)	-0.001983	-0.001374	-0.003999

Notes: *, ** and *** denotes significance at 1%, 5%, and 10%.

Table 8 shows the VECM estimation result using OVX and VIX as the uncertainty proxy. The findings are consistent with the VECM Estimation with EPU and WUI as the uncertainty proxy, particularly in the long run. In the long run, economic and non-economic uncertainty are proven to affect the return of Islamic Equities in the developed, frontier, and emerging markets. Meanwhile, in the short run, the returns of Islamic equities are independent of economic and non-economic equity.

6.0 Conclusion

Uncertainty portrays unexpected events and changes that affect life, micro and macro scope. Motivated by inconsistent findings on the resilience of Islamic Securities during extreme events and uncertainty, this paper investigates the resilience of Islamic Equities against economic and non-economic uncertainty. Utilizing the natural logarithm of quarterly EPU and WUI as the proxy of uncertainty and the return of Islamic equities from Developed, Emerging, and Frontier Market during 2013.3 – 2023.1, the paper showed that Islamic equities in the developed, frontier, and emerging markets are not resilient to uncertainty, particularly in the long run. Moreover, non-economic uncertainty's impact is bigger than economic uncertainty's. However, the study focused only on market groups generally; thus, it does not illustrate the resilience of Islamic equities in specific countries. Further research can be conducted to test the ability of Islamic equities, using the country-based index, to overcome any uncertainty.

The study has focused only on Muslims, the majority population in Indonesia and Malaysia, who are relatively similar in culture. Future research should acquire more individual profiles across the globe with various cultures to make the result broader and more compelling.

Paper Contribution to Related Field of Study

This paper contributes to the field of Islamic equity performance as the basic guideline for investment decisions.

References

- Abduh, M. (2020). Volatility of Malaysian conventional and Islamic indices: does financial crisis matter? *Journal of Islamic Accounting and Business Research*, 11(1), 1–11. <https://doi.org/10.1108/JIABR-07-2017-0103>
- Abdullahi, S. I. (2021). Islamic equities and COVID-19 pandemic: measuring Islamic stock indices correlation and volatility in period of crisis. *Islamic Economic Studies*, 29(1), 50–66. <https://doi.org/10.1108/IES-09-2020-0037/FULL/XML>
- Abusharbeh, M. (2020). Determinants of Islamic bank financing in the Middle East: Vector Error Correction Model (VECM). *Investment Management and Financial Innovations*, 17(4), 285–298. [https://doi.org/10.21511/imfi.17\(4\).2020.25](https://doi.org/10.21511/imfi.17(4).2020.25)
- Ahir, H., Bloom, N., & Furceri, D. (2018). The World Uncertainty Index. In *SSRN Electronic Journal*. <https://doi.org/10.2139/ssrn.3275033>
- Ahir, H., Bloom, N., & Furceri, D. (2022). *The World Uncertainty Index* (NBER WORKING PAPER SERIES, Vol. 29763). <http://www.nber.org/papers/w29763>
- Al-Thaqeb, S. A., Algharabali, B. G., & Alabdulghafour, K. T. (2020). The pandemic and economic policy uncertainty. *International Journal of Finance and Economics*. <https://doi.org/10.1002/IJFE.2298>
- Ashraf, D., Rizwan, M. S., & Ahmad, G. (2022). Islamic equity investments and the COVID-19 pandemic. *Pacific Basin Finance Journal*, 73. <https://doi.org/10.1016/j.pacfin.2022.101765>
- Baker, S. R., Bloom, N., & Davis, S. J. (2016). Measuring economic policy uncertainty. *Quarterly Journal of Economics*, 131(4), 1593–1636. <https://doi.org/10.1093/qje/qjw024>
- Bloom, N. (2014). Fluctuations in uncertainty. *Journal of Economic Perspectives*, 28(2), 153–176. <https://doi.org/10.1257/JEP.28.2.153>
- Delle Foglie, A., & Panetta, I. C. (2020). Islamic stock market versus conventional: Are Islamic investing a 'Safe Haven' for investors? A systematic literature review. *Pacific Basin Finance Journal*, 64. <https://doi.org/10.1016/j.pacfin.2020.101435>
- Fernandez-Perez, A., Gilbert, A., Indriawan, I., & Nguyen, N. H. (2021). COVID-19 pandemic and stock market response: A culture effect. *Journal of Behavioral and Experimental Finance*, 29, 100454. <https://doi.org/https://doi.org/10.1016/j.jbef.2020.100454>
- Ftiti, Z., & Hadhri, S. (2019). Can economic policy uncertainty, oil prices, and investor sentiment predict Islamic stock returns? A multi-scale perspective. *Pacific-Basin Finance Journal*, 53, 40–55. <https://doi.org/https://doi.org/10.1016/j.pacfin.2018.09.005>
- Godil, D. I., Sarwat, S., Sharif, A., & Jermisittiparsert, K. (2020a). How oil prices, gold prices, uncertainty and risk impact Islamic and conventional stocks? Empirical evidence from QARDL technique. *Resources Policy*, 66(April), 101638. <https://doi.org/10.1016/j.resourpol.2020.101638>
- Godil, D. I., Sarwat, S., Sharif, A., & Jermisittiparsert, K. (2020b). How oil prices, gold prices, uncertainty and risk impact Islamic and conventional stocks? Empirical evidence from QARDL technique. *Resources Policy*, 66(January), 101638. <https://doi.org/10.1016/j.resourpol.2020.101638>
- Godil, D. I., Sarwat, S., Sharif, A., & Jermisittiparsert, K. (2020c). How oil prices, gold prices, uncertainty and risk impact Islamic and conventional stocks? Empirical evidence from QARDL technique. *Resources Policy*, 66(April). <https://doi.org/10.1016/j.resourpol.2020.101638>
- Gujarati, D. N. (2004). *Basic Econometrics* (Fourth Ed). The McGraw-Hill Companies. <https://doi.org/10.1596/1813-9450-8096>
- Hammoudeh, S., Kim, W. J., & Sarafrazi, S. (2015). Sources of Fluctuations in Islamic, U.S., EU, and Asia Equity Markets: The Roles of Economic Uncertainty, Interest Rates, and Stock Indexes. *Emerging Markets Finance and Trade*, 52(5), 1195–1209. <https://doi.org/10.1080/1540496X.2014.998561>
- Hammoudeh, S., Mensi, W., Reboredo, J. C., & Nguyen, D. K. (2014). Dynamic dependence of the global Islamic equity index with global conventional equity market indices and risk factors. *Pacific Basin Finance Journal*, 30, 189–206. <https://doi.org/10.1016/j.pacfin.2014.10.001>

- Hasan, M. B., Mahi, M., Hassan, M. K., & Bhuiyan, A. B. (2021). Impact of COVID-19 pandemic on stock markets: Conventional vs. Islamic indices using wavelet-based multi-timescales analysis. *The North American Journal of Economics and Finance*, 58, 101504. <https://doi.org/https://doi.org/10.1016/j.najef.2021.101504>
- Herdayanti, D., & Hariyanto, E. (2022). Pengaruh Sertifikat Bank Indonesia, Inflasi, Nilai Tukar, serta Pendapatan dan Belanja Pemerintah terhadap Permintaan Imbal Hasil Sukuk Retail. *Jurnal Anggaran Dan Keuangan Negara Indonesia*, 4(2), 199–212.
- Lin, B., & Su, T. (2020a). The linkages between oil market uncertainty and Islamic stock markets: Evidence from quantile-on-quantile approach. *Energy Economics*, 88, 104759. <https://doi.org/https://doi.org/10.1016/j.eneco.2020.104759>
- Lin, B., & Su, T. (2020b). The linkages between oil market uncertainty and Islamic stock markets: Evidence from quantile-on-quantile approach. *Energy Economics*, 88, 104759. <https://doi.org/10.1016/j.eneco.2020.104759>
- Lu, X., & White, H. (2014). Robustness checks and robustness tests in applied economics. *Journal of Econometrics*, 178(PART 1), 194–206. <https://doi.org/10.1016/j.jeconom.2013.08.016>
- Lütkepohl, H. (2004). Vector autoregressive and vector error correction models. In *Applied Time Series Econometrics*. <https://doi.org/10.1017/CBO9780511606885.004>
- Lütkepohl, H. (2010). Variance Decomposition. In S. N. Durlauf & L. E. Blume (Eds.), *Macroeconometrics and Time Series Analysis* (pp. 369–371). Palgrave Macmillan UK. https://doi.org/10.1057/9780230280830_38
- Lütkepohl, H., & Krätzig, M. (2004). *Applied time series econometrics*. Cambridge university press.
- Lütkepohl, H., Saikkonen, P., & Trenkler, C. (2001). Maximum eigenvalue versus trace tests for the cointegrating rank of a VAR process. *The Econometrics Journal*, 4(2), 287–310. <https://doi.org/10.1111/1368-423x.00068>
- Mauro, F. di, Caristi, P., Couderc, S., Maria, A. Di, Ho, L., Grewal, B. K., Masciantonio, S., Ongena, S., & Zaher, S. (2013). Islamic Finance in Europe. In *Occasional Paper Series* (146; Occasional Paper Series). <https://doi.org/10.4337/9781781002513>
- Mirza, N., Abbas Rizvi, S. K., Saba, I., Naqvi, B., & Yarovaya, L. (2022). The resilience of Islamic equity funds during COVID-19: Evidence from risk adjusted performance, investment styles and volatility timing. *International Review of Economics and Finance*, 77(July 2021), 276–295. <https://doi.org/10.1016/j.iref.2021.09.019>
- Mustafa, D. A., Abdulsalam, H. A., & Yusuf, J. B. (2016). Islamic Economics and the Relevance of Al-Qawā'id Al-Fiqhiyyah. *SAGE Open*, 6(4). <https://doi.org/10.1177/2158244016671374>
- Neusser, K. (2016). Time-series econometrics. In *Springer Texts in Business and Economics*. Springer. <https://doi.org/10.4337/9781849803182.00108>
- Pratama, Y. C. (2015). Macroeconomic Variable and its Influence on Performance of Indonesian Islamic Banking. *Al-Iqtishad: Jurnal Ilmu Ekonomi Syariah*, VII(1), 59–72. <https://doi.org/10.15408/aiq.v7i1.1359>
- Saeed Meo, M., Jameel, K., Chowdhury, M. A. F., & Ali, S. (2021). Islamic financial markets response to uncertainty: an application of quantile-on-quantile approach. *Journal of Economic and Administrative Sciences*. <https://doi.org/10.1108/jeas-03-2021-0052>
- Salisu, A. A., & Shaik, M. (2022). Islamic Stock indices and COVID-19 pandemic. *International Review of Economics & Finance*, 80, 282–293. <https://doi.org/10.1016/J.IREF.2022.02.073>
- Tahir, S. H., Tahir, F., Syed, N., Ahmad, G., & Ullah, M. R. (2020). Stock market response to terrorist attacks: An event study approach. *Journal of Asian Finance, Economics and Business*, 7(9), 31–37. <https://doi.org/10.13106/JAFEB.2020.VOL7.NO9.031>
- Wooldridge, J. M. (2015). *Introductory econometrics: A modern approach*. Cengage learning.
- Zivot, E., & Wang, J. (2003). Vector Autoregressive Models for Multivariate Time Series. In *Modeling Financial Time Series with S-Plus®* (pp. 369–413). https://doi.org/10.1007/978-0-387-21763-5_11