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The performance of Islamic stock indices during the Covid-19 crisis

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Abstract:
The purpose of our study is to compare the performance of the Dow Jones Islamic Index against its conventional counterpart Dow Jones Index of 9 countries during the crisis of Covid-19 and post Covid-19. In general, we study the impact of Islamic finance on the structure of stock market returns of 9 countries that have a majority of Muslim population and are the predecessors of the integration of Islamic finance. The data was collected over a period of 21 months (January 2020 to September 2021), two sub-periods were defined: the first one from January 2001 to June 2020 (the market collapse), and the second one from July 2020 to September 2021 (the market recovery phase). The results reveal that Dow Jones Islamic index outperform their conventional Dow Jones Index counterparts in terms of risk-adjusted returns during Covid-19 and post Covid-19 crisis. In the same trend, the results of Echarch model confirm that conventional DJI stock indices are more volatile compared to their Islamic DJII counterparts. This leads to the conclusion that Islamic stock market indices perform better and are less risky than their conventional counterparts.

Keywords: Islamic index; conventional index; Covid-19; performance.

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1. Introduction

In the year 2020, the world is facing a crisis unprecedented in both its nature and the scale of its consequences. The Covid-19 pandemic has shaken a large part of the world, and its impact extends beyond the health sector to the global economic and financial sectors.

From January 2020 onwards, global stock markets recorded volatility and a significant drop in financial asset prices. Consequently, the Islamic capital market is not immune to such a crisis, but its persistence and volatility during the Covid-19 crisis is becoming an issue of interest to many investors.

Islamic finance is an ethical form of finance based on the principles of Sharia law, which prohibit interest rates in "Riba" debt transactions, speculation, gambling and uncertain transactions, as well as the adoption of the principle of profit and loss sharing; considered to be the most distinctive elements between Islamic and conventional finance. Aside from authorized trading activity, stocks must meet strict selection criteria to be included in the Islamic index. Thus, the structure of Islamic indices is intrinsically different from that of conventional stock market indices. Stocks included in Islamic indices are based on real economic activity, which can make them less risky (Raza et al. 2020; Varga and Tálos 2016), more stable (Erdogan et al.2020; Kenourgios et al. 2016; Paltrinieri et al. 2019), immune to turbulence and linked to the promotion of real assets.

In the wake of the COVID-19 crisis, many researchers were interested in studying the volatility and performance of conventional stock markets. However, a considerable lack of attention has been paid to Islamic finance. Some reports indicate that Islamic banks did not suffer as much as conventional banks during the Subprime crisis. What's more, the Covid-19 pandemic is still spreading, its impact extending beyond the healthcare sector to affect the global economic and financial sector.

Within this framework, our research topic is to study the volatility and persistence of Islamic stock indices compared to their conventional counterparts during the Covid-19 crisis. Indeed, this study aims to examine whether global Islamic stock markets would be immune to the Covid-19 crisis, as they are intrinsically different from conventional stock markets.

To this end, the analysis of the performance of Islamic stock market indices in countries with a majority Muslim population appears to be a model that has never been treated to our knowledge. Indeed, most studies have focused on comparing the performance of Islamic stock market indices with conventional indices in emerging and developed countries.

The problem of our research revolves around the following question: Are Islamic stock market indices more or less successful and volatile than their conventional counterparts during the Covid-19 crisis?

To answer this question, we need to formulate two hypotheses, as follows:

- H0: Would Islamic stock market indices outperform their conventional counterparts during the Covid-19 crisis?
- H1: Would Islamic stock market indices underperform their conventional counterparts during the Covid-19 crisis?

Addressing our problem requires an in-depth study of the profitability and volatility of Islamic stock market indices. This research is part of a positivist paradigm with a hypothetico-deductive epistemological positioning where the theoretical framework gives rise to hypotheses that will be tested in order to answer the research questions. The empirical testing of these hypotheses essentially follows a quantitative approach, which consists of comparing the performance of Islamic stock market indices against their conventional counterparts in nine countries with the largest Islamic asset base in the world, according to REFINITIV's report on the development of Islamic finance in 2022, and which are covered by the Dow Jones index, during the period of excessive stock market decline caused by the Covid-19 crisis, i.e. between January 2020 and June 2020, and the period of stock market recovery between July 2020 and September 2021, following the return of market confidence motivated by the discovery of the Covid-19 vaccine and health improvements worldwide.

Indeed, the structure of the research is as follows: first, we deal with the literature review. Next, we discuss the research methodology adopted and the data base, and finally we analyze and discuss the results of the empirical part.

2.Literature review

Following the launch of Islamic banking in the 1970s, the first theoretical research on Islamic stock indices began two decades later, focusing on the feasibility of Islamic financial markets. Thus, following the creation of the first Islamic indices in the late nineties, research began to analyze and address the main features and challenges of the Islamic equity market.

Among the first studies to attempt to measure the performance of Islamic indices were those by ATTA (2000), who examined the performance of the Dow Jones family of Islamic indices and found that the Islamic index outperformed its conventional counterpart. Subsequently, Hassan

(2001) and Tilva and Tuli (2002) also analyzed the Islamic Dow Jones and found a similarity between the performance of the Islamic index and its conventional counterpart.

In the same trend, HAKIM and RASHIDIAN (2002), ELFAKHANI (2002) tried to compare the volatility and return of the Dow Jones Islamic index (DJIMI), the Wilshire 5000 index, compared to American treasury bonds. Their research confirmed that there is no relationship between these three financial products and that the Islamic index has its own particularities. Subsequently, AHMAD and IBRAHIM (2002) compared the performance of the Malaysian Islamic index KLSI8 with its conventional counterpart KLCI9 using several performance ratios. They concluded that there is no significant difference in terms of performance between the two indices. However, the authors confirm that the Islamic index performs less and is less risky during periods of market decline. On the other hand, during periods of market rise, it outperforms its conventional benchmarks. The same result is confirmed by Hussein (2004) who worked on the comparison of the performance of the FTSE Shariah index and the FTSE ALL Word index by applying the MEDAF model. Subsequently, Hussein and Omran (2005) analyzed the performance of the DJIMI, the other two found that Islamic indices display superior performance compared to their conventional counterparts and this outperformance is explained by the composition of Islamic indices whose structure contains stocks. Small-cap companies with low debt. On the other hand, AHMAD and ALBITY (2006) noted the disparity in the evolution of stock market indices depends on the investment horizon. Also, they discover a cointegration between the two indices.

Subsequently, YUSOF and MAJID in 2007 dealt with the Malaysian Islamic indices market. The two researchers demonstrate that Islamic indices are less sensitive to interest rates and more sensitive to exchange rates compared to their conventional counterparts. Also, GUYOT (2011) analyzed the performance of 9 Islamic indices from the Dow Jones family compared to their conventional counterparts. The author confirms an absence of cointegration and therefore the opportunity for diversification and that Islamic indices are as efficient compared to their conventional counterparts. In 2014 Rizvi et al. used the MF-DFA (Multifractal de-trended fluctuation analysis) method to analyze the efficiency of the Islamic market compared to that of the conventional market. The authors revealed that efficiency and optimal allocation of resources is conditioned by market development. In contrast, in the same year, Jawadi et al. revealed that conventional stock indices outperform Islamic stock indices during the pre-crisis period. On the other hand, Islamic stock indices outperformed their conventional counterparts during the crisis period (2006-2011).

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EL KHAMLICHI and VIALLEFONT (2015) analyzed the literature relating to the performance of Islamic stock indices in the form of a meta-analysis. The results of their studies demonstrated that Islamic indices perform no worse than conventional indices. In 2017, ELBOUSTY and OUBDI studied the performance between Islamic indices compared to their conventional counterparts in 20 developed and 20 emerging countries between April 2002 and June 2016. The authors confirm that there are no differences between returns and the volatilities of conventional indices and Islamic indices. However, measures of risk-adjusted returns reveal that there is not a significant difference in performance between Islamic indices compared to their conventional counterparts for almost all developed (emerging) countries.

3. Methodology

We attempt to compare the performance of the Dow Jones Islamic Index (DJII) with that of their conventional counterparts Dow Jones Index (DJI) in 9 countries which are among the top countries with the largest outstanding Islamic assets in the world according to the REFINITIV report on the development of Islamic finance in 2022. Thus, these countries have outstanding Islamic finance assets (Saudi Arabia $896 billion, Malaysia $650 billion, UAE $252 billion, Qatar $186 billion dollars, Kuwait 156 billion dollars, Indonesia 139 billion dollars, Bahrain 106 billion dollars, Turkey 71 billion dollars), these countries are also covered by the Dow Jones index for a period extending from January 2020 to September 2021, a period which integrates two periods namely the phase of collapse of the stock markets (between January 2020 and June 2020) and the recovery phase motivated by the discovery of the anti-covid-19 vaccine and the improvement of the health situation (July 2020 and September 2021). Subsequently, we will collect the price history of stock indices from the Bloomberg database to calculate the returns. These prices are expressed in US dollars and they relate to daily data, i.e. an average of 420 observations.

We calculate several descriptive statistics in order to examine the different time series in more depth: Means, standard deviations, skewness coefficient, kurtosis coefficient, minimum and maximum. Then, we use the correlation coefficient and simple linear regression to evaluate and quantify the relationship between the conventional and environmental indices of each family. Subsequently, we measure the volatility-risk pair of the DJII Islamic stock indices compared to their conventional DJI counterparts using the EGARCH models as well as the MEDAF Beta during the Covid-19 crisis and post Covid-19. Finally, we calculate the risk-adjusted performance of Islamic stock indices compared to their conventional counterparts using the classic performance ratios namely: The Sharpe, Sortino, Omega ratio.

4. Measure of Profitability

4.1.1 Logarithmic profitability

The return on a financial asset between two periods can be calculated by "arithmetic" or "logarithmic" profitability. Logarithmic profitability over a period has the advantage of being a sum of the profitability of the sub-periods, which is not the case for arithmetic profitability. For greater precision, we chose the use of logarithmic profitability (**Peillex** and Ureche-Rangau, 2014; El Ouadghiri et al., 2016)

4.1.2 Average profitability

Once the returns have been calculated, it was necessary to calculate the average of these returns over the different periods considered. This can be calculated "geometrically" or "arithmetically". We preferred the geometric mean because it has the advantage of being less sensitive to the extreme values of a series.

4.1.3 Standard deviations

Standard deviation is an indicator particularly used in finance. It makes it possible to measure the amplitude that the price of a security can reach, compared to its average price, over a given period of time. Thus, it is representative of the volatility of the index and makes it possible to quantify its risk. Thus, a very volatile index will therefore be representative of a high level of risk while a low volatility index will be representative of a low level of risk. In finance, it is generally considered that investors are willing to own more volatile assets, if they can compensate for the risk with a greater return (El Ouadghiri and Uctum, 2016).

4.2 Ratios

4.2.1 The Sharpe ratio

The Sharpe ratio makes it possible to measure the profitability of a financial asset based on the risk taken by an investor. This financial indicator is frequently used to classify UCITS belonging to the same category, and also to compare financial assets.

Formally: Sp=(Rp-Rf)/σ_P

where:

Sp is the Sharpe ratio of the risky p portfolio.

Rp is the risky portfolio return

Rf is the risk-free rate

Бp is the volatility of the risky portfolio P

If the ratio is negative, the portfolio is underperforming a risk-free investment and therefore it does not make sense to invest in such a portfolio.

If the ratio is between 0 and 1, the excess return over the risk-free rate is lower than the risk taken.

If the ratio is greater than 1, the portfolio outperforms a risk-free investment and therefore generates a higher profitability.

4.2.2 The Sortino ratio

The Sortino ratio measures the excess profitability of a portfolio compared to a risk-free investment. It only evaluates downward volatility, the one that an investor fears, because it is synonymous with potential losses. For investors, a high Sortino ratio is an indicator that funds have performed well while remaining strong (resilient) during periods of market decline.

$$St = \frac{\mathrm{Rp} - \mathrm{Rf}}{\sigma_{\mathrm{d}}}$$

Where

R_p is the expected rate of return on the portfolio.

Rf is the risk-free rate

σd is the standard deviation of the negative asset return.

When the Sortino ratio is:

● Less than 0: The portfolio generates a return lower than the performance of a risk-free portfolio. In fact, it is not reasonably interesting to position yourself in this portfolio;

● Between 0 and 1: The profitability of the portfolio is certainly higher than a risk-free portfolio but the risk incurred is not compensated by the excess profitability of the portfolio. However, the Sortino ratio only takes into account the risk linked to declines, and not overall volatility;

●Greater than 1 The performance of the portfolio is greater than the risk incurred. This partly demonstrates the skills of the fund manager or the management methods.

4.2.3The omega ratio:

The omega ratio was initiated as a new approach allowing a universal and more general performance measure than previous ones. In fact, the omega function makes it possible to take into account the entire distribution of asset returns and captures all the information relating to higher moments. The omega function as proposed by the two researchers is as follows:

$$\Omega(r) = \frac{\int_r^b (1 - F(x))dx}{\int_r^a F(x)dx}$$

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Where:

F(x) is the distribution function of the random variable.

[a, b] is the interval on which the function F(x) is defined.

R is the threshold chosen by the investor.

To simplify the formula, we can write: (∑▒〖Winning-Benchmarking〗)/(∑▒〖Benchmarking-Losing〗) If the threshold is less than 1 for example, this means that the risks taken are not justified by the level of performance.

4.3 Risk:

4.3.1 Volatility

An index is volatile means that it is risky, so to detect volatility mathematically we must use models from the ARCH family, in these models, the conditional variance at time t is variable. In this work we will focus on the EGARCH model to study volatility.

$$\ln\sigma_t^2 = \alpha_0 + (\alpha_i \phi Z_{t-i} + \gamma(|Z_{t-i}| - E|Z_{t-i}|)) + \sum_{j=1}^{p} \beta_j \ln\sigma_{t-j}^2$$

In the the discussion we will illustrate this model using the results obtained. But before applying this model we must confirm the stationarity of the series, for this before testing the volatility we must check the stationarity (ADF Test) if it exists, that's good, otherwise we will make the series stationary.

4.3.2. MEDAF

CAPM is a model that explains the achievement of market equilibrium through supply and demand for each security. It makes it possible to determine the profitability of a risky asset by its systematic risk.

$$E(R_{actif}) = R_F + \beta_{actif} \cdot [E(R_M) - R_F]$$

$[E(R_M) - R_F]$: Represents the market risk premium, that is to say the excess profitability required by investors when they place their money on the market, rather than in a risk-free asset. : Is the volatility of the profitability of the asset considered compared to that of the market. Mathematically speaking, it corresponds to the ratio between the covariance of the asset's profitability and the market's profitability and the variance of the market's profitability. Beta is calculated as follows:

$$\beta_{actif} = \frac{cov(R_M, R_{actif})}{var(R_M)}$$

With RM: market profitability. Rf: Risk-free rate.

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Results and Discussions

We present here the statistics and the evolution of logarithmic returns (Log (index t/index-1) of the Islamic stock indices DJII and their conventional counterparts DJI for the countries in our sample. In tables 1 and 2 which present the descriptive statistics of returns of DJII Islamic stock indices and DJI conventional indices of each country in our sample. We find that the average returns of conventional indices are higher than those of Islamic indices of Islamic countries in the period after Covid-19, except that UAE, Oman, Indonesia, Saudi Arabia. The same for the period of Covid-19, conventional indices are higher than those of Islamic indices of Islamic countries except that Bahrain, Indonesia. Visual examination of graph, figure 1, shows that the conventional index prices are higher than the Islamic index prices except that Malaysia, Saudi Arabia and Qatar

Table1 : During Covid-19

Pays		Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability
Bahrain	REND_CONV1	0,000815	-2,17E-05	0,026109	-0,010511	0,004502	2,05236	12,27094	531,1285	0
	REND_ISLM1	0,000841	-9,67E-05	0,022814	-0,007319	0,004555	2,256783	10,75407	415,9057	0
Oman	REND_CONV2	0,000458	8,26E-05	0,025042	-0,009366	0,003942	2,183908	14,9507	822,9764	0
	REND_ISLM2	0,000155	-8,56E-05	0,012246	-0,008483	0,002733	1,058093	7,19519	112,2291	0
Turky	REND_CONV3	0,000713	-0,000522	0,043949	-0,031035	0,009858	0,768595	7,39524	111,1156	0
	REND_ISLM3	-0,000807	-0,000536	0,031166	-0,029314	0,008965	-0,163174	4,771756	16,63381	0,000244
Indonésie	REND_CONV4	0,001021	8,68E-05	0,036292	-0,046656	0,011556	0,15543	5,834924	40,66714	0
	REND_ISLM4	0,001095	0,000895	0,044412	-0,056811	0,014056	0,078738	5,715282	36,98777	0
Arabie saoudie	REND_CONV5	0,000445	0	0,037271	-0,029516	0,007764	1,552097	11,35981	513,5827	0
	REND_ISLM5	0,000335	0	0,034674	-0,034798	0,00749	1,185589	12,40038	607,0164	0
Kuwait	REND_CONV6	0,000543	0	0,055721	-0,029301	0,009789	2,616194	16,35858	1329,316	0
	REND_ISLM6	0,00046	0	0,051999	-0,027485	0,009939	2,446807	14,78009	1050,887	0
Malaisie	REND_CONV7	0,000404	-0,00018	0,024263	-0,030986	0,007455	0,281091	6,480399	62,664	0
	REND_ISLM7	0,000162	-0,000636	0,027591	-0,027353	0,007694	0,618759	5,842813	48,46571	0
Emirats arabe unis	REND_CONV8	0,000696	0	0,039626	-0,038433	0,010605	0,186221	7,828192	151,4489	0
	REND_ISLM8	0,000551	0	0,043661	-0,034366	0,009961	1,0695	9,373998	291,9371	0
QATAR	REND_CONV9	0,000374	0	0,045158	-0,022779	0,007202	1,484717	13,55956	762,0384	0
	REND_ISLM9	0,000142	0	0,043606	-0,01704	0,006047	2,282611	20,16985	1999,085	0

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Table 2 : Post Covid-19

Pays		Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	Probability
Bahrain	REND_CONV1	-0,00041	-0,00041	0,00808	-0,00911	0,001957	0,14375	6,883457	198,3943	0
	REND_ISLM1	-0,000167	-0,00025	0,0081	-0,00811	0,002424	0,234057	4,587599	35,8431	0
Oman	REND_CONV2	-0,000166	-5,22E-05	0,00718	-0,00726	0,001869	0,074775	4,766968	41,27208	0
	REND_ISLM2	-0,000115	-6,78E-05	0,0064	-0,00671	0,001784	0,128307	4,651694	36,67051	0
Turky	REND_CONV3	0,00024	0,000253	0,07843	-0,04072	0,009249	1,539652	19,55521	3804,389	0
	REND_ISLM3	-0,000302	-0,00018	0,04571	-0,0205	0,006718	0,937373	10,54098	810,1115	0
Indonésie	REND_CONV4	-0,000452	-0,00049	0,02817	-0,01631	0,005044	0,528437	6,21777	151,0352	0
	REND_ISLM4	-0,000163	0	0,02815	-0,02	0,006015	0,203992	4,761393	43,04124	0
Arabie saoudie	REND_CONV5	-0,000569	0	0,01437	-0,01577	0,002886	-0,37198	8,491242	516,9048	0
	REND_ISLM5	-0,000593	0	0,01568	-0,01445	0,002881	-0,14918	7,766819	383,995	0
Kuwait	REND_CONV6	0,000288	0	0,01302	-0,01276	0,002809	-0,02171	7,564943	350,8166	0
	REND_ISLM6	-0,000359	0	0,01376	-0,01358	0,002904	0,109613	7,585194	354,7131	0
Malaisie	REND_CONV7	-9,87E-05	0,000162	0,01278	-0,01315	0,003797	-0,25649	3,648534	9,059665	0,01078
	REND_ISLM7	-9,96E-05	9,55E-05	0,0107	-0,01583	0,003975	-0,32263	4,075428	20,84095	0,00003
Emirats arabe unis	REND_CONV8	-0,000482	0	0,00865	-0,01928	0,003053	-1,21207	10,15821	963,8396	0
	REND_ISLM8	-0,000395	-0,00019	0,01025	-0,02251	0,003033	-1,15774	11,00657	1172,25	0
QATAR	REND_CONV9	0,000228	0	0,01206	-0,01075	0,002834	0,307037	5,555844	116,3087	0
	REND_ISLM9	-0,000118	0	0,01009	-0,02335	0,002547	-1,82354	20,93106	5636,204	0

Source: Authors

Examining the distribution of our series in terms of normality and stationarity, Tables 1 and 2 We find that the Jarque-Bera test approves the hypothesis of normality for all countries (probability <5%). It must be noted that the average return is positive for countries in the Covid19 period but post Covid19 the averages become negative. Furthermore, Negative Skewness coefficients show that the distributions are shifted to the left of the medians, and consequently the tails of the distribution are spread to the right.

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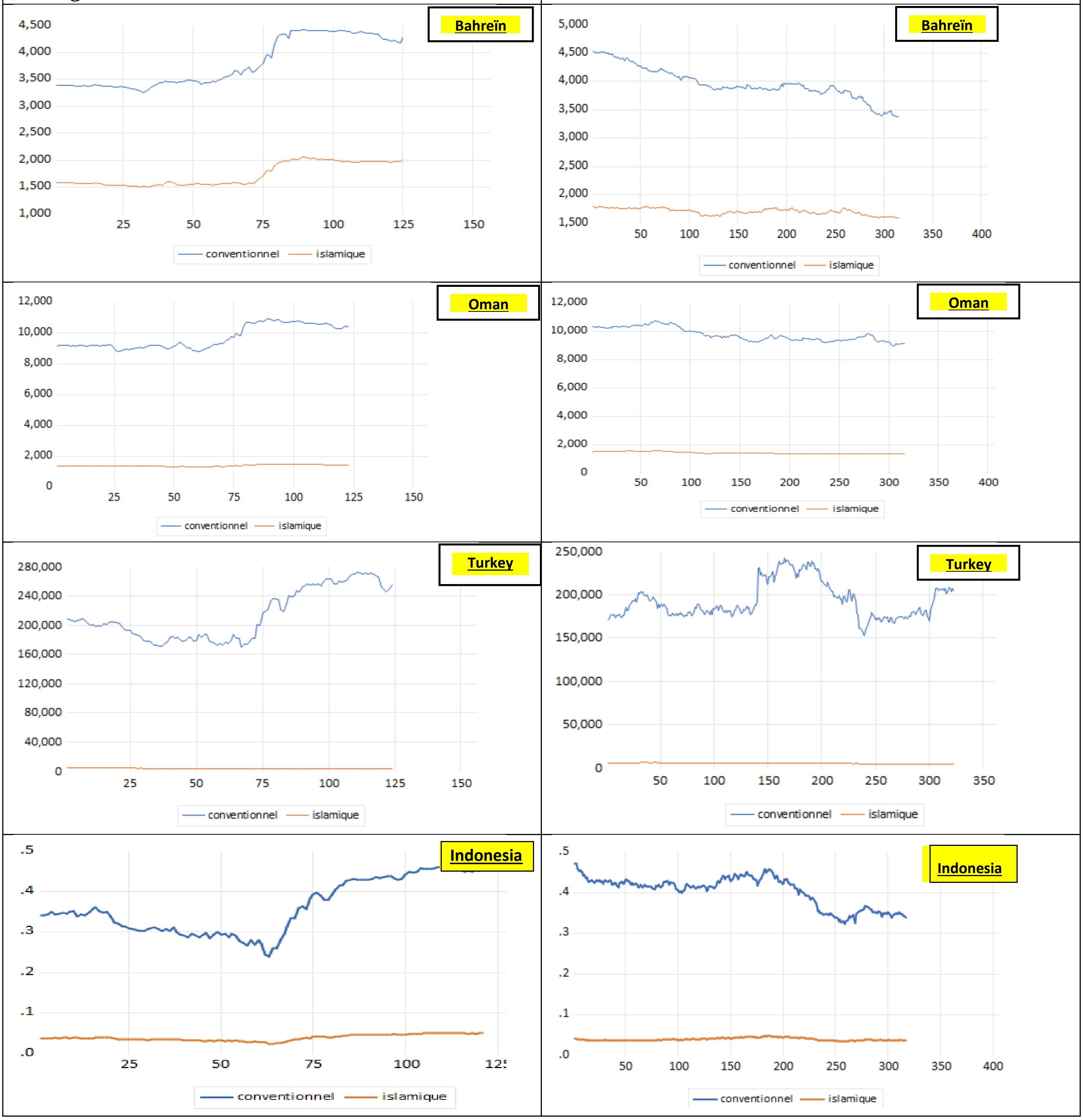
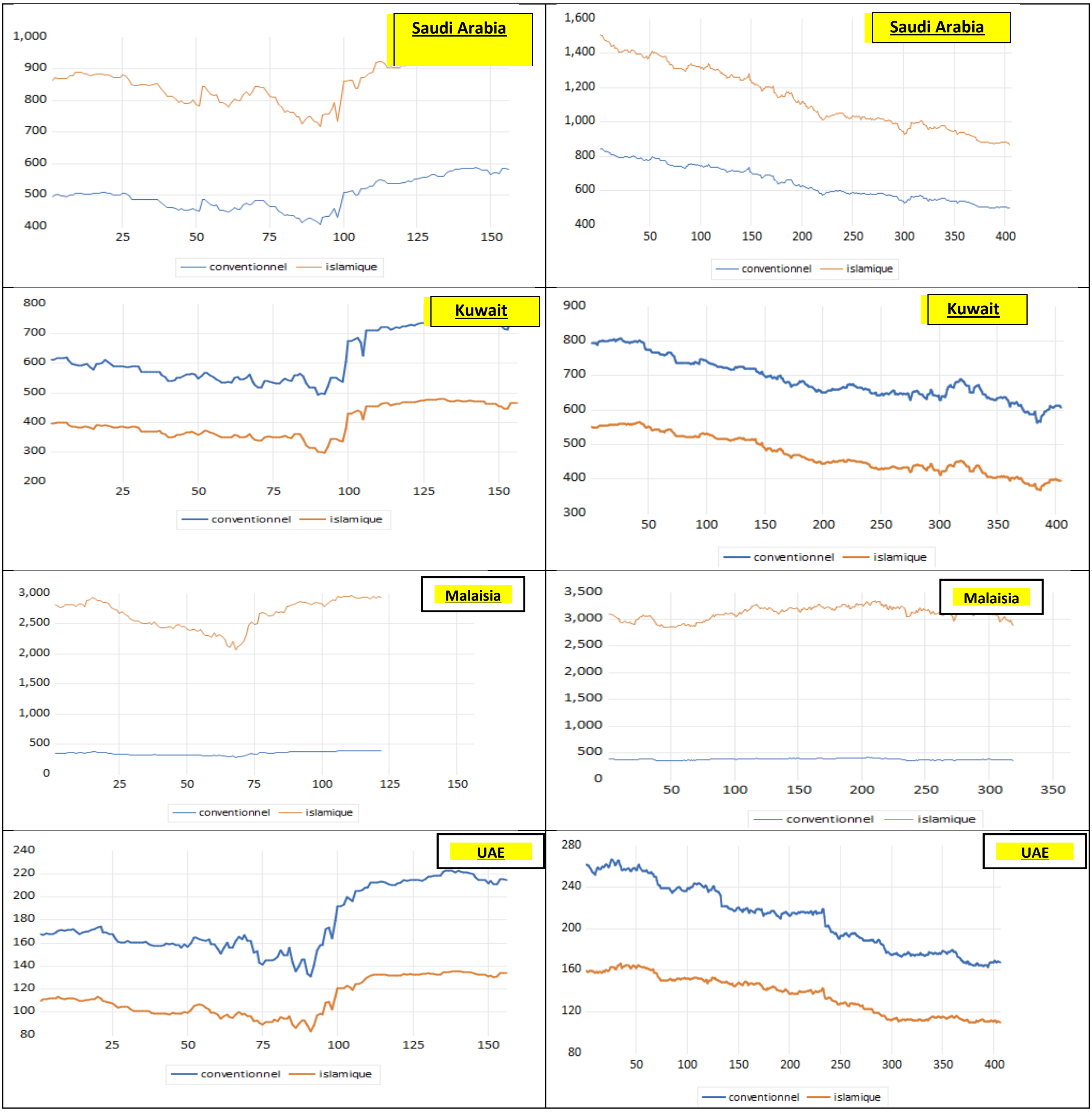
Figure 1: the evolution of Islamic and conventional indices during and post Covid19

During COVID	After COVID





Source: Authors

Subsequently, we will test the stationarity of the series using the E-views 12 software. In the following, we practice the augmented Dickey Fuller test (ADF test) on the Islamic and conventional stock market indices. Since we use logarithmic returns, the results obtained are identical for all indices. In fact, we note that the observed probability of the Dickey-Fuller test is greater than 5% for the model with constant and without trend (model 2) and the model with constant and with trend (model 3). But it is less than 5% for the model without constant and without trend (model 1), We conclude that all stock indices are stationary (ADF diagram). In order to study volatility, we will include asymmetric developments in the dynamics of volatility using the EGARCH (1,1) models as well as the Beta of MEDAF and we will analyze the volatility-risk couple of the index during and post Covid19. According to Table 1 and 2, the parameters of some countries are not significantly different from zero at the 5% threshold (which are marked in red color). However, almost all of the parameters alpha0, alpha 1, β1 and β2 are significantly different from zero. In addition, the ratio δ= β1\ β2 is negative for the majority of indices, thus specifying the existence of an asymmetric effect. In other words, downward movements in stock prices have a greater impact on volatility than upward movements. However, there are certain stock indices for which this ratio is between 0 and 1. In this case, positive innovations increase volatility while negative innovations reduce it. For comparison we find that during the Covid19 health crisis (Table 1), all Islamic indices are less volatile compared to their conventional counterparts (b1/b2 close to 0 means that the news does not affect the fluctuations (volatility) of the index) excluding certain countries Indonesia, Bahrain and Saudi Arabia. The same for the post Covid19 period (Table 2), all Islamic indices are less volatile compared to their conventional counterparts (b1/b2 close to 0 means that news does not affect the fluctuations (volatility) of the index) with the exception of Bahrain and Turkey.

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Table 3: Volatility during Covid-19

		During Covid					
		The settings					
Country	Index	a0	a1	b1	b2	b1/b2	Less volatile
Bahrain	conv	-10,73892	1,289961	-0,012541	0,129137	-0,09711392	isl
	isl	-13,77539	1,146504	-0,083089	-0,156112	0,53223967	
Oman	conv	-14,95765	0,840544	-0,09141	-0,270537	0,33788354	isl
	isl	-2,182124	0,339005	0,089189	0,836947	0,10656469	
Turky	conv	-15,09495	-0,443855	0,070248	-0,647144	-0,1085508	isl
	isl	-1,615351	0,491764	0,189026	0,872212	0,21672025	
Indonésie	conv	-0,822228	0,522279	-0,090119	0,956931	-0,09417502	conv
	isl	-0,655159	0,361662	-0,172982	0,959849	-0,18021793	
Arabie saoudie	conv	0,024772	-0,103537	-0,192451	0,994892	-0,19343909	conv
	isl	-0,049943	-0,105345	-0,224554	0,986576	-0,22760943	
Kuwait	conv	-0,774395	0,435186	-0,128243	0,948154	-0,13525545	isl
	isl	-0,771258	0,462808	-0,120596	0,949471	-0,12701388	
Malaisie	conv	-0,762232	0,388248	-0,297651	0,954922	-0,3117019	isl
	isl	-0,494875	0,328756	-0,292013	0,975646	-0,29930221	
Emirats arabe unis	conv	-0,759855	0,484104	-0,061803	0,957684	-0,06453381	isl
	isl	-0,785047	0,511853	-0,050649	0,95843	-0,0528458	
QATAR	conv	-0,398133	0,311617	-0,26554	0,981992	-0,27040953	isl
	isl	-0,642434	0,297319	-0,216899	0,959151	-0,22613645	

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Table 4: post Covid-19 volatility

		After Covid					
		The settings					
Country	Index	a0	a1	b1	b2	b1/b2	Less Volatile
Bahrain	conv	-0,325694	0,050541	0,039491	0,976432	0,04044419	conv
	isl	-12,66233	0,278907	0,029053	-0,032379	-0,8972791	
Oman	conv	-3,413849	0,219	-0,09203	0,742151	-0,12400441	isl
	isl	0,740003	0,197085	-0,101334	0,954796	-0,10613157	
Turky	conv	-1,296471	0,338732	0,042025	0,888105	0,04731986	conv
	isl	-12,70414	0,16902	-0,213893	-0,249587	0,85698774	
Indonésie	conv	-3,538421	0,192983	-0,168782	0,683085	-0,24708784	isl
	isl	-2,077399	0,108522	-0,182629	0,80545	-0,22674157	
Arabie saoudie	conv	-14,10392	-0,040254	0,175698	-0,206078	-0,85258009	isl
	isl	-2,077415	0,258531	0,081922	0,838687	0,09767887	
Kuwait	conv	-0,22988	0,112073	0,38547	0,986765	0,39064012	isl
	isl	-0,45622	0,142504	-0,0821	0,96963	-0,08467147	
Malaisie	conv	-2,13412	0,066312	-0,141836	0,81359	-0,17433351	isl
	isl	-0,090064	-0,38016	-0,075179	0,988215	-0,07607555	
Emirats arabe unis	conv	-10,80825	0,10108	-0,280917	0,080305	-3,4981259	isl
	isl	-19,79829	-0,094455	-0,202942	-0,702692	0,28880648	
QATAR	conv	-11,73486	0,01	0,01	0,01	1	isl
	isl	-2,2033072	0,595805	0,133812	0,863108	0,15503506	

Source: Authors

In general, and basically the results of ratio $\delta= \beta1\backslash \beta2$ either during the Covid19 health crisis or post Covid19, we find that Islamic indices are less volatile compared to their conventional counterparts.

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Table 5: MEDAF during and post Covid-19

During Covid				After Covid			
		Alpha	Bêta			Alpha	Bêta
Bahrain	coff	0,00024	0,73364	Bahrain	coff	-0,00001	0,39139
	t	0,84718	11,62877		t	-0,04704	5,88117
	p-v	0,39855	0,00000		p-v	0,96251	0,00000
oman	coff	-0,00009	0,54213	oman	coff	-0,00006	0,33379
	t	-0,59678	13,74598		t	-0,62412	6,60028
	p-v	0,55178	0,00000		p-v	0,53301	0,00000
turky	coff	-0,00111	0,42187	turky	coff	-0,00041	0,45000
	t	-1,53672	5,76062		t	-1,39252	14,12123
	p-v	0,12697	0,00000		p-v	0,16473	0,00000
indonisia	coff	0,00099	0,10174	indonisia	coff	0,00029	1,00182
	t	0,76913	0,91185		t	1,57328	27,44660
	p-v	0,44335	0,36370		p-v	0,11666	0,00000
Arabie Saoudie	coff	-0,00009	0,95526	Arabie Saoudie	coff	-0,00004	0,96900
	t	0,84718	11,62877		t	-0,04704	81,04028
	p-v	0,39855	0,00000		p-v	0,96251	0,00000
kuwait	coff	-0,00007	0,98165	kuwait	coff	-0,00008	-0,95650
	t	-0,35451	46,86920		t	-1,50844	-48,95657
	p-v	0,72344	0,00000		p-v	0,13223	0,00000
malaisie	coff	-0,00024	0,99482	malaisie	coff	-0,00001	0,87357
	t	-1,24876	39,42436		t	-0,10832	26,92417
	p-v	0,21423	0,00000		p-v	0,91381	0,00000
UAE	coff	-0,00005	0,86602	UAE	coff	-0,00010	0,60841
	t	-0,16662	29,45645		t	-0,84155	15,54638
	p-v	0,86789	0,00000		p-v	0,40054	0,00000
Qatar	coff	-0,00013	0,73466	Qatar	coff	0,00001	-0,55701
	t	-0,55575	22,13335		t	0,09487	-15,82784
	p-v	0,57921	0,00000		p-v	0,92447	0,00000

Source: Authors

The MEDAF Beta results reveal that the Islamic index of all countries (except Indonesia) is less risky than the conventional either during the crisis or outside the crisis. According to the Sharpe ratio results, there are four more profitable Islamic indices compared to their conventional counterparts, during the Covid-19 crisis or post Covid-19, these countries are: Bahrain, Indonesia, Kuwait, Malaysia. On the other hand, the Sortino ratio reveals that the Islamic indices of the countries (Bahrain, Oman, Saudi Arabia, Malaysia, UAE and Qatar) perform better compared to their conventional counterparts during the Covid19 crisis, on the other hand

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during the post Covid-19 period only UAE, and Saudi Arabia which maintain their superiorities. Subsequently, the Islamic indices of Turkey, Indonesia and Kuwait countries become more efficient during the post Covid-19 period. Regarding the omega ratio, during the Covid-19 crisis, we find the Islamic indices of the countries (Oman, Saudi Arabia, UAE and Qatar) perform better compared to their conventional counterparts, but during the post Covid-19 period only Islamic Qatar which maintains the superiority of its Islamic index. According to the Sharpe ratio variation, Islamic indices of all countries (except Indonesia, Turkey and UAE) are more resilient to the Covid-19 crisis compared to their conventional counterparts. This was confirmed by the variation in the Omega ratio; Islamic indices held up better than conventional indices. Not only resistance but crisis positively influences the performance of Islamic indices.

Table 6: Comparison of risk-adjusted returns

	Sharpe						
	Covid		excluding Covid		Variation		
countries	Conv	Islamic	Conv	Islamic	conv	Islmic	More resistant
bahrin	-2,39057931	-2,377356797	-2,37277863	-2,33510223	1%	2%	islamic
oman	-2,74108349	-3,837364722	-0,35411516	-0,34441219	674%	1014%	islamic
turky	-1,11470192	-1,395190911	-1,85315279	-1,94190136	-40%	-28%	islamic
indo	-0,92626689	0,008451317	-2,01735647	0,092523124	-54%	-91%	Conv
arabie saoudite	-0,79684824	-0,796987506	-2,44243596	-2,44225881	-67%	-67%	islamic
kouwait	-1,12897068	-1,122077607	-4,27884103	-4,16466907	-74%	-73%	islamic
malaysia	-1,50450718	-1,490703406	-3,23486889	-3,09269457	-53%	-52%	islamic
uae	-1,05136029	-1,122762482	-3,94965061	-5,03224869	-73%	-78%	Conv
qatar	-1,56244261	-1,884097738	-4,39077992	-4,70140056	-64%	-60%	islamic

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	Sortino						
	Covid		excluding Covid		Variation		
countries	CONV	islamic	CONV	islamic	conv	islamic	More resistant
bahrin	-0,54337052	-0,639718996	-0,17203035	-0,17205713	216%	272%	islamic
oman	-0,59121096	-0,741871743	-0,25144584	-0,21694707	135%	242%	islamic
turky	-0,17815014	-0,187703242	-0,09443558	-0,09570782	89%	96%	islamic
indo	-0,12362131	-0,072651434	-0,09784316	-4,63527318	26%	-98%	Conv
arabie saoudite	-0,17221572	-0,175556069	-0,65602937	-0,65832408	-74%	-73%	islamic
kouwait	-0,24805661	-0,228268636	-0,69521464	-0,69543871	-64%	-67%	Conv
malaysia	-0,23851563	-0,256217321	-0,52894707	-0,49438984	-55%	-48%	islamic
uae	-0,13386509	-0,178624084	-0,590935	-0,59527058	-77%	-70%	islamic
qatar	-0,28045113	-0,372159797	-0,71279843	-0,66983105	-61%	-44%	islamic

Source: Authors

The results of the tables above show the Islamic indices are less volatile compared to their conventional counterparts during the overall period which extends from January 2020 to September 2021.

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Conclusion:

This article analyzes the risk-adjusted financial performance and volatility of the Dow Jones Islamic Indexes compared to their conventional counterparts Dow Jones Indexes in 9 countries considered historically the predecessors to the integration of Islamic finance into their financial system and also which have the largest outstanding Islamic assets. Thus, the results of the performance ratios reveal that the Covid-19 crisis negatively influences the majority of conventional DJI indices. Also, the conventional DJI indices which outperformed the DJII Islamic indices during the Covid-19 crisis, maintain their outperformance during the post-Covid-19 period. In terms of risk, the DJII Islamic indices in the majority of countries are less volatile and less risky compared to their conventional DJI counterparts during the Covid-19 crisis and post Covid-19. It is clear that the Covid-19 crisis negatively influences the conventional DJI indices more than its impact on the Islamic DJII indices. Also, DJII Islamic indices are always less risky compared to their conventional counterparts. In terms of the level of variation we find that in most Islamic indices DJII are positively affected by the crisis. Which allows us to deduce that there is resistance of the DJII Islamic indices to the crisis more than the conventional DJI indices and also, the Islamic indices could constitute an investment alternative for portfolio managers during the crisis period. Which reveals that the managerial impact of this work could have managerial implications in terms of asset allocation and investment strategy. Indeed, Islamic stock indices would make it possible to generate consequences in terms of portfolio management strategy and could guide the choice of investments. The contributions and implications of our research work, however, have limitations linked mainly to the lack of historical data on the prices of the Islamic stock indices of Dow Jones Islamic Index DJII in several countries. On the other hand, other avenues of research may arise from this research work which would be interested, for example, in studying future research on the performance of other Islamic stock market indices in other countries.

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