The impact of Coronavirus (COVID-19) outbreak on faith-based investments: An original analysis

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ABSTRACT

This paper examines the rapid spread of Coronavirus (COVID-19) and its short-term impact on the Shariah-compliant UK Dow Jones market index to capture the dynamic behavior of stock returns at economy and industry levels. Using daily data over the period January 20 to May 20 and ten UK industrial sector groupings, the findings suggest a strong and statistically significant relationship between the COVID-19 pandemic and the performance of the conventional stock market index. The findings also suggest that the disease interacts negatively but insignificantly with the Dow Jones faith-based ethical (Islamic) index compared to its UK counterpart. In addition, through an analysis of sector groupings, the paper shows that the stock returns of the information technology sector performed significantly better than the market, while stock returns of consumer discretionary sector, which includes transportation, beverages, tourism and leisure, consumer services performed significantly worse than the market during the COVID-19 outbreak. Other sector groupings fail to yield significantly plausible parameter values.

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1. Introduction

The coronavirus (COVID-19) outbreak is an increasingly pervasive and influential economic challenge in modern history. The novel virus has rapidly spread across borders with more than 5,049,497 confirmed infections and 367,230 deaths in more than 195 countries and territories worldwide, carrying a mortality of approximately 6.07% compared with a mortality rate of less than 1% from influenza (WHO, 2020; Gormsen and Koijen, 2020; Lekhraj Rampal and Seng, 2020; Peters et al., 2020). Pandemics rarely affect all people and economies in a uniform manner (Duncan and Scott, 2005; Carlsson-Szlezak et al., 2020; Buklemishev, 2020; Papava and Charaia, 2020; Mogaji, 2020; He et al., 2020). For example, the UK is at present a highly volatile economy in terms of uncertainty in investment and production output due to the ongoing uncertainty and impact of Brexit and the unprecedented average of daily active confirmed cases and daily confirmed deaths caused by COVID-19 as seen in Fig. 1.

Beyond the immediate tragedies of death and disease, indirect effects through fear are taking hold of a significant number of people and investors around the world, which has had dramatic impacts on financial markets all over the world (Liu et al., 2019; Papadamou et al., 2020; Carter et al., 2020; Duxbury et al., 2020; Al-Awadhi et al., 2020). Hence, the spread of COVID-19 has had

a major impact on the performance of stock market indices globally, as can be seen from Table 1. For example, the worldwide international equities represented by the S&P Global BMI fell 22.3% during Q1 2020. The S&P Global BMI Shariah, which only fell 17.2%, considerably outperformed its conventional peers by more than 500 bps. This tendency has been consistently achieved across all major regions, as the S&P500 Shariah outperformed its conventional peers by 2.7%, while the Dow Jones Islamic Market (DJIM) Europe and DJIM Emerging Markets have both outperformed their conventional peers by more than 8.0%.[1]

Much attention has been focused on the economic impact of Brexit on the UK economy, and this has been further amplified with the current financial and pandemic crisis (Liu et al., 2020; Fernandes, 2020; Davies and Studnicka, 2018). Consequently, decisions and variations associated with the performance of conventional and non-conventional stock market indices are clearly an empirical question of some importance. It is worth noting that investors are interested in investments with escalated profits, hence the Shariah-compliant market indices should be efficient and competitive to the conventional counterpart (Rehman et al., 2020; Balcılar et al., 2015; Hammoudeh et al., 2014).

With the significant rise in the number of crises facing the conventional financial system such as the current COVID-19 pandemic, stock market investors (i) perceive stock returns as being

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[1] Source: S&P Dow Jones Indices LLC-Index performance based on the total returns in USD.
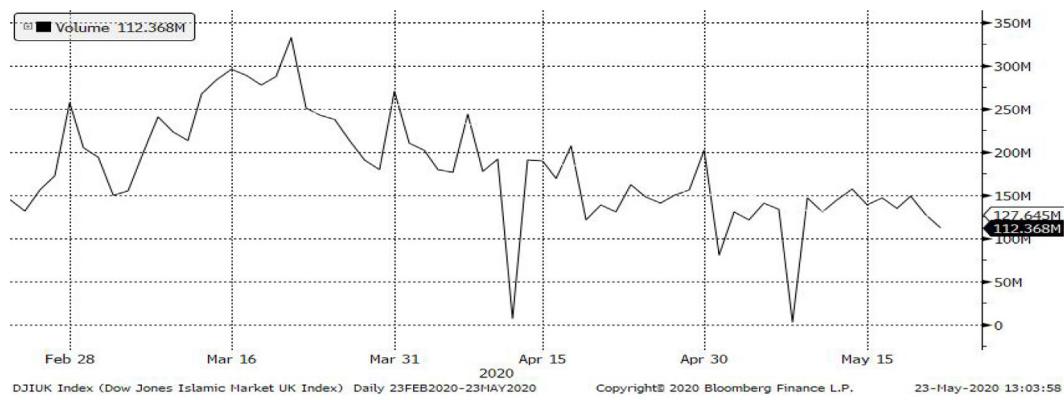
Average return of UK Dow Jones Islamic stock market index
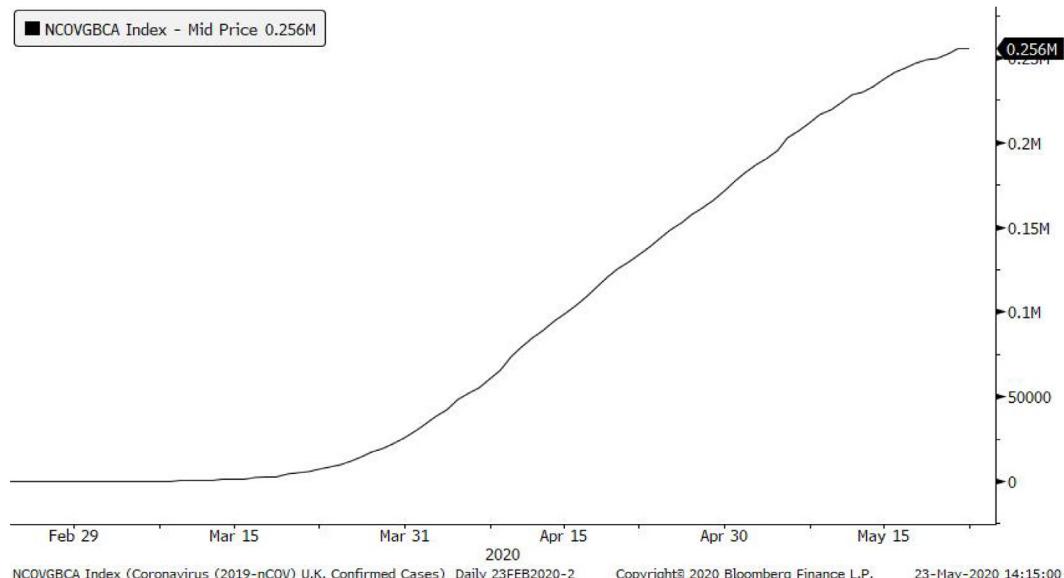
Daily UK active confirmed cases (DGTCC)
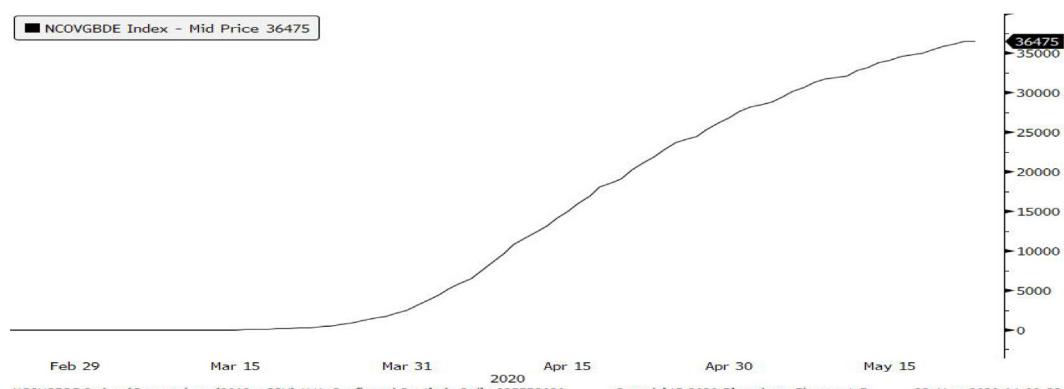
Daily cases of UK death (DGTDC)

Fig. 1. UKIDJ Index & COVID-19.

uncertain and became more attentive; (ii) are rational and hence have inquired for information on the fundamentals of Shariah related investment structures and characteristics. Clearly, virus crises that hit conventional financial systems are less harsh for the Islamic financial system (Balcılar et al., 2015). There are indeed differences between Shariah and non-Shariah complaint indexes in terms of screening and financial characteristics. For

investment screening, the Shariah complaint indexes are growth focused small-cap industries; whereas the conventional indices are more value-focused mid-cap industries with higher environmental risk such as investments in energy industries (Hassan and Girard, 2010). In the case of financial characteristics, Shariah complaint indexes are characterized by low leverage and low

Table 1
Comparative regional returns.

Benchmark	Shariah %	Conventional %	Variance %
S&P Global BMI	−17.2	−22.3	5.1
DJIM World	−16.6	−22.0	5.4
S&P500	−16.9	−16.6	2.7
DJIM Asia	−14.3	−19.8	5.5
DJIM Europe	−16.8	−24.8	8
DJIM developed markets	−16.7	−21.6	5
DJIM emerging markets	−15.9	−24.4	8.5
S&P Pan Arab composite	−20.6	−23.4	2.5

Source: S&P Dow Jones Indices LLC-Index performance based on the total return in USD. Islamic World (IW); Islamic Euro (IE); Islamic Asia Pacific (IAP); Islamic Developed countries (ID); Islamic Emerging markets (IEM); Islamic United States (IUS); Islamic United Kingdom (IUK); Islamic Oil and Gas (IOG); Islamic Technology (IT); Islamic Healthcare (IHC); Islamic Consumer Goods (ICG); Islamic Consumer Services (ICS).

account receivables, which reduce the financial risks and vulnerabilities related to periods of crisis such as COVID-19 (Farooq and Alahkam, 2016). Hence, extensive attention has been devoted to such faith-based investments (Hussain et al., 2019; Alam and Seifzadeh, 2020; Zandi et al., 2019; Sherif, 2016; Sherif and Erkol, 2017; Rifqi, 0000; Sherif and Hussnain, 2017; Kalimullina, 2020; Sadeghi et al., 2008; Derigs and Marzban, 2008; Alotaibi and Hariri, 2020; Seyyed et al., 2020; Tahir and Ibrahim, 2020; Akguc and Al Rahahleh, 2020; Ahmad et al., 2020; Fu et al., 2020; Castro et al., 2020).

Over the past several decades, Islamic finance has witnessed a remarkably broad expansion and unprecedented growth. It has grown from just $200bn in 2003 to an estimated predicted total of over $4 trillion in assets by 2030 (Alam and Seifzadeh, 2020). It is now offered in more than 60 countries and over 300 Islamic financial institutions. Globally, approximately 0.5% of financial assets are estimated to be under Sharia-compliant management. The industry's total worth is estimated to be USD 3.50 trillion in 2020, denoting a 10.3% growth in assets in USD terms. Such significant growth has recently also extended to many non-Muslim countries in Asia and Europe (Alam, 2019). This is due to a broad diversification in cultures with a considerable number of Muslims immigrants (Alam and Seifzadeh, 2020).

Arguably the most contentious issue about faith-based investments vehicle is whether ethical overlays have a bearing on financial performance. Whilst a number of previous studies have considered this area (Hammoudeh et al., 2014; Al-Khazali et al., 2014; Fu et al., 2020; Abu-Alkheil et al., 2020; Umar et al., 2020; Climent et al., 2020; Haddad et al., 2020; Rehman et al., 2020; Anjum, 2020; Widyanata and Bashir, 2020; Sherif, 2016), much uncertainty remains regarding the significant differences between conventional and faith-based investments. The general perception and critique facing ethical investments stem from their contradiction with the principles of the efficient portfolio theory of Markowitz 1952, cited in Dhrymes (2017).[2] It has been claimed that ethical investments underperform in the long run because they are subsets of the market portfolio and lack sufficient diversification (Bauer et al., 2005; Goodchild et al., 2002). Hence, investors regularly diversify their portfolios, aiming to minimize risk and maximize returns. However, several previous studies exhibit a general disagreement regarding the claim that faith-based investments (ethically screened firms) outperform their non-ethical screened counterparts (Charles et al., 2015; Masih et al., 2018; Sherif, 2016).

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[2] Main differences between faith-based and conventional investments are shown in Table 2.

Inspired by the above arguments and the potential impact of evolution of the current COVID-19 pandemic crisis, this study examines and provides new evidence on the impact of COVID-19 on the performance of the Dow Jones Islamic market index compared to the FTSE100 index. In essence we investigate the relative importance of the Shariah-compliant Dow Jones market index to capture the dynamic behavior of stock returns at economy and industry levels. Thus, this study contributes to the existing literature in several ways: (1) while most empirical and theoretical research focuses heavily on investors' attention and its impact on conventional stock returns/indices (Andrei and Hasler, 2015; Da et al., 2015), there is only limited academic research conducted on examining the performance of faith-based investments (ethical stock market index) and investor attention to the coronavirus pandemic, which is an important and ultimately new empirical question. In particular, the main research question to be answered in this study is formed as follows: is there a significant difference of stock returns between Shariah and conventional investments?; (2) this study contributes to the contemporaneous, but exponentially growing, literature on the effects of COVID-19 on the performance of financial markets (Alfaro et al., 2020; Gormsen and Koijen, 2020; Zhang et al., 2020).

The remainder of this paper is structured and further organized as follows. Section 2 presents a detailed literature review. Then the research methodology and data are discussed in Section 3. Section 4 shows our empirical results. Section 5 then concludes, considering the significance of our key findings and outlining a number of avenues for future research.

2. Literature review

Significantly, there is a much controversy and debate regarding the performance of faith-based investments when compared to their conventional counterparts. Recently, Shariah compliant investments, which represent aspect of the ethical and 'restricted' finance, have been the focus of a growing body of empirical research for a number of reasons; (i) the growing debate advocated by modern financial theory claiming that Shariah-compliant indices are riskier than their conventional peers due to their lack of diversification (Albaity and Ahmad, 2008); (ii) the assumption that faith-based ethical (Islamic) indices are more profitable than their peers due to their passing extra-financial screening criteria (Atta-Alla, 2012; Hussein and Omran, 2005).

Among the previous studies on Shariah compliant investments, a few have focused on the Dow Jones Islamic stock market Index (DJIMI) (Al-Khazali et al., 2014; El Khamlichi et al., 2014; Ho et al., 2014; Charles et al., 2015; Shamsuddin, 2014; Jawadi et al., 2014; Ftiti and Hadhri, 2019; Charles et al., 2017). The majority of these studies have followed the same methodologies of comparing the performance of DJIMI to other benchmarks, but the choices are somewhat different from one study to another depending on the performance measures and benchmarks used. For example, Al-Zoubi and Maghyereh (2007) find that the Islamic index outperforms the Dow Jones World Index; and that the former is less risky than the benchmark, suggesting this finding can be attributed to the profit and loss sharing principle in Islamic finance. In another study, Hassan and Girard (2010) examine the market efficiency and time-varying risk-return relationship using DJIM and the volatility of the DJIM index. Their study finds that the DJIM has outperformed the conventional indices; and the reward to risk and diversification benefits are similar in both indices. In contrast, Hakim and Rashidian (2002), Miniaoui et al. (2015), Girard and Hassan (2008), and Hoepner et al. (2011) find only insignificant differences between the performance of conventional and non-conventional indexes.

Another group of studies (Dhai, 2015; Becchetti et al., 2015; Sherif, 2016; Durand et al., 2016; Umer et al., 2019; Bauckloh

Table 2

Faith-based investments vs. conventional investments.

Faith-based investments	Conventional investments
Asset-based investments	Interest-rate based investments
More desirable in the short-run	More desirable in the long-run
Based on the principles of profit and loss sharing (religion's law)	Based on the principles of interest and usury
Investors maximize wealth by choosing among various faith compliant Investments	Investors evaluate investments based upon risk-return characteristics
Invest capital in line with a specific named faith	Invest capital for a proportionate interest of the fund's net assets
Avoid investing in industries or companies that conflict with beliefs	Invest money into assets that are well-known
Generate a positive social impact inspired by their faith, Islamic, Catholic, and other religion's law	Generate an unmeasurable social impact alongside a financial return

et al., 2019; Landi and Sciarelli, 2019; Shaikh et al., 2019; Vasisht, 2017; Anwaar, 2016; Wu et al., 2017) has investigated the performance of the FTSE and other Islamic indices, and provide an overall picture of somewhat mixed findings. For example, Tahir and Ibrahim (2020) find that Shariah-compliant companies (SCCs) outperformed non-Shariah compliant companies in terms of both accounting and market returns. In another study, Anwaar (2016) finds supportive evidence of the relationship between firm performance and FTSE100 stock market returns. Wu et al. (2017) demonstrate that the socially responsible investment (SRI) portfolio performed better and recovered its value quicker post-crisis than did the non-SRI portfolio.

Following on from this, more recent research has started to utilize increasingly more available data to investigate Islamic and conventional investments (Trabelsi et al., 2020; Ahmed and Elsayed, 2019; Hasan and Abu, 2019; Trabelsi, 2019; Jawadi et al., 2019). For example, Trichilli et al. (2020a) investigated the portfolio optimization under investor's sentiment states of Hidden Markov model; and find that the Bayesian efficient frontier of Islamic and conventional stock portfolios is affected by the investor's sentiment state and the time horizon. In a separate study, Trichilli et al. (2020b) also examined the capability of the hidden Markov and investor sentiments to predict the dynamics of Islamic index' returns in the Middle East and North Africa (MENA) financial markets. They find that the effect of sentiment on predicting the future Islamic index returns is conditional on the MENA region. In another study, Abduh (2020) investigated the volatility of conventional and Islamic indices and the impact of the global financial crisis toward the volatility of both markets in Malaysia; and finds that Islamic index was less volatile during the crisis compared to the conventional index. In another key study, Haddad et al. (2020) examined the importance of permanent versus transitory shocks as well as their domestic and foreign components in explaining the business cycle fluctuations of seven Dow Jones Islamic stock markets (DJIM). They found that seven Dow Jones Islamic stock indices are insignificantly linked to the movements of global risk factors. Similarly, Boubaker et al. (2020) examined the common movement of three commodities (Oil, gas and gold) and the Dow Jones Islamic market index (DJIM). Their study indicated using Wavelet Squared Coherence (WSC), that there is a co-movement between DJIM and oil prices; and investors in Islamic stock market indices are yet to base their decisions on oil, gas or gold prices.

One further key argument that has recently been given much attention is related to different sources of financial volatility and major events that have affected stock market returns (Zhu et al., 2019; Corbet et al., 2020; Zaremba et al., 2020; Albulescu, 2020; Onali, 2020; Choudhry et al., 2016; Demirer et al., 2019; Wang et al., 2018; Antonakis and Darby, 2013). These sources of financial volatility are market uncertainty due to disasters (Kowalewski and Śpiewanowski, 2020; Liu et al., 2019; Papadamou et al., 2020), economic conditions and political events (Bash and Alsaifi, 2019), institutional issues and social Media news (Bollerslev et al., 2018; Reboredo and Ugolini, 2018), environmental issues (Alsaifi et al., 2020), information demand

and investor attention (Chronopoulos et al., 2018; Nikkinen and Peltomäki, 2020), and pandemic diseases (Chen et al., 2009; Ichev and Marinč, 2018). In this strand, Albulescu (2020) examined the impact of official announcements regarding new cases of infection and death ratios on the financial market volatility index (VIX); and finds that the death ratio positively influences VIX. In other words, the higher the number of affected countries, the higher the financial volatility is. In another study, Corbet et al. (2020) investigated the impact of global COVID-2019 pandemic on the volatility of stock markets; and find that a significant relationship between Chinese stock markets and Bitcoin evolved significantly during this period of enormous financial stress. Similarly, Mei and Guo (2004) examined the impact of political uncertainty on financial crises using a panel of 22 emerging markets; and find a significant relationship between political election and financial crisis. Also, Zaremba et al. (2020) examined the stringency of policy responses to the novel coronavirus pandemic in 67 countries around the world; and find that non-pharmaceutical interventions significantly increase equity market volatility. In the same vein, Chen and Chiang (2020) find evidence that a rise in economic policy uncertainty (EPU) leads to a decline in stock returns in the Chinese market. In the same line, Kowalewski and Śpiewanowski (2020) examined the stock market reaction to disasters; and find that the affected mining firms experience a cumulative drop in their market value of 1.15% in the first two days of a disaster.

From this review of previous literature here, it is noted that despite the multiplicity of previous empirical work focusing on the analysis of Islamic and conventional stock markets performance, the results are highly divergent and no consensus has been reached to date. In the same context, this paper attempts to fill the gap in the literature to deal with this same concept of performance. However, unlike previous studies, we try to give special importance to the current coronavirus pandemic, econometric techniques and the dynamic behavior of stock returns at economy and industry levels.

3. Data and methodology

This study investigates whether contagious infectious diseases affect stock market outcomes. The data adopted includes daily prices of companies listed on the UK Dow Jones Islamic stock market index and its counterpart FTSE100 index during the period from January 20 to May 20, 2020. The data is obtained from Bloomberg and, in addition to stock prices, includes market capitalization and market-to-book ratio. The study also used the number of daily active confirmed cases (NCOVGBCC) and daily cases of death (NCOVGBDC) from COVID-19 in the UK from the same source over the same period, which are available on a daily basis. Fig. 1 shows the cumulative average daily returns for the UK Dow Jones Islamic stock market index. The figure suggests that cumulative returns are slightly impacted by COVID-19 in terms of the daily active confirmed cases and the daily confirmed deaths caused by COVID-19, and that market returns

Table 3
Summary statistics.

Variable	Panel A: Faith-based DJIUK Index				
	R_{DJIUK}	L_{MCAP}	$MTBR$	$COVID_{DGTCC}$	$COVID_{DGTDC}$
Mean	−0.0015	13.63	4.369	0.1472	0.1656
SD	0.0255	0.1403	5.634	0.2689	0.6043
Max	0.0944	13.79	5.048	1.667	5.500
Min	−0.1232	13.31	3.131	0.0000	0.0000
Skewness	−0.7728	−0.3057	−0.2598	2.988	7.354
Kurtosis	9.084	1.886	1.779	13.77	62.98
Variable	Panel B: Conventional FTSE100 Index				
	$R_{FTSE100}$	L_{MCAP}	$MTBR$	$COVID_{DGTCC}$	$COVID_{DGTDC}$
Mean	−0.0759	14.35	5.283	0.1472	0.1654
SD	0.7187	0.1342	0.2318	0.2676	0.6010
Max	2.261	14.53	1.884	1.667	5.500
Min	−3.195	14.10	1.238	0.0000	0.0000
Skewness	−0.9750	0.0226	0.1929	2.989	7.367
Kurtosis	6.992	1.492	1.277	13.77	62.98

are mostly uninterrupted as the growth of both daily active cases and confirmed deaths starts to decline. The data of ten sector groupings (Communications (COM), Consumer Discretionary (COND), Energy (ENG), Financial (FIN), Health Care (HC), Materials (MAT), Consumer Staples (CONS), Industrial (INDUS), Technology (TEC) and Utilities (UT)) are also obtained from Bloomberg.

A key and important step in event study methodology/process is to identify the actual day of the event (Binder, 1998). Subsequently, Henderson Jr (1990) and Dyckman et al. (1984) described this step as problematic and time consuming. Equipped with this claim and due to the fact that the peak of the event associated with COVID-19 pandemic is not the start date, but rather lasts for several days, the study hence adopts and follows the classical event study methodologies. Moreover, Kao and Chiang (1999) and Hsiao (1986) have stated and discussed the benefits of using panel data models; claiming that panel data regression reduces estimation bias and multicollinearity, controls for individual heterogeneity, and identifies the time-varying relationship between dependent and independent variables. Subsequently, the analysis in this study performs panel testing to investigate the performance of Shariah-compliant UK Dow Jones market index to capture the dynamic behavior of stock returns at economy and industry levels. The regression model employed in this study has the following functional form:

$$R_{i_t} = \left[\alpha + \beta_1 COVID_{DGTCCt,i} + \beta_2 L_{MCAPt,i} + \beta_3 MTBR_{t,i} + \epsilon_{i_t} \right] \quad (1)$$

$$R_{i_t} = \left[\alpha + \beta_1 COVID_{DGTDCt,i} + \beta_2 L_{MCAPt,i} + \beta_3 MTBR_{t,i} + \epsilon_{i_t} \right] \quad (2)$$

where R_{i_t} is return index at different time periods, $COVID_{DGTCCt,i}$ is daily growth in total confirmed cases, $COVID_{DGTDCt,i}$ is the daily growth in total cases of death caused by COVID-19, $L_{MCAPt,i}$ is the natural logarithm of daily market capitalization, $MTBR_{t,i}$ is the daily market-to-book ratio, and ϵ_t is the error or disturbance term.

For the UK sector groupings, the regression model employed in this study has the following functional form:

$$SR_{i_t} = \alpha + \sum_{s=1}^{10} \beta_{Yt} + \epsilon_{i,0} \quad (3)$$

where SR_{i_t} is sector returns at different time periods, Y_t symbolizes a vector of explanatory variables at different time periods associated with each sector grouping, and ϵ_t is the error or disturbance term.

4. Empirical findings

The analysis begins with the descriptive analysis. Table 3 presents the stock market return characteristics and summary statistics (mean, standard deviation, minimum, maximum, Kurtosis and Skewness) pertaining to Islamic index and its mainstream conventional UK counterpart. In Table 3, panels *A* and *B* show that both conventional and non-conventional stock return indices have negative mean returns, indicating a clear impact of COVID-19 on the performance of the two indices. However, the faith-based stock market index is less impacted by COVID-19 (R_{DJIUK} = 0.15%) than the peer ($R_{FTSE100}$ = 7.6%). Similarly, the skewness which measures the asymmetry of the probability distributions shows that both indexes are negatively skewed, indicating the higher probability of decrease in returns. These statistics suggest that on average the ethical stock market index (−0.15%) outperform their conventional peer (−7.593%) during the pandemic period. Also, the conventional index is on average riskier (SD = 71.87%) than the ethical stock market index (SD = 2.5%.).

Table 4 shows the correlation matrix of the data. The highest negative correlation is between daily stock returns, with both the daily growth in total confirmed cases and the daily growth in total cases of death caused by COVID-19. The findings suggest that the faith-based stock market index performs and survives better than its UK conventional peer during the pandemic period. The overall results are not surprising, but provide quantitative evidence that the indices perform as might be anticipated, and offer some confidence to further examine these variables in more detail. This also clear from Fig. 1.

In an attempt to ascertain the adequacy of the descriptive statistics to explain investment performance during the outbreak of the COVID-19, the performance of Islamic Dow Jones and conventional indexes are tested using panel regression. While Table 5 summarizes the estimates of faith-based investments associated with the daily growth in total confirmed and death cases, Table 6 presents the estimates of the conventional FTSE100 associated with the daily growth in total confirmed and death cases. Overall, these findings suggest that: (i) the stock returns of the conventional index are significantly negatively related to both daily growth in total confirmed cases and daily growth in total cases of death caused by COVID-19; (ii) faith-based investments/index are less exposed to the outbreak of COVID-19 than its conventional peer. These results are broadly comparable to the findings of Trichilli et al. (2020a) and Rejeb and Arfaoui (2019) who found that Islamic indices are partially immune from speculative shocks to global financial services. Furthermore, they indicated that the ethical stock market indices perform much better during calm periods and moderately better during times of crisis; and Islamic

Table 4
Correlation matrix.

Panel A: Correlation matrix — DJIUK				
	R_{DJIUK}	L_{MCAP}	$MTBR$	$COVID_{DGTCC}$	$COVID_{DGTDC}$
R_{DJIUK}	1.000				
L_{MCAP}	0.0539	1.000			
$MTBR$	0.0531	0.6088	0.000		
$COVID_{DGTCC}$	−0.1274	−0.2605	−0.2584	1.000	
$COVID_{DGTDC}$	−0.2327	−0.3431	−0.3439	0.4349	1.000

Panel B: Correlation matrix — FTSE100				
	$R_{FTSE100}$	L_{MCAP}	$MTBR$	$COVID_{DGTCC}$	$COVID_{DGTDC}$
$R_{FTSE100K}$	1.000				
L_{MCAP}	0.0111	1.000			
$MTBR$	0.0042	−0.0581	.000		
$COVID_{DGTCC}$	−0.0238	−0.0311	−0.0120	1.000	
$COVID_{DGTDC}$	−0.0169	−0.0470	−0.0159	0.4370	1.000

Table 5
Panel regression estimates: Faith-based investments.

Panel A: Daily growth in total confirmed cases — DJIUK			
Variables	(1)	(2)	(3)
α_0	0.0032	−1.053	−2.363
	(0.0057)	(1.056)	(8.379)
$COVID_{DGTCC}$	−0.0205	−0.0013	−0.0022
	(0.0233)	(0.0302)	(0.0310)
L_{MCAP}		0.0780	0.1828
		(0.0679)	(0.6696)
$MTBR$			−0.0273
			(0.1730)

Panel B: Daily growth in total death cases — DJIUK			
Variables	(1)	(2)	(3)
α_0	0.0026	−0.7761	−2.766
	(0.0047)	(0.8471)	(8.239)
$COVID_{DGTDC}$	−0.0085	−0.0068	−0.0070*
	(0.0057)	(0.0060)	(0.0011)
L_{MCAP}		0.0576	0.2166
		(0.0627)	(0.6581)
$MTBR$			−0.0409
			(0.1686)

*Significant at the 0.10 level.

Table 6
Panel regression estimates: Conventional investments.

Panel A: Daily growth in total confirmed cases — FTSE100			
Variables	(1)	(2)	(3)
α_0	0.0407	0.0442	0.0479
	(0.0105)	(0.0848)	(0.0852)
$COVID_{DGTCC}$	−0.0798**	−0.0786**	−0.0784**
	(0.0341)	(0.0343)	(0.0344)
L_{MCAP}		0.0281	0.0213
		(0.0207)	(0.0208)
$MTBR$			0.0003
			(0.0007)

Panel B: Daily growth in total death cases — FTSE100			
Variables	(1)	(2)	(3)
α_0	0.0331	0.0514	0.0552
	(0.0095)	(0.0847)	(0.0851)
$COVID_{DGTDC}$	−0.0252***	−0.0245***	−0.0244***
	(0.0007)	(0.0003)	(0.0003)
L_{MCAP}		0.0090	0.0093
		(0.0089)	(0.0090)
$MTBR$			0.0003
			(0.0007)

***Significant at the 0.01 level **significant at the 0.05 level.

asset allocation is safer during pandemics and economic periods and distress. These findings are also in line with another group of studies that have found significant diversification benefits from investing in Islamic assets (Hakim and Rashidian, 2002; Guyot, 2011). This implies that Islamic indices are less risky than their peers, and this evidence is attributable to the profit and loss sharing principle in Islamic finance.[3]

Next, the performance of investments and UK stock market index during the coronavirus (COVID-19) outbreak for ten sector groupings (COM, COND, ENG, FIN, HC, MAT, CONS, INDUS, TEC, UT) introduced by Bloomberg (sector grouping classification, 2020). This is motivated by the findings of a number of researchers (Kizys et al., 2020; Chen et al., 2007) who demonstrate that a few sector groupings such as information technology, food processing, beverages, air transportation, and hotels among others are vulnerable and mostly impacted by pandemic diseases/outbreaks. Table 7 reports the estimates of panel data associated with ten sector groupings dummy variables that take the value one if stock i is listed in that respective sector, and zero

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[3] In the Islamic mode of finance, the Arabic word *Musharakah* means "shirka" or sharing. Equipped with the profit and loss sharing principle, the main goal of investors is to maximize returns, which in turn maximizes the other party's return.

otherwise. The findings show that stock returns of the information technology sector grouping positively benefited from coronavirus (COVID-19) outbreak, and performed significantly better than the market. On the other hand, consumer discretionary sector (COND) which includes air and other transportation, beverages, tourism and leisure, consumer services appear to be the significant sectors that have been adversely influenced by the coronavirus (COVID-19) outbreak.

5. Conclusion

This paper investigated the Shariah-compliant stock market indices reactions to the increased uncertainty due to COVID-19 expansion as compared to the FTSE100 conventional index. The findings suggest a strong and statistically significant relationship between the COVID-19 pandemic and the performance of the conventional stock market index. Such negative impact is over and above that of the Shariah-compliant stock market index. In addition, this paper analyzed the impact of COVID-19 pandemic on the performance of ten UK sector groupings. Results show that stock returns of the information technology sector performed significantly better than the market; whereas stock returns of the consumer discretionary sector performed significantly worse than the market during the COVID-19 outbreak.

There are a number of implications for research and practice from these results. Firstly, the study offers insights to empower

Table 7
Panel regression estimates with sector groupings.

Variable	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
α_0	0.0537	0.0656	0.0871	0.1052	0.0469	−0.0629	0.0567	0.0651	0.0694	0.0670
	(0.0856)	(0.0849)	(0.0913)	(0.0852)	(0.0818)	(0.0850)	(0.0851)	(0.0852)	(0.0851)	(0.0851)
L_{MCAP}	0.0093	0.0095	0.0124	0.0133	0.0078	0.0098	0.0092	0.0099	0.0105	0.0100
	(0.0090)	(0.0090)	(0.0098)	(0.0090)	(0.0086)	(0.0089)	(0.0090)	(0.009)	(0.0091)	(0.0090)
$MTBR$	0.0002	0.0003	0.0003	0.0004	0.0005	0.0003	0.0007	0.0003	0.0003	0.0002
	(0.0007)	(0.0007)	(0.0007)	(0.0007)	(0.0006)	(0.0006)	(0.0007)	(0.0006)	(0.0007)	(0.0006)
FIN	−0.0246									
	(0.0219)									
$COND$		0.0029***								
		(0.0006)								
ENG			−0.0373							
			(0.0572)							
TEC				0.2402***						
				(0.0527)						
$INDUS$					−0.0194					
					(0.0338)					
$CONS$						−0.0199				
						(0.0352)				
COM							−0.0463			
							(0.0342)			
MAT								−0.0029		
								(0.0288)		
HC									−0.0227	
									(0.0414)	
UT										0.0087
										(0.0412)

and enhance the strengthening of the policy measures required for policy makers in stock markets and economies. Secondly, from a broader perspective, the research and findings provide support for the existence of a risk-aversion channel of pandemic spread in the stock market. Comparing the conventional stock market indices with faith-based sources of stock investments and trading may provide insights into the globalization of such economic, trade and financial reforms. Finally, the findings could also be of interest to policy makers who are continually adopting regulations in attempts to curb possible presumable conflicts of interest in many other stock markets outside the UK. While investors can reconcile faith with finance, the financial market authorities could revise their regulations and legislation to enable banks and markets to include these types of products, and to propose new products with similar characteristics.

While this study helps contribute to existing literature on the COVID-19 pandemic, it also opens up avenues for further research. The most feasible immediate expansion would be to include other faith-based indexes (Christian and Jewish) omitted in this study due to the current unavailability of the data. In addition, future research should also look into Islamic sub-indices and include other institutions that are Islamic subsidiaries of conventional banks.

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