Behaviour of Islamic and Socially Responsible Indices in Crisis Period (COVID19): Case of Emerging Markets

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Abstract

The COVID-19 was an unexpected health crisis that propagated into several countries as a result of globalization, where it was quickly transmitted to the stock markets by decreasing value, and the same thing was observed since the 2007–2008 subprime crisis. These crises are without doubt part of the undesirable effects of the stock markets since they negatively impact their behaviour, although the developed markets are less affected than emerging markets by the effects of crises reflecting on their growth, and in our case study (COVID19) health crise. It's in this context that during this period several indices that attempt to replicate the performance of a market move downwards as well as upwards, hence the need to understand this behaviour in particular during this period. As traditional indices, ethical indices appeared in the 1980s and developed until the 1990s, where they are defined as a subset of their traditional benchmarks after going through a filtering process and constitute a separate investment area offering investors investment opportunities in line with their personal convictions and strategic orientations; These indices have been the subject of a few studies on their behaviour in the period of crisis, particularly in a developed country context. This article, therefore proposes to analyse the behaviour of ethical indices both socially responsible and Islamic in times of health crisis (COVID19) in a context of emerging countries from two different regions, Africa and Asia by reviewing their context, via their filtering criteria and an in-depth graphical analysis. Our results show that there is a highl correlation between these indices and the absence of a difference in performance in times of crisis.

Keywords

Socially responsible index · Islamic index · Screening · Financial market · Sustainable finance · Covid-19

1 Introduction

The reference to ethics is becoming more popular than ever because of the succession of financial crises. Indeed, finance itself is at least due to the multiplicity of unethical financial practices, it is in this context that ethical finance responds to the ethical character of finance through the regulation of the allocation of savings based on social, economic, moral and governance guidelines etc.

Ethical finance does not have a universal definition, the majority of definitions are complementary (El khamlichi 2012). According to (Spiteri 1993) ethics is of a general nature and morality is more individual. Ethical finance can be socially responsible, manifested by socially responsible investment as the most dominant form or morally responsible (Ghoul and Karam 2007), and in the case of Islamic finance, the latter has similarities with socially responsible investment (Novethic 2009) in terms of filtering and selection criteria.

In view of ensuring the sustainable and efficient functioning of stock markets, good ethical behaviour on the part of market players is essential in this respect, indeed financial engineering has enabled several stock exchanges to make available a range of products and services that meet the demand of ethically minded investors. The case of

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socially responsible and Islamic stock market indices is the subject of this paper.

Since their launch in the 1980s, these indices have been the subject of several studies, the first work focuses on the feasibility and functioning of these indices and then extended to their financial and extra-financial performance. This remains a debate that has not yet been resolved. Few studies have focused on the behaviour of ethical indices in a context of crisis where the majority of them have been in developed countries and these are all the interest of this study that comes manifested by the ethical commitment of emerging scholarships by studying the behaviour of ethical indices in a context of emerging countries since they are the most affected by the crisis.

South Africa and Malaysia are one of the emerging markets that have socially responsible and Islamic indices with different approaches of selection and filtering. We try in the following to study the behaviour of these indices in times of health crisis such as COVID19 as the research question, with the hypothesis if there is a significant impact on the behaviour of these indices or not during this period?

The remainder of this paper will be structured as follows. The first section presents literature review and the previous studies related to SRI research and Islamic indices, then the second section will analyse the behaviour of these indices in health crises context and the data. The next section elaborates on the methodology used followed by the result and the discussion. Finally, conclusion and recommendation for future research are discussed.

2 Socially Responsible Indices

The successive crises have provided an opportunity to review investment practices, which is obvious given the performance of the stock markets. This can be seen in the case of socially responsible practices developed in recent years and are considered as an important factor for the development of the financial market. As well as this plan is made explicit in the corporate social responsibility, allowing a strategic choice for the company to raise capital within a framework of responsible practices, or for the socially responsible investor's aims to generate social impact through an investment selection process based on compliance with ESG standards. Therefore, the commitment is reflecting the willingness of these actors to change the world view towards sustainability. This concept began to take off since the publication of the Brundtland report (1987) who used the definition of "sustainable development", as "development which meets the needs of the present without compromising the capacity of future generations to meet their own needs". It was reinforced by the holding of other events such as the Conferences of the Parties (COP), climate summits (the most recent were held in Paris 2015, Marrakech 2016, Bonn 2017, Katowice 2018, Chile 2019), the RIO summit etc., and all these events contribute to the reinforcement of respectful practices.

Looking for the interest in ethical practices growing, financial markets are no exception in order to satisfy all stakeholders, where the main goal is to create an environment of trust that allows for good behaviour by market players. In recent years several stock exchanges have set up their socially responsible indices in order to meet the demand of ethical investors, the use of these indexes allows calculating the performance of market or the performance of a share that meet ESG (environment, social, governance) criteria.

In this regard stock market index can be defined as an indicator that makes it possible to measure the evolution over time of the performance of a stock market, a sector of activity, or a sampled portfolio (Topsacalian 2000, p. 54). In the literature review there are two principal types of index:

- A broad index is an index that represents all economic sectors in a market. This sign allows managers to make sector forecasts in order to judge performance,
- A narrow index is calculated from the floating capitalization; it includes the most active stocks in the market selected on the basis of several criteria such as liquidity, etc. This indicator is perfectly suited to portfolio management.

Stock market indices help investors to judge the performance of the stock market, where they are calculated by four technical of weighting:

- Price weighting: its method of calculating the arithmetic average of prices, which means that securities have a low value and a low impact on the index and vice versa.
- Equal weighting: its method of calculating the average percentage change in listed financial securities. The example of the S&P 500 can be given, which is an equally weighted index in the United States.
- Market capitalization: most indices are capitalization-weighted; the capitalization of security its market value defined by the company's weighting in the market
- Float weighting: used by the main international stock exchanges, the calculation of the floating market capitalization takes only the securities available in a market. For example, the CAC 40 in France.

These methods are also a way to compare each index with the others, and it could sometimes give opposite results due to several parameters, like the calculation method chosen,

the representativeness of the sample, the specificity of each market, etc. There are other methods that allow evaluating the performance like Sharpe ratios, Treynor and Jensen's alpha, which also have certain limitations, such as distributions of returns that can deviate from the normal law or the variability of betas (Grinblatt and Titman 1989).

However, in their conception the classic index differs from an ethical index, which is obtained after filtering a conventional index on the basis of criteria defined by rating agencies that meet ethical principles. These criteria are generally defined on the basis of extra-financial selection that differs from one rating agency to another. This is due to the lack of standardization of ethical stock market indices Pérez-Calderón et al. (2012) or the fact of the legitimacy of these agencies.

In the history ethical indexes appeared in parallel with social rating agencies, where the first index was the Domini 400 social index (DSI) proposed by the KLD agency, then other indexes appeared during the 1980s such as the FTSE4Good, ASPI proposed by the Viego agency, or the Dow Jones Sustainability Group Index (DJSGI). The literature of ethical indexes remains mixed given the recent nature of these indices, but the subject is beginning to gain momentum in the face of ethically conscious investors, who question the model of Western financial capitalism, which assumes that the creation of shareholder value is the only performance criteria. Indeed, these investors are interested in financial performance but more specifically in ethics.

2.1 The Performance of SR Stock Market Indices in the Literature

A few studies have focused on the performance of ethical indices (Fowler and Hope 2007), however, most of the studies analyse the financial performance of an SR index by comparing it with a traditional index which is a case of the studies below:

In the United States, Sauer (1997) compared the DSI400 index with two benchmarks, the S&P 500 and the CRSP, and concluded that there is no difference in performance between the two indices, which can be explained by the absence of the impact of ethical screening on performance. Then El Khmlichi (2019) conducted a study comparing the S&P 500 Environmental and Socially Responsible Index with its conventional index (S&P 500) using the daily quotations of the two indices for the period from September 2010 to March 2016, where the comparison showed that there is no significant difference in performance between the two indices.

In an attempt at an international study, the study by Hamid and Sandford (2002) focused on the analysis of European and American ethical indices. The study revealed constraints to the comparison, in particular the selection criteria that differ between these indices. The same comparison study was adopted by Saout (2005) when comparing the ethical indices of the Dow Jones family and those of FTSE4Good. He pointed out that the indices raise some differences in size, weighting, calculation method, and index construction, which makes comparison difficult. In addition, the authors Maux and Le Saout (2004) analyzed the performance of four ethical indices in the FTSE4good range and the DJSGI index over this period from 1 January 1997 to 1 December 2002 and concluded that their performances are equivalent to traditional indices and may in some cases outperform if the market is bullish and underperform if the market is bearish. They even noted that in the UK market the ethical index outperforms the FTSE 100 index.

A more exhaustive study was carried out by Vermeir and Friedrich (2006). They studied six socially responsible indices with their traditional counterparts during the period from 31/12/97 to 31/12/04: it's about the indices ASPI versus Stoxx Euro Index, ESIE versus MSCI Europe, ESIG versus MSCI Word, Dow Jones Sustainability Group Index versus Dow Jones Global Index, Domini Social Index versus S&P 500 and finally the FTSE4Good Europe versus FTSE Europe. The results indicate that four out of six indices outperform their benchmarks, and the return of socially responsible indices is statically not different from traditional indices but the risk is high. The authors state that the comparison of returns does not allow to define which part is allocated to profitability and which part is allocated to the financial style that is why they used the model of (French and Fama 2003); The authors conclude a positive sustainable effect on five out of the six sustainability indices and explain the difference in returns that they are not attributable to the CSR filter but to other elements of risk and style (small caps/large caps).

Besides the studies that have analyzed the performance and volatility are very rare testified by the study of Sudha (2015) who analyzes simultaneously the performance and volatility of the S&P ESG India index with two major market indices, namely the Nifty and the S&P CNX 500 using daily index data. The study indicates that while the daily compound returns of the ESG India Index are not statistically different from those of the Nifty or the CNX 500, the annualized returns of the ESG India Index were better than the returns of the other two indices.

In the context of the crisis El Khamlichi (2013) analyzed the behavior of stock market indices during the financial

crisis, the choice of comparison was made on three SR stock market indices representing Europe, Canada and the United States by comparing them with their traditional counterparts during the period December 2007 to January 2010. The study concludes that the SR indices follow the same trend as the traditional indices in times of crisis, where the author's idea is similar to Saout 2005 which confirms that there is no difference in returns between these indices.

Ethical indexes can provide superior performance as they allow for the selection of companies according to inclusion criteria or even eliminate certain risks such as ESG risks.

All in all, more than thirty years later, the debate does not seem to be over yet on the under or over performance of socially responsible indices and seems very limited in a crisis context.

2.2 Presentation of Stock Market Indices Around the World

The growing share of the socially responsible investment has given rise to the concept of socially responsible indices, which is not recent but dates from the 1980s. This paragraph proposes to study the emergence and a sample of these ethical indices around the world.

United States

Ethical practices have increased significantly since the Second World War and the following events such as racial discrimination, the fight against child labor and lobbying against the arms and nuclear industries. It is in this context and in the early 1980s that the first ethical index (South Africa Safe Equity) appeared at the initiative of the Boston Bank in the United States due to the government's request that calls companies to stop the trade activities with South Africa on the way to purify their ethical investment portfolio a country known at the time of racial segregation against blacks. The appearance of rating agencies allowed the launch of the DOMINI 400, based on the classic S & P 500 index launched in May 1990 by the KLD agency, it is a capitalization-weighted index comprising 400 U.S. stocks of the top-performing companies in terms of sustainability and was in several years the only ethical index (Maux and Le Saout 2003), it is a benchmark for socially responsible investors. Sectors that are excluded are Tobacco, Alcohol, Weapons, Gambling and Nuclear… A new index appeared in June 2020 which is the Calvert US Responsible Core Responsible Index created by the management company Calvert Investments, based on positive and negative filtering. This index is a reference for measuring the performance of large socially responsible companies.

Europe

Socially responsible stock market indexes in Europe appeared at the end of the 1990s, and companies were selected on the basis of their positive results in sustainable development practices, the rating criteria of which differ from one rating agency to another. The review of the inclusion or exclusion of companies in these indexes is carried out either quarterly, annually or half-yearly, depending on the criteria of each rating agency.

The famous index in Europe is ASPI: (Advanced Sustainable Performance Indices) created in 2001 by the French agency viego, whose stock selection does not exclude any sector and uses a scoring system. ASPI is a benchmark index in Europe made up of 120 of the best performing stocks in the DOW Jones Euro Stoxx index according to sustainable development criteria.

Other Indices in a Context of Emerging Countries

As for emerging markets, the Casablanca Stock Exchange was the first stock exchange in the Maghreb region to reward the social commitment of the listed companies, by launching in 2018 a CSR index named ESG10 launched by the Viego rating agency. The index is composed of ten listed securities which represent more than 68% of the total capitalization of its benchmark index, MASI, and whose inclusion principles are set on the basis of ESG criteria. Next Turkish Stock Exchange also launched its BIST Sustainability Index in 2014 in cooperation with Ethical Investment Research Services Limited (EIRIS), which evaluates the companies listed on Borsa İstanbul on the basis of international sustainability criteria. In the same context of emerging markets, the Brazilian stock exchange has had its own ethical index since 2005 in collaboration with the Brazilian ethics agency FGV-EAESP, where the index is considered the first in Latin America. Adding also the South African stock exchange which also has its own ethical index in 2004, the Johannesburg stock exchange is the first emerging market in association with FTSE Russel to have formed in 2004 a series of socially responsible index FTSE/JSE SRI Index.

2.3 Screening Process

Socially responsible indices are subsets of investment universes (Le Saout 2005, p. 24) of their benchmark indices. Several selection methods exist in the constituents of these indices, where we present in the following a set of main methods going from the selection process to the filtering criteria used by the rating agencies.

The selection process or component of an ethical index starts with the universe by choosing a benchmark index, then the agency applies extra-financial criteria by excluding certain securities (if the filtering is negative). Agencies may also integrate market capitalisation criteria such as the DJSI Word or free float criteria such as the FTSE4GOOD.

The methods of screening are passive; they can be either positive, including thematic funds that focus on environmentally friendly sectors, or best-in-class approaches to select companies with the best ESG scores. They can also be negative; this technique is widely used by many funds in the United States and excludes sectors such as tobacco, alcohol, armament, etc., or combined between the two criteria positive and negative, giving the example of the American agency KLD or the British agency EIRIS. This approach makes it possible to obtain an overall financial and extra-financial performance.

Concerning the filtering processes are also subjective because of the lack of standardization between the rating agencies, one can find security that excludes in one market and present in another market and this comes back to the ethical vision of each agency and country.

In general, three principal approaches are identified:

- **Best in class**: consists in retaining the most convincing values of sector activities in terms of ethical behaviour that allow giving rise to a good degree of diversification as this approach does not exclude any sector that differs from sectoral or ESG approaches;
- **Best Effor**t: This approach leads to focus on companies that demonstrate the best ESG efforts, it allows an objective development perspective to more efficient practices;
- **Best in universe**: This is a method of selecting the companies with the best ESG ratings, regardless of their sector of activity;

It is also noticeable that investors in their socially responsible investment processes use additional techniques known as normative exclusion based on international standards defined by international bodies such as the United Nations or combined with ESG factors.

The presence of security in an ethical index increases its visibility among investors, and its weight in a financial market becomes more important since it has gone through a filtering process that allows it to include an ethical index that is generally more concentrated than its benchmark index.

Talking about ethical indices refers to screening processes, the SR indexes focus on ESG criteria, but Islamic indices have more detailed rules in accordance with sharia principles. The following part will be devoted to literature of Islamic indices (Table 1).

Table 1 Methodologies employed by the major sustainability indices

Indices	Index tracked	Methodology
Calvert Group: The Calvert Social Index	Benchmark Index: None	Negative Screening Criteria: Excludes companies with bad environmental records and those operating in nuclear power, weapon, tobacco, alcohol or gambling
Dow Jones/SAM: Dow Jones Sustainability Index	Benchmark: Dow Jones Global Index	Positive Screening Criteria: Includes companies that score highest on a comprehensive list of sustainability criteria
Ethibel/S&P: Ethibel Sustainability Index	Benchmark Index: S&P Global 1200	Positive Screening Criteria: Evaluates companies according to four main criteria: internal social policy, environmental policy, external social policy, and ethical economic policy
FTSE FTSE4Good	Benchmark Index: Fortune 500	Mixed Screening Criteria: Excludes companies operating in: tobacco, nuclear systems, weapons systems and uranium. Includes companies based on qualitative judgments about: environmental sustainability, relations with stakeholders, and human rights
KLD Analytics: Domini 400 Social Index	Benchmark Index: Fortune 500	Negative Screening Criteria: Excludes companies operating in: weapons, alcohol, tobacco, nuclear power and gaming. Also excludes companies based on qualitative judgments about the environment, diversity, employee relations, and product
Viego: Advanced Sustainability Performance Indices	Benchmark Index: DJ EURO STOXXSM	Positive Screening Criteria: Rewards companies for introducing sustainability criteria

Source Fowler and Hope (2007)

3 Islamic Indices

Islamic finance is based on the laws of Islam, known as the principles of Sharia, which are considered the economic course of action for Muslims. The sources of Shariah can be found in the Qur'an, the Sunnah (the words and actions of the Prophet), the Ijmaa (consensus of Islamic scholars), the Qiyas (authenticated analogy), and the Ijtihad (rational intellectual efforts).

As was pointed out in the introduction of this part, five principles fundamental of Islamic finance are defined:

1. The prohibition of interest (riba) and usury: Allah said in the Coran "Allah has permitted trade and forbidden riba" (Surah Al Baqarah, verses 275–81)
2. The rule of profit and loss sharing: This principle finds its source in Hadith of our Prophet (ﷺ) in the Messenger of Allah said: "Profit follows responsibility".
3. The prohibition of Gharar and Maysir: futures, options and speculation, etc. …
4. Financial assets must be backed by a tangible asset (Asset Banking).
5. The prohibition of investing in illicit sectors (Haram).

As known Islam is one of the big important religion in the word with about 1.8 billion Muslims, Islam is focused on ethical practices with respect of sharia. The Islamic financial system is one of those and is composed of the Zakat, Waqf, Islamic banks, Islamic microfinance and Islamic capital market, represented by Islamic indices that constitute the universe of investment etc. These will be one of our paper subjects.

Establishing the context background, the emergence of Islamic banks around the world are the first system that initiates financial Islamic system, however the Islamic capital market was in an embryonic stage, but nowadays, the development of Islamic capital market becomes indispensable in order to meet the demand of investors who want to grow their capital without compromising their religious beliefs.

In this context the first Islamic fund was established in 1986s, however until 1990s Islamic jurisprudence allowed Muslims to invest their capital in "Shariah-compatible" funds (Peillex and Ureche-Rangau 2012). Though, Islamic stock market indices were launched for the first time in April 1998 considered as important factors that allow the development of Islamic capital markets. That's was extended to other Islamic indices like the creation of (Dar al Mal al-islami) DMI index, then, the American Bank Klein and Shrinea (Social Aware Muslim Index) SAMI, measure the financial performance of 500 Shariah compliant companies, as well as the Dow Jones Islamic index DJIMI created in 1999. Moreover the Global Islamic Index Series (GIIS) was launched by The FTSE, and Standard and Poor's which create the shariah Global Benchmark indices in 2006 as well. For the Eurozone and Europe, Stoxx Limited has launched a package of indices that are shariah compatible. Although the previous indices that had an international geographical coverage, some financial markets have introduced their own Islamic indices with a local focus (Amina Haoudi, Ayoub Rabhi).

3.1 The Performance of Islamic Stock Market Indices: A Literature Review

The literature review has shown that, a lot of researchers studied two major topics: the financial performance of Islamic funds and the performance of Islamic indices. These convergence items have contributed to enriching the literature on Islamic finance in general.

Also despite the difference in context and the methodologies used, several studies are interested in financial performance between Islamic and conventional indices, and most of them conclude that there is no significant financial performance between them. It seems to an prove that the Islamic screening process doesn't have any negative impact on the financial returns. The case of this study was first with Atta (2000), who tried to study the performance of the Dow Jones Islamic Market Index versus his conventional index using statistical and econometric methods between 1996 and 1999 as a result of his research he found that Islamic index outperformed the benchmark index, and outperformed the risk-free rate as well.

After that, more extensive research has been carried out by Hassan (2011) where he developed Atta's research by studying six Islamic indices of the Dow Jones family from 1996 to 2000. He analyzed empirically the issue of efficiency, as the evolution of risk/return ratio. In effect, he confirmed Atta's results, by using an econometric model (GARCH) then he concluded that DJIM is more efficient than the conventional index. Regarding the study of cointegration and efficiency of Islamic indices, it was found after analyzing nine indices "shariah-compatible" that there is an absence of cointegration, and argues that Islamic index is efficient as the conventional one, as well. It can provide a diversification opportunity for investors.

In the same research context, from the analysis of financial performance (DJIMI), the performance and volatility between Dow Jones Islamic Market Index (DJIMI), with DJ United States, DJ World, S&P 500 and MSCI World from 1996 to 1998 was compared. The Islamic index (DJIMI) is more rentable then the others indices, in contrast, it has the same level's volatility. This comparison shows that the Islamic index performance is highly correlated with

the other indices, with statistically insignificant level of volatility.

Then the study of Hussein and Omran's (2005) was considered as original research is the fact of analyzing the performance of the DJIMI by introducing the effect of sector and size. The results suggest that Islamic indices outperform their conventional counterparts. The authors explain this outperformance by the composition of Islamic index, which is composed of a small-cap and low-indebtedness stock's companies.

As for emerging markets Abdullah et al. (2007) analyze the returns of Islamic and conventional Malaysian funds between 1995 and 2001. As well, they found that Islamic funds are less profitable than conventional ones. Indeed, they confirm the hypothesis that shariatic screening negatively impacts the level of diversification. The same opinion was confirmed by, Hayat (2006) who found in his study that the Malaysian Islamic funds were underperformers than the conventional ones, even statistically not being significant.

Recently, a few researchers have shown a neutral aspect, Hassan (2011) analyzed seven Islamic indices from Dow Jones[1] series between 1996 and 2005 and they conclude that there is no difference in returns of Islamic indices and their conventional benchmark. Also, in his article "performance of Islamic indices: a meta analyze", El khamlichi argue with other authors that Islamic indices are not of less performance than the conventional ones. The same idea was supported by El Bousty and Oubdi (2017), where they reported also that Islamic and conventional indices have the same level of volatility.

A more exhaustive study was carried out by Elfakhani et al. (2005) where they investigated the data from 46 funds (shariah compatible), between 1997 and 2002. Those funds were classified by sectors into eight categories. They measured and compared their performance with Islamic and conventional indices. They found constantly that there is no significant difference between the performance of Islamic funds and their benchmarks.

In crises context, Merdad et al. (2010) examined the performance of Islamic and conventional funds, using a various of risk-adjusted return's methods such as: Sharp ratio, Treynor and alpha of Jensen. Their results show that Islamic funds underperformed conventional funds during the "Full" period, in contrast they outperformed in the crisis period. Hussein's (2004) found the same results by examining the performance of the FTSE Global Islamic Index and FTSE All World Index. The return adjusted to risk of both indices seems equivalent, in addition, he analyzed the comportment of those indices in two different periods "Full" and "Bull", and concluded that the Islamic index underperforms the classic index in the crisis period, and conversely in the bullish.

By drawing on the following results, the conclusion that can be given is that Islamic funds provide hedging opportunities for investors in the crisis period, through restrictions that the shariah board imposes on the portfolio selection process (Firano et al. 2017).

3.2 Creation and Composition of the Islamic Index

Islamic indices are a subset of conventional indices after going through a screening process, and two kinds of screening are available: extra financial (qualitative or sectoral) and financial (quantitative) screening. For notice it's up only to Shariah scholars to carry out the screening of values in accordance with the Muslim law principles defined by the Shariah Board who are the Ulemas (scholars) with very specific theological, legal and financial knowledge, recognized internationally.

Qualitative Screening

First, companies which composed the origin index (conventional) must past through a sectoral screening or extra financial screening. The objective is to eliminate companies which are considered illicit by the Shariah board,[2] such as:

- Pig industry
- Defence and armament
- Tobacco
- Cinema and entertainment
- casinos/gambling
- Pornography
- Alcohol
- non-Islamic banking and financial services
- Insurance

According to this sectoral screening, three following cases are possible:

Firstly, companies with a main and secondary activity are completely legal. Second, companies whose activities are totally illegal and third, companies that operate in several sectors, some of which are legal and some of which are illegal. However, the integration or exclusion from the Islamic index for the last kind of companies don't make the

[1] Dow Jones Islamic Market World Developed Index, the Dow Jones Islamic Market World Emerging Markets Index, the Dow Jones Islamic Market U.S. Index, the Dow Jones Islamic Market Europe Index, the Dow Jones Islamic Market Asia/Pacific Index, the Dow Jones Islamic Market Canada Index, and the Dow Jones Islamic Market U.K. Index.

[2] Shariah board published a list of illicit sectors.

Table 2 Level of debts ratio: calculation method for the most popular Islamic Index

Index	Calculation method
DOW JONES ISLAMIQUE	$\frac{\text{Total Debts}}{\text{Average Market Capitalization(Trailing 24 month)}} < 33\%$
S&P SHARIAH	$\frac{\text{Total Debts}}{\text{Average Market Capitalization(Trailing 36 month)}} < 33\%$
MSCI ISLAMIC	$\frac{\text{Total Debts}}{\text{Total Assets}} < 33\%$
FTSE SHARIAH	$\frac{\text{Total Debts}}{\text{Total Assets}} < 33\%$
STOXX ISLAMIC	$\frac{\text{Total Debts}}{\text{Total Assets or Global Market Capitalization}} < 33\%$

Source Amar et al. (2017)

Table 3 Interest bearing debts ratio: calculation method for the most popular Islamic Index

Index	Calculation method
DOW JONES ISLAMIQUE	$\frac{\text{Total cash and interest−bearing securities}}{\text{Average Market Capitalization(Trailing 24 month)}} < 33\%$
S&P SHARIAH	$\frac{\text{Total cash and interest−bearing securities}}{\text{Average Market Capitalization(Trailing 36 month)}} < 33\%$
MSCI ISLAMIC	$\frac{\text{Total cash and interest−bearing securities}}{\text{Total Assets}} < 70\%$
FTSE SHARIAH	$\frac{\text{Total cash and interest−bearing securities}}{\text{Total Assets}} < 50\%$
STOXX ISLAMIC	$\frac{\text{Total cash and interest−bearing securities}}{\text{Total Assets or Global Market Capitalization}} < 33\%$

Source Amar et al. (2017)

Shariah Board unanimity (Khatkhatay and Nisar 2007). But some scholars prohibit investing in these companies, while others allow it on the condition that the return's weight of the illicit activity must not exceed 5% of the company's overall income.

Quantitative Screening

After passing from the sectoral screening, companies composed the Islamic index must pass at the second step of screening, and it's about a financial screening process. It includes those companies in the index according to their financial structures.

The financial screening uses a series of ratios and with respect to criteria helps integrate the Shariah compatible index.[3] The quantitative screens differ from one Islamic index to another and don't make the Shariah Board unanimity; they are only doors of tolerance. The screens are the level of debts, receivables and interest-bearing securities. Violation of one of these levels results in the company exclusion from the index.

- Level of debts Ratio:

It's the first financial screening that measures the company's level of indebtedness to ensure that it is moderately indebted with respect to the principle of interest's prohibition. This filter is expressed as a ratio of the following:

$$\text{Level of debts} = \frac{\text{Total Debts}}{\text{Average Market Capitalization}} < 33\%$$

This highlights that the holders of shares must purify their dividend by removing the interest-bearing. However, the part of these dividend must be donated to charity, but they are independent of Zakat's payment (Table 2).[4]

- Interest bearing debt Ratio:

This ratio makes investors ensure that a company's main assets are not predominantly cash or cash-related. If a company's main assets are cash based, trading of its shares is equivalent to trading of cash for cash. This will trigger the issue of riba' (interest) because, in trading currencies or cash, the Shariah rules of currency exchange (bay'al-sarf) should be observed. This filter is expressed as a ratio as follows (Table 3):

$$\text{Interest bearing debt} = \frac{\text{Total cash and interest−bearing securities}}{\text{Average Market Capitalization}} < 33\% \text{ at } 70\%$$

- Receivables Ratio:

To ensure that a company is not involved directly or indirectly in riba'-related activities that exceed the tolerable benchmark specified within the criterion. The riba'-related activities of a company can be in two forms: Investment and/or placement of cash in conventional or interest-based instruments; and acquiring funds from the capital market or banking sector through interest-based facilities. This filter is expressed as a ratio of the following (Table 4 and Fig. 1):

$$\text{Receivable Ratio} = \frac{\text{Total receivables}}{\text{Average Market Capitalization}} < 33\% \text{ at } 70\%$$

4 Analysis of the Behavior of Islamic and Socially Responsible Indices in Crisis Period COVID-19: Case of South Africa and Malaysia

We consider two ethical indices, both socially responsible and Islamic, from two emerging countries, South Africa and Malaysia. The study covers the period from the first

[3] Cited by Mohamed Lamine Mbengue, 2017.

[4] The Messenger of Allah said, "O people! Allah is Pure and, therefore, accepts only that which is pure" **Abu Hurairah.**

Table 4 Receivable ratio: calculation method for the most popular Islamic Index

Index	Calculation method
DOW JONES ISLAMIQUE	$\frac{\text{Total receivables}}{\text{Average Market Capitalization(Trailing 24 month)}} < 33\%$
S&P SHARIAH	$\frac{\text{Total receivables}}{\text{Average Market Capitalization(Trailing 36 month)}} < 49\%$
MSCI ISLAMIC	$\frac{\text{Total receivables}}{\text{Total Assets}} < 70\%$
FTSE SHARIAH	$\frac{\text{Total receivables}}{\text{Total Assets}} < 50\%$
STOXX ISLAMIC	Shariah board of STOXX ISLAMIC don't use this Ratio

Source Amar et al. (2017)

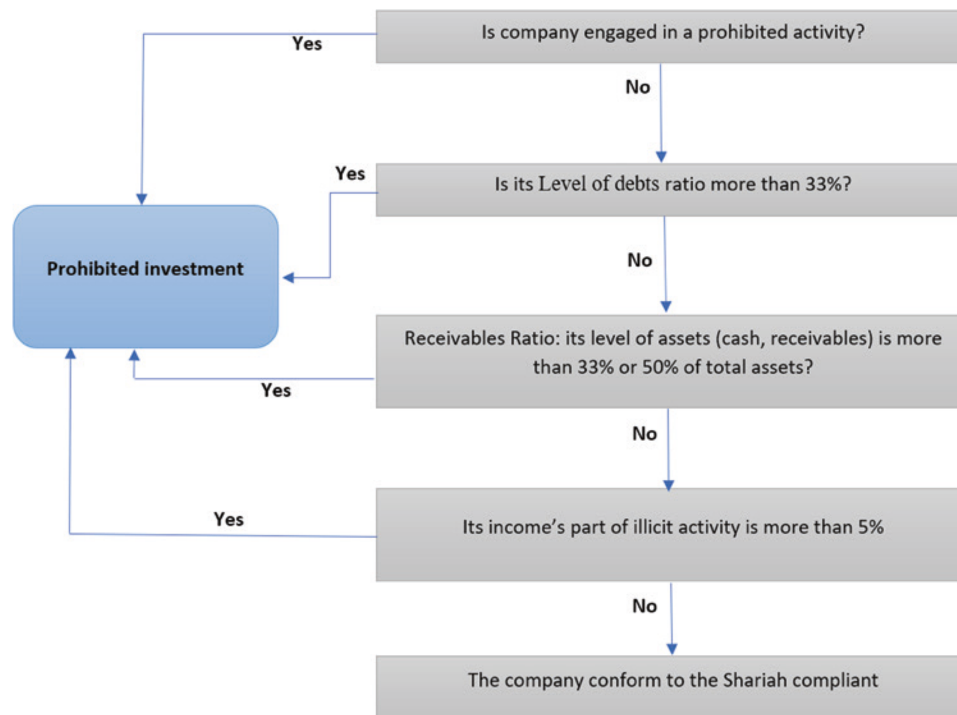

Fig. 1 Islamic index screening process

declaration of the COVID 19 pandemic discovered in Wuhan for the first time on December 31, 2019 (according to World Health Organization) until June 2020. The data come from the database of the two stock exchanges.

Then the choice was made to focus on two emerging countries that have two ethical indices on their stock exchanges at the same time in order to avoid any sector bias, which is the case of the indices below:

- Malaysia
  - FBM EMAS Shariah index regulated by the Shariah Advisory Board of the Securities and exchange Commission, where all securities must go through a screening process in accordance with Shariah principles. tTis index includes the components of the FTSE Small Cap Index and FTSE Bursa Malaysia TOP100 Index;
  - FTSE4GOOD BM Index measures the performance of companies that meet ESG standards
- South Africa:
  - The FTSE/JSE responsible investment Top 30 Index (J110) is an equally weighted index calculated on a real Time basis. It is tradable and comprises the Top 30 companies ranked by FTSE Russell ESG Rating;
  - The Shariah Top 40 (J140) Index is an index that includes the top 40 Shariah-compliant companies selected by Yasaar, its starting universe is the Top 40 Index (J200) and its weighting methodology is based on free float market capitalization weighted.

Fowler and Hope (2007) in their article "A Critical Review of Sustainable Business Indices and Their Impact" highlighted the methodological bias of comparison which reflects certain limitations such as differences in size, country and weighting in index comparisons, where the case for their study was the comparison of SR indices with their traditional counterpart, that is, tour study will follow the same approach for this reason. The focus of our study will be on

Fig. 2 Socially responsible index in the Malaysian stock market: FTSE 4GOOD

advanced graphical analysis to derive results on the behaviour of ethical indices in times of health crisis (COVID 19).

For several years now, few studies are interested on the behavior of ethical indices in context crises. The majority of studies work on the financial performance of ethical indices by comparing them with their benchmark, in particular the socially responsible index with its traditional counterparts in a developed country context, where the objective of our research is to establish the link between these indices in a context of emerging countries, and reach the comprehension of their behavior on crises context.

First of all, as we notice that the similarity between the ethical indices is the selection criteria based on the respect for the rules of good moral conduct, it is surprising that all the four indices chosen follow the same stock market behavior. as shown in the graphs below. All four graphs are in "v" format, with a sharp decline in the first quarter of 2020 to a point of bearish reflection. in the month of MARCH followed by an increase in the second quarter.

South Africa J140 index and J110 index are highly correlated, and achieve the same performances; we can therefore deduce neither under performance or overperformance. As for the indices listed on the stock exchange of the Malaysia FBM EMAS Shariah and FTSE4GOOD BM indices in the same way the behaviour of these indices is not different than the South African indices.

We can deduce that the impact of the selection criteria has not an impact on the financial performance of these indices, also the results show that the behavior of ethical indices is the same as their counterpart traditional, as well as they are following the same market trends. This indicates that ethical indices don't ensure protection against market downturns in times of crisis.

To conclude, our results have contributed to enriching the literature based on the subject of the behavior of ethical indices, especially socially responsible and Islamic ones, in times of crisis. We have also highlighted the impact of the selection criteria and the performance of these indices during this period. The academic approach or methodology used is supposed to be a more rigorous investigation (Figs. 2, 3, 4, 5, 6 and 7).

5 Conclusion

Ethical indices both socially responsible and Islamic indices, are a subset of conventional ones after going through a screening process, two kinds of screening are available: extra financial (qualitative or sectoral) and financial (quantitative) screening, defined by a sharia board in accordance with the Muslim law principles for Islamic index, also for the socially responsible index the screening process is defined by the rating agency in accordance with ethical principles known as ESG standards, this criteria differs from one agency to one other depending on the specificity of each country, religion…. Therefore, the convergence point of these indices is the screening process where it reduces the investment universe, and according to modern portfolio theory (Markowitz 1952), the lack of diversification may also penalize their performance.

In a context of health crisis COVID 19 announced by International Health Organization in December 2020 as a global pandemic, a financial crisis has been triggered in both developed and emerging countries. This crisis appears two months later in the financial markets of emerging countries and is characterized by a massive deterioration of market indices. Our study was about analyzing the behavior of ethical stock market indices during this period of crisis.

The objective of this paper is to analyse the behaviour of socially responsible and Islamic indices in two emerging country contexts during the crisis period of COVID-19. We perform a selection of stock market indices that meet

Fig. 3 Islamic index in the Malaysian Stock Market: FBM EMAS Shariah

Fig. 4 Malaysian stock market index: KLSE

Islamic principles and SRI criteria known as ESG, the choice was reported to FTSE 4GOOD and FBM EMAS SHARIAH in the Malaysian market as J1140 and J110 in the South African stock market, the main goal is to compare these indices each other as well as with their benchmark. From the graph of the indices we use technical analysis as the method, where it can be concluded as follows: Islamic and socially responsible indices are highly correlated and they're following the same trend of their market as "V" form with a sharp decline in the first quarter of 2020 to a point of bearish reflection. in the month of MARCH followed by an increase in the second quarter of 2020.

The results of this research support the idea that there is no significant difference in the performance of ethical indices as well as compared with the conventional one, Therefore the investors will not scarify about a part of returns on their portfolio investment due to the screening process as a fact. Whilst this study did not confirm the idea

Fig. 5 Socially responsible index in the South African stock market: J110

Fig. 6 Islamic index in the South African stock market: J140

about ethical indices underperform or outperform in the crisis period, but it has shown, however, that investors can invest in ethical products rather than conventional products even in times of crisis in order to meet their own personal convictions. For further research, we recommend that this study will be extended to other emerging markets with a use of others approach.

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Fig. 7 South African stock market index: SA40

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