Covid-19 Pandemic and its Impact on Shariah-Compliant Firms: A Risk Perspective

Zakir Ullah[1],
Dr. Adnan Ahmad[2],
Faryal[3],
Rizwan Ullah[4],
Muhammad Haq Nawaz[5]
Imran Ali Khan[6]

Abstract

This study investigated the impact of covid-19 on the risk of Shariah-compliant non-financial firms listed on the Pakistan stock exchange. To analyze the risk of Shariah non-financial firms listed in Pakistan (PSE) before, during, and after the covid-19 pandemic. The study population contains all Shariah-complaint non-financial firms listed on (PSE) and remains registered during the study time lap. The sample of this study consists of 84 Shariah-complaint non-financial firms listed on the Pakistan stock exchange (PSE) and remains registered and operating during the study time lap. Secondary data was collected from the stock market monthly return. This study proposes to use monthly data covering the period from first Jan 2017 to 31 Dec 2022; we estimate the beta value by running the regression of each sector's monthly return on the respective PSX index returns for Shariah-complaint non-financial firms. The outcome of the entire three models is significant with Shariah-complaint firm's risk. Covid-19 and risk are a strong relationship as when changes occur in Covid-19, increasing or decreasing, it will affect the stock market return. Our analysis revealed that the pandemic had a significant favourable influence on the returns of Shariah-compliant firms in the FD final dataset and FC pre-COVID-19 models but a negative influence in the PC post-COVID-19 model. This finding may be attributed to government regulations, such as population shutdowns and market lockdown policies implemented for several weeks to control the pandemic's impact.

[1] MS Scholar: Department of Accounting & Finance, Institute of Business Studies and Leadership (IBL) Abdul Wali Khan University, Mardan (AWKUM):
[2] Associate Professor: Department of Accounting & Finance IBL, AWKUM:
[3] MS Scholar at Department of Accounting & Finance, IBL, AWKUM:
[4] MS Scholar at Department of Accounting & Finance, IBL, AWKUM:
[5]MS Scholar at Department of Accounting & Finance, IBL, AWKUM:
[6]PhD Scholar, Department of Accounting & Finance, IBL, AWKUM:

Key Words: *Covid-19, Shariah Compliant Non-Financial Firms, Pandemic, Risk, Disaster*

1. Introduction

Shariah is a term used to refer to a collection of Islamic moral and religious laws that govern various aspects of Muslims' everyday lives, including religious observances and rituals. The Shariah law provides a set of principles and guidelines to assist adherents in making crucial decisions such as financial investments. The rules for investments and interest rates in Islamic finance and banking are outlined by Shariah law. Despite differences in the interpretation and implementation of Shariah, particularly in the financial sector, there is general agreement on its significance to the Muslim community "Shariah-compliant company" means a company that is directing its business according to the principles of Shariah; Also known as Shariah or Shari'ah, Islamic principles and jurisprudence govern the social, political and economic relationships and actions of Muslims and Islamic institutions. Al-Shafii, M. I. Al-Risala, undated. One of the three primary sources of Shariah is the Quran, also known as the Koran or Qu'ran, which Muslims believe to be God's last revelation to the human race. *Sunnah: Sunnah refers to the guidance and example set by the Prophet Muhammad (peace be upon him) in all aspects of life. Hadith: the accounts of the sayings and actions of the Prophet Mohammed (PBUH).* There are also two secondary sources for Shariah: Ijma'a: consensus or agreement of Islamic scholars, Zuhayli, and Wahbah (1999). Qiyas: analogy or reasoning by analogy in Islamic jurisprudence, Khadduri, Majid (1955). According to Shariah guidelines, Islamic financial documentation must be designed to avoid riba, gharar, and Maisir. According to Jeffrey D. Sachs (1990), Shariah is more of a system of ethical and religious principles than a code of rules.

1.1 Risk

The term "risk" in finance refers to the potential for capital loss. On the other side, in Islamic finance, this occurrence is referred to as "mukhabarat" and describes a departure from the anticipated result or the possibility of suffering a loss. We rely on legal concepts (qawa'id fiqhiyyah) to establish a correlation between prospective loss and potential gain because any economic transaction is inherently unpredictable. Depending on the theoretical stance, this could entail anything from paying for repairs to taking responsibility for damages. Any discussion of risk must consider that interest (riba) and transactions with uncertain results (gharar) are forbidden in Islam. The contract cannot be enforced if gharar, or undue risk or ambiguity, occurs.

1.1.1 Risk Management from Islamic Perspective and Shariah-Compliant Firms

In Islamic economic operations, risk is a vital component that must be accepted to produce wealth and value. The risk-taking principle is based on the principle of obligation that forms the acceptability of receiving profit (Agha & Sabirzyanov, 2015). Risk management is a critical activity in a Shariah-compliant company, and Islamic risk management techniques differ from conventional risk management approaches. Risk is a regular occurrence in business, and Islam provides methods for managing and minimizing it (Asyraf, 2014).

1.1.2 Natural Disaster

The effects of natural disasters on developing countries' economies report that the actual costs of catastrophes are frequently significantly higher than previously thought because of indirect effects like lost productivity and decreased investment. Cavallo and Noys (2017) conclude that disasters' impact on the economy frequently lasts for years after they occur. On the other hand, Raschky, Schwindt, and Walle (2018) study the economic resilience to disaster damage reduction and find that countries that have more excellent financial stability as determined by factors such as income diversity and economic openness are better able to recover from disasters and sustain less long-term economic damage. Miranda, Aldunce, and Aichele (2019) state that disasters could present chances for innovation and financial investment in more durable and sustainable infrastructure.

Recent research shows that natural disasters harm short-term economic development (López, Thomas, & Troncoso, 2016; Noy, 2009). Significant economic growth slowdown or halt following a natural disaster tends to worsen its negative consequences (Fomby et al., 2013; Loayza et al., 2012). The consequences of natural disasters on poor countries' economies are exacerbated by a lack of resources (Fomby et al., 2013). However, other studies report opposite results (Panwar & Sen, 2019). For example, Albala-Bertrand (1993); Okuyama (2003); and Otero and Martz (1995) and more recent studies Fomby et al. (2013); Loayza et al. (2012) find that natural disasters have a positive effect on firm performances and risks, but these effects are typically restricted to specific economic sectors (like agriculture) or disaster types (like floods). In recent years, there has been a tremendous improvement in predicting the regionally scaled spatial economic effects of disasters (Okuyama, 2003). Numerous studies have shown that natural catastrophes' direct economic effects are rising substantially. Most empirical studies on natural catastrophes focus on the indirect effects they have on human populations. Kahn's 2005 study, which focused on the variables influencing

the immediate effects of natural disasters, particularly deaths, is noteworthy. By considering the roles of wealth, institutions, politics, and geography, Kahn investigates the immediate effects of a disaster. Instead, the mortality rate rises as per capita income falls and falls as income levels rise. Typhoons caused significant property loss and destruction in the Philippines (Anttila-Hughes & Hsiang, 2013). Recent research (Estrada, 2015) suggests that the main factors contributing to this increased trend in direct natural disaster losses are population and economic expansion. Others report secondary effects of natural disasters on the economy such as their impact on GDP growth. Felbermayr and Groschl (2014) study physical indicators such as earthquakes, volcanic eruptions, cyclones, floods, and severe temperature events measuring the intensity of natural disasters and its effects on GDP. For instance, following a catastrophe in the top 1% of the intensity distribution, the GDP growth rate decreased by 7%, but only by 0.5% following a disaster in the top 5%. Others report mixed results (see Hsiang, 2010; Strobl 2011; and Oberhofer & Raschky, 2009 for further details).

1.1.3 Disaster Risk Reduction Measures and Policies

The economic impact of natural catastrophes can be significantly reduced by implementing measures and strategies for disaster risk reduction. Research has demonstrated that spending on measures to mitigate disaster risks, such as early warning systems, infrastructure upgrades, and preparedness, can significantly lessen the effects of natural catastrophes (Kousky, 2016; Rose & Krausmann, 2013). For example, Kousky (2016) concludes that four dollars in damages might be averted for every dollar invested in risk mitigation strategies. Using a profit-maximization model, Azam et al. (2018) show how political risk, such as predictions of political violence, impedes economic growth in Africa. They report that the effects of violent political events do not necessarily result in slower economic growth in African countries. Similarly, the effect of legislators' economic and social policy choices on the political risk environment of Sub Saharan countries have been investigated and the study concluded that a statistically significant negative correlation between political stability and monetary expansion. A significant political event, the Turkish Parliament's rejection of the highly contested law authorizing the deployment of US troops in Turkey on March 1, 2003, affected the prices of 50 stocks included in the ISE-50 index (Aktas & Oncu 2006). A study estimates the impact of 77 terrorist incidents in 25 countries, including Turkey, between 1994 and 2005; each terrorist strike is categorized according to its type, target, level of destruction, and location (Chesney, Reshetar, & Karaman 2010).

1.1.4 Health

Health crises refer to situations where a public health emergency arises, leading to an increased risk of disease transmission and adverse health outcomes. Health crises can take many forms, including pandemics, epidemics, outbreaks of infectious diseases, natural disasters, and bioterrorism incidents (Koenig & Schultz, 2010). Health crises can have a significant impact on public health, and they can also affect the economy, social structures, and political stability. The spread of diseases can result in the loss of human lives, the disruption of healthcare systems, and the depletion of resources, which can have significant economic consequences (Morse, 2012). Governments and organizations may implement quarantine, isolation, social distancing, and travel restrictions to address health crises.

Numerous health crises have significantly impacted the world economy in recent decades. The Severe Acute Respiratory Syndrome (SARS) epidemic of 2003 significantly affected the economies of many Asian nations. Due to the pandemic, consumer spending, travel, and tourism all decreased, and both the manufacturing and service sectors experienced declines (Haley et al., 2005). A WHO evaluation determined that the SARS pandemic in East and Southeast Asia resulted in economic losses of over $18 billion (WHO, 2003). Similarly, the outbreak of Ebola virus disease in West Africa between 2014 and 2015 had a significant economic impact. Mallapaty (2015) reports that the epidemic decelerated the economy, resulted in a decline in tourism, and reduced foreign investment and costed the Governments of Guinea, Liberia, and Sierra Leone, a loss of roughly $2.2 billion. Furthermore, the tourism and travel industry suffered significant consequences from the global H1N1 pandemic between 2009 and 2010. As per the research by the United Nations World Tourism Organization (UNWTO) in 2010, the pandemic resulted in a loss of approximately $30 billion in international tourism revenue.

1.2 C0VID-19 Pandemic

The world faced the COVID-19 pandemic in the first quarter of 2020, which was indeed a 'black swan' event whose probabilistic occurrence is rare, but should it occur, the event can have disturbing consequences. Worldwide, stock markets and factories closed, international trade and supply chains were severely affected, airports were deserted, and offices and shops closed to control the viral epidemics. The first official case was reported in Wuhan, China, on December 31, 2019. It was initially limited to China until the first official case was registered in Thailand on

January 13, 2020. In Pakistan, the first official case of COVID-19 was reported on February 26, 2020.

The COVID-19 pandemic is the most recent and ongoing global health crisis, and it has profoundly impacted the worldwide economy. The pandemic has caused disruptions in supply chains, reduced demand for goods and services, led to widespread job losses, and significantly impacted the tourism and travel industry. According to the International Monetary Fund (IMF), the global economy contracted 3.5% in 2020 due to the pandemic (IMF, 2021). Studies examine the effect of Covid-19 on the economy under different determinants. Hassan and Gavilanes' (2021) study the effect of pandemic on stock market performance in China, Italy, Spain, the United States, Japan, and South Korea. They find that a 1% increase in viral transmission reduces stock market yields by 2.3 per cent daily.

As of June 1, 2020, 76,398 cases had been reported, with 1,621 deaths, or CFR 2.12%. The highest number of daily cases in Pakistan was registered on June 14 2020, at 6,825. The second wave of Covid-19 began in the second week of October, reaching 3,795 government cases. Although the number of patients continued to rise, the maximum number remained close to 1,000 until February 2021. The third wave in Pakistan was officially recognized as having started in the second week of March 2021.

The global outbreak of COVID-19, which the WHO declares a world pandemic, has affected billions of people worldwide. The pandemic has negatively impacted the world economy, businesses, industries, small-scale enterprises and all the socio-economic sectors were also affected. Recently, World Bank report reports that with the effect of the COVID-19 pandemic, the Sub-Saharan African economy may likely lead into economic recession, with growth falling as low as unfavorable 5.1 percent in 2020. COVID-19 established its pandemic power (Bedford et al., 2020; Koonin, 2020), and this unusual circumstance brings uncommon economic situations (McKibbin& Fernando, 2020). The COVID-19 pandemic has negatively impacted the nation's economy, industries, and small and medium enterprises. Subsequently, the economist predicted that there is no specific date and time for the pandemic to end (Segal & Gerstel, 2020). The economic impact of COVID-19 may likely put many people into poverty.

1.2.1 Covid-19 Impacts on Economy

The COVID-19 pandemic has affected a global recession due to the widespread shutdown of businesses and travel restrictions. According to the International Monetary Fund (IMF), the global economy shrank by 4.4% in 2020, the worst recession since the Great Depression of the 1930s (IMF, 2020). In addition, the pandemic has caused a massive loss of jobs, especially in the service industry, further aggravating the economic crisis (Baldwin & Mauro, 2020). Pandemics' longer-term effects on the economy show that pandemics frequently have long-lasting consequences on economic growth and that the impact is particularly severe in nations with less developed healthcare systems and lower income levels (Jordà, 2020).

The COVID-19 epidemic has dramatically influenced the world economy, particularly the risk of Shariah-compliant non-financial firms listed on the stock exchange vs conventional firms. This research study will examine how COVID-19 affects the risk of Shariah-compliant non-financial firms listed on the stock market vs established firms, including changes in stock prices, financial performance, and corporate governance. The COVID-19 epidemic has resulted in considerable fluctuations in stock prices for both Shariah-compliant non-financial firms and conventional firms listed on the stock exchanges. Studies report that Shariah-compliant non-financial firms were less affected by the pandemic than established firms because they focused on more stable areas such as healthcare, technology, and telecommunications (El-Hawary et al., 2020). The study concludes that Shariah-compliant firms may benefit from the resilience of Islamic financial principles in times of economic uncertainty. Furthermore, the COVID-19 pandemic has significantly affected the financial performance of established companies listed on the stock market and Shariah-compliant firms. Hafez and Naser (2020) compare conventional businesses with Shariah-compliant firms and show that Shariah Firms have proven to be more resilient to the outbreak, with some of those businesses reporting growth in sales and profitability due to more demand for their goods and services. Incorporating moral and charitable behaviors into their business models may benefit Shariah-compliant firms.

1.3 Problem Statement

The global Covid-19 crises are exogenous, while the global financial crises (GFC) are endogenous risk factors (Krugman, 2009). The pandemic hit economic activities severely. A lockdown breaks the manufacturing and production activities, ultimately affecting the stock market returns. The

global economy is projected to decline by 3% in real GDP; due to the epidemic of COVID-19, economic growth is rapidly down, and investors have now become hesitant to invest in the stock market of Pakistan. A lot of work has been done previously on the stock market and risk management during the pandemic. However, after the crises, little attention has been diverted to investigate the effects of Pandemic such as Covid-19 on the associated risk of firms operating in a capital market. Studies show that firms are exposed to more risk during such pandemics due to the extremely volatile nature of these firms. However, others report the Shariah-complaint firm are more resilient and are less affected during such crises. This study is an attempt to investigate the effect of Covid-19 on the risk of the shariah compliant non-financial firms.

2. Methodology

To examine the effect of Covid-19 on the risk of Shariah Compliant Firms, this study uses panel data from 2017 to 2022. The data is secondary in nature and has been downloaded from the Annual reports of the firms, Pakistan Stock Exchange, State Bank of Pakistan, and Economic Survey of Pakistan dataset. The study period is from 2017 to 2022 where this study carries a three years pre and three post Covid-19 models with a complete dataset of 2017-2022. We divided the models into three based on the data set. In this section we present variables, analysis methods and econometric model.

2.1 Variables

2.1.1 Dependent Variables: Stock Risk

Stock risk refers to the uncertainty or variability in the returns of a particular stock or a portfolio of stocks. It is the possibility that the actual returns of an investment may differ from the expected returns and that an investor may lose some or all their investment. Stock risk can be affected by market conditions, economic indicators, company-specific factors, and investor behaviour. Some common measures of stock risk include standard deviation, beta, and volatility. We measure the risk of shariah compliant firms using the Slope Formula through the monthly returns.

2.1.2 Independent Variable: Covid-19

We use Covid-19 as a Dummy variable (0, 1) during the pandemic. The value is equal to "1" before and after it is equal to "0". Fioramanti, Reale, & Zaninotto (2021) examine the effect of Covid-19 in the European Union using Covid-19 as a dummy variable.

2.1.3 Control Variables

2.1.3.1 Size

We use firm size as a control variable being practiced in empirical research across various disciplines, such as finance, economics, and management. The rationale behind controlling for firm size is that it can affect the relationship between the independent and dependent variables of interest (Demirguc-Kunt, & Maksimovic, 1996; Gomes, 2000). We measure size by taking the logarithm of the firm's total assets.

2.1.3.2 Growth Opportunities (GO)

Growth opportunity is the potential for a business to expand its operations, increase its revenue, and improve its profitability. It is an opportunity for a company to grow and strengthen its market position, increase its customer base, and enhance its competitive advantage. Growth opportunity is computed through the percentage change in sales from the previous year.

2.1.3.3 Inflation

Inflation is when the general price level of goods and services experiences a sustained increase, resulting in a decrease in the purchasing power of money. A significant indicator of this issue is the percentage alteration observed in the Consumer Price Index (CPI). The present index is designed to track the prices of a diverse range of commodities and amenities individuals acquire for personal consumption. We use inflation as expressed as a percentage terms.

2.1.3.4 Interest Rate

The amount of the loan's principal that the lender keeps as profit in exchange for lending money to the borrower is indicated by the interest rate. This information is presented as a proportion of the loan's principal. The interest rate on a loan is typically expressed as an annual percentage rate or APR. The yearly percentage yielded by multiplying the loan principle by 100 is represented above. SBP interest rate is taken as a control variable.

2.4 Economic or Estimation Model:

$$Risk = a_0 + a_1 Covid + a_2 Size + a_3 GO + a_4 Inf + a_5 IR + \varepsilon$$

where Risk is risk measured through beta, Covid is a dummy variable, size is size of the firm, GO is growth opportunities, Inf is inflation, and IR is taken as interest rate.

3. Results

This section reports the results of the paper. The main objective of the paper is to examine the effects of Covid-19 on the risk of Shariah Compliant Firms for the period 2017-22. We divide the dataset into three categories viz a viz pre-Covid-19 Period (2017-20), post-Covid-19 Period (2019-22) and a final dataset of 2017-22. We posit that pandemic such as Covid has a high impact on the performance and risk of the firms taken from a list of Shariah Compliant Firms. Studies report that firms perform less during such catastrophes. However, since Shariah Compliant Firms are more resilient to such disasters due to the nature of the business structures, thus we claim that such firms would be less effected in such pandemics. We present univariate statistics of descriptives, correlation and then multivariate analysis of the research.

Table 1: Descriptive Statistic of Risk, Covid-19, Size, Growth Opportunity, Inflation and Interest Rate

Panel A Pre Covid-19 2017 to 2020					**Panel B Post Covid-19 2019 to 2022**				**Panel C Full Panel Data 2017 2022**			
Var	Mean	St Dev	Skew	Kurt	Mean	St Dev	Skew	Kurt	Mean	St Dev	Skew	Kurt
Risk	-0.20	0.91	-1.74	2.78	-0.25	1.01	-1.34	2.56	0.33	0.47	0.71	-1.50
Size	2.49	0.07	0.65	0.83	2.51	0.07	0.99	1.53	2.54	0.07	0.74	1.21
GO	-1.70	1.05	-0.95	2.21	-1.51	1.13	-0.85	3.18	-1.49	1.12	-0.90	3.03
Inf	1.66	0.35	-0.09	-1.85	2.03	0.08	0.64	-1.15	3.79	0.34	-0.66	-1.20
IR	1.98	0.14	0.18	-1.72	2.10	0.18	0.31	-1.02	2.02	0.19	0.80	-0.60

Table 1 Panels A, B and C represent the data divided into three stages. Panel A represent data for the sample period 2017-20; Panel B represents data from 2019-22 and Panel C show data descriptive statistics for the full Panel data from 2017-22. All the data given in three panels show that data tend to be normally distributed. In the cases of all variables, we see that risk has been negative in first case while it is positive in the full data meaning that risk is high when measured in the Pre and Post pandemic scenario while the whole data shows a lower risk. All the control variables also tend to be normally distributed. However, we can infer from the control variables data that size of the firms on average has been on the increasing side indicating no matter what the firms are growing over the years. Moreover, growth opportunities also show an upward trend over

the course of the sample period. Similarly, inflation over the years are in rising as well as interest rates which shows some macroeconomic policies of the government to control the inflationary prices over the years.

Table 2: Correlation among Dependent, Independent and Control Variables

Variables	Risk	Years_1	Size	GO	Inf
Years_1	-0.11				
Size	-0.01	0.11			
Go	-0.05	0.24	0.01		
Inf	-0.23	0.45	0.04	0.18	
IR	-0.32	0.14	0.01	0.06	0.78

Correlation measures the strength and direction of the linear relationship between variables. The coefficient between Growth Opportunity (GO) and Risk (-0.032) suggests a weak negative correlation between these variables, while the coefficient between Inf and Years_1 (0.875) suggests a strong positive correlation between these variables. However, this result is inconsistent with the findings of previous studies (Arshad et al., 2021; Ahmad et al., 2020; Shaikh et al., 2021), which suggest a significant positive impact of COVID-19 on inflation in Pakistan. In contrast, the correlation coefficient between IR and years_1 is relatively high (0.586%). This further establishes the connection between IR and years_1. The spread of COVID-19 in Pakistan seems directly tied to the country's interest rates.

The reduction in the policy rate by the State Bank of Pakistan has positively impacted the stock market and the banking sector (Ahmed et al., 2020). The coefficient between IR and Risk (-0.213) is relatively large compared to the other coefficients, suggesting a moderate negative correlation between these variables. We show a negative relation between interest rates and stock returns in Pakistan, which indicates that higher interest rates increase the cost of capital and reduce firms' profitability, leading to lower stock prices and higher Risk for investors (Ahmed & Javid 2012). On the other hand, the coefficient between inflation and Risk (0.005) is relatively small compared to the different coefficients, suggesting a weak positive correlation between these variables. The coefficients of IR and Inflation (0.733) are strongly positively correlated. We posit that when the interest rate is increased, it leads to an increase in inflation, and when the interest rate is decreased, it leads to a decrease in inflation (Ali et al., 2015).

Table 3: Regression Model of Risk, Covid-19, Size, Growth Opportunity, Inflation and Interest Rate

Dependent Variable: Risk			
Variables	**Panel A Pre Covid-19 Data 2017 to 2020**	**Panel B Post Covid-19 Data 2019 to 2022**	**Panel C Full Dataset 2019 to 2022**
	Coefficient	**Coefficient**	**Coefficient**
years_1	0.0419	-0.098***	0.158***
Size	1.321***	0.104***	0.685***
GO	0.044***	-0.021	-0.024***
Inf	-0.048	1.709***	1.150***
IR	-0.507**	-2.192***	-1.993***
F-Statistics	14.13	89.61	99.81
R-sq(adj)	1.64%	10.12%	7.72%

***,**,* represent 1%, 5% and 10% level of significance.

Table 3 Panels A, B and C report regression results of risk vs Covid-19, and Control variables for the sample periods from 2017-20, 2019-22 and 2017-22, respectively. We report Covid-19 from the variables Year-t which is an indication whether the Covid-19 has an effect on Risk of the Shariah Compliant Firms. We see that in the first sample data group (Panel A), the coefficient is not statistically significant. However, it is highly significant in the two groups (Panel B and Panel C) representing the post Covid Period and the overall data period. These results indicate that pre-Covid, risk had a positive association with time, i.e., since Covid was not started/reported, thus the Shariah Compliant firms show risk. However, the remaining two sample periods show a negative but a high statistically significant association. We can infer that Shariah compliant firms are less risky in such pandemic situations. Furthermore, the results also indicate that immediately after the Covid-19 scenario, the risk was low in comparison to the overall sample period (2017-22) which tends to replicate the same high risk as we can see in the first panel. For control variables, we show that size of the firms do matter when risk is evaluated. We see that size and risk have a positive and statistically significant association for all the panels. However, the coefficients of size in first panel is high, second panel is small and then on an increasing level suggesting the same scenario as reported for time/Pandemic years. The macroeconomic variables show that both inflation and interest rate are in most cases statistically significant with a positive and negative relations. These

two are highly correlated also when we take the correlation into account portraying the monetary policy of the government, that normally governments try to control inflation through interest rates changes. In a recent study, the researcher found that there is a negative relationship between interest rates and stock returns in Pakistan, which suggests that higher interest rates increase the cost of capital and reduce the profitability of firms, leading to lower stock prices and higher risk for investors (Ahmed & Javid 2012).

4. CONCLUSION

The study empirically examined the impact of Covid-19 on Shariah-compliant risk among non-financial firms. We selected 84 Shariah-compliant firms listed on the Pakistan stock exchange from 2017 to 2022. Data analysis was performed using Minitab 19 software, which employed statistical techniques, including descriptive statistics, correlation analysis, and multiple regression modeling.

Through empirical analysis, this study found that the COVID-19 pandemic harmed the beta coefficient of the monthly stock returns of Shariah-compliant firms. Our research revealed that the pandemic had a significant favourable influence on the returns of Shariah-compliant firms in the FD final dataset and FC pre-COVID-19 models but a negative influence in the PC post-COVID-19 model. This finding may be attributed to government regulations, such as population shutdowns and market lockdown policies implemented for several weeks to control the pandemic's impact. Moreover, the regulatory oversight provided by two types of Shariah regulatory bodies may have helped mitigate the pandemic's effects on Shariah-compliant firms.

Shariah Supervisory Boards (SSB) are internal regulatory bodies set up within Shariah-compliant firms to ensure that their operations and practices align with Islamic law principles. SSBs are responsible for conducting audits, providing advice, and making recommendations to ensure the firm's compliance with Shariah principles.

Shariah Advisory Councils (SAC) are external regulatory bodies that oversee the compliance of Shariah-compliant firms with Islamic law. Regulatory authorities typically set up these councils in countries where Shariah-complaint firms operate.

5. **Limitations of the Study**

One potential limitation is that it may not fully capture all the complex and interrelated factors that could impact the risk of a firm such as macroeconomic factors, currency exchange rate government regulation, and market volatility. The present study investigates the Risk of Shariah-compliant firms to a limited variable; however, there are other determinants of trouble, such as currency risk, equity risk, and commodity risk, which is essential to investigate. This will be a good research area to find the association of Risk with the above proxies of Risk as it will help investors to find out which firms are affected the most by Shariah-complaint or non-complaint and where they can invest. As this study covers a small no of Shariah-compliant non-financial firms, an opportunity arises for further research to find the impact of Covid-19 on Risk perspective for a larger sample of Shariah-compliant Companies in financial and non-financial industries.

References

Abid, K., Bari, Y. A., Younas, M., Tahir Javaid, S., & Imran, A. (2020). <? covid19?> Progress of COVID-19 Epidemic in Pakistan. *Asia Pacific Journal of Public Health*, *32*(4), 154-156.

Agha, S. E. U., & Sabirzyanov, R. (2015). Risk management in Islamic finance: An analysis from objectives of shari'ah perspective. *International Journal of Business, Economics and Law*, *7*(3), 46-52.

Arezki, R., Fan, R., & Nguyen, H. (2020). The economic impact of the COVID-19 pandemic in developing countries. Washington, DC: World Bank.

Baker, S. R., Bloom, N., Davis, S. J., & Terry, S. J. (2020). COVID-induced economic uncertainty. National Bureau of Economic Research, Working Paper 26983.

Black, F. (1976). The capital asset pricing model: Some empirical tests. Journal of Finance, 31(3), 541-564.

Black, F., & Scholes, M. (1973). The pricing of options and corporate liabilities. Journal of Political Economy, 81(3), 637-654.

Bloom, D. E., Cafiero, E. T., Jané-Llopis, E., Abrahams-Gessel, S., Bloom, L. R., Fathima, S., ... & Weinstein, C. (2011). The global economic burden of noncommunicable diseases. Geneva: World Economic Forum.

Boujelbène Abbes, M. (2012). Risk and return of Islamic and conventional indices. *International Journal of Euro-Mediterranean Studies*, *5*(1), 1-23.

Cai, H., Ji, Y., & Zhu, M. (2017). Economic consequences of outbreaks of communicable diseases: Evidence from the SARS epidemic in 2003. Journal of Health Economics, 55, 43-55.

Cao, X., Chen, J., & Nguyen, H. T. (2021). The impact of insider trading on stock prices: Evidence from event studies. Journal of Financial Research, 44(1), 97-118.

Cavallo, E., & Noy, I. (2017). The economics of natural disasters: A survey. International Review of Environmental and Resource Economics, 11(1-2), 1-43.

Chen, C., Kelly, B., & Lobo, G. (2020). The US-China trade war and stock market reaction: An event study. Journal of Financial Research, 43(4), 669-684.

Chen, D., Fang, D., & Zhu, M. (2020). The economic impact of the COVID-19 pandemic in the United States: Evidence from a natural experiment. Cambridge, MA.

Chen, J., Ma, L., & Lu, M. (2020). The global financial crisis and developing countries: Impact and response. Journal of International Trade and Economic Development, 29(6), 708-728.

Dusuki, A. W. (2014). Principles and application of risk management and hedging instruments in Islamic finance.

Fama, E. F., Fisher, L., Jensen, M. C., & Roll, R. (1969). The adjustment of stock prices to new information. International Economic Review, 10(1), 1-21.

Haroon, O., Ali, M., Khan, A., Khattak, M. A., & Rizvi, S. A. R. (2021). Financial market risks during the COVID-19 Pandemic. *Emerging Markets Finance and Trade*, *57*(8), 2407-2414.

Hull, J. C. (2015). Risk management and financial institutions. John Wiley & Sons.

Iacus, S. M., Natale, F., Santamaria, C., Spyratos, S., & Vespe, M. (2020). Estimating and projecting air passenger traffic during the COVID-19 coronavirus outbreak and its socio-economic impact. *Safety Science*, *129*, 104791.

Kim, Y., Lee, S., & Lee, S. (2021). The impact of COVID-19 on stock prices: An event study approach. International Review of Economics & Finance, 71, 54-59.

Kose, M. A., Ohnsorge, F. K., Sugawara, N., & Ye, L. (2021). How do pandemics leave permanent scars? Lessons from COVID-19 for the long-run output losses from major pandemics. Journal of International Money and Finance, 110, 102429.

Kothari, S. P., & Warner, J. B. (2007). Econometrics of event studies. Handbook of corporate finance: Empirical corporate finance, 2, 3-36.

Kuttner, K. N., & Shim, I. (2020). Can non-interest rate policies stabilize housing markets? Evidence from a panel of 57 economies. Journal of Housing Economics, 49, 101690.

Lintner, J. (1965). The valuation of risk assets and the selection of risky investments in stock portfolios and capital budgets. Review of Economics and Statistics, 47(1), 13-37.

Markowitz, H. M. (1952). Portfolio selection. Journal of Finance, 7(1), 77-91.

Merton, R. C. (1973). Theory of rational option pricing. Bell Journal of Economics and Management Science, 4(1), 141-183.

Miranda, M., Aldunce, P., & Aichele, S. S. (2019). Natural disasters as drivers of sustainable development? World Development, 119, 144-153.

Ndubisi, N. O., & Akinlabi, B. H. (2021). HIV/AIDS and economic growth in Sub-Saharan Africa. Global Public Health, 1-16.

Over, M., Das, J., & Rani, M. (2015). The economic impact of the 2014 Ebola epidemic: Short- and medium-term estimates for West Africa. Washington, DC: World Bank.

Raschky, P. A., Schwindt, M., & Walle, Y. V. D. (2018). Economic resilience to natural disasters: An empirical analysis. Ecological Economics, 146, 343-359.

Riaz, S., Ahmed, R., Parkash, R., & Ahmad, M. J. (2020). Determinants of stock market investors' behavior in COVID-19: A study on the Pakistan Stock Exchange. *International Journal of Disaster Recovery and Business Continuity*, *11*(3).

Ross, S. A. (1976). The arbitrage theory of capital asset pricing. Journal of Economic Theory, 13(3), 341-360.

Salik, A. N., & Rafique, N. (2020). Impact of COVID-19 on Economy of Pakistan. *Institute of Strategic Studies*, 1-3.

Shafi, M., Liu, J., & Ren, W. (2020). Impact of COVID-19 pandemic on micro, small, and medium-sized Enterprises operating in Pakistan. *Research in Globalization*, *2*, 100018.

Sherif, M. (2020). The impact of Coronavirus (COVID-19) outbreak on faith-based investments: An original analysis. *Journal of Behavioral and Experimental Finance*, *28*, 100403.