

**Impact of COVID-19 on return and company's performance: an
Analysis of Insurance Sector.**



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Dedication

I am dedicating this research work to all my family members and especially to my beloved **Parents, Brothers Usman khan, Kamran Khan and Cousin Kamal Khan** who helped me in every possible way for my successful future. Without your help, patience, and confidence in me, I was not able to complete this whole journey. I love all of you.

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Abstract

This study examines the impact of Covid-19 outbreak on the returns of insurance industry in Pakistan. First this study has been employed event-study methodology (ESM) to examine the COVID-19 outbreak on ten listed insurance companies on Pakistan stock exchange (PSX). Secondly, to check the performance of this industry the ratio analysis has been performed for the period of 2014-2018. The findings of the study show that the COVID-19 outbreak has significant negative impact on the returns of insurance industry in Pakistan. Pakistan's insurance stocks indicate significant difference in average abnormal returns and cumulative abnormal returns, which show a significant impact of the COVID-19 epidemic on insurance stock prices. The findings of the study suggest that investors should use such events as an investment opportunity for holding stocks for the future time period.

Key words: COVID-19, epidemic, event study, Insurance stock.

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List of abbreviations

CSTR	Crescent Star Insurance Ltd
PRIC	Pakistan Reinsurance Company Ltd
PICIC	Pakistan Industrial Credit and Investment Corporation Ltd
PREI	Premier Insurance Ltd
ADIN	Adamjee Insurance Company Ltd
RELN	Reliance Insurance Co Ltd
HABI	Habib Insurance Company Ltd
JGIC	Jubilee General Insurance Company Ltd
CRIN	Century Insurance Company Ltd
JLIC	Jubilee Life Insurance Company Ltd
WHO	World health organization
PSX	Pakistan stock exchange
MAM	Mean adjusted return model
MM	Market model
MMAM	Market Mean adjusted model

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Chapter No 1

Introduction

Financial institutions play a significant role in the development of financial markets in any country. The development of this sector is always a debatable topic in the financial literature. Insurance sector is one of important sector of the economy and also for developing countries like, Pakistan. In past few years Pakistan's economy become more attractive towards the foreign investors. But investors are always concerned about the riskiness of the investments in the developing economies and insurance sectors provides them the opportunity of hedging. All sectors are taking and contributing their parts in the economy of Pakistan. Insurance industry plays an important role in the overall development of the economy by managing and indemnifying financial risk and by serving as a major institutional investor for the capital and money market instruments. The concentration of insurance in the overall financial system depends on the demand and supply of insurance services. Insurance companies provide unique financial services to the growth and development of every sector of the country.

The World health organization WHO has made the first public announcement about the spread of corona virus on 4th January 2020 and on 11th March 2020 WHO has declared this disease the global pandemic named COVID-19 Asghar, Yusof, Noriznan, Yaacob, Ghazali, Chang and Manaf, (2020). After the spread of this virus in other countries, human life has been on stake and has become a war of survival against this enemy. But such viruses can only be handled by precautionary measures or proper vaccination. Unfortunately, the world has no proper medication for this novel virus and the human protection now can only be saved through precautionary measures.

According to the world health organization, there are 76,250,431 confirmed cases of COVID-19, with 1,699,230 deaths Globally, as on 23 December 2020. Pakistan has been facing a critical challenge from the day first having Total cases of 4,58,968 with cumulative total death rate of 9392 as on 23 December 2020. The spread of novel coronavirus (COVID-19) disease across the world has seriously affected people's production and life in general.

After the declaration of lockdown in Pakistan, the economic activities have been freezing across the country. All field of life including personal and commercial, are influenced by this novel virus. Most of the article well communicated that the corona virus pandemic affected most of the industries such as travel, tourism, entertainment, airline, and hotel industry (Markol and biko 2020). On the contrary note, there are several sectors that have not been severely affected by novel virus. As an example, the insurance sector played a pivotal role during the outbreak of covid-19 and has not been severely affected by the pandemic.

The pre-pandemic evaluation of Pakistan's overall market and the GDP growth rate in Pakistan during 2019 was around 3.3% and the state bank of Pakistan gave the clear indication of downfall of the GDP rate for upcoming period without taking the effect of corona virus. In the beginning of fiscal year 2020, the economy of Pakistan showed the favorable trends, but the Covid-19 nullified all the positive indication.

The traditional economic and financial theory owns that market and company characteristic-based factors influence the stocks prices. Companies in the same industry face the same regulatory and policy environment and similar macroeconomic conditions. When faced with changes in the financial environment, the operating conditions of companies in the same industry are highly associated (Moskowitz & Grinblatt, 1999). According to the behavioral theory of finance, in

addition to the basic value of stocks, investors' psychological and behavioral factors are influenced by unexpected events like emergencies, which, in turn, do have an impact on stock prices. Believe that investor's confidence reduces the volatility for earnings, while investor's doubt increases volatility for earnings. Therefore, the event of COVID-19 will have a strong effect on the economic environment, which will obviously change the investor's sentiment, which affects stock price changes.

This study analyzes impact of covid-19 announcement on the stock prices of insurance industry in Pakistan and also analyze the financial performance of insurance sector by using different set of ratios to measure the general financial trends of this sector.

Insurance is a type of integration and social solidarity, it is an indicator of civilization and development, a means of security and emotional stability of individuals companies, because it gives some sort of protection and helps to reduce the bad results of the accidents and risks, insurance preserves the productive capital, and facilitate re-building projects when exposed to destruction and damage, it plays a vital role in capital formation and employment, insurance companies are saving large funds and main channels of financing. (Salahat, 2014). The study found that there are very strong relationship between overall customer satisfaction and each of the dimensions: Reliability, Technical Quality, Image quality, and Price Quality.

1.1 Effects of COVID-19 on Insurance Industries

The novel Coronavirus (COVID-19) had spread across 215 countries and territories in all 5 continents by May 12, 2020. On January 30, 2020, the unrelenting spread of COVID-19 prompted the World Health Organization to declare it a public health emergency, and on March 12, 2020 COVID-19 was Declared a pandemic. This pandemic has caused great social and

economic disruptions, leading to a decline in consumption, investment, services, and industrial production activities around the world. In particular, the insurance market in mainland China has been severely affected. The year-on-year (YOY) growth rate of gross premium in the first quarter of 2019 was 15.8%, while the rate was 6.27% in the first quarter of 2020, indicating a decrease of 9.53 percentage points in growth rate. In addition, the monthly YOY growth rates of premium in the first three months of 2020 were -12.53%, -21.35%, and 1.93%, respectively, showing a sharp decline compared to the rates of 23.97%, 10.19%, and 6.76%, respectively, in the same periods of the previous year.

1.2 Theoretical Background

1.2.1 Efficient Market Hypothesis (EMH)

The Efficient Market Hypothesis (EMH) was introduced by Fama and Eugene (1970) essentially says that at any given time, stock prices reflect all available information i.e. all known information about investment securities, such as stocks, is already factored into the prices of those securities. Therefore, it is impossible to consistently choose stocks that will beat the returns of the overall stock market.

Efficient market hypothesis can be categorized into weak form, semi-strong form and strong form EMH. Weak form EMH is consistent with random walk hypothesis, i.e., stock prices move randomly, and price changes are independent of each other. It states that security prices reflect all market information regarding the security, i.e., historical price data. Therefore, it is not possible to beat the market by earning abnormal returns on the basis of technical (trend) analysis (where analysts accurately predict future price changes through the chart of past price movements of stocks). According to semi-strong form EMH, prices adjusted rapidly according to market and public information, i.e., dividend and earning announcements and political or economic events. So

it is not possible to earn abnormal returns on the basis of fundamental analysis. Strong form EMH states that prices reflect market, public and private information, i.e., no investor has monopolistic access to information.

1.2.1.1 Efficient market hypothesis rests on three assumptions

H₁. Investors are assumed to be rational and value securities on the basis of maximum expected utility.

H₂. If investors are not rational, their trades are assumed to be random, offsetting any effect on prices.

H₃. Rational arbitragers are assumed to eliminate any influence irrational investors have on market/security prices,

1.2.1.2 Weak form of efficiency

This market form of efficiency states “a market is said to be weak form efficient if current prices fully reflect all historical information contained in past prices”. It means that the past prices cannot forecast the future stock prices and investor cannot earn the abnormal return using past information of stock prices (Loc , Lanjouw, & Lensink, 2010).

1.2.1.3 Semi strong form of efficiency

The second form of efficiency defines that “current prices reflect all publicly available information, for example information about exchange rate, interest rate, money supply, earnings announcements, dividend announcements, stock splits, etc”. This form of efficiency means that investor can nor earn abnormal return by technical analysis using the published information of the companies. Annual reports and financial statements of the companies are useless in semi strong

form of the market. Because market instantly adjust the prices with the arrival of good or bad news that contained in published reports. (Loc , Lanjouw, & Lensink, 2010).

1.2.1.4 Strong form of efficiency

The strong form of efficiency states that “securities reflect all relevant information including both public information and private information”. This market form of efficiency indicates that it is hard for any investor to get private information (insider information) for earning abnormal returns. Because it is assumed that all the information is useless because the effect of information is equal to all the market participants. In reality, this assumption is non-existent. So, this form of efficiency is not expected to hold. There is zero probability to get super abnormal return by using market news. (Loc , Lanjouw, & Lensink, 2010).

1.3 History of insurance industry

The service sector of the world economy has grown substantially since World War II. In 1989, the service sector accounted for approximately 60 percent of the world's gross domestic product (Nakajima, 1990). The worldwide insurance industry, which makes up a significant portion of the service sector, has grown at a rate of over 10 percent annually since 1950. This growth rate has far exceeded that of economic development globally (Browne & Kim 1993). On the worldwide insurance industry, which has grown even more rapidly in recent years, at a rate of approximately 24 percent annually from 1984 to 1988.

Rapid growth in the life insurance sector has contributed much to this increase. The life insurance industry has grown at a rate of approximately 30 percent annually, while the nonlife industry has grown at a rate of 19 percent annually during this period. The share of total insurance premium volume accounted for by life insurance first exceeded the share of nonlife business in 1987, and the gap has widened since that time (Outreville, François1990). The share attributable to the life

insurance sector increased from 43 percent of the total premium volume in 1984 to 53 percent in 1988. The life insurance industry has grown from 2.1 percent of world gross domestic product in 1984 to 3.4 percent in 1988.

Asia is fast becoming the world's leading insurance sector. According to Sigma (1999), the consumption of life insurance in Asia, on a per capita basis, is higher than the average, with Asians spending three times as much on life insurance as on non-life insurance. As a consequence, during the last decade the consumption of life insurance within Asia grown at more than 10 per cent per annum and currently accounts for 40.1 per cent of global life insurance premiums? However, despite this growth in the Asian insurance market, there has been little substantial research into the sources behind the purchase of life insurance and, importantly, whether the motives for purchasing insurance differ from that of developed life insurance markets.

As a starting point, Sigma (1999) and Enz (2000) point to the "S curve" relationship between economic development and insurance market development. Specifically, consumption of life insurance is expected to accelerate as a developing economy grows, but then as economic development becomes comparable to that in the developed world. Consequence, the income elasticity of demand for life insurance should be greater in emerging economies of Asia than in the economies of the developed world. This argument supported by Truett (1990), but only for the specific comparison between the Mexico. However, it is not only the income effect that is likely to differ. Asian growth, according to Sigma (1999, 2000), stems from a set of regional specific characteristics. Savings rates in Asia are higher than in the developed world.

The last twenty years or so have witnessed the exponential growth in the commercial insurance market in the People's Republic of China (PRC), with the real premium growth rate

exceeding 30 percent per annum. This growth in the volume of annual premiums is derived largely from discretionary corporate spending on property insurance lines such as coverage on physical assets (People's Bank of China (PBOC), 1998). Indeed, (Resal, 2001) ranks China as one of the most important emerging insurance markets in the world. However, due to the scarcity of firm-level data, little is known about the nature of the corporate insuring behavior in the Chinese market.

1.3.1 Insurance Industries in Pakistan

The extent to which insurance is used to manage business risk in a large emerging market, the service sector of the world economy has grown substantially since World War I. the service sector accounted for approximately 60 percent of the world's gross domestic product (Nakajima, Dr Hiroshi, 1990). Pakistan's insurance premium has only raised 7% local and internationally. Pakistani insurance sector is considered small in relative to the countries insurance sector in region. The worldwide insurance market, especially the life insurance market, has grown rapidly and the internationalization of the insurance business is becoming more widespread, these areas have not been greatly researched. Skipper (1987) classified and discussed the nature of protective barriers in international insurance services and provided an analysis of the protectionists' rationales. Overtime the insurance industry started to boast and expands. Insurance industry plays an important role in the overall development of the economy by managing and indemnifying financial risk and by serving as a major institutional investor for the capital and money market instruments.

There are still some sectors in Pakistan on which not much research were conducted. Insurance sector is one of them. Pakistan is having an emerging economy. In past few years Pakistan's economy become more attractive towards the foreign investors. All sectors are taking and contributing their parts in the economy of Pakistan. In these sectors Insurance companies are

also playing their part in the GDP of Pakistan. Pakistani insurance business is smaller and not as spread then its regional countries. Pakistan's insurance premium has only raised 7% local and internationally. Pakistani insurance sector is considered small in relative to the countries insurance sector in region.

Generally the insurance industry in Pakistan is deliberately changing over the time since in dependence. As in early ages after the era of nationalization of private sector there was only one public insurance company "State life insurance Corporation" who had monopolized the whole market till now till day private companies were not allowed to do business in Pakistan. In 1992 EFU Life assurance started their business to compete SLIC. After that many other life insurance companies started to participate in insurance business. The ratio of premium collected by insurance companies also increase as economic activities started to enhance but till now the insurance industry of Pakistan is not actively and potentially participating due to lack of insurance knowledge. In other countries insurance is mandatory for their resident but in Pakistan insurance is still a taboo or unknown services given by the life insurance companies. The current challenges are awareness, technology and economic crises for the life insurance sector.

The long-standing debate on the impact of insurance market activity on economic growth has been a topic of numerous papers which use different methodologies and differ in results. Heterogeneity in estimated effects and the number of observations provides the ground for synthesis of so far published results and calculation a more precise estimation of the effect. In general, insurance market activity, both as the provider of risk transfer and indemnification and as the institutional investor, may contribute to economic growth through mobilization of domestic

savings, allowing different risks to be managed more efficiently, encouraging the accumulation of new.

1.3.2 Importance of insurance sector activity for Economic growth

It is essential to identify the channels through which the insurance sector activity impacts the economic growth. Skipper(1997) shows that insurance market activity, both as a provider of risk transfer and indemnification and as an institutional investor, may contribute to economic growth in the following ways: (a) mobilizing domestic savings, (b) allowing different risks to be managed more efficiently, thereby encouraging the accumulation Of new capital; (c) boosting financial stability; (d) facilitating trade and commerce (the most ancient insurance activity); (e) supporting to reduce or mitigate losses; and (f) fostering a more efficient allocation of domestic capital. According to (Zweifel & Eisen, 2012) insurance influences production and consumption, internal and international trade, transaction payment as well as the conservation of existing and creation of new wealth.

1.4 Problem Statement

Stock market is very volatile place that has the characteristics of sudden changing trends and shuffle the movement of the stock trading from bullish to bearish. Theoretically it is acceptable the existence of strong efficient market but in practical this notion has very less probability to exist.in this study, the problem strongly relate to the volatility of the insurance industry that have been trading in the Pakistan stock exchange. The problem of this study links to the return decline of the insurance industry of Pakistan. This study will address that how COVID-19 effect insurance industry in Pakistan.

1.5 Research Questions

This study has the following research questions.

1. How does the financial performance of insurance sector at the time of covid-19 outbreak?
2. What is the impact of Covid 19 outbreak announcement on the stocks of insurance companies?

1.6 Objectives of the study

The study has the following research objectives.

1. To investigate financial performance of insurance industry during the covid-19 outbreak.
2. To examine the impact of Covid-19 outbreak announcement on the stocks of insurance companies.

1.7 Significance of the study

This is an important study for the investors, asset management and portfolio management professionals. It will help the above-mentioned stakeholders for designing the portfolio of their investment. The effects of past pandemics and the research works relate to those pandemics are the major sources for investors, asset management and portfolio management professionals. So, this is the requirement of the time to investigate the covid-19 effects on different sectors and specifically on those sectors that are neglected during the covid-19 outbreak. In this study, *the investors' behavior to insurance companies' stocks, positive/negative effects of covid-19 outbreak on stocks returns and the volatility are measured*. Moreover, this is an event study approach to check the performance evaluation of insurance companies. This study will paint the real picture of this pandemic and highlight the important points that will be nutshell by the

investment point of view and lead the professional to take the optimal decision any time in the future.

1.8 Research Gap

During the pandemic, a number of research work are done with respect to different angle of the pandemic effected areas. Most of the works are done in those field that showed the sever effects of the pandemic but there are less works on the second side where the pandemic news either affect positively or at least allow the general trend to carry on. The insurance industrial sector is one of those sectors where the covid-19 pandemic put the effects of positive indication or at least adopt the general behavior that is endorsed by the past trend and have nothing any anomaly in the sector. While taking under observation the recent literature review interestingly, it is found that the insurance industries sectors is neglected in all over the world generally and in Pakistan specifically. Some work has been done in insurance industrial sector but that is totally related to the governance and compliance side or related to the supply chain and demand side but the production and the return on the stock of insurance industry sector has not been taking under consideration. There is very less working on the insurance industry with regards to the efficient market. That means if the stock reflects the pandemic news or not, and the investors behavior toward the pandemic news. These are the untouched areas that create the big gap for further research.

1.9 Hypothesis of the study

H1: There is significant relationship between returns of insurance firms and effect of Covid-19.

H2: There is no significant relationship between returns of insurance firms and effect of Covid-19.

1.10 Organization of the study

The rest of the study is organized as follows.

Introduction of the study is included in chapter No 1. The literature review base on empirical findings are described in Chapter No 2. The data description and methodology used in the study are comprised in chapter No 3. Results analysis and discussions are summarized in chapter No 4. Conclusion, recommendation, and directions for future research are included in chapter No 5.

Chapter No 2

Literature review

Zou (2003) investigated the development, regulation and future trend of the corporate insurance market in the People's Republic of China (PRC). The study employed data of 212 Chinese listed companies over the period of 1997-99. The finding of the study suggest that the level of property insurance spending in Chinese companies is inversely related to company size and leverage. Besides, the purchase of property insurance appears to vary according to geographical location and industry sectors. The results of this study could thus have important implications for various groups that are interested in the Chinese corporate sector and insurance markets.

Browne and Kim (1993) identified the factors that lead to variations in the demand for life insurance across the nations. In the next sections we set forth a model of the demand for life insurance. Each of the factors expected to effect the demand for the life insurance is discussed and the hypotheses of the study are formulated. The articles concludes with a discussion of the major findings and suggestions for future research. The world life insurance industry has grown significantly in the last 10 years. The findings in this study, that life insurance is positively correlated with national income and wealth (as proxied by social security expenditures) and negatively correlated with inflationary expectations, suggest that economic development and economic stability greatly increase life insurance consumption.

Giesbert, Steiner, and Bend, (2011) investigate households' decisions to take up micro life insurance and to use other financial services. It estimates a multivariate Probit model based on Ghanaian household survey data. The results suggest a mutually reinforcing relationship between the use of insurance and the use of other formal financial services. Risk-averse households and households who consider themselves more exposed to risk than others are found to be less likely to participate in insurance. We then describe the source of data, including sample selection and external validity. We introduce the outcome and explanatory variables and present the estimation strategy in the following two sections. Subsequently, we show and interpret the estimation results. The data for our empirical analysis come from a survey of 350 households in Central Region of Ghana. Previous studies on households' participation in insurance in developing countries have either followed the same approach and household survey data (Wang and Rosenman, 2007; Gine, Townsend, and V2008; Ito and Kono, 2010) or have conducted randomized experiments (Cai2009; Cole et al., 2009; Thornton et al., 2010; Gine and yang, 2009) It is the objective of this article to contribute to the discussion on the correlate of households' participation in micro insurance in developing countries. We estimate multivariate Probit Model using data from a household survey of 350 households I two neighboring towns in the Central Region in Ghana.

Ho, Huang, and Ou, (2018) this study aims to explore and establish the dimensions of corporate social responsibility (CSR) and guidelines for the sustainable development of business in the insurance industry in Taiwan. An, investigation and analysis is conducted using the fuzzy Delphi method (FDM) and Analytic Hierarchy Process (AHP) to obtain the dimensions of CSR and the importance ranking of sustainable development of business in the insurance industry in Taiwan. The results of this study show that the dimension of 'managerial practices' is the most significant, followed by 'social practices' and 'environmental practices'. In terms of the

importance of criteria for sustainable development, the top five are 'information disclosure', 'corporate strategies and commitments', 'climate change', 'legal compliance', and 'environment management'. This study expects to offer reference indicators to the insurance industry Taiwan to promote sustainable development, and facilitate insurance companies to achieve the goal of sustainable by promoting their CSR.

Chang and Lee,(2011) analyze in their study that the non-linear link between economic developments and activates of the life insurance market. They ask whether the relevance of intuitional environments on the development of the life insurance market is different across countries. Applying a novel threshold model with the instrumental variable approach, they find overwhelming evidence in support of an income threshold. Our findings clearly demonstrate that the role of institutions on activities in the life insurance market diminishes with the evolvement of economic development. This article reinvestigates the non-linear relationship between real income level and the demand for life insurance and examines whether the effect of institutional environments on life insurance development varies at different stages of economic development. Using a pooling sample of 92 economies over the period 1996-2008, we utilize a threshold regression model along with the instrumental variable approach developed in Caner and Hansen¹⁵ to empirically verify this non-linearity and the divergent effect of institutional conditions.

Kwon(2010) investigates the microfinance-principally micro insurance - market at the global level and the business structure of over 600 microfinance institutions (MFIs) in 83 countries that were in operation during 1998-2007. It then empirically examines the impact of organizational, market and socio-cultural factors on the supply of insurance, lending and savings services by MFIs in developing countries. Findings from a series of Probit analyses indicate that a

rise in the financial expense ratio, loan repayments in arrears, years of operation, number of borrowers, woman borrower ratio, life insurance penetration ratio and family size positively affect MFIs' willingness to expand their operations, certainly to micro insurance business. Finally, we find no evidence that presence of insurance affects availability of savings service, and vice versa, in the microfinance market.

Akhter and Zia-ur-Rehman(2011) analyze the financial performance of Pakistan insurance industry during the period 2001-2005 in an attempt to assess future growth and potential. Performance of Pakistan insurance industry has been analyzed from two perspectives. Insurance comparison with advanced as well as under-developed countries and comparing Pakistan's share to the world insurance market and through Regional comparison showing insurance density and penetration of selected Asian countries. The paper identifies some key economic indicators that are essential to create demand for insurance and contribute towards achieving long-term prosperity and sustainable economic development of the country.

Hifza (2011) investigates the determinants of profitability in insurance companies of Pakistan. Specifically study examine the effects of firm specific factors (age of company, size of company, volume of capital, leverage ratio and loss ratio) on profitability peroxide by ROA. A key indicator of insurance companies profitability is return on assets (ROA), defined as the before tax profit divide by total assets (TA). Profitability is dependent variable while age of company, size of company, volume of capital, leverage and loss ratio) are independent variables. The data sample of the study includes 35 listed life and non-life insurance companies which cover the period of 2005-2009. The findings show that there is no relationship between profitability and age of the company and there is significantly positive association between size of the company and profitability. The result also shows that the volume of capital is significantly and positively related

to profitability. Loss ratio and leverage ratio showed negative but significant relationship with profitability.

Ishtiaq & Siddiqui(2019) the purpose of this research is to investigate the factors that affect the financial performance of life insurance sector in Pakistan. The data is gathered from 2008 to 2017 from 09 life insurance companies including 01 public life insurance company and 08 private life insurance company. In these observation there are also 02 solely conducted their business on takaful life insurance while other are only based conventional or both. Results were analyzed using panel regression.to panel ordinary least square regression model and generalized method of moment is used to estimate the results. The outcome of this study shows that tangibility, market share, net premium, insurance leverage and GDP is insignificantly or negatively related to the financial performance of Pakistani Life Insurance Company.

Dikko(2014) the paper looks at the different views of Islamic scholars on conventional insurance and the legal and practical aspects of takaful insurance. It also looks at the different models used by takaful operators and analyses several issues which may still riddle takaful practice. It concludes by proffering suggestions and recommendations that may resolve issues that have been noticed. The assessment of conventional insurance indicates that an Islamic alternative is the preferred choice for Muslims thus the introduction of mutual insurance referred to as takaful. However, this system though striving to encapsulate Islamic principles still faces challenges. One must, however, agree that monumental bridges have been crossed towards the islamization of financial services. Thus, despite the presence of certain practices and principles which should be subjected to closer scrutiny, takaful insurance is still the better alternative for Muslims.

Banerjee and Majumdar(2018) this study analyses the impact of firm specific and macro-economic factors on the profitability of the insurance sector in UAE during the period of 2009–2013. In the recent past, the global insurance sector was impacted by the ripple effect of the financial crisis of 2007–2008. Along the lines of the global trend, although profitability of the UAE, insurance sector witnessed a decline from 2008–2010, the spur in its growth rates (10%) in 2012 and 2013 is impressive compared to the negative growth rate in developed markets. Our results indicate that within the firm specific factors; company size, growth in gross written premium (GWP), leverage, investment ratio and market share are statistically significant in explaining profitability of the insurance companies. Further, GDP growth has a significant positive influence on profitability.

Khan (2016)investiate the Insurance has become an important field to take practical steps in the light of theoretical debate generated by Muslim scholars for an alternative economic paradigm. Several Takaful companies are also operating all around the Muslim world. These companies have adopted diverse working models such as Muḍārabah, Wakālah and Waqf-Wakālah – each having its strengths and shortcoming. Maximum possible benefits with an all-important sense of satisfaction for the consumers, and sustainability and profitability for the company providing such services, need to be ensured through continuous research and development. This study shows that the concept and practice of Islamic insurance (Takaful) have passed through a process of evolution before reaching to present status.

Berhe and Kaur(2017) the purpose of this study was to identify the key factors that affect profitability of insurance companies in Ethiopia. Specifically, it investigates the internal or firm specific variables (size of insurance companies, capital adequacy, leverage ratio, liquidity ratio,

and loss ratio) and external or macro variables (market share, growth rate of GDP and inflation rate). In order to achieve this objective, the fixed effect model was used instead of random effect model following the result of hausman test. Panel data covering 10 years period from 2005-06 to 2014-15 were analyzed for seventeen (17) insurance companies. Results of the regression analysis revealed that size of insurance, capital adequacy, and liquidity ratio and growth rate of GDP were the major factors that significantly affect the profitability of insurance companies. On the other hand, leverage ratio, loss ratio, market share and inflation rate were found to have insignificant effect on insurance companies profitability. Finally, the study suggested that managers of insurance companies as well as the policy makers in the country should take crucial measures by framing policies and strategies that aimed in improving the overall profitability of insurers.

Ward and Zurbrueg(2002) this paper investigates the determinants of consumption for one of the fastest growing financial products in Asia. We find evidence that increased provision of civil rights and political stability leads to an increase in life insurance provision. However, by utilizing various estimation procedures, a number of differences between the more developed insurance markets and those in Asia are illustrated. In particular, the estimated income effect is found to be far higher in Asia than in other countries. This study begins to bridge this gap in the literature while at the emphasizing the influence of such factors within the rapidly growing insurance Asia.

Berhe and Kaur (2017) investigates that Insurance business now a day plays a significant role in the growth of the financial services which ultimately leads to the overall success of the economy. The purpose of this study was to identify the key factors that affect profitability of insurance companies in Ethiopia. Specifically, it investigates the internal or firm specific variables (size of insurance companies, capital adequacy, leverage ratio, liquidity ratio, and loss ratio) and external

or macro variables (market share, growth rate of GDP and inflation rate). In order to achieve this objective, the fixed effect model was used instead of random effect model following the result of hausman test. Panel data covering 10 years period from 2005-06 to 2014-15 were analyzed for seventeen (17) insurance companies. Finally, the study suggested that managers of insurance companies as well as the policy makers in the country should take crucial measures by framing policies and strategies that aimed in improving the overall profitability of insurers.

Guendouz(2018) the purpose of this paper is to investigate the main internal factors affecting the profitability of insurance Takaful companies in an Islamic insurance system. We collected the data from the quarterly reports of the six largest Saudi Takaful Insurance companies for the period 2010-2016, which represents more than 60% of the total assets of the Insurance market. The regression results indicate that age, size, written premium growth rate and loss ratio, have significant effects on the profitability of insurance Takaful companies. Many studies were conducted to determine variables affecting insurance Takaful companies profitability, but most of them were concerned with mixed insurance systems, in which conventional and Sariah-compliant companies operate together. A lack in studies dedicated to examining the fully Sariah-compliant system is obvious. Therefore, our study contributes to filling this gap in the literature by exploring the factors affecting the profitability of Takaful insurance companies in a full Sariah-compliant insurance sector.

Rahman, Kakakhel and Ali(2017) this paper is aimed to explore the effects of financial and economic factors on Profitability in the insurance sector of Pakistan. A panel of 41 life and non-life conventional and Islamic (Takaful) insurance companies has been selected for the study period of 2001-2015. The findings of both models reveal that (e.g.; size, tangibility, managerial efficiency and economic growth) have positive and statistically significantly influence on Profitability of the

insurance sector. However, financial leverage and inflation rate have negative but significant effect on Profitability while liquidity and growth opportunity have insignificant effect in both models. According to the best knowledge of the researchers, this is the first study that selects the entire insurance sector by using most prominent models (i.e. fixed effect and pooled regression model). Moreover, this study uses micro and macroeconomic factors, which is also very important for corporate managers of other financial sector firms, while making decision about the Profitability and value creation for their shareholders.

Babuna, et al., (2020) investigate the impact of COVID-19 on the insurance industry by studying the case of Ghana from March to June 2020 with a parallel comparison to previous pandemics such as SARS-CoV, H1N1 and MERS. They developed outlines for simulating the impact of the pandemic on the insurance industry. The study used qualitative and quantitative interviews to estimate the impact of the pandemic. Presently, the trend is an economic recession with decreasing profits but increasing claims. Due to the cancellation of travels, events and other economic losses, the Ghanaian insurance industry witnessed a loss currently estimated at GH C112 million. Their comparison and forecast predicts a normalization of economic indicators from January 2021. In the meantime, while the pandemic persists, insurers should adapt to working from remote locations, train and equip staff to work under social distancing regulations, enhance cybersecurity protocols and simplify claims/premium processing using e-payment channels. It will require the collaboration of the Ghana Ministry of Health, Banking Sector, Police Department, Customs Excise and Preventive Service, other relevant Ministries and the international community to bring the pandemic to a stop. Insurance companies were affected differently depending on different factors such as liquidity, their portfolio at risk, reliance on reinsurance, level of free assets and protection that reinsurers have in place. The World Bank can step in to assist insurers with

training on crisis response strategies, training and facilitation to act decisively and offer financial bail-out to insurers who are unable to recover.

Berhe and Kaur (2017) noted that to recognize the main factors that affect profitability of insurance companies in Ethiopia. Particularly, it analyzed the internal or s specific variables (capital adequacy, size of insurance companies, leverage ratio, loss ratio and liquidity ratio) and external or macro variables (market share, growth rate of GDP and inflation rate). In order to realize this goal, the fixed effect model was utilized in place of random effect model following the outcome of hausman test. Panel data covering 10 years from 2005-06 to 2014-15 were investigated for seventeen (17) insurance companies. Outcome of the regression results showed that capital adequacy, liquidity ratio, size of insurance, and growth rate of GDP were the main factors that specifically affect the productivity of insurance companies. On the other side, market share, inflation rate, leverage ratio, loss ratio and were determined to have unimportant effect on insurance companies profitability. The study revealed that policy makers in the nation and managers of insurance companies would take essential measures by strategies and framing policies that purposed in enlightening the overall productivity of insurers.

Babuna et al. (2020) Examined that the effect of COVID-19 on the insurance industry by studying the event of Ghana from March to June 2020. With a similar contrast to preceding diseases such as SARS-CoV, H1N1 and MERS, we advanced plans for put on the impact of the disease on the insurance industry. The study used qualitative and quantitative interviews to estimation the effect of the disease. Currently, the style is an economic recession with decreasing profits but increasing claims. Due to the cancellation of travels trip, there is some economic losses also Ghanaian insurance industry witnessed a loss currently estimated at GH ¢112 million. In the time being, while the disease stick at, insurers should adjust to working from secluded places, train and equip

staff to work under social distancing rules, improve cybersecurity rules and simplify claims/premium processing using e-payment channels. It will require the collaboration of the Ghana Ministry of Health, Banking Sector, Police Department, Customs Excise and Preventive Service, other relevant Ministries and the international community to bring the pandemic to a stop.

Venkatesh (2013) in their research article investigate, that Insurance has a long history in India. Life Insurance in its current form was introduced in 1818 when Oriental Life Insurance Company began its operations in India. General insurance was however a comparatively late entrant in 1850 when Triton Insurance company set up its base in Kolkata. History of Insurance in India can be broadly bifurcated into three eras: a) Pre Nationalization b) Nationalization and c) Post Nationalization. Life Insurance was the first to be nationalized in 1956. General Insurance followed suit and was nationalized in 1973. General Insurance Corporation of India was set up as the controlling body with New India, United India, National and Oriental as its subsidiaries. The process of opening up the insurance sector was initiated against the background of Economic Reform process which commenced from 1991. For this purpose Malhotra Committee was formed during this year who submitted their report in 1994 and Insurance Regulatory Development Act (IRDA) was passed in 1999. Resultantly Indian Insurance was opened for private companies and Private Insurance Company effectively started operations from 2001. Insurance sector in India has become one of the most favored investment destinations both for Indians and NRIs. India is the fifth largest insurance market among the globally emerging insurance economies. Growing interest towards insurance among people, innovative products and distribution channels are sustaining the growth of the insurance sector.

Chapter No 3

Data description and research methodology

3.1 Methodology

The main focus of this study is to determine the Impact of COVID-19 on return and company's performance: an Analysis of Insurance Sector. In this study we will use event study approach. In Event Study theory (EST) introduced by Ball and Brown in 1968 it is mentioned that there is a basic idea is to find the abnormal return attributable to the event being studied by adjusting for the return that stems from the price fluctuation of the market as whole. As the event methodology can be used to elicit the effects of any types on the direction and magnitude of stock price change, it is very versatile. Event studies thus common to various research area, such as accounting and finance, management, economics, marketing, information technology, law, political, operation and supply chain management. There are many different industries effected by the pandemic to varying degrees, and their responsiveness also varies. To comprehensively evaluate the impact of COVID_19 on stock prices of various Chinese industries, we adopted an event study approach. We examine the stock prices of industries that react to the pandemic. (He, Sun, Zhang , & Li, 25 July 2020)

3.2 Data description

This study examines the Impact of COVID-19 on return and company's performance: an Analysis of Insurance company's in Pakistan. The study use data of the financial sector of Pakistan Stock exchange (PSX) and the Karachi 100 index for the period of 31-Dec-2018 to 31-Mar-2020. We intend to examine either the covid outbreak put negative or positive impacts on the stock returns of biotech when compared with the past behavior of the stock market. The population of the study is all listed Insurance company at PSX. The sample size of this study comprise of 10

Insurance company from the financial sector. Financial sector is considered because the capital structure of both sectors are different. Also closing period for financial sector is December while non-financial sector accounting period closes at June.

We also use the 5 year data from 2014 to 2018 to examine the ratio analysis of the above mentioned insurance companies.

3.2.1 List of Insurance Company's included in this study

Table 3.0-1 Companies full name and data availability

S.No	Company	Market	Symbol	Data Availability
1.	Crescent Star Insurance Ltd Pakistan Reinsurance	PSX	CSTR	31-Dec-2018 to 31-Mar-2020
2.	Company Ltd Pakistan Industrial Credit and Investment	PSX	PRIC	31-Dec-2018 to 31-Mar-2020
3.	Corporation Ltd	PSX	PICIC	31-Dec-2018 to 31-Mar-2020
4.	Premier Insurance Ltd Adamjee Insurance	PSX	PREI	31-Dec-2018 to 31-Mar-2020
5.	Company Ltd	PSX	ADIN	31-Dec-2018 to 31-Mar-2020
6.	Reliance Insurance Co Ltd Habib Insurance Company	PSX	RELN	31-Dec-2018 to 31-Mar-2020
7.	Ltd Jubilee General Insurance	PSX	HABI	31-Dec-2018 to 31-Mar-2020
8.	Company Ltd Century Insurance	PSX	JGIC	31-Dec-2018 to 31-Mar-2020
9.	Company Ltd Jubilee Life Insurance	PSX	CRIN	31-Dec-2018 to 31-Mar-2020
10.	Company Ltd	PSX	JLIC	31-Dec-2018 to 31-Mar-2020

Event study is most famous application of the capital asset pricing model (CAPM). It is basically used to determine whether specific event has any positive or negative effect on the stocks that directly effects the company's performance.

3.3 Description of variable

The expected returns (ER) have been calculated by taking three most commonly used methods (Market model (MM), Mean adjusted return model (MAM) and Market Mean Adjusted model (MMAM)) to estimate the abnormal return (AR) and cumulative abnormal returns (CARs) of insurance companies' stocks that were facing the impact of the epidemic outbreaks. The difference between estimated return (ER) and actual returns is termed as AR and the sum of AR over the window is named as cumulated average return (CAR). (MacKinlay, 1997).

The market model (MM) that is used for the estimation of returns is developed by Sharp (1963) on the assumption of the linear relationship between individual stock and market portfolio. In MM, insurance stock returns are regressed with market portfolio. It is commonly used by risk averse investor based on mean and variance return distribution for single period investment with an expectation of maximum expected utility of terminal value Dyckman & Analysis, (1986)). This model also addresses the small variances of abnormal returns in comparison to raw value of returns(Strong & Accounting, 1992).

$$R_{j,t} = \alpha_j + \beta_j R_{m,t} + \varepsilon_{j,t} \quad (1)$$

Where $R_{j,t}$ is daily return of insurance stock j at time t

$$R_{j,t} = \ln \left(\frac{P_{j,t}}{P_{j,t-1}} \right) * 100 \quad (2)$$

Where $P_{j,t}$ is daily closing share price of insurance j on time t and $P_{j,t-1}$ is daily closing share price of insurance j on time $t-1$

$$R_{m,t} = \ln \left(\frac{MP_t}{MP_{t-1}} \right) * 100 \quad (3)$$

Where MP_t is daily closing price of market portfolio TWII on time t and MP_{t-1} is daily closing price of market portfolio on time $t-1$: α_j and β_j are the parameters and ε_{jt} is random error term for insurance stock j at day t .

$$AR_{j,t} = R_{j,t} - ER_{j,t} \quad (4)$$

$$ER_{j,t} = \hat{\alpha}_j + \hat{\beta}_j R_{m,t} \quad (5)$$

$$CAR_{it} = \sum_{t=0}^n AR_{jt} \quad (6)$$

Where $AR_{j,t}$ is abnormal return for insurance companies j at day t , $R_{j,t}$ is actual return for insurance companies j at day t and $ER_{j,t}$ is expected return for insurance stock j at day t : $\hat{\alpha}_j$ and $\hat{\beta}_j$ are the estimates of true parameters.

The MAM assumes that expected return of the stock is constant based on the average historical return of the stock which may vary across other stocks (Brown and Warner, 1980). The average return of insurance companies for the comparison period from 31st December 2018 to 31st

December 2019. For mean return adjusted model, the representation of AR and CAR is formulated below

$$AR_{j,t} = R_{j,t} - ER_{j,t} \quad (7)$$

$$CAR_{it} = \sum_{t=0}^n AR_{jt} \quad (8)$$

Where $AR_{j,t}$ is abnormal return for insurance companies j at day t , $R_{j,t}$ is actual return for insurance companies j at day t and $ER_{j,t}$ is the average return of insurance companies j over the estimation window period t

The MMAM assumes that the expected return of the stock is constant based on the average historical return of market portfolio and it is constant across the other stocks, although it is not necessary. The average return of market portfolio for the comparison period from 31st December 2018 to 31st December 2019. This relationship means that market portfolio of risky assets is a linear combination of all securities.

$$AR_{j,t} = R_{j,t} - ER_{m,t} \quad (9)$$

$$CAR_{it} = \sum_{t=0}^n AR_{jt} \quad (10)$$

Where $AR_{j,t}$ is abnormal return for insurance companies j at day t , $R_{j,t}$ is actual return for insurance companies j at day t and $ER_{j,t}$ is the average return of market portfolio m TWII over the estimation window period t

The t-test captures the effect of average abnormal returns of COVID-19 that epidemic outbreaks positively or negatively affect the returns of insurance stocks. The event study methodology is able to capture the abnormal changes beyond the average market returns. (Lee & J. Connolly, 2010)

Event study methodology is primarily used to separate the company's specific event from the relevant industry and market's event that further indicate the market efficiency. Using this application, it can be measured that if there is an abnormal return on stocks or not. Abnormal return is calculated by taking difference between actual return and expected return. Where the stock's expected return is typically calculated by using market model, which relies only on a stock's market index (PSX in this study) to estimate its expected return. By using the market model, it can be measured the correlation between an individual stock's return (Biotech stocks in this study) and its corresponding market returns (PSX 100 index). In some cases, we sum the abnormal returns to arrive at the cumulative abnormal return (CAR), which calculates the total impact of an event through a specific time period, also called the event window (Covid-19 in this study).

To complete the event study, 3 time periods are literally examined. Estimated window, event window and post event window. Estimated window is measured by market model, market adjusted model and by tow factor model. In this study we will use market model for estimated window.

To examine the effects of covid-19 on listed insurance companies in Pakistan stock exchange, the event study methodology is applied as this method is widely used by financial analysts to estimate

the impact of a particular event on performance, Chang and Zeng (2011). For event study the following process is followed. The event window is created from 31st December 2018 to 31st March 2020, where estimated window is from 31st December 2018 to 31st December 2019, a total of 327 days. It is common to take the event window to be reasonably longer than a specific period of interest (MacKinlay, 1997). The event and post event window periods are more divided into two further periods. The first period of one month is taken before the announcement of world health organization (WHO) named as pre-announcement period that is from 1st January 2020 to 31st January 2020. The second sub period is taken after announcement and is named as post-announcement period that is from 1st February 2020 to 31st March 2020.

3.4 Ratio Analysis

1. Return on Equity (ROE)

This ratio expresses the return on shareholders' equity. ROE is a direct measure of returns to the shareholders. It is calculated as a percentage of the net profit after tax to total Shareholders' equity. It is also useful for whole financial sector. The Formula is giving below.

$$\text{Return on Equity (ROE)} = \frac{\text{Net Profit after Tax}}{\text{Total shareholders' Equity}} * 100 \quad (11)$$

2. Return on Assets (ROA)

This ratio expresses the capacity of earning profit by a bank on its total assets employed in the business. It is calculated as percentage of net profit after tax to total assets. The formula is given below.

$$\text{Return on Assets (ROA)} = \frac{\text{Net Profit After Tax}}{\text{Total Assets}} * 100 \quad (12)$$

3. Earnings per Share (EPS)

EPS is the ratio between net profit after tax to number of shares outstanding at the end of the year as shown in balance sheet and its relevant notes to accounts. The formula is given below.

$$\text{Earnings per Share (EPS)} = \frac{\text{Net Profit after Tax}}{\text{No. of Ordinary Shares}} \quad (13)$$

4. Net Claims incurred Ratio

This expresses the efficiency of insurance company and is calculated as the claim incurred on net premium. Higher ratio indicates that the incurrence of claims is more than premium. The formula is given below.

$$\text{Net Claims incurred Ratio} = \frac{\text{Net Claims}}{\text{Net Premium}} * 100 \quad (14)$$

5. Underwriting profit to Net profit

The ratio shows the percentage of underwriting profit as of net profit. Underwriting profit is net of underwriting income and expenses of the cost of obtaining new policies. The formula is given below.

$$\text{Underwriting profit to Net profit} = \frac{\text{Underwriting Profit}}{\text{Net profit}} * 100 \quad (15)$$

6. Investment Income to Net Premium

The ratio shows the relationship between investment income and net premium. This one of the ratios that used to measure efficiency of an insurance company. The formula is given below.

$$\text{Investment Income to Net Premium} = \frac{\text{Investment Income}}{\text{Net Premium}} * 100 \quad (16)$$

7. Investment and Total Assets

The ratio between Investment and total assets shows investment activity with reference to its total assets. It indicates the portion of total assets used for investment in various venues.

The formula is given below.

$$\text{Investment and Total Assets} = \frac{\text{Total Investment}}{\text{Total Assets}} * 100 \quad (17)$$

8. Break-Up Value per Share

Break-up Value is net worth per share and is an important criterion to measure financial soundness of a company. The formula is given below.

$$\text{Break-Up Value per Share} = \frac{\text{Total Shareholder Equity}}{\text{No of Ordinary Shares}} \quad (18)$$

9. Cash Flow to Profit after Tax

The ratio expresses proportions of cash being spun off from ongoing operations.

The formula is given below.

$$\text{Cash Flow to Profit after Tax} = \frac{\text{Cash Generated from operating Activities}}{\text{Profit after Tax}} \quad (19)$$

Chapter No 4

Results and Discussion

This chapter include the results of event-study methodology (ESM), that are applied to examine the pre and post period Impact of COVID-19 on return of Insurance Sector.

4.1 Descriptive Statistics

The study examines behavior of data to check its accuracy before applying regression test. Descriptive statistic shows the general behavior of data including all the variables. The mean value shows the average of data and standard deviation shows deviation from mean. The descriptive statistics table along with mean and standard deviation also include skewness, kurtosis, maximum and minimum values.

The descriptive statistic in Table 4.1 for the insurance companies in Pakistan for estimated period from 01/01/2019 -31/12/2019. Descriptive statistic shows that the average daily returns of CSTR for estimated period is 0.1% and the average of the standard Deviation is 5.8%. While the average daily returns of PRIC for estimated period is -0.1% and the standard deviation is 2.6%. Likewise, the average returns of PICIC for estimated period are -0.1% and the standard deviation for the daily return returns is 7.7%. Further, the average daily return of PREI, ADIN, RELN, HABIB, JGIC, CRIN, and JLIC are -0.1%, .0%, -0.1%, .0%, .0%, .0%, and -0.1 respectively. While the standard deviations are for the mentioned companies are 6.1%, 2.2%, 5.5%, 2.9%, 2.1%, 1.8% and 2.8% respectively. In case of kurtosis, when value is equal to 3 then data is normally distributed and such pattern is known as mesokurtic. If value of kurtosis is greater than 3 then such data pattern is said to be leptokurtic which mean that the data is peaked and fat tail. When the value of kurtosis is <3 such pattern is known as platykurtic and that are associated with simultaneously “less peaked” and have “thinner tail”.

Table 4-0-1 Descriptive statistics Dispersion in stock returns as daily change of insurance Companies for the period of 01/01/2019 -31/12/2019

Companies	Mean	Minimum	Maximum	Std.Dev	Kurtosis	Skewness
CSTR	0.001	-0.154	0.242	0.058	2.219	0.786
PRIC	-0.001	-0.116	0.061	0.026	1.468	-0.548
PICIC	-0.001	-0.348	0.220	0.077	2.544	-0.435
PR EI	-0.001	-0.377	0.232	0.061	9.181	-0.968
ADIN	0.000	-0.065	0.065	0.022	0.612	0.158
RELN	-0.001	-0.280	0.211	0.055	4.964	-0.298
HABIB	0.000	-0.115	0.110	0.029	4.014	-0.346
JGIC	0.000	-0.068	0.081	0.021	2.477	0.086
CRIN	0.000	-0.065	0.066	0.018	4.358	-0.032
JLIC	-0.001	-0.100	0.088	0.028	1.620	-0.248

***Note: CSTR :Crescent Star Insurance); PRIC :Pakistan Reinsurance Company Ltd); PICIC: the insurance company (Pakistan Industrial Credit and Investment Corporation Ltd); PR EI: Premier Insurance Ltd); ADIN of insurance company (Adamjee Insurance Company Ltd); RELN also the insurance company and this insurance company full name is (Reliance Insurance Co Ltd); HABIB: (Habib Insurance Company Ltd); JGIC :(Jubilee General Insurance Company Ltd); CRIN: (Century Insurance Company Ltd); JLIC of (Jubilee Life Insurance Company Ltd).

So there is in data All the values in the table (except four) are less than 3 showing platykurtic behavior indicating that the data flat and have thinner tail. Skewness shows the data distribution. When the value is equal to zero shows normal distribution indicating that the data is symmetrical and bell shaped graph. Positive skewness indicate that the data is positively skewed (right tail is longer then left side). Negative skewness means that the data is negatively skewed (left tail is longer than right side). Skewness indicates that the most of value are negatively skewed i.e. Left tail is longer than right tail.

Table 4.2 reports the descriptive statistics for the insurance companies in Pakistan for window period of 01/01/2020 -31/01/2020. Descriptive statistics shows that the average daily return of

CSTR -0.3% and the average standard deviation is 4.3%. While the average daily return of PRIC for window period is 0.1% and the standard deviation 1.6%. Likewise, the average daily returns of PICIC for window period are 0.2% and the standard deviation for the daily return returns is 5.7%.

Table 4-0-2 Descriptive statistics Dispersion in stock returns as daily change of insurance Companies for the period of 01/01/2020 -31/01/2020.

Companie s	Mean	Minimum	Maximum	Median	Std.Dev	Kurtosis	Skewness
CSTR	-0.003	-0.093	0.084	0.000	0.043	0.488	-0.274
PRIC	0.001	-0.038	0.040	0.000	0.016	1.604	0.265
PICIC	0.002	-0.137	0.106	0.009	0.057	0.698	-0.451
PREI	0.007	-0.087	0.128	0.000	0.061	-0.208	0.634
ADIN	0.000	-0.033	0.042	-0.003	0.018	0.634	0.592
RELN	-0.002	-0.095	0.067	0.000	0.044	0.107	-0.504
HABIB	0.000	-0.095	0.093	0.000	0.046	0.904	-0.081
JGIC	0.003	-0.051	0.053	0.000	0.021	3.492	0.540
CRIN	-0.005	-0.054	0.054	0.000	0.025	1.591	-0.403
JLIC	0.000	-0.049	0.034	0.000	0.019	0.887	-0.313

***Note: CSTR :Crescent Star Insurance); PRIC :Pakistan Reinsurance Company Ltd); PICIC: the insurance company (Pakistan Industrial Credit and Investment Corporation Ltd); PR EI: Premier Insurance Ltd); ADIN of insurance company (Adamjee Insurance Company Ltd); RELN also the insurance company and this insurance company full name is (Reliance Insurance Co Ltd); HABIB: (Habib Insurance Company Ltd); JGIC :(Jubilee General Insurance Company Ltd); CRIN: (Century Insurance Company Ltd); JLIC of (Jubilee Life Insurance Company Ltd)

Further, the average daily return of PREI, ADIN, RELN, HABIB, JGIC, CRIN, and JLIC are .07%, .0%, -0.2%, .0%, .03%, -0.5% and .0% respectively. While the standard deviations for the mentioned companies 6.1%, 1.8%, 4.4%, 4.6%, 2.1%, 2.5% and 1.9% respectively. In case of kurtosis, when value is equal to 3 then data is normally distributed and such pattern is known as mesokurtic. If value of kurtosis is greater than 3 then such data pattern is said to be leptokurtic which mean that the data is peaked and fat tail. When the value of kurtosis is <3 such pattern is

known as platykurtic and that are associated with simultaneously “less peaked” and have “thinner tail”. So there is in data All the values in the table (except four) are less than 3 showing platykurtic behavior indicating that the data flat and have thinner tail. Skewness shows the data distribution. When the value is equal to zero shows normal distribution indicating that the data is symmetrical and bell shaped graph. Descriptive statistics results show that all returns are positively skewed for window period except PRIC, PICIC, PREI, ADIN, HABIB, JGIC and JLIC. Positive skewness indicate that the data is positively skewed (right tail is longer then left side).

Table 4-0-3 Dispersion in stock returns as daily change of insurance Companies for the period of 2/2020 -13/3/2020.

Companies	Mean	Minimum	Maximum	Median	Std.Dev	Kurtosis	Skewness
CSTR	-0.006	-0.188	0.154	0.000	0.072	0.395	-0.270
PRIC	-0.004	-0.099	0.058	0.000	0.032	2.178	-0.936
PICIC	-0.011	-0.180	0.268	-0.007	0.110	-0.265	0.547
PREI	-0.010	-0.190	0.143	0.000	0.056	4.277	-1.233
ADIN	-0.011	-0.102	0.068	0.000	0.036	0.869	-0.500
RELN	-0.004	-0.133	0.101	0.000	0.041	3.434	-0.961
HABIB	-0.005	-0.107	0.110	0.000	0.033	6.339	-0.524
JGIC	-0.010	-0.141	0.031	0.000	0.032	6.103	-2.153
CRIN	-0.004	-0.125	0.066	0.000	0.036	2.520	-0.717
JLIC	-0.014	-0.194	0.062	0.000	0.047	4.091	-1.391

***Note: CSTR; Crescent Star Insurance), PRIC; Pakistan Reinsurance Company Ltd), PICIC; Pakistan Industrial Credit and Investment Corporation Ltd), PR EI; Premier Insurance Ltd), ADIN; Adamjee Insurance Company Ltd), RELN; Reliance Insurance Co Ltd), HABIB; Habib Insurance Company Ltd), JGIC; Jubilee General Insurance Company Ltd), CRIN; Century Insurance Company Ltd), JLIC; of Jubilee Life Insurance Company Ltd).

Table 4.3 reports the descriptive statistics for the insurance companies in Pakistan for the post window period 2/2020-13/3/2020. Descriptive statistic shows that the average daily returns of CSTR for post of window period is -0.6% and the average standards deviation is 7.2%. While

the average daily returns of PRIC for post window period is -0.4% and the standard deviation is 3.2%. Likewise, the average daily returns of PICIC for window period are 0.00% and the standard deviation for the daily return returns is .11%. Further, the average daily return of PREI, ADIN, RELN, HABIB, JGIC, CRIN, and JLIC are -0.01%, -.11%, -0.4%, -0.5%, -0.01%, -0.4% and -.14% respectively. While the standard deviations for the mentioned companies are 5.6%, 3.6%, 4.1%, 3.3%, 3.2%, 3.6% and 4.7% respectively. Descriptive statistics results show that all returns are negatively skewed for post window period except PICIC. The values of the kurtosis for all return's series are less than 3 which suggest that all return series are platykurtic except PERI, RELN, HABIB, JGIC and JLIC. It means data is not peaks than the normal distribution.

4.2 Empirical Results

In this section this study reports the average abnormal returns (AARs) and cumulative average abnormal returns (CAARs) around Pakistan COVID-19 outbreak. The COVID-19 outbreak devastated several industry sectors of the Pakistan economy. The insurance industry also seriously damaged during the COVID-19 period.

The results reported in Table 4.4 presents the AARs and CAARs for market model of insurance industry within the 12-month event window before and 2-month event window after the COVID-19 outbreak. These results show that the estimated AARs during the 12-month period prior to the COVID-19 outbreak were statistically significant across overall insurance industry. In contrast the estimated CAARs during the 12-month period prior to the COVID-19 outbreak were statistically Significant expect Habib Insurance Company Ltd and Jubilee Life Insurance Company Ltd across overall insurance industry. These results indicated that the value of AARs and CAARs for the insurance industry was different from zero in the absence of the COVID-19 influence and significant abnormal returns were witnessed before COVID-19 outbreak.

Table 4-0-4 Average Abnormal Returns by using Market model

		Avg. Abnormal Return	t-stat	results	CAR	t-stat	Results
CSTR	Pre-announcement 1/1/2020 -31/1/2020	-0.01%	-1.01674	INSIG	-0.17018%	-24.4018	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.02%	1.45523	INSIG	0.73%	61.11965	SIG
PRIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.544382	INSIG	0.04%	13.06517	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	0.098472	INSIG	0.02%	4.135806	SIG
PICIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.11966	INSIG	-0.03%	-2.87192	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	0.1888	INSIG	0.14%	7.929588	SIG
PREI	Pre-announcement 1/1/2020 -31/1/2020	0.01%	0.622129	INSIG	0.18%	14.9311	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-0.90708	INSIG	-0.34%	-38.0973	SIG
ADIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.36576	INSIG	-0.02%	-8.77815	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-1.33899	INSIG	-0.18%	-56.2374	SIG
RELN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.36917	INSIG	-0.07%	-8.8601	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	0.717884	INSIG	0.22%	30.15113	SIG
HABI	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.020908	INSIG	0.00%	0.501793	INSIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-0.30513	INSIG	-0.06%	-12.8154	SIG
JGIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.753481	INSIG	0.07%	18.08354	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-1.5869	INSIG	-0.33%	-66.65	SIG
CRIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.63732	INSIG	-0.07518%	-15.2957	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-0.33885	INSIG	-0.08%	-14.2315	SIG
JLIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.04868	INSIG	-0.00483%	-1.16822	INSIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-1.31675	INSIG	-0.39%	-55.3036	SIG

****Note: CSTR; Crescent Star Insurance), PRIC; Pakistan Reinsurance Company Ltd), PICIC; Pakistan Industrial Credit and Investment Corporation Ltd), PR EI; Premier Insurance Ltd), ADIN; Adamjee Insurance Company Ltd), RELN; Reliance Insurance Co Ltd), HABIB; Habib Insurance Company Ltd), JGIC; Jubilee General Insurance Company Ltd), CRIN; Century Insurance Company Ltd), JLIC; of Jubilee Life Insurance Company Ltd*

While the results of Habib Insurance Company Ltd and Jubilee Life Insurance Company Ltd was not different from zero in the absence of the COVID-19 influence and no significant abnormal returns were witnessed before COVID-19 outbreak

In comparison the estimated AARs and CAARs over the event window i.e. the 2-month period after COVID-19 outbreak. The AARs were found to be statistically insignificant, while CAARs were found to be statistically significant. These results evidenced that the COVID-19 outbreak did have a mixed impact on the insurance stock performance in Pakistan

The results reported in Table 4.5 presents the AARs and CAARs for Market mean adjusted model of insurance industry within the 12-month event window before and 2-month event window after the COVID-19 outbreak. These results show that the estimated AARs during the 12-month period prior to the COVID-19 outbreak were statistically insignificant across overall insurance industry. In contrast the estimated CAARs during the 12-month period prior to the COVID-19 outbreak were statistically significant except Habib Insurance Company Ltd across overall insurance industry. These results indicated that the value of AARs and CAARs for the insurance industry was different from zero in the absence of the COVID-19 influence and significant abnormal returns were witnessed before COVID-19 outbreak. While the results of Habib Insurance Company Ltd was not different from zero in the absence of the COVID-19 influence and no significant abnormal Returns were witnessed before COVID-19 outbreak. In comparison the estimated AARs and CAARs over the event window i.e. the 2-month period after COVID-19 outbreak. The AARs were found to be statistically insignificant except

Table 4-0-5 Average Abnormal Returns by using Market mean adjusted model

		Avg. Abnormal Return	t-stat	results	CAR	t-stat	Results
CSTR	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.556994	INSIG	0.116511%	13.36786	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	0.609928	INSIG	0.29%	25.61697	SIG
PRIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.32095	INSIG	-0.02522%	-7.70292	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	0.959036	INSIG	0.20%	40.27951	SIG
PICIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.13981	INSIG	-0.03828%	-3.35534	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	0.660995	INSIG	0.47%	27.76179	SIG
PREI	Pre-announcement 1/1/2020 -31/1/2020	-0.01%	-0.55805	INSIG	-0.16228%	-13.3933	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	1.183738	INSIG	0.43%	49.71699	SIG
ADIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.211486	INSIG	0.018068%	5.075674	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	2.127665	SIG	0.49%	89.36191	SIG
RELN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.236474	INSIG	0.0495%	5.675386	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	0.759907	INSIG	0.20%	31.9161	SIG
HABI	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.00213	INSIG	-0.00047%	-0.05111	INSIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	1.116097	INSIG	0.24%	46.87606	SIG
JGIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.63188	INSIG	-0.06246%	-15.165	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	2.196564	SIG	0.45%	92.2557	SIG
CRIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.731403	INSIG	0.089233%	17.55367	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	0.751538	INSIG	0.18%	31.56458	SIG
JLIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.204538	INSIG	0.018611%	4.908924	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.01%	1.925197	INSIG	0.59%	80.85826	SIG

****Note: CSTR :Crescent Star Insurance); PRIC :Pakistan Reinsurance Company Ltd); PICIC: the insurance company (Pakistan Industrial Credit and Investment Corporation Ltd); PR EI: Premier Insurance Ltd); ADIN of insurance company (Adamjee Insurance Company Ltd); RELN also the insurance company and this insurance company full name is (Reliance Insurance Co Ltd); HABIB: (Habib Insurance Company Ltd); JGIC :(Jubilee General Insurance Company Ltd); CRIN: (Century Insurance Company Ltd); JLIC of (Jubilee Life Insurance Company Ltd)*

Jubilee General Insurance Company Ltd and Adamjee Insurance Company Ltd, while CAARs were found to be statistically significant. These results evidenced that the COVID-19 outbreak did have a positive impact on the insurance stock performance in Pakistan

The results reported in Table 4.6 presents the AARs and CAARs for mean adjusted model of insurance industry within the 12-month event window before and 2-month event window after the COVID-19 outbreak. These results show that the estimated AARs during the 12-month period prior to the COVID-19 outbreak were statistically insignificant across overall insurance industry. In contrast the estimated CAARs during the 12-month period prior to the COVID-19 outbreak were statistically significant expect Reliance Insurance Co Ltd and Habib Insurance Company Ltd across overall insurance industry. These results indicated that the value of AARs and CAARs for the insurance industry was different from zero in the absence of the COVID-19 influence and significant abnormal returns were witnessed before COVID-19 outbreak. While the results of Reliance Insurance Co Ltd and Habib Insurance Company Ltd was not different from zero in the absence of the COVID-19 influence and no significant abnormal returns were witnessed before COVID-19 outbreak. In comparison the estimated AARs and CAARs over the event window i.e. the 2-month period after COVID-19 outbreak. The AARs were found to be statistically insignificant except Jubilee General Insurance Company Ltd and Adamjee Insurance Company Ltd, while CAARs were found to be statistically significant. These results evidenced that the COVID-19 outbreak did have a negative impact on the insurance stock performance in Pakistan.

Table 4-6 Average Abnormal Returns by using Mean adjusted model

		Avg. Abnormal Return	t-stat	results	CAR	t-stat	Results
CSTR	Pre-announcement 1/1/2020 -31/1/2020	-0.01%	-0.60804	INSIG	-0.12719%	-14.593	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-0.64971	INSIG	-0.30519%	-27.2878	SIG
PRIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.668003	INSIG	0.052498%	16.03206	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-0.73188	INSIG	-0.15379%	-30.7391	SIG
PICIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.289992	INSIG	0.0794%	6.959805	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-0.56031	INSIG	-0.40047%	-23.533	SIG
PREI	Pre-announcement 1/1/2020 -31/1/2020	0.01%	0.637403	INSIG	0.185355%	15.29768	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-1.07219	INSIG	-0.38816%	-45.0322	SIG
ADIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.10763	INSIG	-0.00919%	-2.58306	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-2.06088	SIG	-0.47914%	-86.5569	SIG
RELN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.06319	INSIG	-0.01323%	-1.51644	INSIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-0.51873	INSIG	-0.13653%	-21.7867	SIG
HABI	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.049649	INSIG	0.01099%	1.191577	INSIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-1.02881	INSIG	-0.21697%	-43.2101	SIG
JGIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.809712	INSIG	0.080036%	19.43308	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-2.04758	SIG	-0.42276%	-85.9982	SIG
CRIN	Pre-announcement 1/1/2020 -31/1/2020	0.00%	-0.58332	INSIG	-0.07117%	-13.9996	SIG
	Post-announcement 1/2/2020 -31/3/2020	0.00%	-0.61783	INSIG	-0.14609%	-25.9487	SIG
JLIC	Pre-announcement 1/1/2020 -31/1/2020	0.00%	0.116344	INSIG	0.010586%	2.792263	SIG
	Post-announcement 1/2/2020 -31/3/2020	-0.01%	-1.75799	INSIG	-0.5372%	-73.8355	SIG

****Note: CSTR :Crescent Star Insurance); PRIC :Pakistan Reinsurance Company Ltd); PICIC: the insurance company (Pakistan Industrial Credit and Investment Corporation Ltd); PR EI: Premier Insurance Ltd); ADIN of insurance company (Adamjee Insurance Company Ltd); RELN also the insurance company and this insurance company full name is (Reliance Insurance Co Ltd); HABIB: (Habib Insurance Company Ltd); JGIC :(Jubilee General Insurance Company Ltd); CRIN: (Century Insurance Company Ltd); JLIC of (Jubilee Life Insurance Company Ltd).*

4.3 Overall sector performance

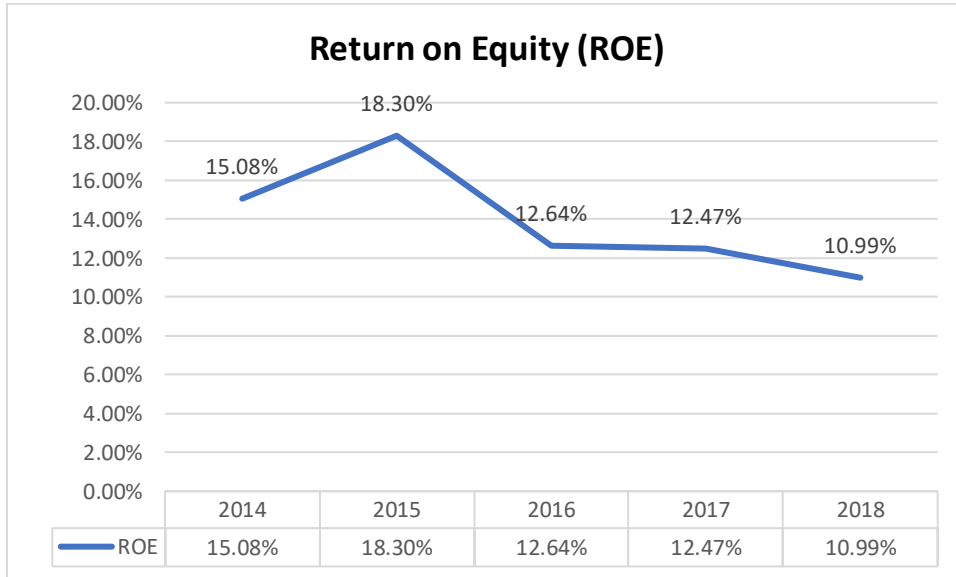
4.3.1 Insurance Companies – Overall

This portion of study exposes the financial ratios of over-all insurance sector in pakistan. In this study i includes the 10 of insurance companies. To take the concise and brief overview of the overall sector, the following ratios are calculated.

- Return on Equity(ROE)
- Return on Assets(ROA)
- Earning per share(EPS)
- Net Claims incurred Ratio
- Underwriting profit to Net profit
- Investment Income to Net Premium
- Investment and Total Assets
- Break-Up Value per Share
- Cash Flow to Profit after Tax

4.3.1.1 Return on Equity (ROE)

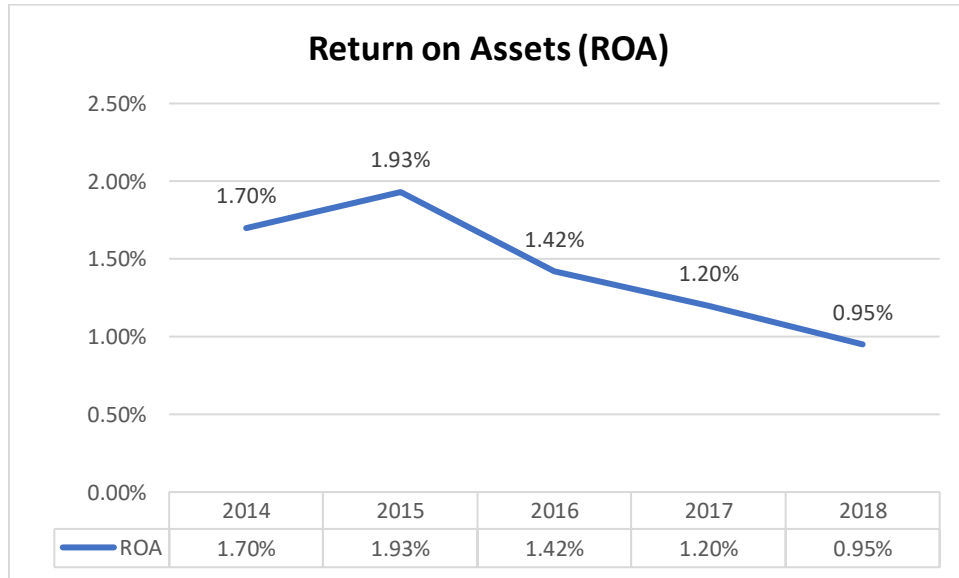
The overall Return on Equity of insurance sector from 2014 to 2018 is given below.



Return on Equity (ROE) was 15.08 percent in 2014 increased to 18.30 percent in 2015. Similarly, Return on equity (ROE) in 2016 result in 12.64 percent decreased and in the next year of 2017 ROE was decreased to 12.47 and in 2018 it was reduced to 10.99 percent.

4.3.1.2 Return on Assets (ROA)

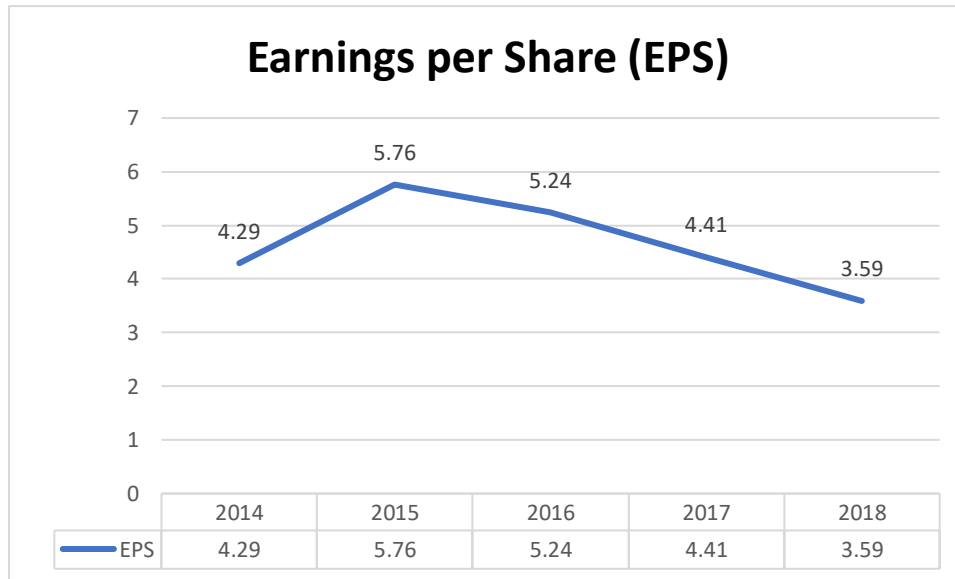
The overall Return on Assets of insurance sector is from 2014-2018 is given below.



Return on Assets (ROA) was 1.70 percent in 2014 increased to 1.93 percent in 2015. But Return on Assets (ROA) was decreased to 1.42 percent in 2016 and then in the next years of 2017 and 2018 it was reduced to 1.20 and 0.95 percent respectively.

4.3.1.3 Earnings per Share (EPS)

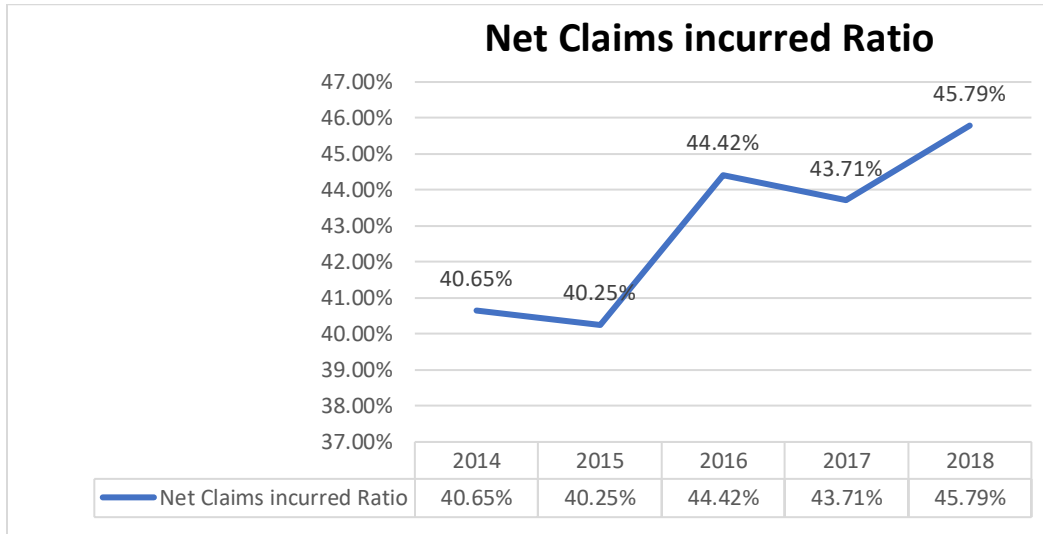
The Earning per Share of insurance sector from 2014-2018 is mentioned in below figures.



Earnings per Share (EPS) was recorded 4.29 percent in 2014, increased to 5.76 percent in 2015. While Earing per share (EPS) in 2016 was 5.24 percent decreased. In the next years of 2017 and 2018 the EPS was decreased to 4.41 and 3.59 percent respectively.

4.3.1.4 Net Claims incurred Ratio

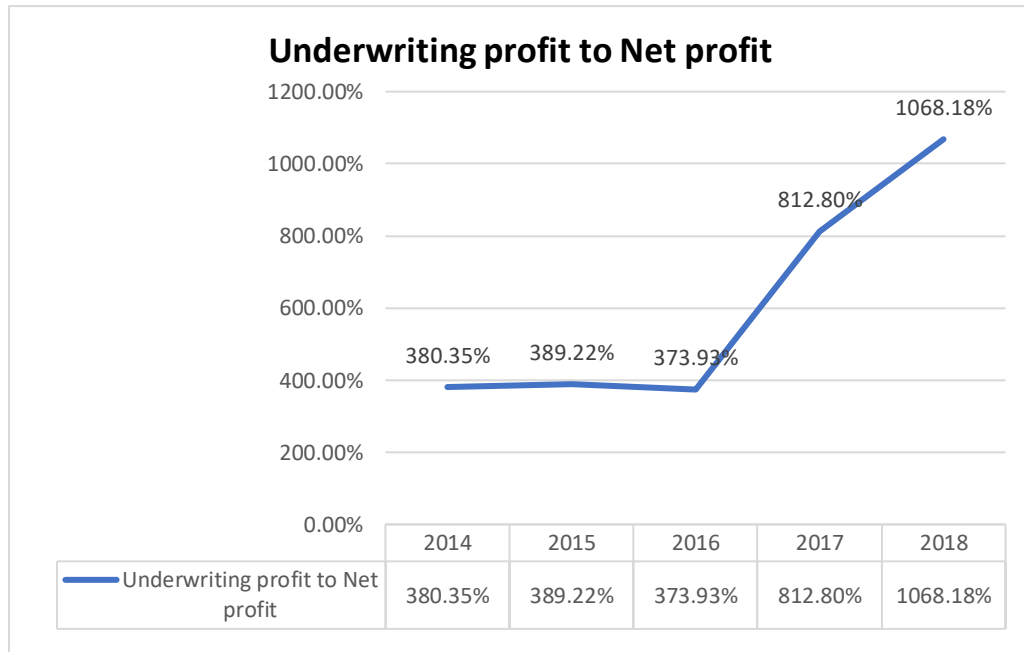
The Net Claims incurred Ratio of over sector of insurance sector from 2014-2018 is given below.



Net claims incurred Ratio was closed at 40.64 percent in 2014. In comparison to 2014 it was 40.25 percent decreased in 2015. Then in 2016 Net claims incurred Ratio 44.42 percent increased but in the next year of 2017 the Net Claims incurred 43.71 percent decreased, but in 2018 it was again 45.79 percent increased.

4.3.1.5 Underwriting profit to Net profit

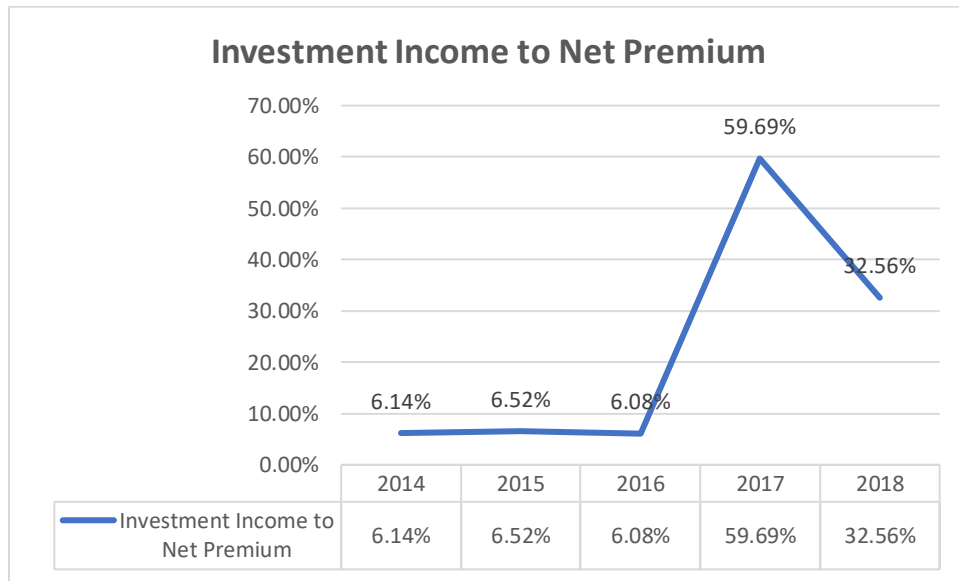
The Underwriting profit to Net profit of over insurance sector 2014-2018 is given below.



Underwriting Profit to Net Profit was 380.35 percent in 2014, increased 389.22 percent in 2015. Then in 2016 the Underwriting profit to Net profit 373.93 percent decrease but in the next year of 2017 the underwriting profit to Net profit increased 812.80 percent, and then in 2018 its increased was 1068.18 percent reported.

4.3.1.6 Investment Income to Net Premium

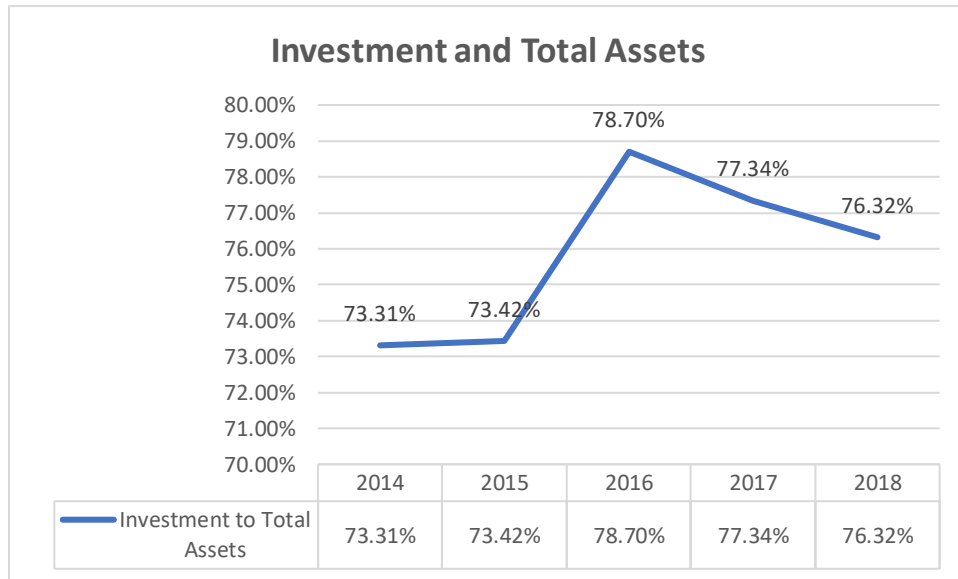
The Investment Income to Net Premium of overall insurance sector 2014-2018 is given below.



Investment Income to Net Premium was calculated 6.14 percent in 2014, increased 6.52 percent in 2015. Then in 2016 the Investment Income to Net Premium 6.08 percent decreased but in the next year of 2017 the Investment Income to Net Premium increased to 59.69 percent, however in 2018 it was again decreased to 32.56 percent.

4.3.1.7 Investment and Total Assets

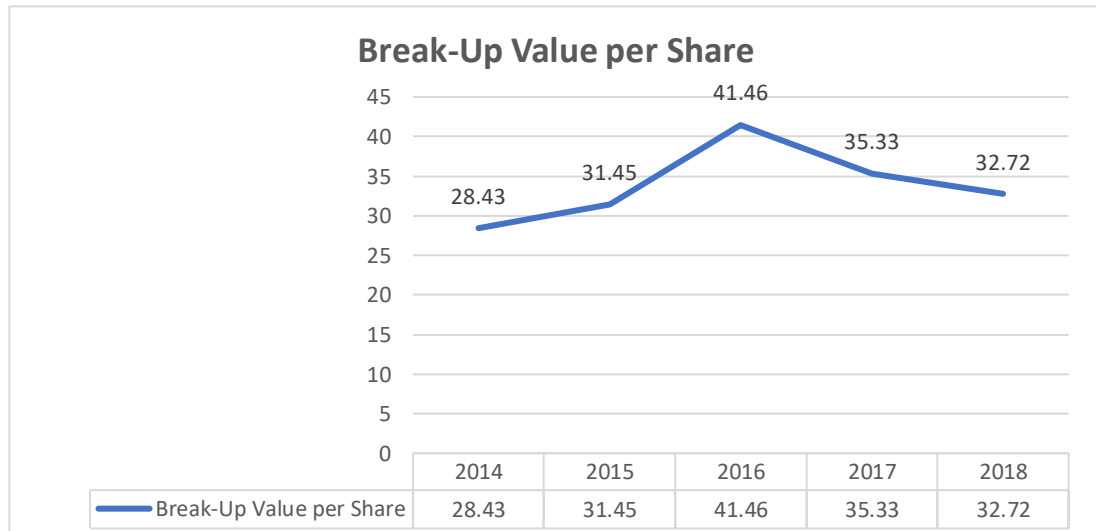
The Investment and Total Assets of overall insurance sector 2014-2018 is given below.



Investment to Total Assets was closed at 73.31 percent in 2014, increased 73.42 percent in 2015. Then in 2016 the Investment to Total Assets increased up to 78.70 percent but in the next years of 2017 and 2018 the Investment to Total Assets decreased to 77.34 and 76.32 % respectively.

4.3.1.8 Break-Up Value per Share

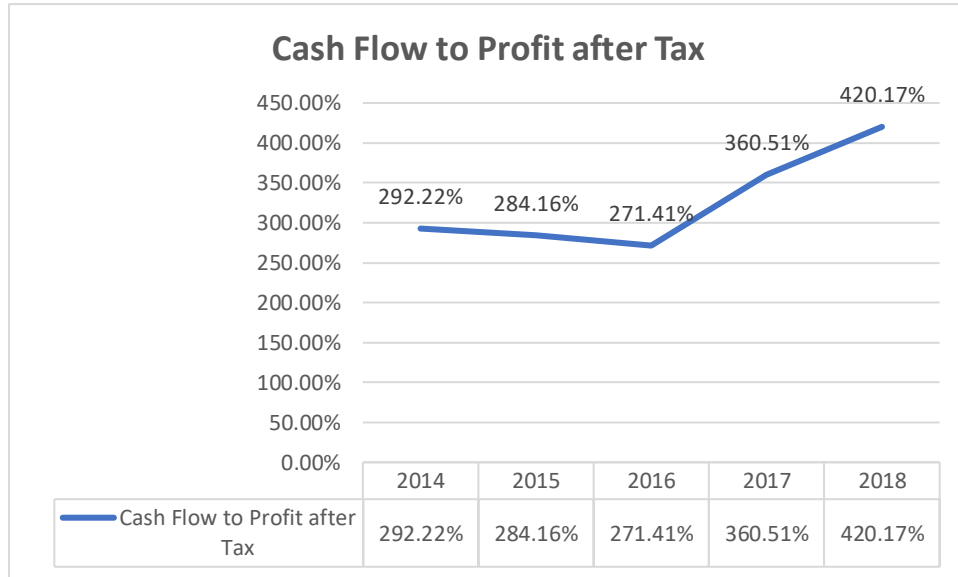
The Breakup value per Share of overall insurance sector 2014-2018 in mentioned graph.



Break-up Value per Share was calculated 28.43 percent in 2014, increased 31.45 percent in 2015. Similarly in 2016 the Break-Up Value per Share increased 41.46 percent but in the next year of 2017 the Break-Up Value per Share was 35.33 percent decreased and in 2018 it was decreased 32.72 percent too.

4.3.1.9 Cash Flow to Profit after Tax

The Cash Flow to profit after Tax of overall insurance sector 2014-2018 is stated below.



Cash Flow to Profit after Tax was 292.22 percent in 2014. In 2015 it was decreased to 284.16 percent. Similarly in 2016 the Cash flow after Tax was decreased to 271.41 percent. But in the next years of 2017 and 2018 the Cash Flow to Profit after Tax increased to 360.51 and 420.17 percent respectively.

Chapter No 5

Conclusion and Recommendations

To give some insights into how insurance stock prices reacted to the COVID-19 epidemic, the event-study methodology (ESM), which examined the pattern of stock prices and returns under unusual conditions, was adopted in this study. By measuring the average abnormal returns (AARs) and cumulative average abnormal return (CAARs) 12-months prior to the COVID-19 outbreak and comparing the results to those after the 2month of the COVID-19 outbreak, the impact of the COVID-19 outbreak on insurance stock prices are examined. The overall results indicated that the estimated average abnormal returns (AARs) and cumulative average abnormal return (CAARs) before the COVID-19 outbreak are statistically different from zero for overall insurance industry except some firms e.g. Habib Insurance Company Ltd, Jubilee Life Insurance Company Ltd, and Reliance Insurance Co Ltd, supporting that there would be abnormal return when the COVID-19 was not an issue. On the other hand, market evidence showed that after the 2 months of the COVID-19 outbreak, there are insignificant average abnormal returns (AARs) and significant cumulative average abnormal return (CAARs) among Pakistani insurance stocks. These results confirmed that the COVID-19 outbreak has significant impact for cumulative average abnormal return (CAARs) on the insurance stocks in Pakistan. The findings of this study showed that the insurance stocks are sensitive to the COVID-19 outbreak and the insurance stock performance would react to the occurrence of similar diseases. The COVID-19 outbreak demonstrated the fragility of the insurance business toward an epidemic and a new epidemic could likely depress stock markets in Pakistan.

5.1 Recommendation

Taking the pinpoints of this study, it is recommended that investors have to take the long position in investment decisions because this type of abrupt and sudden events like Covid-19 do not have the long elastic effects on the stock markets. If though this causes a sever volatility in the stock's prices, but it is not neglected that there is a big opportunity in every dip.

It is also recommended for policy makers that the government has to take pragmatic steps to get the market stable. It is the responsibility of government institutions to take precautionary measures to push up the investor's confidence during the outbreak. These steps bring about a continuity of economic activities and growth of businesses.

5.2 Future direction for research

To explore the positive or negative effects of the COVID-19 on the stocks of different sectors like hotel industry, tourism industry, transport industry or pharmaceutical industry, further studies may be conducted. As the insurance sector is discussed in this study by using market models, other studies can be analyzed by using ARCH or GARCH models that can be brought about more accurate findings.

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Appendix (1)

List of insurance industry

- 1) Crescent Star Insurance Ltd
- 2) Pakistan Reinsurance Company Ltd
- 3) Pakistan Industrial Credit and Investment Corporation Ltd
- 4) Premier Insurance Ltd
- 5) Adamjee Insurance Company Ltd
- 6) Reliance Insurance Co Ltd
- 7) Habib Insurance Company Ltd
- 8) Jubilee General Insurance Company Ltd
- 9) Century Insurance Company Ltd
- 10) Jubilee Life Insurance Company Ltd