Corporate Financial Distress Prediction of Non-Financial Firms: Evidence from Pakistan

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Dedication

Dedicated from core of my heart to my beloved parents Mr. & Mrs. Ghulam Mustafa for their support in all aspects of life and my most respected teacher Dr. Jaleel Ahmed Malik for technical and ethical support.

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By the Grace of Allah Almighty I completed my Thesis. I take this opportunity to express my profound gratitude and deep regards to all my guides for exemplary guidance, monitoring and constant encouragement throughout the course of this research work. The blessing, help and guidance given time to time shall carry me a long way in the journey of life on which I am about to embark. I am grateful for their cooperation during the period of my thesis

It is guidance from Almighty Allah that shows the person light in darkness and the person finds his way in this light. Without His help, person is nothing but a helpless creation.

The teachings of Holy Prophet Muhammad (PBUH) are also the continuous source of guidance for us specially His order to get knowledge and fulfilling duty honestly was key motivation force for us. With prayers of my parents and support of my respected supervisors it became possible to formulate this thesis. I pay high regard to them.

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List of Abbreviations

FDP	Financial Distress Prediction
DHM	Discrete Hazard Model
GRCRISIS	Global Financial Crisis
PSX	Pakistan stock exchange

Abstract.

The purpose of this study is to examine the impact of different variables on the corporate financial distress prediction . For this purpose , the sample data of 60 non-financial firms listed in Pakistan stock exchange have been taken from the official website of State Bank of Pakistan. By applying the Discrete Hazard Model (logit Model), Profitability, Liquidity, Size have negative relation with financial distress prediction while leverage has positive. Moreover, dummy variable of exports, dividend payout have negative association with financial distress prediction as well. It can be interpreted as the firms which does exports and pay dividend to its shareholders have less chances to fall in financial distress. On the while dummy variable of global financial crisis has positive relation with financial distress which means that more companies likely to fall in distress in the period of crisis. As this area of research is highly ignored till date in developing countries specifically in Pakistan , this study will prominent its importance by giving look forward to this area. As it plays an important role on managerial decision making for firms, investment decision making for investors, credit decision making for creditors, customer credit ratings for banks and so on.

Key Words: Financial Distress Prediction, Discrete hazard(Logit) model, Global financial crisis

Chapter 1.

INTRODUCTION

Financial distress can be defined as a failure of firm which is considered to be the most important concern in economic life of every firm. In the words of Carminchael (1972), the situation when a company face the difficulties to paying its obligations due to insufficient fund is known as financial distress. These included : insufficient liquid capital, insufficient equity , more debt , and insufficient liquidity. According to Foster (1986), financial distress is a disastrous liquidity position which is difficult to handle without restructuring of the operations of any economic entity at large scale. According to Abuhommous (2013) "a firm can be defined as financially distressed when investment spending is affected by the availability of internal funds or the change in internal cash flow."

Ross et al.(1999) summed up previous studies by concluding that financial distress including four of the following conditions : (1) Failure of Business, when a firm unable to pay its outstanding obligations after liquidation ; (2) legal bankruptcy, when any firm or her creditors went to the court for the declaration of bankruptcy; (3) Technical bankruptcy, when any business may not be able to fulfill its contract on schedule to payback the amount of principal and interest; (4) accounting bankruptcy , when any company reached the situation in which its book value of net assets became negative. In simple words, the situation in which any business may not be able to meet their obligations in such condition creditors may avoid to supply goods to that company and banks may deny to provide loans. If this situation remains for long time, consequently, a company would lead to the state of bankruptcy. Hence, financial distress is considered to be very important event in economic life of every firm. Owing to the significance of financial distress, its prediction got a lot significance in the field of corporate finance.

Having its great significance, financial distress prediction (FDP), or denoted it as prediction of corporate failure, bankruptcy prediction, plays very significant role in decision-making of different areas, including: finance, accounting, business and engineering. The ability to forecast financial distress has too much importance for all concerned parties including: corporations, present and latent stockholders as well as stock market controllers. As we examined the financial distress forecasting of non-financial companies of Pakistan, here a business is considered to be insolvent when it has been delisted by Karachi Stock Exchange (KSE) now named as Pakistan Stock Exchange (PSX) owing to bankruptcy or its winding up under court order for violation of listing regulation no. 5.11.1(d). . There are different models developed by academic practitioner and researchers to forecast financial distress with using either stock market or accounting information. Moreover, having the discussion to predict financial distress or probability for financial distress, different researchers used different models to determine; whether the business or company will bankrupt or not.

There are many studies that have used accounting ratios for the prediction of financial distress and bankruptcy. Most importantly the work of Altman(1968) and Beaver(1966) are example of it. While some of the studies used stock market based model for the valuation of corporate debt and default; the study of Merton's (1974) is the example of it. Furthermore, some studies used discrete hazard model (Logit Model) which included both type of variable; accounting and stock-market based variables for the purpose of forecasting financial distress like Shumway (2001) and Campbell (2008). Moreover, it is proposed by Shumway (2001) to assess the probability of financial distress by using discrete hazard model because it is dynamic and capture the fact that business changing over time. With the use of discrete hazard model for the examining of probability of financial distress , Shumway (2001) found that many of the

accounting ratios which was being used for the prediction of bankruptcy of the US firms in the past ; now they are not statistically significant which means those ratios are not related to failure statistically.

For the above mentioned fact, it is evident that probability of financial distress have been changing over the time. Therefore, it is more appropriate choice to use Discrete Hazard Model(DHM) which is equal as (Logit Model) econometrically for the prediction of corporate financial distress as it captured the above mentioned phenomenon.

For the said purpose, the data of Non-Financial firms was obtained from the Financial Statement Analysis (FSA) and Balance Sheet Analysis(BSA) the official website of State Bank of Pakistan. By using multi-logit model , it is found that profitability , liquidity are negatively associated with financial distress. It means a firm having more profit and highly liquid having less chances to fall in distress as compared to others. Furthermore, export and dividend is also negatively associated with prediction of financial distress which shows that a firm having export lead less chance of distress. Similarly, payout dividend to its shareholders means that the firm is in good health and it has less chances to fall in distress. At last financial crises during 2007 to 2009 is positively associated to financial distress or bankruptcy which shows that in this period more companies was fell into distress eventually lead to bankruptcy in future.

Despite the reality that probability of Corporate Financial Distress probability have attained an considerable volume of heed, our consideration for predicting corporate financial distress remain distant from complete. Because there is very fewer literature is found for non-financial firms in developing economies especially in Pakistan. Although, there have been done a significant amount of work in developed countries. On the contrast, developing countries did not

pay too much attention to the area of research yet. Moreover; Much less heed has been given to analyze the impact of different variables on the probability of corporate financial distress for non-financial firms..

This research, on corporate financial distress prediction, have so much importance. As earlier, it is mentioned; there have been giving least importance to this area of research in Pakistan. Resultantly; a lot has happened in the occurrence of bankruptcy in Pakistan _by last two decades. Hence, this study highlighted its importance by giving look forward to the research in this area. Then, it helps in formulating policy for non-financial firms by analyzing impacts of different variables on prediction of financial distress. Then, it plays an important role on managerial decision making for firms, investment decision making for investors, credit decision making for creditors, customer credit ratings for banks and so on. Likewise, it is much important as well because of employment dependence of large number of people on these firms. Lastly, It has important practical significance on improving awareness of financial risk, preventing corporate financial distress, and avoiding bankruptcy liquidation.

1.2 Problem Statement

In the previous studies, there is very less literature available which are accounted for prediction of financial distress in Pakistan. As previous research trends shows that this field of area is highly ignored till to date. Therefore, there is a dire need to develop proper researches on the corporate financial distress prediction.

1.3 Research Questions

- What is the impact of profitability on Corporate Financial Distress Prediction?
- What is the impact of size on Corporate Financial Distress Prediction?

- What is the impact of leverage on Corporate Financial Distress Prediction?

- What is the impact of liquidity on Corporate Financial Distress Prediction?

- What is the impact of Export on Corporate Financial Distress Prediction?

- What is the impact of Dividend payout on Corporate Financial Distress Prediction?

- What is the impact of Global Financial Crisis on Corporate Financial Distress Prediction?

1.4 Research Objectives

- To examine the impact of profitability on Corporate Financial Distress Prediction

- To examine the impact of size on Corporate Financial Distress Prediction

- To examine the impact of leverage on Corporate Financial Distress Prediction

- To examine the impact of liquidity on Corporate Financial Distress Prediction

- To examine the impact of export on Corporate Financial Distress Prediction

- To examine the impact of dividend payout on Corporate Financial Distress Prediction

- To examine the impact of Global Financial Crisis on Corporate Financial Distress Prediction

1.5 Significance of the Study

The study, on the prediction of corporate financial distress, have so much importance. As earlier, it is mentioned; there have been giving least importance to this area of research in Pakistan. Resultantly; a lot has occurred in the incidence of bankruptcy in Pakistan _by last two decades(Aziz, Dar,& Hamayoun,2006). Hence, this study highlights its importance by giving look forward to the research in this area. Then, it helps in formulating policy for non-financial firms by analyzing impacts of different variables on prediction of financial distress. Then, it plays an important role on managerial decision making for firms, investment decision making for

investors, credit decision making for creditors, customer credit ratings for banks and so on. Likewise, it is much important as well because of employment dependence of large number of people on these firms. Lastly, It has important practical significance on improving awareness of financial risk, preventing corporate financial distress, and avoiding bankruptcy liquidation. This study consisted on the sections of literature review in 2nd section, Data and Methodology in 3rd sections then conclusion and at the last list references are mentioned.

Chapter 2.

LITERATURE REVIEW

The situation in which any business may not be able to meet their business obligations in such condition that the creditors may avoid to supply goods to that company and banks may refuse to provide loans. If this situation remains for long time, consequently, an organization would lead to the state of bankruptcy. Having its huge importance, financial distress prediction (FDP), or denoted it as prediction of corporate failure, bankruptcy prediction, plays very vital role in decision-making of different sections, including: finance, accounting, business and engineering. ''Early Warning'' is the word which started from the area of military. Currently, this word is being commonly used in the fields of finance and some other respects E.g.: business administration, environmental monitoring macroeconomics among others. Early warning is the word which maybe used to forecast financial distress, bankruptcy or corporate failure, which is an important area for research in the field of corporate finance and the base of it is the financial distress prediction (FDP), that is an ongoing extensive topic for research. Usually, forecasting of a company whether it would fall into financial distress or not on the basis of available financial data at current time by using of statistical, mathematical and intelligent model is known as Financial Distress Prediction(FDP). That is also titled as, bankruptcy prediction, discrimination of financial failure, , prediction of corporate failure, and prediction of business failure among others. It performs significant role for all concerned parties including; for the firms , it helps in managerial decision taking and formulating policies, for investors , it is significant regarding

decision for investment , for the banks it is useful for the purpose of rating for customer credit and it is important for the creditors as well because of helping in making decision for credit and so on.

According to Doumpos& Zopounidis(1999), financial distress does not only included lack of ability to reimburse payments regarding important obligations and above mentioned similar consequences but it also contain the situation when the value of net assets became negative. It means the total liabilities of that particular companies is more than its total assets. In the words of Carminchael (1972), the situation when a company face the difficulties to paying its liabilities due to the scarcity of funds is known as financial distress. These included: insufficient liquid capital, insufficient equity , more debt , and insufficient liquidity. According to Foster (1986), financial distress is a horrendous liquidity position which is very complex to handle without reformation of the operations of any economic entity at large scale.Moreover, the idea of relative financial distress is proposed by Sun et al. that can be described as deteriorating financial condition for a specific organization by its life cycle process.

Charalambakis (2015) used a discrete hazard approach to predict the future bankruptcy of firms analyzing the 303 Greece firms' 9 years data i.e. 2002-2010. Four variables were used by researcher to check to predict the chances of the bankruptcy of firms i.e. sales, profitability, liquidity,and financial factors. The researcher found a significant positive relationship between financial risk and bankruptcy while on the other hand sales and profitability have a negative significant relationship with bankruptcy.

Shaukat &Affandi(2015) investigated the association between financial distress and financial performance on 15 listed companies from the fuel and energy sector for the period of 2007 to 2012. They used the Altman Z score to capture the financial distress, while EPS is used as

financial performance. They recommend using other performance measures i.e. stock returns, economic value-added and return of investment. Further to enhance the sample size is also suggested. They used simple and multiple regressions but ignored the panel data assumptions. So, they highlighted to use the probit model in future research.

Financial Distress is the circumstance that an organization has specific sort of monetary complexities. In some significant written literature, such money related troubles contain lack of capability to repay liabilities or preferred dividend and the related outcomes, for example, overdraft of bank deposits, and in any event, entering the legal bankruptcy procedures and liquidation of the interests for creditors

Such meaning of financial distress is expand on the hypothetical structure of 'liquid assets'' or "''cash flow''' model. As Beaver (1966) identified, a firm resembles a reservoir made by the cash flows, made out of cash outflows and inflows an. An association in financial distress is much the same as a reservoir whose water is depleted.

Several techniques of econometrics have been adopted for the purpose of financial distress prediction (FDP) for public corporations. Univariate analysis have been used by Beaver(1966) to find the capability of accounting ratios to forecast bankruptcy. In this method , comparison of accounting ratio of the company of interest have been done to any benchmark ratio for the purpose of discriminating non-failed business from a failed business. Then , Altman (1968) adopted multiple discriminant analysis to find the Z-score, the method which is mostly used to forecast bankruptcy. The purpose behind discriminant analysis is to distinguish bankrupt firms from non-bankrupt firms by developing linear combination of different variables. This technique have some limitations as well in spite of the fact that it is popular which are mentioned below. Firstly, it unable to find a test of significance for individual variables. Secondly, the assumption

has been made that the distribution of predictors is multivariate normal. Thirdly, the usage of dummy variables which increase the predictive capacity of bankruptcy prediction models are prevented in it.

The quadratic discriminant analysis used by Altman et al. (1977) to predict bankruptcy. Ohlson (1980) applies a conditional logit model which also denoted as "O-score" to develop the probability that a business would enter into bankruptcy or not.

Frederick Nsiah, Prince Aidoo (2015), took a shot at the performance with regard to financial matters for the pharmaceutical enterprises. Information were taken from the fiscal reports of the organizations that recorded at stock trade of Ghana during the period from 2005 to 2012. Altman Z score model was utilized for the forecast of failure between organizations. Result told that Starwin Corporation is financial distressed association whereas it has no threat of bankruptcy for Aryton Company.

Qismat, Nawsher, Abdul (2015), utilized the monetary exhibition of four organizations of Pakistan. It was discovered that, the Z score estimations of Pakistan worldwide Airline Corporation , Pakistan Shipping Corporation ,Pakistan International Container Terminal Ltd, , and Pak Data com. That are, 21.44, 4.29,17.85, and 22.11 respectively .

Siew, Han, Heng (2014), dealt with a study on monetary distress. Altman's Z score model was utilized and tested. It was discovered that various recognized examination model has the extraordinary intensity of forecast of money related trouble as it accomplishes 76.7% accurate forecasting by the assistance of utilizing Altman's Z score model.

Tom, Benson, George (2014), develop a study o segments of financial distress, information were gathered by Nairobi stock trade from 2007 to 2010. Profitability, Liquidity, leverage and growth was denoted as independent factors and Debt Service Coverage (DSC) utilized as a additional as

explained variable. Univariate and Altman's Z score multivariate model utilized, strong and Positive correlation is discovered among DSCR and growth and moderate what's more, positive relationship is establish among DSCR and productivity .

Mohammad, Ensieh, Vahid (2013), contribute in such manner. Information were gathered from TSE, Tehran stock trade, time of information were (2007-2011). Capital force took as an explanatory variable, size of firm, chances of growth for the firm, firm liquid assets firm were took as control while financial distress as separate variable. Altman's Z score model was utilized to locate the corporate financial distress prediction.

Ali, Ng (2013), Malaysia. develop a research on organizations which stayed recorded in the stock exchange of Malaysia. Altman Z score expectation model was utilized; it was discovered that significant distinction of financial position is available among the non-distressed and distressed enterprises, companies that are called as PN organizations confronting monetary difficulties and the organizations as non PN 17 organizations are likewise confronting financial complexities.

Bahaaeddin, Joël (2013), anticipated the monetary distress for Jordan; information depended on prior three years of time earlier for which distress occur. Altman Z score and Altman" Z score model were utilized. It was discovered that Altman Z score model which were created in 1968 dependent on multivariate factors predicts the financial trouble progressively with immense rightness and associations are effectively and reliably separated.

Hima& Subramanyam(2012), assessed the financial wellbeing of Indian industry of dairy by the assisstance of Altman Z score model. It were discovered that the Z score of Gskch, , Heritage, National , Amrit, are 3.02, 4.94, 3.79 and 14.21 individually displays that organizations are in safe zone as, just one organization which isn't in safe zone.

Jiming &Weiwei (2011), dealt with 50 firms utilized logistic model utilized for the examination comprised of two financial trouble forecast models that is (financial and mix of financial anon financial pointers). It was discovered that blend of the non financial and financial indicator model can forecast the financial distress absolutely.

John, Jens, Jan (2011), done research with regards to financial distress. They assess the stock related performance of the organizations that were monetarily distressed. It was discovered, accuracy of the logit model of forecasting is best when contrasted with the others models. It was additionally inspected that returns on shares of financially distressed firms are exceptionally insecure. Stocks Beta are larger and firms does not be able to provide risk premium which is engaged from the investors of the firm.

Nazrinn (2008), he utilized 13 financial ratios to decide the financial trouble in recorded firms at stock exchange in Malaysia. Test of 66 firms were gathered comprised of 53 stable (financially healthy) and 13 unstable (financially unsound) firms. Logit investigation, step by step regression models was develop t-test likewise applied to discover the distressed. . It was started financial ratios has the ability to forecast financial distress and may recognize financial distress with a 78 percent correctness.

Rayenda (2007), contributes in such manner he predicts financial trouble of the Indonesian organizations, information of organizations which were de recorded in 2002 to 2003 and every recorded organization at stock exchange till 2007. Logistic regression test measurement was utilized. It was looked through that the arrangement intensity of the industry relative ratios is

extremely low when contrasted with the intensity of unadjusted financial proportions and the connection between reputation of audit and financial trouble is significant.

Altman El(1968), applied test in various time periods before the bankruptcy happened in the firm. It was discovered that the forecasting accuracy is just about 95 percent when examination were done 1 year before bankruptcy and around 72 percent forecast capacity shows precise when investigation is done two year before when the bankruptcy of the organization happens.

Beaver (1966),created model dependent on univariate structure. He worked solidly on 79 non-failed and failed firms; information was taken from 1954 to 1964. He finished up the best indicator of bankruptcy is cash flow over complete debt of the organization.

Hu& Milind (2015), develop a examination as well as they reviewed the equation which depends on non-financial, macroeconomic and financial factors for the forecast logistic regression while jackknife procedure were utilized. It were discovered that the equation which is comprised on macroeconomic factors, non-financial factors and financial factors and is an appropriate indicator.

Most importantly, for meaning of financial distress, there exist a wide range of perspectives. Many researchers may give different interpretations as per their own study reason. In general, there are two primary thoughts: From the viewpoint of theoretical examination, financial distress has various degrees. Mellow financial distress may simply be opportune cash flow complexity, while genuine financial distress is business indebtedness or bankruptcy. Any firm fall in financial distress may encounter a lively changing procedure of different states between the over two extraordinary above mentioned sorts of financial distress. As a matter of fact, financial distress is a powerful progressing process, and is the aftereffect of nonstop irregularity of business activity for a while (from months to years or significantly more). From the viewpoint of empirical

examination, so as to clarify the standards of research evidences, or for the limitations of information accessibility, financial distress is regularly characterized as certain circumstances which obviously show a venture's financial trouble, for example, legal insolvency, and ST for Chinese listed organizations. Current examinations considered an independent measures of financial distress as opposed to its intensity, and future research need to investigate a metric that can characterize the distressed organizations into various degrees, for example, mild, middle, and bankrupt.

On the while, a probit model is estimated by Zmijewski (1984). Then , a multinomial logit model used by Lau (1987) which enables for larger than two states regarding financial distress. Furthermore, Merton(1974) adopted the option pricing method to find the probability of insolvency. Equity is taken as call option, in these models, on the assets of the firm while probability of bankruptcy is just the probability that at maturity the call option have least worth. It means that the face value of total liabilities is greater than the market value of assets of the firms.   The Merton model adopted by Vassalou and Xing (2004) as well to research whether the risk of default is priced in returns of equity. Additionally, it is found by Duffie et al. (2007) that probabilities of default deduced by the model of Merton may has considerable forecasting capability and resultantly may develop a mechanism of the probability of default.

Linear likelihood model clarifies the prediction of failure or progress of the firm equally dependent or dummy variable, that is measured as linear capacity (job) of vector (purpose) of the independent factors (Aziz and Dar, 2006). That equation seems as regression linear model, however the regression is dichotomous or binary, it is known as linear likelihood equation. Some of few issues connected to likelihood linear model, that are residuals, Heteroscedastic Variances,

Questionable evaluation of R2, Non-Normality errors, , and , a Measure for Goodness of Fit (Gujarati, 1998).

Keasey and Watson (1987) made 3 methods. That was ratio related to monetary terms , non-monetary data as well as mix with non-monetary data and monetary proportions. Monetary proportions are utilized in models secured possibilities for performances as profitability, gearing and liquidity. Non-Monetary data incorporates organization age, New share capital Number of current chiefs, ,recruitment and expulsion to chiefs during period of time of three years, Change of auditors during the time of three years time span . A conclusive outcomes appeared that it is possibly more reasonable distress forecast for little firm might accomplished by utilizing non-monetary data. This additionally called attention to this may no applicability for greater organization's failure forecasting for the footholds of that outcomes showed in lower organization's failure forecasts. Writing in the past affirms the data of income flow are valuable to forecasting monetary distressed enterprises.

Ward (1994) chose that cash flow factors get a lot of gainful in foreseeing financially troubled firms in gas, mining and oil sectors and sum up that the flow of cash is more valuable for gas ,mines as well as petroleum sectors when contrasted with different other divisions of the business. Information of cash flow over factors used for that research are flow of cash from operation, financing and investment exercises.

Tennyson et al., (1990) study were intended to investigate the estimation for that information accessible to account revelations in monetary distress with adopting the method of Logistic Regression. Owing to the reason, Administration account exposures, forecasting for monetary distress is mostly taken. That research inferred the account scores and monetary ratios might be incorporate when contrasted with utilizing data for accounts and data included in monetary

proportions independently. That examination additionally called attention to that the data in the narratives is not quite the same as data consisted in that monetary proportions.

Keasey et al., (1990) expands the methodology by Peel and Peel (1988) furthermore examined logistic examination as well as Multi-Logit model. This research results display that the characterization capacity of multi logit model is most adequate than the logistic examination for stable firms and grouping capacity of logistic and multi logit.   Model of regression has practically identical to bankrupting organizations earlier than one year of bankruptcy.

 Then , Neural networks performance have been examined by Etheridge and Sriram (1997)   with respect to prediction of organizational financial distress. It is founded by them that neural network exceeded in performance than logistic and multivariate discriminant models. Neural network is also applied by Nittayaga setwat (1996)to predict bankruptcy for the firms in US. He discovered that his model of neural networks shows greater ability of prediction as compared to a logit model. While techniques of neural networks may able to set larger classification rates, they may not give one material for the estimation of predicting variable with regard to its significance. So, its very complex for judging a significance of variables with reference to its predicting ability for financial distress estimation. Shumway (2001) declared the models or techniques develop by Ohlson (1980),   Altman (1968) and Zmijewski (1984) as bias and misspecified by arguing that the time in which healthy firm survived does not addressed properly. He captured this phenomenon by estimating a model of Discrete Hazard that is similar as Logit model econometrically. There are multi benefits of this model. Firstly, it permits researchers to attain the benefit of all the firm-year observations which may available. Secondly, it is considered to be a dynamic model because it provides the probability of financial distress to vary by the passing time by way of independent variables function which also change with time.

In the factual study, It is discovered by Shumway(2001) , a Model of Discrete Hazard conveys reliable presentation with regard to out-sample forecasting capacity . As the influential study by Shumway(2001), the discrete hazard models have been used by Hillegeist et al.(2004) and Agarwal and Taffler (2008) as well to make comparison between the reliability of stock-market-information-based and accounting information based financial distress forecasting equations to the enterprises of US and UK. Chava&Jarrow(2004) expand this work of Shumway(2001), by making prominent a significance the impact of dummy of industry in his method. It gives proofs as well that the forecasting ability of accounts related factors make less significant on the while, the factors related to stock-market based are entered in the model. The discrete hazard model was used by Bharath and Shumway (2008) to check the contribution of the default probability discovered from the Model of Merton(1974) to forecast monetary difficulty. It discover that the default prediction relies on method of Merton(1974) does not have an adequate statistic. By Using the US data, the work of Campbell et al.(2008), based onto the methods of Shumway(2001), found the forecasting of default built on the equation of Merton gives very small predicting understanding in the model of Discrete Hazard once conditioned to stock-market-based as well as accounting factors. By taking UK data, hazard models have compared with Z-score and neural networks in the studies of Tinoco and Wilson (2013). They found that the approach of Z-score and neural networks have been outperformed by a model having panel logistic with covariates varying over different times, that is similar to the previous equations, which pools factors related to stock , macroeconomic as well as accounting variables .In same way, For the firms of UK, Agarwal and Bauer(2014) discover that the model of Z-score which is developed by Taffler (1983) and the possible conditioned model of Shumway&Bharath(2008)

have been outperformed by the hazard model which is performed in the work of Shumway(2001).

While there are very less number of evidences on financial distress prediction which arise for the markets of developing countries rather there are plethora of works in financial distress prediction for the markets of developed countries. Kwak et al.(2012) forecast insolvency of the enterprises of Korea afterward the monetary crisis of 1997. By taking factors related to accounting is used by Ohlson (1980) and Altman (1968), model for bankruptcy prediction discovered for them by Kwak et al. (2012) after adopting (MLCP) Multiple Criteria Linear Programming. It found the equation developed by them performs as a traditional logit analysis as well as traditional multiple discriminant analysis. Moreover, additional to perceived that when that is considerable variance of mean value for factors for non bankrupt firms and bankrupt , Kwak et al.(2012) does'nt emphasize on importance as well as signs of the factors for predicting financial distress as that are connected by contrasting of MLCP with analysis containing logit methods as well as multiple discriminant examination. For finding forecasters for monetary difficulty in the services along with trading segments of Malaysia, Ali fiah(2014) discovers possibility for distress have inverse associated with proportion of debt, net profit to total assets, the ratio of working capital. On the while, there are positive relation of the base lending rate and total asset turnover ratio with likelihood of distress.

Charalambakis&Garrett(2016) investigate impact of stock-market as well as accounting based evidence for the prediction of financial distress with the use of discrete hazard models through emerging and developed markets. However, it is found by them that book value of leverage together with three variable which have based on stock-market best forecast the probability for financial distress of the firms of UK, they also discover that information related to stock-market

doesn't have valuable role for performance of forecasting distress likelihood of the businesses in India. While, for the firms of India, they found that the probability for financial distress have negative association with profitability measure with the accounting-based variables and positive relation with the current liabilities to total assets ratio.

As for verifications with respect to factors of financial distress likelihood of private firms, yet another time this has pretty bare as well as more or less entirely focused on developed economies.

 In the studies which examine the probability for financial distress of private firms, Falken stein etal.(2000) calculate the credit risk with the use of Moody's RiskCalc for the private firms in US and found that the relationship among credit risk and financial variables contrast quiet significantly across private and public enterprises.

 Cangemi et al.(2003) adopts Standard&Poor's Credit Risk Tracker for evaluating hazard of default for the private organizations of France with use of the approach of Maximum Expected Utility (MEU). Sabato and Altman (2007) discover that, for the US, the probability for not defaulting of 2000 small and medium enterprises HAVE positive relation with net profit , cash , retained earnings and net profit. On the other hand, it have negative association with short-term debt and equity. For the SMEs of UK, Altman et al.(2010) gathered all financial and qualitative information in the model for insolvency forecast. Additionally, to discover the ratios related to accounting which have been taken from Sabato &Altman(2007) considerably forecast default likelihood for the SMEs in UK, they found that data related to legal proceeding by the creditors for the recovery of outstanding debts, firms audit reports and filing significantly enhance the capability of its methods. Whereas, these evidence doesn't permanently obtainable earlier or couldn't restructured regularly sufficient for estimation of exact predictions. Then, Diekes et

al.(2013) develop Probit Model, then found data of credit for increase the correctness for predictions for insolvency of German private enterprises.

2.2 Research Gap

Corporate financial distress is a very important field in the area of research but there is very fewer literature is found regarding its prediction in developing economies especially in Pakistan. Although, there have been done a considerable amount of work in developed countries but developing countries did not pay too much attention to the area of research yet. Hence; there is foremost need to do more research in this area.

2.3 Hypothesis Development

In this study H1 is larger liquidity ratio reducing the probability of financial distress which have been taken in the study of (Jahanzeb, A. (2016). It means negative association between financial distress prediction and liquidity . (Jahanzeb, A. (2016) concluded that larger liquidity reduced the probability of financial distress. Hence H1 as follows:

H_1 = There is negative association between liquidity and probability of financial distress.

While H2 is lesser profitablity leads to increase the chances of financial distress that also defines the negative association among profitability and financial distress predicion which is mentioned as follow:

H2= There is negative association between profitability and financial distress probability.

In this study both hypothesis stand accepted as in previous studies. Because our results show the same sort of impact of liquidiy on financial distress and profitability on financial distress prediction.

Chapter 3

DATA AND METHODOLOGY

3.1 Data.

For the said purpose, the data was obtained from the Balance Sheet Analysis (BSA) and Financial Statement Analysis(FSA) , from official website of the State Bank of Pakistan , from the year 2001 to 2019. The time period of this data was from 2001 to 2019. Population of this data was all non-financial firms while the sample of 60 firms was taken for the use including 30 firms are those which delisted by the KSE owing to violation of listing regulation no. 5.11.1(d). While other 30 are those firms which remain profitable throughout the whole time period. The Discrete Hazard Model (DHM) that is equal to Logit Model were used to analyze the significance of different variable in prediction of financial distress.

The dependent variable for this study was hazard of bankruptcy or financial distress which used as dummy variable equal to 1 if a firms is financially distress and 0 otherwise . While independent variables includes profitability , liquidity , leverage and size. Furthermore , to enhance the significance of this study , dummy variable of export and dividend payout is also included. It means if a firm does export it equal to 1 and 0 if not. Similarly , if company pay dividend to its shareholder it equal to 1 and 0 otherwise. Visa-a-vise, dummy of global financial crisis is also included which is equal to 1 in crisis period during 2007 to 2009 and 0 otherwise.

3.2 Discussion of Variables

3.2.1 Profitability

It indicates a portion of profit which is calculated by dividing net profit before tax with total assets. Hypothesis for our study is the lower profitability leads to maximize the chance of fall in financial distress. While previous researches finds profitability have inverse association with financial distress.

3.2.2 Size

Size have been measured by getting log of total assets. In previous studies size have the negative association financial distress prediction. Including Charalambakis (2019) finds that size is negatively associated to probability of financial distress.

3.2.3 Liquidity

Liquidity defines the capability of any firm to pay its short term obligations or in simple it might be explained as a company ability to provide funds to run its day to day operations. It has been measured by subtracting current assets from current liability then whole s divided by total assets as measured in the study of charalambakis(2019). While hypothesis for this is the higher liquidity position leads to minimize the probability of financial distress in simple words there have been negative relationship among liquidity and financial distress. Henceforth, previous researches including charalambakis(2019) shows a negative association among liquidity and financial distress.

3.2.4 Leverage

Leverage can be defined the value of investment of a company that is enhanced by obtaining interest borrowings. In previous studies there are positive association among leverage and financial distress as Charalambakis (2019) finds that leverage is positively associated with financial distress.

3.2.5-Exports.

Exports can be defined as sales of products or goods to other countries. In this study export included as dummy variable ,firm having exports is equal to one (1) otherwise zero (0). In previous studies , the firm which have been doing more exports tends to the lesser chances of falling in financial distress. In simple words, it has negative association with financial distress prediction as find by the study of Charalambakis(2019).

3.2.6-Dividend Payout.

The dividend payout is the part of amount of net profit which any business pays to its shareholders as dividends. In this study it is also used as dummy variable , if firm pays the dividend then equal to one otherwise zero (0).Hence, as per previous studies, it has negative relation to financial distress prediction.

3.2.7-Financial crisis.

Global financial crisis took as dummy variable during the crisis period 2007-2009.In the period it will be equal to one (1) otherwise zero (0). Interestingly, Charalambakis (2019) finds negative association between global financial crisis for and financial distress , means less bankruptcy in this period as compared to before the period.(Charalambakis & Garrett, 2019)

3.2.8. Hazard of Bankruptcy (Financial distress).

Hazard of bankruptcy (Financial distress) will be taken as dependent variable in this study . Variable dummy which takes value 1 when company is financial distress and 0, otherwise. We consider a company as "distressed" when meets some of the following conditions: (a) its profitability are lower for two consecutive years; and/or, (b) a fall in its market value occurs between two consecutive periods.

Variables in Equation form.

$$Y_{it} = \beta_0 + \beta_1 Prof + \beta_2 Lev + \beta_3 Size + \beta_4 Liquid + \beta_5 d_1(\text{Export}) + \beta_6 d_2(Divpay)$$
$$+ \beta_7 d_3(Grcrisis) + \varepsilon_{it}$$

3.2 Overview of Variables

SR #	Variable	Definition
1	Profitability (PROF)	$\dfrac{Earning\ before\ interest, tax, and\ deprciation}{total\ assest}$
2	Leverage (LEV)	$\dfrac{Book\ value\ of\ total\ debt}{total\ assets}$
3	Size	Natural logarithm of total assets
4	Liquidity (LIQUID)	$\dfrac{(Current\ assets - current\ liabilities}{total\ assets}$
5	Exports (EXPORT)	Dummy variable equal to "1" if a firm exports, "0" otherwise
6	Dividend Payout (DIVPAY)	Dummy variable equal to "1" if company pays out dividends, "0" otherwise
7	Global Financial Crisis (GRCRISIS)	During crisis period from 2007 to 2009 equal one otherwise zero
8	Hazard of bankruptcy (Financial distress)	It takes value 1 when company is financial distress and 0 otherwise

3.3 Empirical Model

Given the relative advantages of the model defined earlier

The Discrete Hazard Model has been used as the basis of our empirical study. The model would be as follow:

$$\frac{h_i(t)}{\ln[1 - h_{i(t)}]} = \alpha(t) + \beta'x_{it}$$

$$(1)$$

Where $h_i(t)$ denotes the hazard of bankruptcy at time (t) for company (i), conditional on firm (i) surviving to time (t); $\alpha(t)$ is the baseline hazard; β' is a vector of coefficients and x_{it} a k ×1 vector of observations on the ith covariate at time t. The innovative feature of this approach, as Shumway (2001) shows, is that the discrete-time hazard model can be estimated as a dynamic multi-period logit model where each period that a firm survives is included as a non-failing firm year observation. Therefore, we estimate the probability of bankruptcy as:

$$P_{t-1}(Y_{it} = 1) = \frac{1}{1+\exp(-\alpha-\beta'X_{it-1})} \qquad (2)$$

where Y_{it} is a variable that equals one if firm i enters financial distress in year t, zero otherwise. β and x are as before.

Chapter 4

Results and Discussion

4.1: Descriptive Statistics.

Descriptive statistic is the measure which have been used to explain the basic characteristic of the data. The descriptive of our study is displayed in three tables. First, the table is which tells basic summary of financial distressed firms. 2nd table is all about the value showing the non distressed firms. At the last, the table contains the information of full sample including financial distressed and non-distressed firms. The information of descriptive statistics clearly shows the difference between non-distressed and distressed firms. As mean value of profitability for distressed companies is -0.011 and this value for non-distressed firms is 0.1442 which is higher than the value of profitability of distressed firms. It verify our results that more profitability leads to minimize the chances of fall in financial distress.

4.1- Descriptive Statistics for Distressed Companies

Variable	Mean	Median	Std. dev.	Maximum	Minimum	Skewness	Kurtosis
Profitability	-0.011	-0.014	0.1585	0.4390	-0.711596	-0.0563	6.8838
Lev	0.700	0.730	0.3064	0.9978	0.065563	-0.2753	2.5177
SIZE	2.8382	2.5207	0.8431	5.7157	1.5335	2.1822	7.3684
LIQUID	-0.239	-0.1873	0.3770	0.7966	-1.1736	-0.03048	3.6386
EXPORT	0.1370	0.00	0.3453	1.00	0.00	2.1102	5.4529
DIVPAY	0.0403	0.00	0.1975	1.00	0.00	4.6735	22.8420

Furthermore, there is difference between mean value of liquidity as well. Because mean value of liquidity for distressed companies is -0.239 while for non-distressed firms is 0.2749 which is also greater than distressed companies. It also verify our results that more liquidity have less chances to fall in financial distress. Moreover, mean value of profitability and liquidity for distressed company is negative while for the non-distressed firms have positive value. it also tells that negative profitability and liquidity leads to financial distress. While more profitability and stable liquid position have less chances for falling in financial distress.

4.1.2-Descriptive Statistics for Non- Distressed Companies

Variable	Mean	Median	Std. dev.	Maximum	Minimum	Skewness	Kurtosis
Profitability	0.1442	0.1178	0.0998	0.4396	0.0027	0.7456	2.8643
Lev	0.3847	0.3788	0.1481	0.8141	0.1121	0.2166	2.4193
SIZE	3.6381	3.5027	0.8018	6.0913	2.2327	0.9771	4.1357
LIQUID	0.2749	0.2769	0.1798	0.7427	-0.1095	0.3454	2.6856
EXPORT	0.6428	1.00	0.4805	1.00	0.00	-0.5962	1.3556
DIVPAY	0.8392	1.00	0.3683	1.00	0.00	-1.8476	4.4137

Moreover, the mean value of size is also greater for non-distressed firms which is 3.6381. while the value of size for distressed firms is 2.8382 which is lower than stable firms. This also verify the results that size is negatively associated to financial distress. As size for financially distressed firms is lower than stable firms. In the same way, mean value of leverage of distressed companies is 0.70 which is more than stable firms that is 0.3847. This also accepted our results that the companies having more leverage ratio have more chances to fall in financial distress.

Similarly, mean value of dummy variables of exports and dividend payout for distressed firms is also less than stable firms. As mean value of exports for stable firms is 0.6428 and mean value of dividend payout is 0.8392 which are far greater than these value for distressed firms which are

0.1370 and 0.0403. it means that stable firms is more likely to do exports and payout dividends as compared to distressed firms This results also verify our previous results that company having more exports and paying dividend to its shareholders have less chances to face financial distress.

4.1.3- Descriptive Statistics for Full Sample

Variable	Mean	Median	Std. dev.	Maximum	Minimum	Skewness	Kurtosis
Profitability	0.0949	0.0781	0.1491	0.4396	-0.7115	-0.4634	5.7213
Lev	0.5242	0.4788	0.2819	0.9978	0.065	0.3689	2.9326
SIZE	3.2984	3.1096	0.9090	6.0913	1.5335	1.0416	3.7894
LIQUID	0.0565	0.1062	0.3787	0.7966	-1.1736	-0.8429	3.6900
EXPORT	0.4280	0.000	0.4956	1.000	0.00	0.2906	1.0845
DIVPAY	0.50	0.50	0.500	1.00	0.00	0.000	1.000

4.2- Correlations.

Correlation shows the degree and direction of association between two variables it may be negative or positive. So here in our study following results are shown. Firstly , profitability and liquidity have positive correlation which is 0.4409 .it can be interpreted as 1% change in profitability leads to change in liquidity by 44%. Furthermore, profitability and leverage have negative correlation of -0.3081 which means 1% change in profitability leads to 0.3081 inversely change in leverage.

Table-4.2. Correlations.

	PROF	LIQUID	LEV	SIZE	EXPORT	DIVPAY
PROF	1.000000					
LIQUID	0.4409	1.0000				
LEV	-0.3081	-0.6416	1.000000			
SIZE	0.1877	0.3179	-0.1828	1.000000		
EXPORT	0.2294	0.3142	-0.1885	0.2682	1.000000	
DIVPAY	0.4514	0.4800	-0.3739	0.4169	0.3885	1.000000

In the same way, profitability have the positive correlation with size, exports and dividend payout by 0.1877, 0.2294, and 0.4514 respectively. While Liquidity have the negative correlations with leverage, while positive correlation with size, export, and dividend payout by 0.3179, 0.3142 and 0.4800 respectively. It means 1% increase in liquidity leads to change the other variable by their respective degree of correlations. Then, leverage has negative correlation with all variables . It has correlation with size, exports and dividend payout by -0.1828, -0.1885 and -0.3739 respectively. After the leverage, there have been positive correlation among size and exports and size and dividend payout by 0.2682 and 0.4169 respectively.

4.3-Prediction of Financial Distress

We find the Financial Distress Prediction(FDP) for Non-Financial Firms of Pakistan by estimating a series of Multi-Logit Models. In this methodology we took the sample total of sixty 60 non financial firms of Pakistan listing on Pakistan stock exchange. In these firms 30 firms are those which have been delisted by Pakistan Stock Exchange owing to liquidation/winding up

under court order i.e. violation of listing regulation no. 5.11.1(d). while thirty 30 firms are those which remain profitable throughout the time period taken for consideration. In this process, Profitability, leverage, size, liquidity are taken as independent variables. Moreover, dummy variable of exports and dividend also be included. While dependent variable is Hazard of financial distress denoted by Y taken as dummy variable which will be "1" if firm is financially distress otherwise would be equal to "0". As said earlier, series of logit models have been estimating in which we run five of equations. In Model 1 , three of independent variables have been taken including profitability , leverage and size with dependent variable . The result of this model shows that profitability and size have negative connectivity with Financial Distress Prediction while leverage has positive connectivity with Financial Distress that means that more profitable and having larger size firm has less chances to fall in bankruptcy. On the while, positive association between leverage and financial distress explains that company having more leverage lead more chances to fall in bankruptcy as mentioned in Table 4.3. This result is same and consistent with the study of Ian Garret and Charalambakis(2019). As it find in that study that profitability and size have inverse association for forecasting Financial Distress whereas, there have positive association of leverage with FD. Furthermore, negative association of profitability with financial distress and positive association of leverage with financial distress is also found in the study of Shumway (2001) and Ohlson(1980), which have been done for the US firms.

Then, in Model 2 the variable of liquidity have been added with Model 1 . This model displays that there have been negative connectivity between among liquidity and financial distress. It means that more liquid firm have less chances of falling in financial distress. This result is also consistent with the research of Ian Garret and Charalambakis(2019) the study which

have been used for basis of this research. Furthermore, this result is also show the same result which is consistent with Altman and Sabato (2007) for the firms of UK.

After that, Model 3 is added with the dummy variable of exports which equal to 1 for the firm that does export and 0 otherwise. The result tell that negative relation between export and financial distress which mean the company doing exports has minimum chances to fall in bankruptcy. Those companies which does not involved in exports have more chances to fall in bankruptcy. This results is similar as well with the earlier studies including Ian Garret and Chalarlambakis(2019).

Then, Model 4 was added by the dummy variable of dividend payout in Model 3 . this variable equal to 1 for those firms which pay dividend to its shareholders and 0 for otherwise. The results shows negative relation between dividend payout and financial distress which means that the firms pays dividend to its shareholders have less chances to fall in financial distress and vice-versa. And this results is consistent with the research of Ian Garret and Chalarlambakis(2019).

Now , the Model 5 have been augmented with the dummy variable of global financial crisis during 2007 to 2009 which mean this dummy equal to 1 during 2007 to 2009 and remain 0 in remaining years. The result find the positive relation between financial crisis dummy and financial distress which can be interpreted as the chances of financial distress increases for this period . AS a huge number of firms encountered difficulty in surviving during this crisis period (Duchin et al. 2010; Vermoesen et al. 2013). In the same way, firms in Pakistan have also encountered the same situation as according to the Economic survey 2009-2010, it was 33% fall in the net profit after tax of the companies that is listed with Pakistan stock-exchange.

In general, profitability, liquidity, exports , dividend payout have negatively associated with financial distress prediction while leverage and global financial crisis have positive relation with financial distress prediction.

Then, R-squared value mean the model have more relevant information about prediction of financial distress. In this results, model 5 have the highest McFadden R-squared which 45..85% it means that model 5 in these models have more relevant information regarding prediction of financial distress. While this value is 31.50% for model 1 which is the lowest among these which can be explained as it contains less relevant information about financial distress prediction as compared to others. Furthermore, McFadden R-squared value for the model 2 is 32.70%, for Model 3 is 41.15% and for Model 4 is 44.92%.

  After, investigating the predictive ability of the models, we find the goodness of fit by comparing log likelihood of each model. In our results, log likelihood of the models are follows: for model 1 it is -175.08 , for model 2 is -134.65, for model 3 is -79.23 , for model 4 is -71.24 and for model 5 is -70.04. This results shows that model 5 of them is more better with regard to goodness of fit as its log likelihood value is -70.04 which is higher than others . while model 1 is the lowest log likelihood value which is -175.08. All the results have been mentioned in Table 4.3 as well.

Table-4.3 Results of Logit Models (Marginal Effects)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5
CONSTANT	-0.3439 [0.6857] (0.6160)	-0.7405 [0.8211] (0.3671)	-0.7331 [0.9878] (0.4580)	-1.4187 [1.0641] (0.1825)	-1.5044 [1.0932] (0.1688)
PROF	-10.282*** [1.6259] (0.000)	-5.9520*** [1.480] (0.0001)	-3.7989*** [1.6752] (0.0234)	-2.9661* [1.6467] (0.0717)	-3.2189* [1.6443] (0.0503)
LEV	2.6081*** [0.6151] (0.000)	0.0675 [0.7843] (0.9313)	0.2222 [0.9112] (0.8073)	-0.0755 [0.9299] (0.9353)	0.0432 [0.9385] (0.9633)
SIZE	-0.5975*** [0.1930] (0.0020)	-0.1013 [0.2262] (0.6542)	0.010455 [0.2742] (0.9696)	0.4021 [0.9299] (0.9353)	0.3860 [0.3299] (0.2420)
LIQUID		-3.9733*** [0.7460] (0.000)	-4.0192*** [0.9503] (0.0000)	-3.6937*** [0.9597] (0.0001)	-3.5746*** [0.9606] (0.0002)
EXPORT			-2.3763*** [0.6691] (0.0004)	-2.0656*** [0.6804] (0.0024)	-2.5107*** [0.7652] (0.0010)
DIVPAY				-1.7962*** [0.6879] (0.0090)	-1.8620*** [0.7015] (0.0079)
GRCRISIS					1.0730 [0.6999] (0.1252)
Log likelihood	-175.0877	-134.65	-79.2383	-71.2495	-70.0420
McFadden R-squared	0.3150	0.3270	0.4115	0.4492	0.4585

4.3.1- Expectation-Prediction Evaluation for Binary Specification

In the Table 4.4, evaluation of the models based on predicted and estimated results. This test used 0.5 cut off point for estimation of success of the model. "Correct" classifications are obtained when the Predicted Probability is larger than the cutoff and the observed . In the following table, It is shows that 406.06 out of 459 observations are correctly specified which is 80.92%. It means Overall, the estimated model correctly predicts 80.92% of the observations for Model 1. Similarly for model 2; 343 observations out of 420 are observed correctly which is 80.42%. It means that Model 2 correctly predicts 80.42% of the observations which is quite lower than model 1. Then, In model 3 , correctly predicts 81.46% of observations which is higher than model 2. Similarly, Model 4 and model 5 are correctly predict 82.94% and 83.00% of the observations respectively. In a nutshell, all models have successfully predicted the observations because all estimated equation has more corrected percentage of observations than its constant probability which have been denoted as % Gain. But Model 5 have more correctly predict observations than other models while model 2 have lowest correct predicted observations among all models.

Table:4.4
Expectation-Prediction Evaluation for Binary Specification
Success cutoff: C = 0.5

	Model 1	Model 2	Model 3	Model 4	Model 5
E(# of Dep=0)	406.06	343.00	214.00	212.00	212.00
E(# of Dep=1)	52.94	77.00	54.00	51.00	51.00
Total	459.00	420	268.00	263.00	263.00
Correct	406.06	337.76	218.31	218.12	218.30
% Correct	80.92	80.42	81.46	82.94	83.00
% Incorrect	19.08	19.58	18.54	17.06	17.00
Correct% Dep=0	88.47	88.01	88.39	89.42	82.46
Correct% Dep=1	44.86	46.60	53.99	56.00	56.18
Total Gain	9.53	10.36	13.64	14.20	14.27
% Gain	33.32	34.61	42.38	45.42	45.63

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Chapter 5

Conclusion and Recommendations.

5.1 -Conclusion

In a nutshell, it is concluded that Financial distress can be defined as a failure of firm which is considered to be the most important concern in economic life of every firm. According to Carminchael (1972), the situation when a company face the difficulties to paying its obligations due to insufficient fund is known as financial distress. Despite having its importance, there is very attention have been given to this area of research in developing countries specifically in Pakistan. Therefore, there is a dire need to conduct research in this field. Having its importance, by using the data of 60 firms of Pakistan stock exchange, this study estimated the probability of financial distress for non-financial firms of Pakistan using multi-logit /discrete hazard approach. In which profitability, size, liquidity, and dummy variables of exports and dividend payout have been found negatively associated with the probability of financial distress. While leverage and global financial crisis have positively related to financial distress. Then, model 5 which incorporates all dummy variables of exports, dividend and financial crisis have highest predictive ability as it correctly classified as 83.00% of firms observations. This study highlights its importance by giving look forward to the research in this area. Then, it helps in formulating policy for non-financial firms by analyzing impacts of different variables on prediction of financial distress. Then, it plays an important role on managerial decision making for firms, investment decision making for investors, credit decision making for creditors, customer credit ratings for banks and so on. Likewise, it is much important as well because of employment dependence of large number of

people on these firms. Lastly, It has important practical significance on improving awareness of financial risk, preventing corporate financial distress, and avoiding bankruptcy liquidation.

5.2-Future Directions and Policy Implications.

The study focuses on seven explanatory variables including dummy variables of export, dividend payout and global financial crisis on Corporate Financial Distress Prediction while more variables might be incorporated to get more better results. Then the data for only non financial firms are used in this study whereas data of financial firms may also included to make it more better.

In the light of this study, it is recommended for the policy makers or decision makers to consider more profitability and positive liquidity as the savior from financial distress. As it is negatively associated with financial distress prediction as per the results shows. Then, exports is also a very important variable which contributes to the financial well being of any firm. Because in this study, those firms are less likely to stuck in financial distress which have been doing exports. Therefore, exports would be very helpful for financial well being of any business. Furthermore ; a firm should avoid to keep large amount of debt in order to protect from falling into financial distress .In a nutshell, more profitability , more liquidity and more exports give the way to financial well being of any firm and save it from falling into distress financially.

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