Mariam Javed[*] | Zulfiqar Ali Shah[†] | Abdul Rahman[‡]

Exploring Role of CSR in Preventing Bankruptcy: Moderation Effect of Board Independence in Manufacturing Sector of Pakistan and Australia

Abstract   The purpose of the paper was to investigate the effect of CSR in prevention of bankruptcy while considering role of board independence in manufacturing sector of Pakistan and Australia. For this purpose, data of 50 publicly listed manufacturing companies from Australia and Pakistan was collected for 2005 to 2018 on factors of corporate social responsibility (CSR), bankruptcy and board independence. Meanwhile, EViews was used to conduct tests and correlation and multiple regression techniques were applied for the empirical investigation. The findings of the study reveal that bankruptcy is not significantly affected by the CSR contribution of manufacturing companies from developing and developed country. i.e. Pakistan and Australia. However, in case of Pakistan, evidence of moderation effect of board independence on effect of CSR on bankruptcy is found which is also significant. But this could not be evidenced from the Australian firms. Lastly, the paper also discusses the implications.

Key Words: CSR, Bankruptcy, Board Independence

Introduction

In the academic literature, the question related to CSR along with its role in improving organization's performance has garnered great significance from scholars. There is perspective of businesses, such as, finance, management and accounting in which the interrelation among CSR and performance is become a significant aspect in research, albeit, the relationship between the two are not supported by the overwhelming results of the studies (Cooper & Uzun, 2019). On the one hand, there is optimist relationship has been shown between the CSR and firm's performance by the studies. It has been observed that through the meta-analysis of studies that there are virtually 50 percent of studies that are depicting the positive interconnection among the CSR and organization's performance (Margolis & Walsh, 2003). In other perspectives, few studies have shown negative association has between the CSR and the returns of stock market. Besides, there are also some studies where this relationship has been found as inconclusive or no relationship (Brammer, Brooks & Pavelin, 2006; Nelling & Webb, 2009).

There is sufficient amount of studies, where the main intent of those studies to ascertain that whether the outcomes of financial performance, such as, return on stock, indicators of accounting performance, risk and cost are determined by CSR. When it comes to financial performance, bankruptcy is considered its outcome, although, bankruptcy would never be a desire of any firm to get as an outcome (Cooper & Uzun, 2019). Bankruptcy is considered a pivotal issue, and a major stumbling block in the way to organization's performance. In the contemporary time, no one can understate the importance of bankruptcy environment. For the chief financial officers of the organisation, the bankruptcy avoidance is considered an imperative and primary goal. The practicality and true worth of CSR can only be understood in the situation of financial distress and bankruptcy (Noulas, & Genimakis, 2014). Besides, this stressful financial situation of chaos and turmoil provides a proper setting to test the viability of CSR.

[*]PhD Scholar, Department of management Sciences, International University, Islamabad, Pakistan.
Email: mariam.javed@iiu.edu.pk
[†]Associate Professor, Department of Management Sciences, International University, Islamabad, Pakistan.
[‡]Professor, Department of Management Sciences, Quaid-e- Azam University, Islamabad, Pakistan.

In many theories, the CSR in financial performance has been analysed in the context of bankruptcy. Fascinatingly, there is much of the theoretical underpinning of CSR research are brought by the bankruptcy (Eckbo, Thorburn & Wang, 2016). Besides, there are various stakeholder groups are also the part of these theories. It is indubitable that bankruptcy affects the stakeholders. Therefore, the employees of the firms are also affected when the firm undergoes bankruptcy. Verwijmeren and Derwall (2010) opined in their study that if there is lower debt-to-assets ratio, there would be a strong employee well-being in the firm. It ought to be known here that the role corporate governance (CG) is imperative in moderating the association among CSR and bankruptcy. Given that, role of each members in corporate governance is very important in promoting CSR activities in the firm. This can be illustrated by the shareholders, auditor, board of directors and other important stakeholders of the firm play a very crucial role to form a governance system, through which the CSR can be supported.

On the basis of the relationship between the two factors, scattered results have been found as some studies shows positive where other studies revealed negative influence. Therefore, on the basis of the results, the study seeks to analyse the effect of CSR on bankruptcy. In addition, there were no studies that examine the moderating effect of the board independence resulting in developing a gap. Thus, the study seeks to examine the role of CSR in preventing bankruptcy while also considering board independence as the moderating variable.

Literature Review

Corporate social responsibility has been gaining high attention with the perspective of affecting the financial performance. Several studies point out that the CSR plays a positive role towards the improvement of the financial performance (Bai and Chang, 2015; Bondy, Moon and Matten, 2012; Alshammari, 2015). Similarly, Bai and Chang (2015) points out that most of the organisation considers CSR as strategic point for obtaining a competitive advantage. CSR can also support the organisation in enhancing its association with the stakeholders that can provide with the opportunities for improving the financial performance. The importance of the CSR activities for manufacturing companies can be highlighted from the study of Kushwaha and Sharma (2016) where the issues of environmental sustainability is significantly higher compared to other industries. The operations and procedures of the manufacturing industry leads towards wastage and pollution and thus is highly criticised with the perspective of environmental sustainability. Thus, it is critical among the manufacturing organization to implement the practices of CSR for minimizing its wastage and reducing its resources utilization (Saeidi et al., 2015).

Attig et al. (2013) proposed that the activities of CSR can support the companies in mitigating the risk of bankruptcy. Bankruptcy is the undesirable and unwanted position of an organisation as it is usually perceived as an outcome where the organisation losses control (Bhabra, 2011). It is the primary goal of every organisation's CFO and CEO to avoid bankruptcy while making its decision on the capital structure. There are multiple factors that can lead the firm to bankruptcy which consists of poor location, high debt, lawsuits and catastrophes (fires, theft, flood and fraud). There are wide studies that have been conducted for exploring the effects of CSR on bankruptcy.

Similarly, the study conducted by Cooper and Uzun (2019) explores the effects of CSR on bankruptcy. The study highlights that the bankruptcy has significantly increased due to the financial crises in the period 2008. The total number of bankruptcies that has been filed in 2009 was 60,837 while 24,735 businesses have been bankrupted in 2015. The major cause of the bankruptcies was due to CG along with the problems of ethic. For analysing the effects of CSR on bankruptcy, Cooper and Uzun (2019) measures 246 firms that are included in LoPucki Bankruptcy Database. The results of the study have revealed that firm that has stronger CSR are less covered as per the risk of bankruptcy while compared to companies with weak CSR.

Gupta & Krishnamurti (2018) measures the effects of CSR engagement benefits on bankruptcy. For measuring its effects, the study has been conducted on 67 bankruptcy cases that are provided in MSCI ESG. The CSR activities or also referred to as moral capital in the study highlights that it is associated with financial distress that is influenced through the bankruptcy. Moral capital has been found to decrease the days for the firms moving towards bankruptcy. The results have revealed that

the moral and CSR activities play a major role towards facilitating the emergence from bankruptcy. The study of Kim et al. (2014) has revealed that the CSR activities help the company to mitigate the risk of stock price crash. The rationale behind is that it helps in developing a positive relationship the government and non-governmental organisation that leads towards gaining favours during the time of crises.

Another element which supports in managing the financial distress is through corporate governance in which the board of directors and executives helps in making effective decision for helping the business to prosper (Gupta & Krishnamurti, 2018). As per the study of Adams (2010), corporate governance is critical and vital for all the business entities regardless of being sole trader, partnership or public firm. Similarly, Peters & Romi (2014) highlighted that the corporate governance is equally important as the plan of business. Companies that have good policies of corporate governance can improve its brand image towards the public due to catering the interest of the investors and shareholders.

Gillan, Hartzell & Starks (2011) has stated the CG of an organisation can be assessed by the board structure and board independence. The board of the company usually consist of executive and non-executive directors. Few literatures have highlighted that the CSR is significantly affected by the corporate governance. Study of Arora and Dharwadkar (2011) uses the qualitative method approach for analysing the association between CSR and corporate governance. The study has made 1522 observation for 518 organization in S&P 500 index. The study demonstrated that the association among CSR and corporate governance is a bit complex as the activities of CSR leads towards achieving the firm performance.

On the other hand, the managers and owners are clearly interest in achieving its target performance causing them not to invest in the CSR. The results gained for the study has revealed that the corporate governance has both positive and negative influence on CSR. Similarly, the study conducted by Ahmad, Rashid and Gow (2017) the independent board of directors are identified to play a major part on CSR by providing charities, reducing agency cost and emphasizing in the ethical aspects. Furthermore, the study examines whether the activities of CSR are influenced by the corporate governance in which the non-financial organization that are listed on Main Market of Bursa Malaysia are analysed. The period taken for analysing the companies consists of 2008 till 2013. The studies revealed that the only factor to influence and promoting CSR is the board independence. The independence of the directors is leading towards the increase the level of CSR.

Data and Methodology

The following study is mainly conducted to examine the effects of CSR on preventing bankruptcy while also examining the moderating effects of board independence. The research mainly analyses the manufacturing companies in which two countries has been examined which are Australia and Pakistan. Therefore, the nature of the study falls towards the quantitative research as per fundamental aim of the research. In addition, the research also evaluates the numerical and figures of the manufacturing company to determine whether CSR can prevent bankruptcy along with analysing the moderating effects of board independence. Therefore, the quantitative research approach has been incorporated whereas the qualitative study has been rejected.

The sample size that has been selected to be analysed is 50 total companies in which 25 of the manufacturing firms belongs to Australia and the remaining 25 are Pakistani companies. With respect to the variable of the study, there are mainly three variables involved in the study that has been examined. The three variables consist of corporate social responsibility, bankruptcy and CG. While referring to the study of Nadeem and Malik (2014), there are mainly four categories in which the component **CSR** is measured which consist of donations, education, health and social welfare. Each of the categories of CSR has been discussed:

Table 1. CSR Categories

Categories	Code	Method for measurement
Donations	DE	The amount provided by the company in terms of charity which can include cash, goods, food, toys or vehicles (Nadeem and Malik, 2014)
Education	EE	The amount spent by the company in supporting the educational institution of the country for improving literacy rate (Nadeem and Malik, 2014)
Healthcare	HC	The amount spent in the public and private hospitals by the organisation for support the poor patients (Nadeem and Malik, 2014)
Social welfare	SW	The amount that is spend on the welfare of the society which can include environmental spending (Nadeem and Malik, 2014)
Corporate social responsibility	CSR	By adding all of the above categories can help in identifying the value of CSR

The second component that is examined is bankruptcy in which the effect of CSR is examined. For identifying whether the firm has a risk towards bankruptcy, the tool Altman Z-score is utilized. There are various studies that have used the Altman-z model for examining the failure of the organisation (Mohammed, 2016; Kumari, 2013; Al-Rawi, Kiani and Vedd, 2008). Th tool has been published in Altman (2000) which has been presented below along with factor description:

$$Z\text{-score} = 1.2*WC/TA+1.4*RE/TA+3.3*EBIT/TA+0.6*E/TA+0.999*S/TA$$

Table 2. Altman-Z

Ratio	Description
WC/TA	The ratio is used for identifying the liquidity position through dividing working capital with total assets.
RE/TA	This is worked out by dividing the retained earnings with the total assets which can determine the intention of company for achieving growth.
EBIT/TA	The factor is calculated by dividing EBIT with the total assets for determining the proportion of EBIT accordance to the total assets
E/TA	This ratio is used for identifying the market value of equity as per the proportion of total assets
S/TA	It represents the efficiency of the total assets for generating sales which is computed through divided by sales by total assets.

On the basis of the computation, the Z-score is computed among three categories which consist of the following:

Table 3. Z-Score Value

Z-score value	Zone
2.99 or greater	Safe Zone
1.81 – 2.99	Grey Zone
Below 1.81	Distress Zone

The last variable that has been examined as a moderating effect is the corporate governance. There are various elements in which the corporate governance is examined which consist of ownership structure, institutional ownership, board size, board independence, CEO duality and others. On the other hand, the only element that has been considered for measuring the corporate governance is through the board independence which is indicated by the non-executive members of the board.

With respect to the method of analysing the data, there are several statistical tools that have been incorporated in the collected data for reaching towards the findings of the study. The tools used for obtaining the results consist of descriptive, correlation analysis and regression analysis. Each of the

identified tools provides a different set of results among the data set. The descriptive statistics has been conducted to provide a summary of the data set whereas correlation is used for measuring the association of the variables. With respect to regression analysis, panel regression has been incorporated among the data set in which it involved conducting random and fixed effect model. Furthermore, few models have been developed for conducting the regression analysis in which it has been provided below:

Model 1:

$$Bkrcy_{Pak} = \alpha + \beta CSR_{Pak} + \epsilon_{Pak}$$

The first model of regression measures the effects of CSR on bankruptcy that is measured among the manufacturing companies of Pakistan.

Model 2:

$$Bkrcy_{Pak} = \alpha + \beta CSR_{Pak} + \beta BI_{Pak} + \epsilon_{Pak}$$

The second model of regression measures the effects of both CSR and board independence on bankruptcy

Model 3:

$$Bkrcy_{Pak} = \alpha + \beta CSR_{Pak} + \beta BI_{Pak} + \beta CG_{Pak} * CSR_{Pak} + \epsilon_{Pak}$$

The third model is emphasized in analysing the effects of CSR and board independence on bankruptcy along with the interaction of board independence with CSR in the manufacturing companies of Pakistan.

Model 4:

$$Bkrcy_{Aus} = \alpha + CSR_{Aus} + \epsilon_{Aus}$$

The fourth model of the study also measures the effects of CSR on bankruptcy; however, it has been applied on the Australian companies. The models provided below (model 5 and 6) follows the same model as model 2 and 3; however, has been incorporated among the manufacturing companies of Australia.

Model 5:

$$Bkrcy_{Aus} = \alpha + \beta CSR_{Aus} + \beta BI_{Aus} + \epsilon_{Aus}$$

Model 6:

$$Bkrcy_{Aus} = \alpha + \beta CSR_{Aus} + \beta BI_{Aus} + \beta CG_{Aus} * CSR_{Aus} + \epsilon_{Aus}$$

Results and Discussion

Descriptive Statistics

Table 4. Descriptive Statistics of Pakistani Manufacturing Company

	CSR Rs	Board Independence	Bankruptcy
Mean	4022870	0.649465	1.65175
Median	1586732	0.714286	1.539296
Maximum	49420000	1.125	6.704881
Minimum	30000	0	-3.516363
Std. Dev.	6387251	0.230938	1.401978
Skewness	3.257079	-1.132756	0.1414

Kurtosis	16,52783	3.807186	5.556435
Jarque-Bera	3268.83	83.86935	95.92235
Probability	0	0	0
Sum	1.40E-09	226.0137	574.8089
Sum Sq. Dev,	1.42E-16	18.50638	682.0435
Observations	348	348	348

Table 4 represents the descriptive statistics Pakistani companies in which the mean value of CSR 4,022,870 rupees whereas the maximum value is 49,420,000 rupees and minimum value is 30,000 rupees. The standard deviation of CSR is 6,389,251 rupees which indicates its dispersion. On the other hand, the mean value of board independence is 0.64 whereas the maximum value is 1.125 and the minimum is 0. The standard deviation of board independence is 0.23 that indicates its dispersion. While analysing the bankruptcy, its mean value was 1.65 whereas the maximum value is 6.70 and the minimum value was computed as -3.51.

Table 5. Descriptive Statistics for Australian Companies

	CSR A$	Board Independence	Bankruptcy
Mean	15866066	0.710483	2.478431
Median	1298220	0.8	1.2300S5
Maximum	4.94E+08	1	393.2686
Minimum	-15457.4	0	-5.074918
Std. Dev,	42182828	0.218532	21.1404
Skewness	6.694207	-1.48712	18.19493
Kurtosis	64.63381	5.334638	336.5378
Jarque-Bera	57846.4	207,897	1636980
Probability	0	0	0
Sum	5.54E+09	247.9585	864.9723
Sum Sq, Dev,	6.I9E+17	16.61917	155526.9
Observations	349	349	349

Table 5 highlights the descriptive statistics for the Australian companies in which the mean value of CSR is $15,866,066 whereas the minimum value is $1,298,220 and the standard deviation of the CSR is $42,182,828. With respect to board independence, its mean value is 0.71 whereas the maximum value is 1 and minimum value is 0. The standard deviation is 0.21 for board independence. With respect to bankruptcy, the mean value is 2.47 and the maximum value is 393.26. The minimum value is -5.07 whereas the standard deviation has been computed as 21.14.

Correlation Analysis

Table 6. Correlation of Pakistani Companies

	CSR_RS	Board Independence	Bankruptcy
CSRRS	1	-0.060334	-0.12998
Board Independence	-0.060334	1	-0.15317
Bankruptcy	-0.12998	-0.153166	1

Table 6 represents the results of correlation for the Pakistani companies; CSR and bankruptcy has negative weak interrelation implying that higher CSR expenditures increases probability of bankruptcy. In contrast, board independence and bankruptcy have negative weak relation indicating an inverse relation which means higher board independence also increases chances of falling bankrupt. These findings are contradicting with the previous empirical studies such as Gupta & Krishnamurti (2018) found that CSR has positive relation with bankruptcy. A positive interrelation between CSR and bankruptcy means higher expenditures positively influence the Altman Z-score, and improving Altman z-score is a positive indication for the company and investors.

Table 7. Correlation Analysis of Australian Companies

	CSR A$	Board Independence	Bankruptcy
CSR A$	1	0.191795	-0.01906
Board Independence	0.191795	1	-0.02945
Bankruptcy	-0.01906	-0.02945	1

Table 7 highlights the correlation analysis of the Australian companies where CSR has positive significant interrelation with board independence and has negative interrelation with bankruptcy but relation is not significant. In contrast, board independence and bankruptcy also have negative but statistically insignificant relation. Results over the Australian firms reveals that CSR expenditure increases when firm has higher board independence, but it can have adverse effect on bankruptcy since Altman z-score declines towards bankruptcy even if CSR expenditure increases. This reveals that Australian companies' CSR expenditure is related to the board independence, but Pakistani companies' CRS is not positively related.

The results of the Pakistani firms and Australian firms is contradictory, where results of both countries show that CSR has negative relation with bankruptcy and relation is also insignificant at 0.05. This means interrelation between the CSR and bankruptcy is entirely absence from the manufacturing firms from both companies. However, Australian companies results reveals that CSR increases when board independence increase; but in case of Pakistan this result is also negative. Therefore, based on the Pearson's correlation, it is evident that corporate governance difference prevails within the borders of Australia and Pakistan. Meanwhile, this is also attributable to the weaker governance and legal structure in the Pakistan as evidenced by Nadeem and Malik (2014).

Regression Results

Model 1: Effect of CSR on Bankruptcy

$$Bkrcy_{Pak} = \alpha + \beta CSR_{Pak} + \beta BI_{Pak} + \epsilon_{Pak}$$

Table 8. Model 2

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CSR RS	1.70E-0 8	1. 1OE-OS	1 .54484	O. 1733
Board Independence	0.09524	0.756	0.37704	0.71009
	1 .5 1763		5.1S3	3.72E-07
Effects Specification			S.D.	Rho
Cross-section random			1.15906	0.69576
Idiosyncratic			0.76704	0.30424
Weighted Statistics				
R- squared	0.00708			0.7S795
Adjusted R-squared	0.00132	Mean dependent var S.D. dependent var Sum squared		0.77054
S.E. of regression	O. "77013			704.677
F- statistic	1.22924			0.6141 1
	0.29379			
Unweighted Statistics				
R- squared	-0.03 1 1	Mean dependent var		1.65 175
Sum squared resid	703.741			0.73 147

Table 8 results of effect of CSR on bankruptcy among the Pakistani companies; the R-square of the model is 0.7% implying that only 0.7% of bankruptcy in Pakistani companies can be predicted by the CSR expenditures, and remaining 99.3% is residual to which model is cannot estimate since model is insignificant. Lower r-squared is also indication of the weaker model due to lack of variables explaining the variability in the bankruptcy. Thus, it can be determined that CSR can only predict 0.7% of bankruptcy of the manufacturing companies of Pakistan, and remaining variation can be explained by different variables that are not considered for inclusion in the study.

Furthermore, the individual coefficient of CSR is positive but significant and indicates that higher expenditure of CSR positively influences the Altman z-score. However, effect is not material means can be ignored or on which decision cannot be made. This means higher expenditure in the CSR also does not saves company from falling bankrupt in Pakistan. On the other hand, the board independence also has positive effect on the CSR but effect is also insignificant. Therefore, it is determined that having majority of board independence also does not improve firm's Altman z-score, and does not saves company from falling bankrupt.

Model 2: Effect of CSR on Bankruptcy in Pakistan with Moderation Effect of Board Independence

$$Bkrcy_{Pak} = \alpha + \beta CSR_{Pak} + \beta BI_{Pak} + \beta CG_{Pak} * CSR_{Pak} + \epsilon_{Pak}$$

Table 9. Model 3

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CSR RS	-2.39E-08	If mil illl\	-1.247535056	0.213049968
Board Independence	-0.29984888	0.29609	-1.0126S6555	0.311921649
BI CSR Specification	6.75E-08	II mil IIII	2.592974232	0.009921162
C	1.768988428	0.30511	5.797897708	1.52E-08
Effects Specification				
			S.D.	Rho
Cross-section random			1.143625176	0.692820342
Idiosyncratic random			0.761499492	0.307179658
Weighted Statistics				
R-squared	0.025921952		Mean dependent var	0.289894005
Adjusted R-squared	0.017427085		S.D. dependent var	0.770910862
S.E. of regression	0.764272213		Sum squared resid	200.9345335
F-statistic	3.051484263		Durbin-Watson stat	0.650084944
Prob (F- statistic)	0.028661404			
Unweighted Statistics				
R-squared	0.002296128		Mean dependent var	1.651749777
Sum squared resid	680.4774712		Durbin-Watson stat	0.248949149

Table 9 illustrates the results of the model 2 in which interaction of CSR and bankruptcy is also included beside other variables. The model is also significant at 0.05, and r-squared is 2.5% which means 2.5% of bankruptcy can be predicted by the CSR, board independence and interaction of both. However, remaining variation still can only be explained by other variables which are not included in the model. Meanwhile, referring to individual coefficients of the model, then it is evident that CSR expenditure and board independence have negative but insignificant effect on the bankruptcy. In contrast, interaction of CSR and board independence has positive and significant effect on bankruptcy. Meanwhile, this reveals that independent board can influence the effect of CSR on the bankruptcy positively. However, this cannot be said evidently because the CSR and board

independence turned negative from being positive in effect in first model, but their significant still remained insignificant. However, significance of the model become positive and explanatory power of the model improved after inclusion of interaction. Thus, at some extent board independence moderates' effect of CSR on bankruptcy.

Model 3: Effect of CSR on Bankruptcy in case of Australia

$$Bkrcy_{Aus} = \alpha + \beta CSR_{Aus} + \beta BI_{Aus} + \epsilon_{Aus}$$

Table 10. Model 5

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CSR A$	-6.67E-09	2.91E-0S	-0.2292	0.8188
Board Independence	-2.210347	5.74162	-0.385	0.7005
C	4.154584	4.22016	0.98446	0.3256
Effects Specification				
			S.D.	Rho
Cross-Ejection random			2.99673	0.0199
Idiosyncratic random			21.0481	0.9801
Weighted Statistic s				
R- squared	0.000696	Mean dependent var		2.1877
Adjusted R-squared	-0.00508	S.D. dependent var		20.9467
S.E. of regression	20.9999	Sum squared resid		152585
F-statistic	0.120558	Durbin-Watson stat		2.02447
Prob(F-statistic)	0.886463			
Unweighted Statistics				
R-squared	0.001037	Mean dependent var		2.47843
Sum squared resid	155365.6	Durbin-Watson stat		1.98894

Table 10 reveals that third model of study is insignificant at 0.05 implying that results are not material. However, interpretation of results reveals that r-square of the model is 0.06% which is significantly lower on which implications cannot be drawn. It means bankruptcy can only be explained 0.06% and remaining portion of bankruptcy can be predicted by other variables. Similarly, individual coefficients have negative effect and effect is also insignificant; thus, it can be stated that there is no effect of CSR and board independence on bankruptcy of Australian firms.

Model 4: Effect of CSR on Bankruptcy in Australia with moderation effect of Board independence

$$Bkrcy_{Aus} = \alpha + \beta CSR_{Aus} + \beta BI_{Aus} + \beta CG_{Aus} * CSR_{Aus} + \epsilon_{Aus}$$

Table 11. Model 6

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CSR_A$	-7.700	3.06E-07	-0.2516	0.8015
Board Independen CE	-2.5407	6.0667	-0.41SS	0.6756
BI CSR interaction	S.4SE-0S	3.67E-07	0.23107	0.8174
C	4.40023	4.46506	0.98548	0.3251
Effects Specification				

		S.D.	Rho
Cross-section random		3.25471	0.0233
Idiosyncratic random		21.0806	0.9767
Weighted Statistics			
R-squared	0.000S1	Mean dependent var	2.14639
Adjusted R-squared	-0.0079	S.D. dependent var	20.921
S.E. of regression	21.0034	Sum squared resid	152194
F-statistic	0.092S2	Durbin-Watson stat	2.02974
Prob(F-statistic)	0.96397		
Unweighted Statistics			
R-squared	0.00126	Mean dependent var	2.47843
Sum squared resid	155331	Durbin-Watson stat	1.98952

Table 11 provides results of fourth model of Australian firm with interaction, and results shows that model is insignificant at 0.05, and r-squared of the model is 0.08% implying that 99.92% of bankruptcy is residual which cannot be explained by variables in the model including interaction. In addition to this, CSR and board independence have a negative but insignificant effect on bankruptcy, and effect of interaction of CSR and board independence is positive but is insignificant. On the other hand, comparing present model with previous model without interaction, it can be stated that model has not improved which means there is no moderation effect of board independence on the effect of CSR on bankruptcy.

Findings

The study has been mainly conducted to analyze the effects of CSR on preventing bankruptcy while also exploring the moderating effects of board independence. There are particularly four models representing firms of Australia and Pakistan. Two models are devoted to each of the country, since in first model effect of CSR is determined on bankruptcy and in second model interaction of CSR and board independence is also included to examine moderating effect. First two models examine the manufacturing companies of Pakistan whereas the other two models analyse the manufacturing companies of Australia. While referring to the first model, the results have revealed that the CSR and board independence have a positive but statistically insignificant effect on the bankruptcy since model is also insignificant. However, the second model with interaction has improved after inclusion of interaction of CSR and board independence and model has also become significant at 0.05. But, the effect of individual coefficients has turned negative from positive but it is negligible based on the fact that effect is statistically insignificant. However, effect of interaction is positive and significant; and the explanatory power of the model has also improved which suggests that in Pakistani context that there is moderation effect of board independence on the effect of CSR on bankruptcy.

Therefore, it is evident that CSR has no role in reducing probability of the falling bankrupt, but this effect can be moderated by the board independence positively. In addition to this, the findings of the third and fourth models over Australian companies reveals that there is negative effect of CSR on bankruptcy but effect is insignificant. Meanwhile, fourth model with interaction is also not statistically significant which makes results negligible from which implications cannot be drawn for the practitioners. Therefore, it can be determined that since effect is not found significantly, thus this finding is not consistent with findings of various other scholars those have found that CSR activities of the firms positively influence their tolerance to avoid the bankruptcy (Cooper and Uzun, 2019; Gupta & Krishnamurti 2018; Kim et al. 2014)

Conclusion

Corporate social responsibility is perceived as voluntary activity; however, due to the social, ethical and legal responsibility, the CSR activities are considered vital for organisation. It is also the

responsibility of the organisation for reducing the effect of its operation on the business by supporting the underprivileged members of the society through donations, education and healthcare. Literature has highlighted that the CSR supports the organisation in reducing financial distress and bankruptcy whereas few studies has indicated that it does not have an effect. This raises a question for conducting the study to evaluate the effect of CSR on bankruptcy. In addition, no studies have evaluated the moderation effect of board independence and CSR on bankruptcy. Thus, the study seeks fulfil the research gap by evaluating the moderation variable effect.

The industry that has been selected to be analysed is the manufacturing industry in which 50 companies has been selected to be analyse. The selected manufacturing companies belong to Australia and Pakistan where 25 companies have been selected for each country. The result of the study has revealed that bankruptcy is not significantly affected by the CSR contribution of manufacturing companies from developing and developed country. i.e. Pakistan and Australia. However, in case of Pakistan, evidence of moderation effect of board independence on effect of CSR on bankruptcy is found which is also significant. But this cannot be evidenced from the Australian firms. This reveals that Pakistani companies can reduce chances of their bankruptcy by involving into the CSR but this is also subject to highly independent board that truly represents interest of shareholders. Thus, it is recommended for the Pakistani firms to invest in CSR activities, and that regulatory authority must ensure complete independence of board to avoid information asymmetry and address conflict between the principal and agent.

Limitations and Implications

The sample size of the study was major limitation of the study in two ways; one that study is conducted on small sample size of 50 manufacturing companies from Australia and Pakistan 25 each. Secondly, the study only focusses on the various types of manufacturing companies, and results of the study cannot be generalized for the market as whole and at global scale due to lack of comparison. These are two limitations based on sample size that could have potentially affected the results and might have influenced results of the study. Therefore, the limitations of present study can be used as a direction for future study; where inclusion of other non-manufacturing companies, increasing sample size, and broadening sample size by including developing and developed countries is suggested for future researcher.

References

Adams, R. H. (2010). The role of boards of directors in corporate governance: A conceptual framework and survey. *Journal of economic literature*, pp.58-107.

Ahmad, N.B.J., Rashid, A. and Gow, J., 2017. Board independence and corporate social responsibility (CSR) reporting in Malaysia. *Australasian Accounting, Business and Finance Journal, 11*(2), pp.61-85.

Al-Rawi, K., Kiani, R. and Vedd, R.R., 2008. The use of Altman equation for bankruptcy prediction in an industrial firm (case study). *International Business & Economics Research Journal (IBER), 7*(7).

Alshammari, M. (2015). Corporate social responsibility and firm performance: The moderating role of reputation and institutional investors. *International Journal of Business and Management, 10*(6), 15.

Altman, E.I., 2000. Predicting financial distress of companies: revisiting the Z-score and ZETA models. *Stern School of Business, New York University*, pp.9-12.

Arora, P., & Dharwadkar, R. (2011). Corporate governance and corporate social responsibility (CSR): The moderating roles of attainment discrepancy and organisation slack. *Corporate governance: an international review, 19*(2), 136-152

Attig, N., El Ghoul, S., Guedhami, O. and Suh, J., 2013. Corporate social responsibility and credit ratings. *Journal of business ethics, 117*(4), pp.679-694

Bai, X., & Chang, J. (2015). Corporate social responsibility and firm performance: The mediating role of marketing competence and the moderating role of market environment. *Asia Pacific Journal of Management, 32*(2), 505-530.

Bhabra, G. S., & Yao, Y. (2011). Is bankruptcy costly? Recent evidence on the magnitude and determinants of indirect bankruptcy costs. *Journal of Applied Finance and Banking, 1*(2), 39.

Bondy, K., Moon, J., & Matten, D. (2012). An institution of corporate social responsibility (CSR) in multi-national corporations (MNCs): Form and implications. *Journal of business ethics, 111*(2), 281-299.

Brammer, S., Brooks, C., & Pavelin, S. (2006). Corporate social performance and stock returns: UK evidence from disaggregate measures. *Financial management, 35*(3), 97-116.

Cooper, E. and Uzun, H., 2019. Corporate social responsibility and bankruptcy. *Studies in Economics and Finance, 36*(2), pp.130-153

Cooper, E., & Uzun, H. (2019). Corporate social responsibility and bankruptcy. *Studies in Economics and Finance, 36*(2), 130-153.

Eckbo, B. E., Thorburn, K. S., & Wang, W. (2016). How costly is corporate bankruptcy for the CEO?. *Journal of Financial Economics, 121*(1), 210-229.

G. Noulas, A., & Genimakis, G. (2014). How do CFOs make capital structure decisions? A survey of Greek listed companies. *Studies in Economics and Finance, 31*(1), 72-87.

Gillan, S.L., Hartzell, J.C. and Starks, L.T., 2011. Tradeoffs in corporate governance: Evidence from board structures and charter provisions. The Quarterly Journal of Finance, 1(04), pp.667-705.

Gupta, K., & Krishna murti, C. (2018). Does corporate social responsibility engagement benefit distressed firms? The role of moral and exchange capital. Pacific-Basin Finance Journal, 50, 249–262.

Khan, H., 2011. A literature review of corporate governance. In *International Conference on E-business, Management and Economics* (Vol. 25, pp. 1-5).

Kim, D. Y., & Kim, J. (2014). Effects of corporate social responsibility and governance on its credit ratings. *The Scientific World Journal, 2014.*

Kumari, N., 2013. Evaluation of financial health of MMTC of India: a Z score model. *European Journal of Accounting Auditing and Finance Research, 1*(1), pp.36-43.

Kushwaha, G. S., & Sharma, N. K. (2016). Green initiatives: a step towards sustainable development and firm's performance in the automobile industry. Journal of cleaner production, 121, 116-129.

Malik, M.S. and Nadeem, M., 2014. Impact of corporate social responsibility on the financial performance of banks in Pakistan. International Letters of Social and Humanistic Sciences, 10(1), pp.9-19

Margolis, J.D. & Walsh, J.P. (2003), "Misery loves companies: rethinking social initiatives by business", Administrative Science Quarterly, Vol. 48 No. 2, pp. 268-305.

Mohammed, S., 2016. Bankruptcy Prediction by Using the Altman Z-score Model in Oman: A Case Study of Raysut Cement Company SAOG and its subsidiaries. *Australasian Accounting, Business and Finance Journal, 10*(4), pp.70-80.

Nelling, E., & Webb, E. (2009). Corporate social responsibility and financial performance: the "virtuous circle" revisited. *Review of Quantitative Finance and Accounting, 32*(2), 197-209.

Peters, G. F., & Romi, A. M. (2014). Does the voluntary adoption of corporate governance mechanisms improve environmental risk disclosures? Evidence from greenhouse gas emission accounting. Journal of Business Ethics, 125(4), 637-666.

Saeidi, S. P., Sofian, S., Saeidi, P., Saeidi, S. P., & Saaeidi, S. A. (2015). How does corporate social responsibility contribute to firm financial performance? The mediating role of competitive advantage, reputation, and customer satisfaction. *Journal of business research, 68*(2), 341-350.

Verwijmeren, P., & Derwall, J. (2010). Employee well-being, firm leverage, and bankruptcy risk. *Journal of Banking & Finance, 34*(5), 956-964.