
بسم الله الرحمن الرحيم

The Role of Corporate Governance on Insolvency Risk of Financial and Non-Financial Listed Firms of Pakistan

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INTRODUCTION

- The insolvency risk has become one of the most debated issue after the financial global crises because it shake the backbone of economic system of countries.

- This study observes, what factors effects the firm insolvency risk along with mechanism of corporate governance in financial and nonfinancial sector.

- This motivates to investigates the impact of firm specific variables, corporate Governance of firm and macro variables on insolvency risk to find out different behaviors of these factors in two different sectors.

Introduction (Cont' d)

- One of the main reason of distress in firms is considered to be shakiness in corporate governance. several school of thought explains the importance of corporate governance for better functioning and well-behaved financial system, and how it favorably affect growth. **Karashen and Bolbol (2008).**

- Where, on the other hand some school of thought concludes that good corporate governance encourages the firm to take more risk due to which firm's insolvency risk increases **Anginer et al., (2014)**

- As empirical literature is concerned the results are mix and this leads to undertake a study to identify the role of corporate governance on insolvency risk.

Introduction (Cont' d)

- Insolvency is the condition of a firm whose property and assets are inadequate to discharge the person's debts.
- In terms of accounting insolvency happens when total liabilities exceed total assets negative net worth or lack of liquidity to pay debts as they fall due.
- Corporate governance is more a disciplinary mechanism that refers to set of rules and process to define the path for corporations to shape their organizational structure especially in respect of distribution of power. In this study we'll be using index of corporate governance

Objective

◊ To find out the role of corporate governance in survival of the firms.

◊ To provide the evidence that what firm specific variables along with corporate governance are related to firm's insolvency risk .

◊ Study will also identify macro variables that play vibrant part in minimizing and maximizing the insolvency risk and considered as a threat.

◊ More over the study will also enlighten the different risk measuring technique and which technique provides more accurate results.

LITERATURE GAP and SIG NIFICANCE

◊ Quite a lot work has been done to find out the determinants of financial distress and relationship of corporate governance with firm performance, efficiency, cost controlling specially equity cost, risk etc.

◊ This study contributes in three ways, (1) techniques to measure insolvency are applied. (2) economic and business conditions are included along with governance variables to see impact on solvency. (3) considering separately financial and non financial sector to find the relationship of insolvency risk with corporate governance for an emerging market.

◊ This study is useful for investors, firm managers, authorities like SECP, policy makers, academicians and researchers.

LITERATURE REVIEW

RESERCHER	YEAR	RESEARCH
Modigliani and Miller	(1958)	According to this the capital structure describes the ownership structure and allocation of powers among insiders as well as shareholders. The study does not clearly support the investor protection and does not clarify why and how managers should return the cash flows to investors
La Porta, Lopez-de-Silanes, Shleifer and Vishny	(1999)	Argues that effective corporate governance is the source of investor protection and stabilizing financial markets that needs courts or other government regulators to protect investors which will be in favor of economies and politicians as well

RESERCHER	YEAR	RESEARCH
Shleifer and Vishny	(1997)	expressed that corporate governance provides the protection shield to the different supplier of finance of corporation to ensure that their investment will be materialize and will get appropriate returns on their investments
La Porta et al.	(1997)	New enterprises even after having good projects and idea need to come to these firms for external capital requirement. Poor corporate governance support these big firms to exploit the outsiders and enjoy their inside politics, sheltered finance and extra benefits
Boubakri et al.	(2003)	investigates the corporate governance practices in newly privatize firms of Asia and examines that what difference it made in ownership structure before and after privatization. The study suggests that after privatization the firm shows positive profitability trends as well as shareholder also benefited from this arrangement

RESERCHER	YEAR	RESEARCH
Das and Ghosh	(2004)	enlightened the importance of corporate governance in banking sector for three main reasons: banks are the financial system of developing economy, the main source of finance for corporates and finally banks are the main depositor of savings in economy
Claessens	(2006)	It concluded that every country has its own legal and political frameworks and augmenting corporate governance also depends upon this internal state of affairs
John, Litov and Yeung	(2008)	According to this they conclude that corporates are more risk averse when there is low investor protection and when corporate governance is effective their behavior towards risk becomes positive.

RESERCHER	YEAR	RESEARCH
Pathan	(2009)	finds that small boards and boards that are not controlled by the CEO lead to additional bank risk as reflected in market measures of risk and the Z-score for a sample of US bank holding companies over the 1997-2004 periods.
Fahlenbrach and stulz	(2011)	argued that there is some evidence in US banks where CEO's incentives were surprisingly aligned with shareholder's interests in 2006 but the performance of their share prices were extremely below average during the crises.
Berger, Bjorn and Raunch	(2012)	reported that firms with higher No of outside Directors and CEOs shows low profitability during the subsequent period of crisis over 2007-2010. It can be due to excessive risk taking behaviors of insiders because of ownership structure

RESERCHER	YEAR	RESEARCH
Erkens et al.	(2012)	concludes, after investigating the international data of financial institutes, that financial institutes that follows governance mechanism and having more independent boards leads to worst stock returns during Financial global crises.
Anginer et al.	(2014)	Finds that corporate governance is friendlier to shareholders due to which risk taking behavior of banks increases because active shareholders are no longer expose to total risk so they are no longer risk avoider. Further the paper has determined that good corporate governance is positively associated with insolvency risk.

THEORETICAL FRAMEWORK

- Agency theory argues about the general battle of management and shareholders and highlights their conflict of interest.
- These conflicts results losing confidence of stakeholders, increasing agency problem, rising the cost of capital and corporate downfall.
- In longer run it results, corporate insolvency and threat to economic growth.

THEORETICAL FRAMEWORK

Generally corporate insolvency can be tested by:

- **The cash-flow test:** that says, a company currently, or will it in the future, be unable to pay its debts when they fall due for payment.

- **The balance sheet test:** is the value of the company's assets less than the amount of its liabilities, taking into account as-yet uncertain and future liabilities?

This study have used accounting base measure to quantify insolvency risk of firms

- **Z- SCORE:**

Z-score is one of the relevant measures for quantifying insolvency and predicting distress in corporates which was introduces by Edward Altman in 1968.

- **O-Score:**

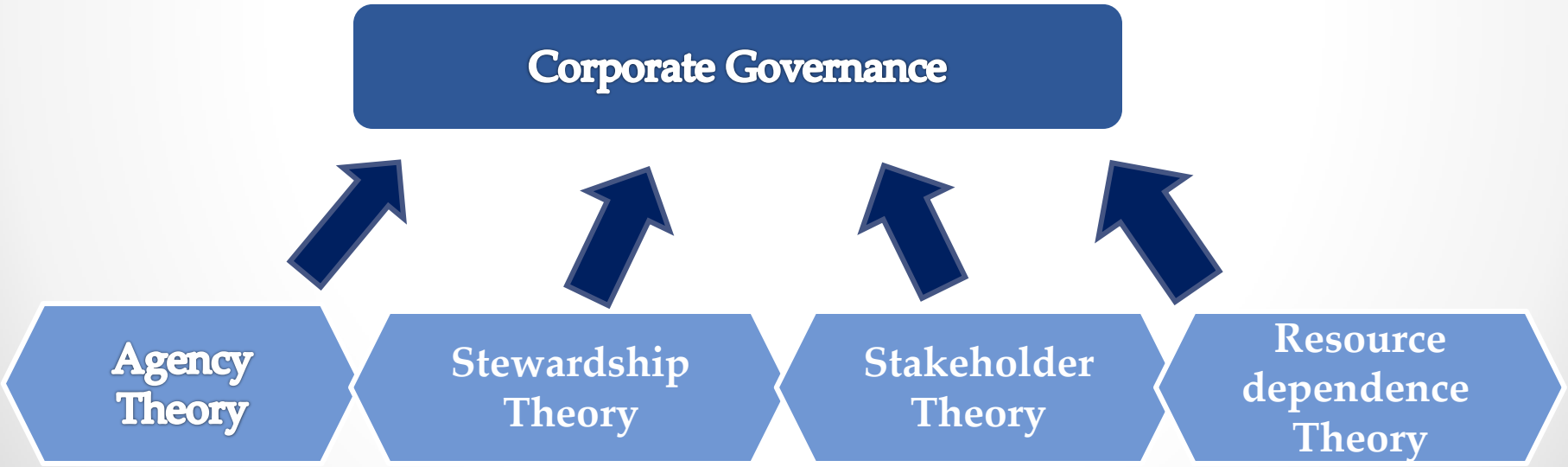
was given by Dr. James Ohlson in 1980, it is the multifactor financial formula to predict bankruptcy in two years and it is also considered as an alternate of Z-Score. Many studies has found that O-Score is better forecasting model than Z-Score.

- **Z-Score for Financial Sector:**

The Z-score is a risk measure commonly used in the empirical banking literature to reflect a bank's probability of insolvency. It is generally attributed to Boyd and Graham (1986), Hannan and Hanweck (1988) and Boyd et al. (1993), and plays an important role in the assessment of both individual bank risk as well as overall financial stability.

THEORETICAL FRAMEWORK OF CORPORATE GOVERNANCE

The study is focusing primarily on corporate governance and insolvency risk. Further it enlightens different quantitative measuring techniques of variables use in the study:



No	Indicators	Measurement	Dummy Variable
1	Board of Directors	board size	1 if less than median of the sample 0 if greater than median of the sample
2	Board independence	Independent director divided by total no of directors	1 if 60% or more directors are independent 0 if less than 60% of directors are independent
3	Audit Committee independence	Audit committee members divided by No of Director in audit committee	1 if greater than median of the sample 0 if less than median of the sample
4	Audit Committee Size	Audit committee members divided by no of board director	1 if greater than median of the sample 0 if less than median of the sample
5	CEO duality		1 if CEO is not board member 0 if CEO is board member
6	Transparency	Firms provides financial information to shareholders	1 if lower than median of the sample 0 if greater than median of the sample

HYPOTHESES

- **H_0:** Corporate Governance has no effects on Insolvency risk of firms in financial and non-financial sector.

- **H_1:** Corporate Governance has effects on Insolvency risk of firms in financial and non-financial sector

EMPIRICAL MODELS

For Nonfinancial Firms

- $INSR_{it}$ (Z-Score) = $\alpha_i + \beta_1 CG_{it} + \beta_2 CC_{it} + \beta_3 ICR_{it} + \beta_4 MBV_{it} + \beta_5 Size_{it} + \beta_6 INF_t + \beta_7 GDP_t + \beta_8 Int_t + \varepsilon_{it}$ (4.1)

- $INSR_{it}$(O-Score)= $\alpha_i + \beta_1 CG_{it} + \beta_2 CC_{it} + \beta_3 MBV_{it} + \beta_4 ICR_{it} + \beta_5 Size_{it} + \beta_6 INF_t + \beta_7 GDP_t + \beta_8 Int_t + \varepsilon_{it}$ (4.2)

- The model based on the study of Topaloğlu(2012)

For Financial Firms:

◊ $INSR_{it}$ (Z-Score) = $a_{it} + \beta_1 CG_{it} + \beta_2 Cap_{it} + \beta_3 AQ_{it} + \beta_4 EQ_{it} + \beta_5 AG_{it} + \beta_6 CA_{it} + \beta_7 size_{it} + \beta_8 INF_t + \beta_9 GDP_t + \beta_{10} Int_t + \beta_{11} EX_t + \varepsilon_{it}$ (4.3)

The model is suggested by Lana, Kunovac and Ljubaj (2008) and Anginer et al., (2014)

Variable Description

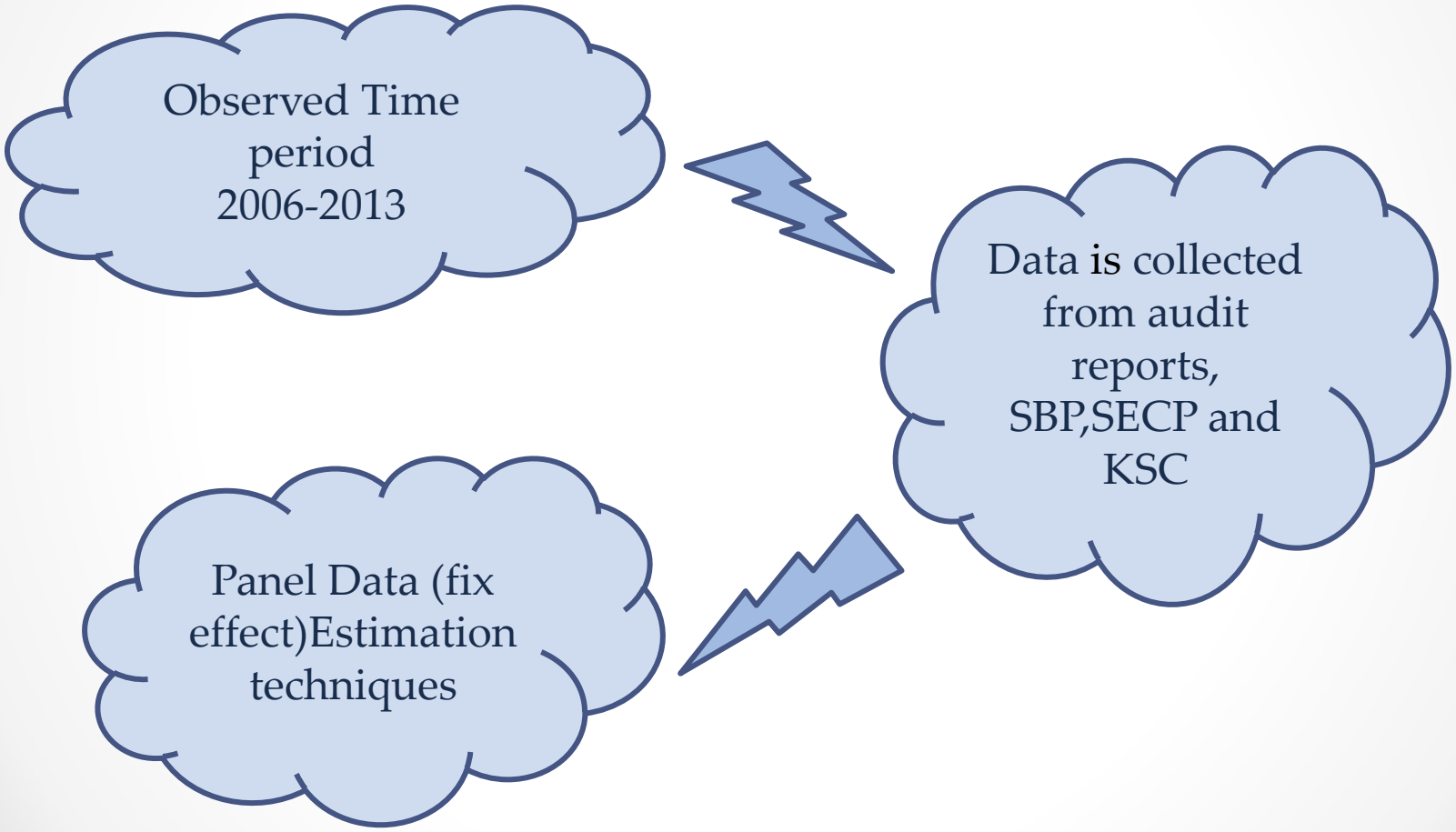
Dependent Variable				
	Abbreviations	**Effect**	**Definition**	**Source**
Insolvency risk	$INSR_{it}$		$INSR_{it}$ which is response variable represents the insolvency risk that will be measured by Z-Score, O-Score and Z Value which measures Firm's Insolvency Risk.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
INDEPENDENT VARIABLES				
Corporate Governance	CG_{it}	Positive for financial Firms, Negative for non financial	CGit will be showing index of corporate governance which will be measured with the help of dummy variables	Annual Reports of the Firms
Capitalization	Cap_{it}	Negative	Capit is a measure of firm capitalization, calculated by Debt to equity ratio by dividing total debts to shareholders equity.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company

Asset Quality	AQ_{it}	Negative	AQ_{it} Asset Quality will be measured by loans in provisions (non-performing loans) divided by gross loans.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Earning Quality	EQ_{it}	positive	EQ_{it} is indicator of earning quality of banks that will be calculated by cash from operations divided by net income multiply by 100.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Asset Growth	AG_{it}	Negative	AG_{it} is calculated by current years asset price minus last year asset price whole divided by current year asset price.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company

Cash Cycle	CC_{it}	Negative	CC_{it} calculated as Operating cycle - creditor turnover in days,	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Interest coverage ratio	ICR_{it}	Negative	ICRit measure the interest covering ability of company by dividing EBIT by interest expense	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Market book value	MBV_{it}	Indeterminate	MBVit, is measured by Share price of the stock divide by Book value per share if the ratio shows results above 1 that means the share is undervalues and less than one shows overvalue.	SECP,State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Size	Sizeit	Positive for nonfinancial and negative for financial	size of the firm measured by taking the log of firm's Assets.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company

Capital Adequacy	CA_{it}	Negative	CA_{it} is Capital adequacy which explains that how much capital banks required to maintain to meet its losses and remain solvent.	State bank of Pakistan (SBP)and annual reports as well as financial statements of each company
Inflation Rate	INF_t	Negative nonfinancial positive for financial	Consumer price inflation rate	WDI
GDP growth Rate	GDP_t	Positive	Rate of real GDP growth	WDI
Interest Rate	Int_t	negative for nonfinancial positive for financial	Interest Rates	WDI
Exchange Rate	Ex_t	Indeterminate nonfinancial negative for financial	Exchange Rate	WDI

DATA AND MEHODOLOGY:



Methodological Framework and Estimation Techniques:

- OLS panel data estimation technique
- The fixed effect model and random effect model
- Huaseman test supports fixed effect model better explains the findings.

EMPIRICAL RESULTS AND DISCUSSION

	obs	Mean	Std. Dev	Min	Max	Skewness	Kurtosis
Zvalue	176	0.021201	0.05626	-0.00499	0.516286	7.277094	57.0996
O-Score	800	0.499058	0.352818	0	1	-0.0411	1.49481
z-score	800	-3.55264	0.1498396	-2982.97	2242.113	-7.727939	278.9122
Cap	179	15.84484	0.04105553	-51.013	415.827	8.159093	74.31428
AQ	179	0.435443	0.2391949	0	27.86	9.488284	102.4923
EQ	176	6.530765	22.73644	-134.31	127.96	0.86412	19.19536
AG	176	0.25303	0.356344	-0.93638	1	0.683904	4.336279
CA	172	0.416949	1.876975	-0.022	19.1	9.074163	84.9781
CG-NONF	176	4.045455	1.068073	0	6	-1.078168	5.348731
GDP	176	1.84	3.27	1.37	2.32	0.19341	1.614279
INF	176	13.025	5.687987	6	20.7	0.163494	1.356698

Int	176	0.2375	4.826458	-6.8	7.1	-0.150182	1.511713
EX	176	79.975	14.05352	60.3	101.6	-0.122521	1.782792
CC	800	-8.807537	1.511108	-3975.12	42221.09	27.29912	764.4348
CG-F	800	7.2825	3.633414	2	19	0.435133	2.814384
ICR	800	3.301584	21.49775	-214.76	364.31	8.161944	166.5396
MBV	800	-5.479465	6.90949	-992.5	31.75	-11.67425	139.2832
Size-F	176	5.189868	0.574328	3.388864	8.200384	0.356762	6.650797
Size-NonF	797	3.421929	0.979526	0	5.554811	-1.550726	6.719863

The impact of corporate governance on insolvency risk along with Firm Specific Variables and Macro Variable: (Financial Sector)

	Z value Model 1	Z value Model 2	Z value Model 3	Z value Model 4	Z value Model 5
C	-1.813*** (0.612)	0.6617*** (0.079)	-5.1611*** (7.754)	-1.318** (0.0123)	-40.3139* (27.619)
CG_{it}		0.0622* (0.051)	0.099** (0.004)	0.109* (0.062)	0.1159* (0.627)
$Size^{it}$	-0.454*** (0.115)	-0.930*** (0.0509)	-0.13800*** (0.01665)	-0.5716* (0.051)	-0.563** (0.0515)
Cap_{it}	- 0.0887*** (0.0020)	-0.007*** (0.0009)	-0.008*** (0.0010)	-0.0884*** (0.0020)	-0.0913*** (0.0091)
Aqit	-0.0239* (0.019)	-0.023*** (0.0060)	-0.0251*** (0.006)	-0.0239* (0.0022)	-0.4118* (0.0276)

	Model 1	Model 2	Model 3	Model 4	Model 5
EQ_{it}	0.02192 (0.003)	-0.0006 (0.0030)	-0.0017 (0.003)	0.0020 (0.0030)	0.0033 (0.0368)
AG_{it}	-0.2905 (0.1916)	-0.185 (0.022)	0.3887* (0.1843)	-0.284498 (0.1934)	-0.04118* (0.2597)
CA_{it}	-0.0095 (0.0347)	-0.0167** (0.007)	-0.0036 (0.002)	-0.0097 (0.0349)	0.003 (0.035)
INF_{it},			0.0648* (0.0314)		0.095* (0.017)
GDP_{it}			0.2288*** (0.3223)		0.1600** (0.019)
Int_{it}			0.087** (0.044)		-0.124* (0.092)
Ex			-0.099 (0.005)		-0.015 (0.0013)
Size*CG				0.026* (0.001)	0.027* (0.011)
R^2	0.24	0.54	0.60	0.30	0.36
Prob (F-Statistics)	0.000	0.000	0.000	0.000	0.000

The impact of Corporate Governance and firm specific variables on insolvency Risk along with macro variables: (Non- Financial)

	Z-score model 1	Z-score model 2	Z-score model 3	Z-score model 4	Z-score model 5
C	-1.827*** (0.199)	−2.113*** (0.192)	-7.508** (0.416)	-3.677** (0.444)	18.612** (0.8704)
CG_{it}		−0.213*** (0.014)	-0.5785** (0.045)	-0.3923*** (0.070)	-0.397*** (0.070)
Size	0.2607*** (0.2607)	0.087** (0.057)	-0.1621* (0.068)	0.528** (0.126)	0.524*** (0.0127)
CC_{it}	-0.0837** (0.004)	-0.0984* (0.004)	-0.0982*** (0.000)	-0.0908** (0.003)	-0.0086*** (0.000)
ICR_{it}	−0.0585** (0.0023)	- 0.0558*** (0.0020)	-0.0167** (0.0089)	-0.0535*** (0.0020)	-0.0054** (0.002)
MBVit	0.0018 (0.000)	0.0058 (0.001)	-0.043* (0.023)	0.0031 (0.001)	-0.002 (0.000)

	Z-score model 1	Z-score model 2	Z-score model 3	Z-score model 4	Z-score model 5
$INF_{it,}$			0.06204 (0.07534)		-0.04747* (0.0042)
GDP_{it}			0.05855 (0.088)		-0.6000* (0.0123)
Int_{it}			0.05855 (0.088)		-0.0672* (0.034)
Ex			0.01746 (0.01733)		0.01746 (0.01733)
Size* CG				-0.0728*** (0.018)	-0.2979* (0.089)
R^2	0.44	0.31	0.614	0.51	0.48
F-Statistics	8.54	12.86	6.923	9.86	6.923
Prob (F-Statistics)	0.000	0.000	0.000	0.000	0.000

The impact of Corporate Governance and firm specific variables on insolvency Risk along with macro variables: (Non- Financial)

	O-score Model 1	O-score Model 2	O-score Model 3	O-score Model 4	O-score Model 5
C	-1.037* (0.545)	-0.882* (0.555)	1.49* (0.022)	-0.835*** (0.103)	-0.522* (0.02)
CG_{it}		-0.063 (0.004)	-0.183*** (0.0034)	-0.0174* (0.01)	-0.0139** (0.0047)
$Size_{it}$	-0.136 (0.153)	-0.0460* (0.016)	-0.057*** (0.013)	0.0460* (0.016)	0.078* (0.015)
CC_{it}	-0.0096 (0.0093)	0.0046 (0.009)	-0.183 (0.234)	0.0046 (0.009)	-0.072 (0.478)
ICR_{it}	-0.1363** (0.066)	-0.136** (0.006)	-0.0238*** (0)	0.024** (0.006)	-0.027** (0.003)
MBV^{it}	-0.0045 (0.002)	-0.006 (0.008)	0.0023 (0)	-0.006 (0.008)	-0.0023 (0.001)

	O-score Model 1	O-score Model 2	O-score Model 3	O-score Model 4	O-score Model 5
$INF_{it,}$			-0.021 (0.001)		-0.245* (0.013)
GDP_{it}			-0.0241* (0.0089)		-0.354* (0.089)
Int^{it}			-0.0058 (0.0013)		-0.291 (0.013)
Ex			-0.0045 (0.004)		-0.0565 (0.122)
Size* CG				-0.0027 (0.0045)	0.117** (0.545)
R^2	0.203	0.22	0.41	0.37	0.24
F- Statistics	3.575	4.698	4.99	4.241	3.99
Prob	0.0023	0.003	0.001	0	0.0096

FINDINGS OF THE STUDY

- The correlation matrix supports that there is no high degree of collinearity among the variables.

- All the models estimated for Financial sectors shows positive and significant impact of corporate governance on insolvency risk. Models estimated for non-financial sectors shows negative relationship of insolvency risk with corporate governance.

- The study finds firm specific variables like size, capitalization and asset quality are significant and influential. GDP growth, inflation and interest rate also have significant impacts on insolvency risk of the firm

- Moreover cash cycle, interest coverage and size of the firm also have significant relation with insolvency risk of non financial firms but macro variables don't find influential enough.

CONCLUSION

- Banks take advantage of Financial protection by central banks and indulging in excessive risk taking.
- Size of the firm have negative effects on insolvency risk, on the concepts of too big to fail theories.
- considering financial sector, it is observed that banks need to maintain their asset quality and capital structure in order to avoid financial.
- capital adequacy cannot be considered the only tool to resolve financial distress problem as it is not find strongly significant
- considering macro variables, inflation, GDP and interest rate are significant with positive coefficients

CONCLUSION

- corporate governance provides better investor protection, reduces excessive risk-taking practice at non-financial sector
- The relationship of two primary variable are negative, it can be because of its positive relation with firm performance.
- Ownership concentration results in more effective monitoring of management and help to overcome agency problems.
- The bigger the firms get the more expenditure and financial obligations increases and without strong governance and resource management, one cannot avoid financial distress.
- Strong interest coverage ability also helps to keep the firm running and avoiding insolvency risk
- All the macro variables are insignificant except GDP with negative coefficient that suggests that when GDP growth increases firms financial distress decreases.

Implications

- Regulatory reform needed to address the exploitation and reduction in moral threat leading to excess risk taking practices of banks
- Before shaping portfolio of assets, banks should carefully observe the related loan loss provisions and historical experiences.
- Our regulatory authorities treat all the firms almost alike ignoring their size and limitation. More regulatory authorities and government supervision required to make this sector strong and less distress.
- Policy makers are required to make policies not only considering only macro variables and their relation with firm's performance and risk, but also emphasis on corporate governance practice after evaluating the behaviors of industry.


Thank
You