A Moderating Role of Market Competitiveness Between the Compliance Context of Board Attributes and Financial Distress:

Rana Tanveer Hussain[1], Muhammad Akram Naseem[1*], Rizwan Ali[1], Ramiz ur Rehman[2], Muhammad Kashif Durrani[3]**

1. Lahore Business School, The University of Lahore, Pakistan, ranatanveerh@gmail.com
2. TUIBS Finance, Performance and Marketing, Teeside University UK, r.rehman@tees.ac.uk
3. School of Business and Management Science, Minhaj University Lahore, Pakistan hod.sbm@mul.edu.pk

* Corresponding author: muhammad.akram@lbs.uol.edu.pk
**rizwan.ali@lbs.uol.edu.pk

Abstract

This paper aims to highlight the significance of various characteristics of the board with respect to the financial distress level of the firm, augmented with the interaction of market competition in the compliance context. To achieve the objective, data for non-financial listed firms from Pakistan Stock Market for the period of 2010-2020 was collected on which stepwise panel regression analysis was applied. The findings of the study reveal mixed and partially consistent results with past outcomes and code compliance: board independence and board diligence mostly favor the firms and decrease the financial distress but females on board decrease the financial distress only if the firm has token participation of females on board. Market competition encourages the stability of the firm but its interaction with the board's gender, independence and diligence do not support the financial distress. This work is limited to board characteristics, moderating effect of market competition, and non-financial firms. However, it can be further expanded by incorporating other segments of governance to measure the role of competition. This study encourages the firms to follow the guidelines provided by the regulator in its code of corporate governance because compliance with the law brings the chance of distress down and away. Board members and policymakers of firms can expand their control on this mechanism to control the shuts coming of market competitiveness.

Keywords: board independence, board diligence, board gender, market competition, financial distress

Introduction

Financial distress detection indicates a prior caution about the risk of defaulting for entities; thus, it is a real concern of the entire economy. Financial distress is an organization's powerlessness to accomplish their debt necessities (Sun et al., 2014). Pindado and Rodrigues (2005) discussed that the companies have practiced detrimental costs both locally and internationally, as of paying no attention to the warning signs of monetary distress and the impressions it has on a business's strength and development. Ashraf, Félix & Serrasqueiro (2019) narrated that cash flows problems, delay in payables turnover, default in bond liability, weak product power, deficit market value of equity than its book value, unable to annual reports timely and unable in conducting annual general meetings, delay in dividend payments for several years and default in meeting stock market policy are the key reasons for financial distress. Akbar et al. (2022) highlighted the influence of distress condition on firm restructuring in Pakistan. Firms restructured their debt inverse to financial distress and equity affirmative to distress. Working environment also related to the distress risk (Pham et al., 2022). Cash holdings were increased when the level of distress went up (Ryu, & Choi, 2022). Several studies with varied outcomes have been conducted on the connection between financial distress and corporate governance (Ciampi, 2015). Fernando, Li, and Hou (2019) studied the consequence of feeble corporate governance on default correlation where companies have diverse credit potentials. In the United States from 2000 to 2015, using archival default data, it is found that low board effectiveness, focused ownership, low financial clarity and disclosures outpour the degree of default correlation. Furthermore, the severity of this outcome inclined up in the time of fiscal crisis. Good governance was recommended by Younas et al. (2021) and Truong (2022) to have reduction in the likelihood of the distress situation. High earning managed activities were observed in the firms facing financial distress. A quality audit by top rated firm lowered the manipulation (Viana et al., 2022). Conflict of interest was reflected in the distressed firms because they decreased the quality reporting (Tarighi et al., 2022). Chance of default must be controlled by the concern like board of the firm in terms of diversity in gender (García & Herrero, 2021), independence (Ashraf et al., 2022) and diligence (Brick & Chidambaran, 2010) by playing its role in expanding the control over poor governance practices to decrease the chances of default. Board of directors is the key mechanism which can save company from weak governance and take the interest of shareholders and other key stakeholders intact.

Relating the above studies with Pakistan, an emerging economy, it faces lot of corporate challenges with respect to the governance and stakeholders. Various firms have been on the default counter in Pakistan Stock bourse because of non-compliance with or least focus on the governance provisions, which may lead to distress situation. As mentioned above, an effective board brings financial health for the firm while a bad one pushes the firm toward a distress situation. Once the firm went into distress, agency costs increased, and her stakeholders may suffer due to erosion in value creation for the stakeholders. Although various studies like Farooq et al. (2024), Farooq et al. (2023), Habib et al. (2020), Yousaf et al. (2022), Farooq et al. (2020), García and Herrero (2021), Beltran (2019), Flabbi et al. (2019), Luckerath-Rovers (2013), Chapple and Humphrey, (2014), Gregory-Smith et al. (2014) and Wang (2020) have been done on the corporate governance mechanism taking board perspective in relation to firm performance but diverse outcome on financial distress of the firm requires further investigation. The recent study of Farooq et al. (2024) showed positivity of board characteristics to the firm which decreased the financial difficulty, but board neutrality and diligence was missing in the study. The Studies further assert that the

corporate mechanism of Pakistan is trying to reach at utmost of compliance with the code of corporate governance, yet a lot of gaps exist in terms of measuring the non-linear impact of the benchmark values of board characteristics. For instance, code says that there must be one female, two independent directors and quarterly meet up of the board. The compliance of these codes incentivized us to conduct the study. Elaborating further, what happens when a firm achieves a higher board than the token participation is an interesting query yet to be addressed to ignite academic discourse and incentive to the firm having more on the board.

Additionally, competition being external to the firm compels the firm do something for continuous improvement. Previous studies suggested having affirmative action of board gender, independence, and diligence in bringing financial stability in the firm. However, this causal effect is yet to be consolidated when an external factor like competitive intensity interacts. This factor either strengthens or weakens the causal relation between the board and financial distress of the firm. This study becomes more unique by incorporating the interactional effect of competitive intensity in the said premise.

Findings of the study reveal mixed outcomes. First, result support the gender schema and assert that token participation of the female on the board favors the firm and reduced the likelihood of the distress but more than one female on board increases the financial distress. It means that the board should go for token participation. Second, overall board independence decreases the level of financial distress. The same effect is demonstrated in case firm has board of directors as per law and greater than the law requirement. Third, board diligence exerts a positive effect on Altman z score which demonstrate that board meetings are in the favor of the firm. However, firms having only four board meetings (law requirement) suffer from high distress level but financial distress decreases if firm conducts more than four board meetings. Fourth, market competitiveness significantly decreases the financial distress level which provokes the firm to capture the market as much as possible. Fifth, Interestingly, interaction of market competitiveness is only significant with board independence and diligence. Sixth, evaluating the given hypothesis, results of both measures of financial distress (i.e Altman z-score and probit model of Zmijewski show partial consistency with each other.

The study offers fresh empirical insights for three levels of board independence, gender, and diligence like compliance level as required by the law of land, more than the law requirement and overall perspective. These were yet to be discovered for board gender, independence, and diligence, keeping in view the compliance matter. The board of firm is the pivotal aspect of the governance, highlighted by the study, which possesses the inbuilt ability to save the firm from distress situation. Secondly, taking the support from resource dependency perspective, the study contributes that market competitiveness helps the company by lowering the degree of financial distress, but it also raises the level when combined with board independence and thoroughness. Businesses could have the gut feeling to seize the market appropriately. This work has also narrowed the disparity by highlighting the relationship between market competitiveness and the characteristics of the firm's board of directors and their performance during challenging periods. The degree of influence that board members and corporate policy makers have over this mechanism to handle the erosion of market competitiveness can be increased. This work is divided as follows: Section I describes background information regarding board characteristics and financial distress. Section II explains the literature review and formation of hypothesis to be tested in the study. Section III asserts the methodological

part which explains the data and variables used in the study. Section IV contains the discussion on the analysis of research framework and last section concludes the study.

Literature Review and Hypothesis Development

Governance Mechanism and Likelihood of Financial Distress

Ashraf, Félix & Serrasqueiro (2019) described shortage of cash flows, delayed payments, bond default, distress in product power, value of shares less than its book value, not publishing annual reports and conducting annual general meetings, omission of dividend payments for five or more years and non-compliance with stock market policy as reason of the distress applying various traditional distress models like multi-discriminant analysis of Altman (1968), O-score logit model of Ohlson (1980), probit model of Zmijewski (1984), hazard measure of Shumway (2001) and D-score of Blums (2003). The results indicate probit model of Zmijewski, and Z-score model of Altman foresees bankruptcy more correctly.

With respect to governance framework, Chenchehene, (2019) found significant relation between gender, independence, diligence of board and distress alarming. Bredart (2014) inserted that filing of bankruptcy of the firms divert the intention towards the corporate governance. Productive governance mechanism enhances the performance of the firm. The financial health of the firm gets improved by the governance structure (Al-Tamimi, 2012; Shahwan, 2015; Manzaneque et al., 2016). Effective governance mechanism prevents a firm from furthering the chance of financial distress and becoming insolvent (Poletti-Hughes and Ozkan, 2014)

Board Gender and Likelihood of Financial Distress

The law of the land emphasizes having a diversified board via including gender diversity. Salehi and Hassanzadeh (2024) proclaimed that the sustained success of the firm depended on the inclusion of gender diversity in the board. Khaireddine (2020) mentions Adams et al. (2015) who argued that men and women present differences in terms of ethical behavior and that those female directors that have different values and are more stakeholders oriented. Pechersky (2016) indicated that diversity on boards of directors contributes to a greater variety of backgrounds and knowledge, indicating different points of view that lead to better strategic decision making. Thus, gender diversity became recognized as a characteristic of board diversity (Mahmood et al., 2018). Pandey et al. (2019) mentioned that women and men had behavioral differences like risk attitude and mutual trust which affected the financial decisions of the firm. Presence of female brought influential performance and stable firm health (Nguyen et al., 2015). García and Herrero (2021) asserted that likelihood of distress was inversely related to the presence of the female on the board and decrease the likelihood by one forth (Zhou, 2019). García and Herrero (2021) mentioned that most of the companies showed "Token" participation of the women on the board simply to comply the code of the governance. Same was observed in Pakistan.

Controversiality have been observed in the outcome of the gender influence on the distress risk. Some found affirmative affect like García and Herrero (2021), Beltran (2019), Flabbi et al. (2019) and Luckerath-Rovers (2013) whereas negative or insignificant influence was

highlighted by Chapple and Humphrey (2014), Ellwood and Garcia-Lacalle (2015), Gregory-Smith et al. (2014) and Wang (2020). Agency perspective favors the women to be on the board because they would prefer better monitoring of the management which reduces the unproductive agency cost (García & Herrero, 2021). This study answered the controversiality in the influence of gender on the likelihood of financial distress. Presence of female director improves the balance on board and firm performance which decreases the chance of weak governance. As per code of corporate governance of Pakistan (2019), it is compulsory for every listed firm to have at least one female director on the board. The mentioned literature asserts inconsistent outcomes which require further study on it. Keeping in view the law requirement what happens when a board comply the law requirement or posit female more than the law on the board, is yet to be answered in Pakistani context. Therefore, it can be hypothesized that

Hypothesis 1: presence of female directors on board declines the likelihood of financial distress.

> Hypothesis 1a: presence of one female director as token participation as per law on board lessens the likelihood of financial distress.
> Hypothesis 1b: presence of female directors on board more than law requirement decreases the financial distress

Board Independence and likelihood of Financial Distress

The presence of the board neutrality in the governance system reduced the chance of fraudulent activities in the financial matters of the firm. Independent directors saved the firm from indulging in the activities which push her toward financial miseries (Mousavi et al., 2022). Jatana (2023) said inverse to this and asserted no relation of board independence with the performance matters. Independence in the board and their respective committee reduced the chance of occurrence of distress situations (Al-Dhamari et al., 2023) and inserted benefit to the company in terms of reduction in cost of equity (Salehi et al., 2022). Salehi and Hassanzadeh (2024) asserted that the continued triumph of the firm rests on the presence of independence mixture in the board. It also enhanced the equality of economic information as compared to the industry. Literature postured varied outcomes about the effectiveness of board. Board independence enhanced the predictability of distress (Shetty & Vincent, 2021). and posited positive relation with probability of distress risk (Khurshid et al., 2018; Hsu & Wu, 2014). Sewpersadh (2022) found an insignificant relation between board independence and distress. Mangena et al. (2020) reported that financial institutions left their power influence on distress situation of the firm. The independent board moderated the negative impact of the bank power on the distress level of the firm. García and Herrero (2021) asserted that likelihood of distress was contrarywise related to the board independence. Ashraf et al. (2022), Crook et al. (2021), Mariano et al. (2021) and Handriani et al. (2021) also measured the same outcome.

The agency perspective and the resource dependence perspective (Pfeffer & Salancik, 1978) depict that a crucial factor is having external directors for a firm's survival, particularly in crisis situations, as it permits more access to outside resources and explicit competences (Dalton, Daily, Ellstrand, & Johnson, 1998; Hillman & Dalziel, 2003).

As per Code of Corporate Governance issued by Securities and Exchange Commission of Pakistan, minimum proportion of independent directors on board is two or 1/3, whichever is higher. Presence of independent director improves firm performance and decreases the chance of weak governance and distress. The literature that has been mentioned claims contradictory results, which calls for more research. At least one third must adhere to the corporate governance code. In the Pakistani context, it is still unclear what happens to a board that complies with the legislation or appoints independent directors who are more knowledgeable than the law.

Therefore, it can be hypothesized that:

Hypothesis 2: Higher proportion of independent directors decreases the likelihood of financial distress.
> H2a: proportion of independent directors on board as per the code of corporate governance of board size (as per Pakistan law) has negative impact on the likelihood of financial distress.
> H2b: proportion of independent directors on board greater than the minimum requirement of the code of corporate governance has more negative impact on financial distress.

Board Diligence and Likelihood of Financial Distress

Corporate law demands the quarterly meeting of the board to look after the strategic matters of the firm. The sincerity of the board members is demonstrated in the participation and reflects in the board's decisions to grow in the long run. Efforts of the board merged with other board aspects save the sinking ship of the firm (Mousavi et al., 2022). Inverse to this, the sustainability of the competency of the executive is not related to the board meetings (Jatana, 2023). The frequent meetings lower the likelihood of monetary danger (Al-Dhamari et al., 2023) and added gain to the enterprise in terms of cut in cost of equity (Salehi et al., 2022). Salehi and Hassanzadeh (2024) proclaimed that the sustained success of the firm depended on the inclusion of gender diversity in the board. It also enhanced the equivalence of monetary statistics as compared to the industry. Salehi and Hassanzadeh (2024) declared that endless victory of the firm rest on the continuation of board efforts like diligence in meetings. It also improved the fairness of economic information as compared to the other businesses.

Frequent board meetings are particularly important for the better performance of any firm. They show attentiveness of the board. Frequent board meetings refer to the diligence and ability of the board to perform regular monitoring and advisory services for the managers in the firms. As per Companies act 2017 of Pakistan, board should meet every quarter. It means a minimum of four meetings are required. More frequent meetings provide a better chance of monitoring and counselling on firm matters which enhance the firm performance and lessen the chance of deterioration. Altass (2022) mentioned various studies in emerging market context where differing outcomes were highlighted and requires studying further to consolidate the causal relationship between board periodic meetup and financial outcomes.

The literature that has been mentioned claims contradictory results, which calls for more research. The business legislation mandates that meetings be held on a quarterly basis. In light of the legal requirements, it is still unclear in the Pakistani context what occurs when a board complies with the legislation or holds meetings beyond what is required.

Therefore, it can be hypothesized that:

Hypothesis 3: The high diligence of the board lessens the likelihood of financial distress.

> H3a: Firms who conducted meetings as per the requirement of the law have less chance of financial distress.

> H3b: firms who conducted meetings greater than the requirement of the law in a year have more decrease in financial distress.

Market Competitiveness and Likelihood of Financial Distress

Javeed, Latief & Lefen (2020) and Sattar, Javeed & Latief (2020) worked on moderating effect of product market competition on firm performance by studying environment regulation and audit quality, respectively. Measuring market competitiveness by Herfindahl–Hirschman index, they posited that firm performance is positively influenced by competition. It is because high competition induces firms to be more vigilant and capture profitable opportunities timely to reap the benefit. Increasing competition bring incremental benefit for the firm which can trade off weak corporate governance (Giroud and Mueller, 2011). Hashem and Su (2015) said that the sectors which have high competition have better position to generate return on equity investment. They posited positive reporting of market competition on firm value. Ammann et al. (2013) also reported the same result having affirmative effect of market competitiveness on firm profitability. Increase in efficiency and decrease in financial frauds were witnessed in the firms operating in the highly competitive environment (Chhaochharia et al., 2016) and save the firm from distress situation. Liu et al. (2021) concluded the positivity of the competition on firm performance and proclaimed that healthier firm used the competitiveness in her favor to achieve the further value.

Based upon literature, following hypothesis can be posited for analysis:

Hypothesis 4: Market competitiveness has strengthening (weakening) moderating effect on the relationship between board characteristics and financial distress of the firm.

Research Methodology
Quantitative research approach is implemented where data is collected from secondary sources like audited annual reports of firms and reports of financial statements analysis published by central bank. The initial panel comprises of the 580 firms listed in non-financial sectors of Pakistan Stock bourse (PSX) where 232 firms are included in the final sample after data screening and exclusion of firms not having required data. The sample period is of post financial crisis of 11 years period i.e. 2010-2020. This period is selected because Securities and Exchange Commission of Pakistan (SECP) announced new improvements for listed firms after the monetary crisis of 2007-08. Based upon the panel data, descriptive statistics,

correlation analysis and multiple regression analysis are employed to assess the impact. The framework includes financial distress as a predicted criterion, board aspects (gender, independence and diligence) as predictors, market competitiveness as interactional factor and some control factors like age, size and leverage.

There are various measures for financial distress. However, Financial Distress of the firm under the study is measured by Altman Z-score and Probit Model of Zmijewski: Altman Z-score (AZ): Ashraf, Félix & Serrasqueiro (2019) described that z score more accurately measure the early warnings for the firm for financial failure. Altman (1968) developed a measure in 1968 using multi discriminant analysis incorporating five accounting measures, i.e. Working capital/total assets, Retained earnings/total assets, Earnings before interest and taxes/total assets, Book value of equity/book value of total liabilities and sales/total assets with their respective weights. The Altman (1983) reviewed model which he again revisited in 2002 is stated as follows.

$$AltmanZ = 6.56 * X1 + 3.26 * X2 + 6.72 * X3 + 1.05 * X4.$$

X1 = Working capital/total assets; X2 = Retained earnings/total assets; X3 = Earnings before interest and taxes/total assets; X4 = Book value of equity/book value of total liabilities. Short-term liquidity and asset base, asset productivity, profitability over time, and the capital structure of the firms are measured by these X vectors, respectively. As per the criteria, if Altman Z-score value is higher than 2.6, the firm will be considered in financial stable zone, Altman Z-score between 1.1 and 2.6, firm is in grey zone, and score below 1.10 indicates financial distress zone.

Probit Model of Zmijewski (1984) (PZ): Three-variables scale for distress prediction, was formulated by Zmijewski (1984) using probit analysis further validated by Wu et al. (2010) and Kleinert (2014). Ashraf, Félix & Serrasqueiro (2019) described many reasons and states which can be taken as early warnings for financial distress. They employed various traditional distress models like multi-discriminant analysis of Altman (1968), O-score logit model of Ohlson (1980), probit model of Zmijewski (1984), hazard model of Shumway (2001) and D-score model of Blums (2003). The results indicate that highest accuracy belongs to probit model (Chou, Li & Yin, 2010)

$$P = (-4.336 - 4.513NITA + 5.679TLTA + 0.004CACL)$$

Where: NITA = Net income/Total assets, TLTA = Total liabilities/Total assets, CACL = Current assets/Current liabilities

If the P-score is negative (P-Score <0), then the company is classified in a healthy condition. Contrary to this, if the P-score is positive (P-Score ≥ 0), then the company can be classified under unsanitary conditions or likely to lead to financial distress.

The predictors of the study are the following board characteristics: Board Independence (ID) was measured as number of independent directors on the board (Sewpersadh, 2022; Ashraf et al., 2022). Board Diligence (BD) was scaled as total number of annual board meetings (Aktan et al., 2018). Board Gender diversity (BG) is measured as proportion of female directors on the board. (García and Herrero, 2021).

Competitiveness impairs concentration and provide opportunity for the firm to increase her performance by acquiring key strategic resources. Based upon the guideline mentioned in previous section like Javeed, Latief & Lefen (2020) and Sattar, Javeed & Latief (2020) Herfindahl–Hirschman Index (HHI) is used to measure market competition. HHI is the sum

of the squares of the market shares of each firm in the industry. HHI is proxied as moderating measure to assess the interacting effect.

Age, size and leverage of the firm are used as control variables in various studies to get a clear picture of the influence of explanatory variables on explained one. All types of firms got effected by size of the firm (high-tech, traditional and services) (Saidat, Silva and Seaman, 2018). Hussain and Waheed (2018) scaled age as life years of the firm from the date of inception, size as log of total assets and leverage as ratio of total liabilities to total assets. Variables used in the study are summarized in Table 1.

[Please Insert Table 1 here]

Stepwise panel regression analysis is applied using the following panel regression equations. As per the result, there is no issue of multicollinearity in the model. However, heteroskedasticity issue existed in the data. To overcome the issue, regression analysis with robust standard error, rather than standard error was applied. To overcome the effect of outliers, AZ, PZ and Lev were winsorized at 1 and 99 percent, on both sides.

$$AZ_{it}=\beta_0+\beta_1ID_{it} + \beta_2IDa_{it} + \beta_3IDb_{it} + \beta_4BD_{it} + \beta_5BDa_{it} + \beta_6BDb_{it} + \beta_7BG_{it} + \beta_8BGa_{it} + \beta_9BGb_{it} + \beta_{10}MC_{it} + \beta_{11}ID_{it}*MC_{it} + \beta_{12}BD_{it}*MC_{it}+ \beta_{13}BG_{it}*MC_{it} +\beta_{14}Size_{it}+\beta_{15}Age_{it}+\beta_{16}Lev_{it} +e_{it} ....(1)$$

$$PZ_{it}= \beta_0+\beta_1ID_{it} + \beta_2IDa_{it} + \beta_3IDb_{it} + \beta_4BD_{it} + \beta_5BDa_{it} + \beta_6BDb_{it} + \beta_7BG_{it} + \beta_8BGa_{it} + \beta_9BGb_{it} + \beta_{10}MC_{it} + \beta_{11}ID_{it}*MC_{it} + \beta_{12}BD_{it}*MC_{it}+ \beta_{13}BG_{it}*MC_{it} +\beta_{14}Size_{it}+\beta_{15}Age_{it}+\beta_{16}Lev_{it} +e_{it} ....(2)$$

Empirical Results and Discussion

Empirical results are reported and discussed in this section. Summary statistics of the variables used in the study are given in table 2. It is depicted in the table that average values of the measures of financial distress are 5.933 and -0.61 for AltmanZ (AZ) and Probit Model of Zmijweski(PZ). As per the criteria, firm will be considered financially stable firm if the AltmanZ score is greater than 2.6, and value of Zmijweski score is negative. Increase in the score of AltmanZ and decrease in the score of Zmijweski decrease the chance of being default in upcoming time. Range (Min-Max) of the score report that firms in the study lies in varied financial conditions. Some of the firms are in the health zone while some are in distress zone. Code of Corporate Governance (Code, 2019) of Pakistan dictate that listed firm of Pakistan must have at least 2 members as independent directors in board, board meeting in every quarter and one female directors. Data reveals mixed results. With respect to independent directors (ID), firms have independence in the board ranging from zero to 6. Board gender (BG) demonstrates zero to five females in the board. Board meetings (BD) display satisfactory results having average value above the required limit. Market competitiveness is measured by HHI based on sales data. Result range reveals that market competition is high as well as low. Average value of MC shows that most of the industries of Pakistan have high competition and low market concentration which as per literature, create value addition activities for the firms.

[Please Insert Table 2 here]

Correlation results are mentioned in table 3. Relationship between AZ and PZ is significantly negative which is consistent with the studies and their respective theoretical relation. Independent directors (ID) have a significant negative relation with financial distress whereas

board diligence shows insignificant relation. Female directors (BG) on the board demonstrates significant relation with financial distress. MC relationship shows that market competitiveness will significantly enhance the value of AZ and decrease the value of Zmijweski (PZ). It means market competition may cause in dip down of distress level of firms.

[Please Insert Table 3 here]

Using panel regression analysis with robust standard error, exertion of board characteristics on financial distress level is given in table 4 and table 5. Here, financial distress level is measured as AltmanZ (AZ) and Probit model of Zmijweski (PZ). Table 4 explains the effect with respect to AZ. Incremental size of Altman z score shows financial stability and distance to default.

Board gender (BG) have impact on AZ inverse to board diligence (BD). BG affected the AZ significantly and destructively, not supporting H1. Having female on board is not in the favor of the firm. Results became interesting in case of BGa and BDb. Having one female on board (BGa) increases the AZ but more than one female on board (BGb) decreases the AZ. It means that board should have only one female as token participation, favoring H1a. This exertion partially supports Pechersky (2016) and Mahmood et al., (2018). However, interacting effect of BG with market competitiveness (BGxMC) made the negative exertion of the BG on AZ positive but insignificant.

ID has insignificant exertion on Altman z score in all stepwise regressions. This outcome does not support H2. To make the analysis more beneath, proportion of independent directors as required by the law of Pakistan is also tested. Result of IDa indicates the same influence as of ID which does not support H2a. However, IDb affects significantly and negatively, not supporting H2b. Firms having independent directors more than the law requirement (i.e. minimum two or $1/3^{rd}$ of board size) decreases the value of z score and financial stability. This outcome is inconsistent with Ciampi (2015). Interacting influence of ID with MC shows consistent result as of IDb.

Board diligence (BD) exert highly significant positive effect on Altman z score only in all regressions from 1 to 11, supporting H3. This effect shows consistency with Salim, Arjomandi & Seufert (2016) and Andreou, Louca & Panayides (2014). The effect become negative in case of BDa which does not support H3a. The same effect can be seen in case of interaction of BD with MC.

Market competition provokes the companies to be more cautious to capture the market and enhance profitability. Results of MC in all stepwise regression except in 10th show significant support to decrease the distress level and consistent with Javeed, Latief & Lefen (2020) and Sattar, Javeed & Latief (2020). Interestingly, interaction of MC with board independence, diligence and gender brings varied effect on AZ, interacting significantly negatively with board independence and board diligence, not supporting H4.

[Please Insert Table 4 here]

Table 5 describes the effect of given board characteristics on financial distress measured as PZ. It should be noted that value of the PZ is less than zero in case a company is considered financial stable. Positive value of PZ depicts high level of distress.

Results show that PZ is affected positively and significantly by board gender (BG) in approx. all stepwise regressions except 10th and 11th which means level of financial distress increases with having more female on board, rejecting H1. PZ is significantly adversely influenced by the board independence which insert that overall board independence decreases the level of financial distress, supporting H2. The same effect is demonstrated in case of IDa and IDb, supporting H2a and H2b. BD and BG influence PZ variedly. BD showed undesirable results in all regressions as compared to AZ.

Expectedly, market competition (MC) provokes the value of PZ negatively in all stepwise regressions and confirming its influence as mentioned earlier. Competition is in the favor of the companies. It decreases the financial distress level of the company and expected to support H4. However, interaction of market competitiveness with board gender (BGxMC), independence (IDxMC) and diligence (BDxMC) is insignificant. Testing the given hypothesis, results of PZ show partial consistency with the results of AZ.

[Please Insert Table 5 here]

Conclusion

This study aims to highlight the significance of the board characteristics of independence, gender and diligence with respect to monetary instability of the firm, augmented with the interaction of market competition. Findings of the study reveals mixed outcome. First, in overall outcome, female on board is not in the favor of the firm. In sub sample, having one female on board (law requirement) increases the stability and decrease financial distress but more than one female on board increases the financial distress. It means that board should have only token participation of female in the board. This result support the gender schema in Pakistan. Second, overall board independence decreases the level of financial distress. The same affect is demonstrated in case firm has board of directors as per law and greater than the law requirement. Third, board diligence exerts a positive effect on Altman z score which demonstrate that board meetings are in the favor of the firm. However, firms having only four board meetings (law requirement) suffer from high distress level but financial distress decreases if firm conducts more than four board meetings. Fourth, the market competitiveness of the firm significantly decreases the financial distress level which provokes the firm to capture the market as much as possible. Fifth, Interestingly, interaction of market competitiveness is only significant with board independence and diligence. Sixth, testing the given hypothesis, results of both measures of financial distress (i.e Altman z-score and probit model of Zmijewski show partial consistency with each other.

In the context of an emerging economy like Pakistan, this study makes numerous contributions that have not yet been fully acknowledged. More than the legal requirement and general perspective, the study provides new empirical insights for three levels of board independence, gender, and diligence like compliance level as needed by the law of land. With regard to board gender, independence, and thoroughness, these were still unknowns in light of the compliance issue. Firstly, it is clear that the study produces fascinating non-linear results for the female involvement, which give decision-makers guidance on how to assemble a successful board. The code of corporate governance explicitly required that there be at least one female member of the board in order to achieve sustained success; yet the results claimed a non-linear outcome. The firm's degree of distress grew due to the panel effect of the female inclusion, but the financial suffering decreased with token participation. Pakistan's bureaucratic and opaque economy may have resulted in a non-linear consequence where

participation is allowed but free communication is not. Secondly, the study makes it abundantly evident to policymakers and businesses that impartial directors at every board level help the business by reducing the likelihood of problems. It recommends adding additional unbiased directors to the board. Taking into account the positive aspects of the different result, the independent directorship enhanced the firm's financial standing. Pakistan's code of corporate governance stipulates that a corporation will be successful if it has two or more independent directors, and this fulfilled that criterion as well. Thirdly, the study indicates that the board exhibits dedication in its efforts during meetings, and the findings suggest that the company ought to do more than merely hold the legally required number of sessions. Fourthly, the report recommends that companies follow the guidelines provided in the SECP code of corporate governance because doing so reduces and eliminates the possibility of running into problems. This research helps firms decide how much, if at all, or just what is necessary for them to comply with the law. Fifthly, the study adds that market competitiveness benefits the company by reducing the degree of financial distress, but it also raises the level when combined with board independence and thoroughness, with support from the resource dependency perspective. Companies could have the instinct to take the right market share. Additionally, by emphasizing the connection between market competitiveness and the qualities of the company's board of directors and their performance in trying times, this research has reduced the gap. It is possible to enhance the level of control that company policy makers and board members have over this mechanism for addressing the decline in market competitiveness.

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Annexure

Table 1: Description of the Variables

Variable	Measurement	Reference
Altman Z score (AZ)	AltmanZ = 6.56 * X1 + 3.26 * X2 + 6.72 * X3 + 1.05 * X4. X1 = Working capital/total assets; X2 = Retained earnings/total assets; X3 = Earnings before interest and taxes/total assets; X4 = Book value of equity/book value of total liabilities.	Ashraf, Félix & Serrasqueiro (2019)
Probit Model of Zmijewski (1984) (PZ)	P = (-4.336-4.513NITA + 5.679TLTA + 0.004CACL) Where: NITA = Net income/Total assets, TLTA =Total liabilities/Total assets, CACL = Current assets/Current liabilities	Wu et al. (2010) and Kleinert (2014)
Board Independence (ID)	number of independent directors on the board	(Mohan & Chandramohan, 2018)
Board Independence (IDa)	Proportion of the independent directors as per code of corporate governance of Pakistan	(Code of Corporate Governance of Pakistan, 2019)
Board Independence (IDb)	Proportion of the independent directors more than the requirement of the code of corporate governance of Pakistan	
Board Diligence (BD)	total number of annual board meetings	(Aktan et al., 2018)

Board Diligence (BDa)	Number of board meetings equal to the law requirement i.e., four	(Pakistan Companies Act, 2017)
Board Diligence (BDb)	Number of board meetings more than the law requirement	
Board Gender diversity (BG)	proportion of female directors on the board	(Chenchehene, 2019)
Board Gender diversity (BGa)	One female director on board as per law	(Code of Corporate Governance of Pakistan, 2019)
Board Gender diversity (BGb)	Presence of more than one female directors on the board	
Market Competitiveness (MC)	HHI is the sum of the squares of the market shares of each firm in the industry.	Javeed, Latief & Lefen (2020) and Sattar, Javeed & Latief (2020)
Size	Log of total assets	Hussain & Waheed (2018)
Age	Life years of the firm from the date of inception	
Leverage	Ratio of total liabilities to total assets	

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
AZ w	2158	5.933	10.897	-37.417	80.995
PZ w	2336	-.61	4.751	-4.523	35.578
ID	2355	1.002	1.152	0	6
BD	2349	5.322	1.764	0	19
BG	2358	.525	.952	0	5
MC	2364	.244	.226	0	1
AGE	2363	38.129	23.016	0	213
SIZE	2349	15.172	1.853	6.928	20.211
Lev w	2349	.683	.747	.056	6.355

Source: Authors own work

Table 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) AZ_w	1.000								
(2) PZ_w	-0.146*	1.000							
(3) ID	0.021	-0.064*	1.000						
(4) BD	0.034	0.011	0.063*	1.000					
(5) BG	-0.117*	0.031	0.108*	-0.028	1.000				
(6) MC	0.142*	-0.094*	0.083*	-0.016	-0.115*	1.000			
(7) AGE	0.299*	-0.096*	0.109*	-0.031	-0.053*	0.119*	1.000		
(8) SIZE	-0.036*	-0.229*	0.101*	0.124*	-0.066*	-0.038*	-0.010	1.000	
(9) Lev_w	-0.162*	0.974*	-0.047*	0.007	0.027	-0.084*	-0.091*	-0.254*	1.000

*** p<0.01, ** p<0.05, * p<0.1, Source: Authors own work

Table 4: Regression Analysis (Financial Distress as AZ)

	(1) AZ_w	(2) AZ_w	(3) AZ_w	(4) AZ_w	(5) AZ_w	(6) AZ_w	(7) AZ_w	(8) AZ_w	(9) AZ_w	(10) AZ_w	(11) AZ_w
ID	-.105			-.109	-.111	-.255	-.102	.414	-.041	-.103	.426
	(.177)			(.178)	(.178)	(.186)	(.172)	(.262)	(.177)	(.179)	(.263)
BD	.349***	.344***	.359***			.368***	.341***	.367***	.716***	.349***	.714***
	(.115)	(.114)	(.116)			(.117)	(.114)	(.114)	(.174)	(.115)	(.173)
BG	-1.022***	-1.048***	-1.016***	-1.072***	-1.074***			-1.054***	-1.031***	-1.117***	-1.126***
	(.207)	(.207)	(.207)	(.21)	(.211)			(.208)	(.209)	(.311)	(.312)
MC	4.032***	3.941***	4.197***	3.726***	3.729***	4.559***	3.923***	6.056***	14.509***	3.853***	15.684***
	(.922)	(.92)	(.925)	(.951)	(.951)	(.93)	(.933)	(1.385)	(2.867)	(1.018)	(3.069)
AGE	.126***	.126***	.128***	.126***	.126***	.129***	.127***	.127***	.122***	.126***	.124***
	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)	(.024)
SIZE	-.418*	-.422*	-.404*	-.405*	-.403*	-.39*	-.436**	-.436**	-.449**	-.418*	-.463**
	(.216)	(.217)	(.215)	(.217)	(.217)	(.219)	(.217)	(.218)	(.215)	(.216)	(.217)
Lev_w	-2.076*	-2.062*	-2.044*	-2.01*	-2.01*	-2.069*	-2.035*	-2.083*	-2.092*	-2.08*	-2.099*
	(1.099)	(1.1)	(1.098)	(1.112)	(1.112)	(1.105)	(1.096)	(1.1)	(1.09)	(1.098)	(1.091)
IDa		.004									
		(.592)									
IDb			-1.633**								
			(.646)								
BDa				-.791*							
				(.467)							
BDb					.759						
					(.465)						
BGa						1.387*					
						(.719)					
BGb							-3.522***				
							(.539)				
IDxMC								-1.678**			-1.516**
								(.652)			(.65)
BDxMC									-1.871***		-1.776***
									(.457)		(.45)
BGxMC										.485	.346
										(1.046)	(1.074)
_cons	6.62*	6.623*	6.215*	8.655**	7.863**	5.224	6.844*	6.192*	5.086	6.651*	4.799
	(3.582)	(3.595)	(3.59)	(3.436)	(3.479)	(3.651)	(3.606)	(3.532)	(3.635)	(3.581)	(3.598)
Obs	2133	2125	2125	2134	2134	2121	2121	2133	2133	2133	2133
R-sq	.132	.132	.134	.13	.13	.127	.137	.135	.137	.132	.139
Adj R^2	.13	.129	.131	.127	.127	.124	.134	.132	.134	.129	.135
F-stat	20.109	19.281	19.088	19.729	19.527	15.271	21.884	18.812	17.575	18.022	15.424

Robust standard errors are in parentheses, *** $p<.01$, ** $p<.05$, * $p<.1$, Source: Authors own work

Table 5: Regression Analysis (Financial Distress as PZ)

	(1) PZ_w	(2) PZ_w	(3) PZ_w	(4) PZ_w	(5) PZ_w	(6) PZ_w	(7) PZ_w	(8) PZ_w	(9) PZ_w	(10) PZ_w	(11) PZ_w
ID	-.039*** (.011)			-.039*** (.012)	-.04*** (.012)	-.04*** (.013)	-.036*** (.011)	-.04** (.017)	-.04*** (.011)	-.039*** (.011)	-.04** (.017)
BD	0 (.009)	-.002 (.009)	0 (.009)			-.001 (.01)	-.001 (.01)	0 (.009)	-.006 (.011)	0 (.009)	-.007 (.011)
BG	.04** (.02)	.037* (.02)	.038* (.02)	.042** (.02)	.042** (.02)			.041** (.02)	.041** (.02)	.031 (.026)	.03 (.026)
MC	-.236* (.133)	-.254* (.133)	-.23* (.136)	-.234* (.134)	-.236* (.134)	-.248* (.134)	-.248* (.132)	-.239 (.148)	-.409 (.289)	-.254*** (.095)	-.431* (.254)
AGE	-.001* (.001)	-.001** (.001)	-.001* (.001)	-.001* (.001)	-.001* (.001)	-.001* (.001)	-.001* (.001)	-.001* (.001)	-.001 (.001)	-.001* (.001)	-.001 (.001)
SIZE	.039* (.023)	.036 (.023)	.037 (.023)	.038* (.022)	.038* (.022)	.036* (.022)	.038* (.022)	.039* (.023)	.039* (.023)	.039* (.023)	.039* (.023)
Lev_w	6.216*** (.037)	6.216*** (.037)	6.218*** (.037)	6.215*** (.037)	6.215*** (.037)	6.218*** (.036)	6.216*** (.037)	6.216*** (.037)	6.216*** (.037)	6.216*** (.037)	6.216*** (.037)
IDa		-.081* (.042)									
IDb			-.158*** (.051)								
BDa				-.011 (.032)							
BDb					.021 (.033)						
BGa						.128 (.119)					
BGb							.04 (.038)				
IDxMC								.002 (.039)			-.002 (.039)
BDxMC									.031 (.038)		.032 (.037)
BGxMC										.052 (.156)	.055 (.156)
_cons	-5.296*** (.315)	-5.271*** (.315)	-5.306*** (.322)	-5.294*** (.316)	-5.305*** (.331)	-5.252*** (.305)	-5.263*** (.298)	-5.296*** (.315)	-5.271*** (.317)	-5.294*** (.311)	-5.268*** (.312)
Obs	2311	2302	2302	2311	2311	2298	2298	2311	2311	2311	2311
R-sq	.949	.949	.949	.949	.949	.949	.949	.949	.949	.949	.949
Adj R^2	.949	.949	.949	.949	.949	.949	.949	.949	.949	.949	.949

| F-stat | 4749.98 | 4584.98 | 4577.68 | 4633.091 | 4630.627 | 4788.028 | 4819.102 | 4210.039 | 4154.19 | 4191.47 | 3390.825 |

Robust standard errors are in parentheses, *** p<.01, ** p<.05, * p<.1, Source: Authors own work