# Moderating Role of Corporate Governance in the Relationship between Corporate Structure and Firm Performance: A Case Study of Pakistani Non-Financial Firms

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## ARTICLE INFO

## ABSTRACT

The goal of this research is to investigate the moderating role of corporate governance in the relationship between corporate structure and firm performance. Secondary has been taken from company annual reports for this study. Panel data of 148 non-financial firms belonging to 16 different sectors companies listed on the PSX have been taken from 2004 to 2019. Firms were randomly selected and used panel data for analysis. A panel regression model is used to analyze the data. Analysis yield mix results of the impact of capital structure on firm performance. Short-term debt has a significant negative impact on ROA, whereas it has a positive relationship with ROE. Furthermore, Long-term debt has a significant positive impact on ROA and a negative relationship with ROE. Analyses reveals that total debt of the firm significantly and negatively affect the ROA, however it has a positive association with ROE. Moderating role Board size and female directors moderate the association among capital structure and firm performance. Female directors and board size can strengthen connection among capital structure of a company and its profitability.

## 1.    Introduction

Literature of the corporate enforcement reveals that, there is a connection between corporate governance CG and capital structure (CS). Findings of studies vary from study to study, and several studies have different results regarding CG & CS effects organization productivity. Capital structure research demonstrates a favorable relationship with company performance (Gill, Biger, & Mathur, 2011; Khan, Naz, Khan, Khan, & Ahmad, 2013). The study has examined the impact of CS on the firm performance (FP) (Abor, 2007; Mumtaz, Rauf, Ahmed, & Noreen, 2013; Salim & Yadav, 2012; Sheikh & Wang, 2012). Research of CG examines result of board

structure (BS) and board leadership. It has positive relationship with firm performance (FP), and composition of the board has shown an insignificant impact on the FP (Aziz, Butt, & Tasawar, 2013). Literature related to CG & FP in non-financial institutions of Sri Lanka has shown that CG, BS and audit committee have a positive relationship with FP whereas meeting frequency has an negative relationship with firm value (Danoshana & Ravivathani, 2019). CG is found to have a positive impact of FP for Malaysian firms (Bhatt & Bhatt, 2017).

A company's CS is its combination of debt and equity. The CS determines how much debt and equity the corporation needs to stay in business. Debt and equity, both sources of the fund are used to operate the business, capital expenditure, acquisition, and investment. The debt gets typically from banks or issues the bond while equity uses for common stock, preferred stock, and retained earnings. Debt includes long-term debt and short-term debt as well. When any firm needs to operate its activities, it needs funds. There are two sources of fund which is debt and equity. Capital structure also elaborates on how firms increase their funds to improve their operations, capital expenditure, and acquisitions.

Unavailability of funds in a firm anytime creates difficulties to firm operate the business activities regularly. Capital structure concern is very indicative because of the monetary factors highly connected an organization's ability to fulfill its compulsion to shareholders, community, employees, and others. One source of funds is financed by the owners of the business. Shareholders claim their profit with the name of dividend according to the number of shares which they held. The combination of debt and equity is one of the most fundamentals challenges in finance and accounting, which is called capital structure and is affected by the firm performance. Past studies mostly recommend that capital structure is associated with firm operational activities and their profitability.

## 1.1   Capital Structure Theories

Three theories that explain the capital structure selection incorporate Modigliani and Miller's theory, Trader off theory, and Packing order theory. MM theory is the basic theory of capital structure which has shown that capital structure has no effect on company's productivity. This is called irrelevance theory. If includes income tax, the leverage helps the firm to increase its value and reduce the cost of equity, and, and this theory impact the market value of the firm (Ngatno, Apriatni, & Youlianto, 2021). Trader-off theory suggests that firms use more debt than equity and get tax shield advantages due to the cost of financing and also can decrease the weighted average cost of capital (WACC). Packing order theory recommend that company adopt the internal source of financing which is called retained earnings & this firm position shows strong if internally funds are unavailable then used external funds.

On March 28, 2002, the Securities and Exchange Commission of Pakistan (SECP) issued the code of corporate governance after consultation of committee and other stakeholders. In 2007 the SECP, international financial corporation (IFC), and Pakistan Institute of the corporation (PICG) performed research on the corporate governance practices of Pakistan. The research goal gives awareness about the CG importance among BS and companies. In 2011 PICG task force recommended significant changes in the corporate governance code. Like independent directors should not be less than 1/3ʳᵈ or 3 whichever is higher numbers of the board. The executive directors along with CEO should not be less than 2 or more than 1/3ʳᵈ of the elected directors as well, board composition the with executive, non-executive, and independent board members (Hashimi, 2011). SECP amended the corporate governance code in 2017, gender diversity, chairman & CEO should not be the same person, executive director should not be more than 1/3 of its board of directors, independent directors not less than 2 members or 1/3ʳᵈ of total board size and no directors should include, if he member of the board more than five listed companies.

Corporate governance is very important for the growth of capital markets (Bajaher, Habbash, & Alborr, 2021; Srem-Sai, 2018). Since Pakistan has a weak governance mechanism (Bhat, Chen, Jebran, & Bhutto, 2018; Srem-Sai, 2018), it is very important to investigate that how it may impact the capital structure. A weak corporate governance structure may lead to the risky financing decisions, which can lead to the firm bankrupt. Poor corporate governance also creates an agency problem and decreases the firm performance. Findings of research will provide the evidence CG in Pakistan, controlling and monitoring CS decisions can enhance the firm performance.

The inclusion of female directors, independent board members, board size, and CEO dual charge will help to select the better capital structure (SDTA, LDTA, and TDTA). A strong and good CG mechanism will lead efficient CS decision. The study will explore separately CG mechanisms between SDTA, LDTA, TDTA, and firm performance. This investigation information will be valuable for academics, policymakers, and other interested parties. The findings of this investigation will be useful for the management and policymakers of the Pakistan's non-financial enterprises must improve their accounting-based performance by making use good corporate governance structure between CS and FP. This study contributes to the previous literature by introducing corporate governance as a moderator in the relationship of capital structure and firm performance.

To the best of our knowledge, this first research finds out the interaction between CG & CS and FP in non-financial firms. Previously, so many studies on CS and firm profitability. This study is first study in this context in Pakistan to measure the (short term debt, long term debt, and total debt) CS variables with moderating effect separately corporate governance variable on business profitability in non-financial companies with 16 years of data collection periods. 2017 code of corporate governance, gender diversity in this study, it was employed as a moderator.

## 2.    Literature Review

The selection of debt and equity is one of the most difficult tasks for the companies, as well as decision-making for long-term survival. Based on prior research conducted on a capital structure, we can say that most of the firms have failed to survive due to their inefficient and poor financing decision-making process. The good CS decision in organization is processed by good corporate governance. we will explain prior studies of CS, CG and FP.

### 2.1    Capital Structure and Firm Performance

Study of CS & FP in a non-financial firm from the periods 2007 to 2012 was conducted in Vietnam. The findings of this study have shown that all the debt ratios have a negative association with business performance means when you increased the debt over the equity, you will face low firm performance due to interest payment (Le & Phan, 2017). CS & FP were conducted on non-financial firms listed in Germany during time of 1993 to 2016, this study discovered a positive association between CG and business profitability, and found almost 60% financing through debt (Abdullah & Tursoy, 2021).

The research on the CS and FP of 488 non-financial listed on the Vietnam stock exchange over six years from 2013 to 2018, which showed statistically significant and negative results on firm performance (Nguyen & Nguyen, 2020). In the context of Bursa Malaysia, CS & FP research on 45 listed companies over three different financial crises; this study has found that CS has a strong adverse effect on the firm profitability (Khodavandloo, Zakaria, & Nassir, 2017). Ashraf, Ameen, and Shahzadi (2017) conducted the study of capital structure on firm performance in the cement sector, 18 firms selected for the sample listed in KSE over the periods 2006-2015 found a mixed result, debt ratio, and long-term ratio both have adverse association with firm performance and the short-term ratio has a positive association with business performance.

## 2.2    Corporate Governance, Capital Structure, and Firm Performance

The goal of shareholders is to improve the value of the firm. Corporate governance is building the structure which ensures the protection of investors rights. Organization loan procedure particularly deciding through proper corporate governance practices which it will be able to reduce the agency problem (Harris & Raviv, 1990). When an organization finance through debt the risk of bankruptcy increase due to interest payment and decrease the free cash flow (Morellec, Nikolov, & Schürhoff, 2012). Another assumption of agency theory good corporate governance and good shareholders' rights will decrease the conflicts and increase the belief of investors through this decrease in the cost of equity and make a circumstance for equity financing (Drobetz, Schillhofer, & Zimmermann, 2004; Gompers, Ishii, & Metrick, 2003). This research will explore connection among BS, B Ind, CEO D, & FD in Board, these CG feature affect the CS & firm performance. Many studies find that strong CG increases business profitability (Hermuningsih, Kusuma, & Cahyarifida, 2020).

## 2.3    Female Directors, Capital Structure, and Firm Performance

Board members mostly monitors, manage, and motivate the managers. Female directors have a vital role in organization decision-making. FD brings latest point of view and come in with a professional background. In the context of previous financial research, gender diversity stems from the belief that males and females have different attributes; attentiveness overconfidence, trust, and a risk-averse mindset are all factors that affect gender variety the firm financing decisions and management efficiency (Beck, Behr, & Guettler, 2013). Female directors bring new skills to the Board to provide a new perspective and good suggestions to the managers (Anderson, Reeb, Upadhyay, & Zhao, 2011). The study of board compositions and capital structure leads that more FD in Board improves organization's board efficiency, independence, and a capital structure composed with added long-term loan (P. Alves, Couto, & Francisco, 2015). FD & FP concluded that positive relationship between FD between Return on assets & return on equity, shows adverse link between Tobin Q (Bennouri, Chtioui, Nagati, & Nekhili, 2018). Female directors strongly increase the firm efficiency, this study also looked into whether having three or more FD on the board has a significant impact on FP (Liu, Wei, & Xie, 2014).

## 2.4    Independence of Board, Capital Structure, and Firm Performance

Independent board members, who do not have any material association with the organization, are not a member of the organization executive team of the organization as well as not able to monitor the daily activities of the business. B Ind & CS research were done Saudi Arabia, and it resulted B Ind affirmative relation with debt & statistically insignificant but after link between excess independence show the positive and statistically significant result (Kalyanaraman & Altuwaijri, 2016). Sewpersadh (2019) conducted in Johannesburg stock exchange companies produce that B Ind negative association with CS. B Ind & FP relationship of Taiwan show that high numbers B Ind strong the FP (Kao, Hodgkinson, & Jaafar, 2018). The research was conducted in India and its results show the positive effects B Ind on FP, independent directors better monitor firm activities (Arora & Bodhanwala, 2018).

## 2.5    Board Size, Capital Structure, and Firm Performance

The number of directors on a board, including executive, non-executive, and independent board members, is referred to as the board size. Several research on BS & CS have been conducted. Different studies have resulted in different associations between them. The research was conducted on CG & CS in Sri Lanka; this study produced the result BS has a positive & insignificant result on capital structure (Kajananthan, 2012). Kumalasari, Murhadi, and Wijaya (2019); Nooitgedagt (2020) and Vijayakumaran and Vijayakumaran (2019) found no connection among BS & CS. Kang and Ausloos (2017); Shalim and Hatane (2017) and Tariq and Rasheed

(2018) concluded his research negative link between BS & CS. Furthermore, researchers concluded that board size positive link among several BD & CS, this research tells us big BS to add more debt & increase FP (Ganiyu & Abiodun, 2012). Research outcomes indicate positive association between BS & FP (Nandi & Ghosh, 2013). More Board of directors, firm more circumstances of investment, wider experiences, and can develop good decision-making. BS effect on the FP, this paper examines result BS positively impacts firm performance in Ghana and Nigeria. Danoshana and Ravivathani (2019) examined the positive connection among BS & FP of Sri Lankan firms.

## 2.6   CEO Duality, Capital Structure, and Firm Performance

CEO D has different researchers find the various impact on CS & FP. CEO duality means BOD members are also chairman of the organization. A study was done in the non-financial sector of Pakistan, which conclude that CEO D positive & significant relationship with CS (Nazir, Aslam, & Nawaz, 2012). The evidence in the context Nepalese firms find out CEO D has positive association with CS (Bajagai, Keshari, Bhetwal, Sah, & Jha, 2019). Pham and Pham (2020) concluded that CEO D has a positive impact on FP in the growth stage while hurting firm performance during the mature stage. Qadorah and Fadzil (2018) examined the findings that CEO D has a negative and significant relation with ROA. S. Alves (2020); Dang A, Houanti, Le, and Vu (2018) and Mohan and Chandramohan (2018)conclude the negative connection among CEO duality & firm profitability.

**H1:** Capital structure and company performance have an inverse connection.

**H2:** The association between capital structure and firm performance will be stronger when the number of female directors in the Board.

**H3:** The relationship between capital structure and firm performance will be stronger when more independent directors in the Board.

**H4:** The relationship between capital structure and firm performance will be stronger when the large size of the Board.

**H5:** CEO duality significantly strengthens the relationship between capital structure and firm performance will be stronger when the.

## 3.    Research Methodology

The sample of the study includes randomly selected 148 non-financial from 16 sectors firms listed on the PSX of Pakistan. The reason why financial firms are not included in the sample, is the difference of their capital structure and other financial characteristics. This research is based on secondary data of the firms which was collected for the ten years 2004-2019. Multiple ways are used to the collection of data like the website of the Pakistan stock exchange and annual reports regarding companies.

This study required a panel estimation method to fulfill the goal of this research. Multiple regression methods are used to investigate the moderating effects of CG on the link between CS & FP, a random effect model method was used using panel data.

Three main variables are used in the study CS, CG, & FP. CS is measured through total debt to total assets ratio, long-term debt to total assets, and short-term debt to total assets, corporate governance (Board size, board independence, Female directors, CEO D) and firm performance determine through accounting-based Return on assets and return on equity.

## 3.1    Regression Models

Following models are formed for hypotheses testing:

**ROA**
$$\alpha + \beta1TDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5TDTA*BS + \beta6TDTA*FD + \beta7TDTA*BIND + \beta8TDTA*CEOD + \varepsilon \tag{1}$$

**ROE**
$$\alpha + \beta1TDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5TDTA*BS + \beta6TDTA*FD + \beta7TDTA*BIND + \beta8TDTA*CEOD + \varepsilon \tag{2}$$

**ROA**
$$\alpha + \beta1LDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5LDTA*BS + \beta6LDTA*FD + \beta7LDTA*BIND + \beta8LDTA*CEOD + \varepsilon \tag{3}$$

**ROE**
$$\alpha + \beta1LDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5LDTA*BS + \beta6LDTA*FD + \beta7LDTA*BIND + \beta8LDTA*CEOD + \varepsilon \tag{4}$$

**ROA**
$$\alpha + \beta1SDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5SDTA*BS + \beta6SDTA*FD + \beta7SDTA*BIND + \beta8SDTA*CEOD + \varepsilon \tag{5}$$

**ROE**
$$\alpha + \beta1SDTA + \beta2BS + \beta3FD + \beta4BIND + \beta5CEOD + \beta5SDTA*BS + \beta6SDTA*FD + \beta7SDTA*BIND + \beta8SDTA*CEOD + \varepsilon \tag{6}$$

A multiple regression model is used to find result of CS on FP with interaction impact on FP. These equations identify the moderation effect. In these equations, if the coefficient interaction among the explanatory variables (LDTA, SDTA, and TDTA) and moderating variables (BS, FD, BIND, and CEOD) is statistically significant, then it can be a moderator or it changes the impact of CS & FP.

**Table 1**
***Variables, Signs, and Proxies of Research***

| Variables | | Measurement | Reference |
|---|---|---|---|
| Capital Structure | Long-term debt to total assets (LDTA) | Long-term debt / total assets | (Ngatno et al., 2021; Nunes & Serrasqueiro, 2017) |
| | Short-term debt to total assets (SDTA) | Short-term debt / total assets | (Ngatno et al., 2021; Nunes & Serrasqueiro, 2017) |
| | Total debt to total assets (TDTA) | Total debt / total assets | (Daskalakis, Balios, & Dalla, 2017; Ngatno et al., 2021) |
| Corporate governance | Female Directors | If the female director of the director, as well as CEO, is equal to 1 otherwise 0. | (Detthamrong, Chancharat, & Vithessonthi, 2017; Zaid et al., 2020) |

| | | | |
|---|---|---|---|
| | Board independence (BIND) | Percentage of independent directors on a board. | (Balagobei, 2018; Javeed, Yaqub, & Aslam, 2017) |
| | Board Size (BS) | Total members of the Board. | (Balagobei, 2018; Javeed et al., 2017) |
| | CEO Duality (CEOD) | If the member Board of the director, as well as the CEO, is equal to 1 otherwise 0. | (Balagobei, 2018; Javeed et al., 2017) |
| Firm Performance | Return on assets (ROA) | EBIT / total assets. | (Qadorah & Fadzil, 2018) |
| | Return on Equity (EBT) | EBIT / Shareholder equity | (Nguyen & Nguyen, 2020) |
| Control Variables | Growth in sales | percentage change in sales | (Iqbal & Javed, 2017) |
| | Size of the firm | Natural log of total assets | (Iqbal & Javed, 2017) |
| | Firm Age | Natural log of a total number of age years. | (Bashir, 2021) |

## 4.    Results
## 4.1    Descriptive Analyses

Table 02 shows the descriptive statistics related to independent variables, dependent variables, moderating variables, and control variables. 2368 observations corresponding to 148 non-financial firms for 16 years.

**Table 2**
*Descriptive Statistics*

| Variables | Mean | Maximum | Minimums | Std. Dev | Observation |
|---|---|---|---|---|---|
| SDTA | 0.133 | 0.897 | 0.000 | 0.121 | 2368 |
| LDTA | 0.108 | 0.164 | 0.060 | 0.034 | 2368 |
| TDTA | 0.227 | 0.286 | 0.188 | 0.028 | 2368 |
| Female Director | 0.289 | 1.000 | 0.000 | 0.453 | 2368 |
| Board Size | 8.164 | 15.000 | 5.000 | 1.597 | 2368 |
| Board Ind | 0.652 | 1.091 | 0.000 | 0.170 | 2368 |
| CEO dual | 0.987 | 1.000 | 0.000 | 0.112 | 2368 |
| ROA | 0.056 | 0.518 | -0.598 | 0.084 | 2368 |
| ROE | 0.143 | 0.181 | 0.078 | 0.037 | 2368 |
| Growth in Sales | 0.128 | 11.140 | -1.000 | 0.645 | 2368 |
| Size | 15.331 | 17.357 | 0.000 | 1.472 | 2368 |
| Firm Age | 3.721 | 4.956 | 2.890 | 0.358 | 2368 |

This statistic shows that 22.72% of non-financial firms finance their assets from total debt has a 2.76% standard deviation, including both short-term debt and long-term debt. On the

other hand, we can see that separately 13.25% of firms finance assets from SDTA and 10.75% from LDTA, and the standard deviation is 12.14% and 3.4% respectively. This statistic shows that 29% of the firm have female directors on their board and follow the code of corporate governance 2017. Firms have an average board size of 8.16 members in a board, while the standard deviation of 1.59 it showing that non-financial firms have a smaller board size. Firms have 65% independent directors in their board size, while the board independent standard deviation is 17% following the 2012 code of corporate governance. 98% of the firm CEO holds the chair of CEO and board member as well, while the standard deviation of board size is 11.18%. Companies have an average return on assets of 5.56% and a standard deviation of 8.4%, a mean of return on equity of 14.29% ranging from 7.7% to 18%, while the standard deviation is 3.6%. The mean of control variables growth in the sale, firm size, and firm age have 12.78%, 15.33, and 3.72, and the standard deviation is 64.50%, 1.47, and .357764 respectively.

**Table 3**
*Correlation Analyses*

| Variables | SDTA | LDTA | TDTA | FD | BS | B Ind | CEO D | ROA | ROE | Growth | Size | Age |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SDTA | 1 | | | | | | | | | | | |
| LDTA | -0.235 | 1 | | | | | | | | | | |
| TDTA | 0.717 | 0.020** | 1 | | | | | | | | | |
| FD | 0.014** | -0.044* | 0.020** | 1 | | | | | | | | |
| B S | -0.097* | -0.0427** | -0.140 | -0.052* | 1 | | | | | | | |
| B Ind | -0.07*** | 0.030** | -0.026** | -0.234 | 0.246 | 1 | | | | | | |
| CEO D | 0.003** | 0.002** | 0.0212* | -0.011** | 0.032** | -0.010** | 1 | | | | | |
| ROA | -0.292 | 0.156 | -0.411 | -0.025** | 0.093* | 0.019** | -0.005*** | 1 | | | | |
| ROE | 0.298 | -0.784 | -0.063* | -0.062** | 0.068* | 0.03*** | -0.0154** | -0.177 | 1 | | | |
| Growth | 0.007*** | -0.017** | -0.013** | 0.018** | -0.001*** | -0.028** | 0.002*** | 0.043** | 0.047** | 1 | | |
| Size | -0.13 | -0.282 | -0.211 | -0.0412** | 0.227 | 0.014** | 0.057* | 0.058* | 0.214 | 0.021** | 1 | |
| Age | 0.104 | -0.006*** | 0.054* | 0.006*** | 0.001** | 0.068* | 0.075 | 0.006** | -0.002** | -0.023 | -0.082* | 1 |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.1*

## 4.2    Correlation Analyses

Table 03 shows the correlation coefficients between variables. The negative and insignificant relationship between STDA and LDTA, SDTA has a positive and insignificant relationship with TDTA. SDTA has a positive and significant association with female directors, CEO duality, and growth positive and significant relation at the level of 5%. SDTA has positive and insignificant with the age of the firm. The negative and significant relation SDTA with board size at a level of 10% and board independence at a level of 1%. ROA and firm size have negative and insignificant relation with SDTA. ROE and SDTA have a positive and insignificant impact on each other. LDTA has a positive and significant relationship with TDTA. Female directors, the board size, growth, and age have a negative and significant relationship with LDTA at 10% and 5% respectively. ROE and firm size negative and insignificant relationship with LDTA. Board size and CEO dual charge have a positive and significant relationship with LDTA. ROA and LDTA have a positive and insignificant relationship. Firm age has negative and significant with LDTA. We can see that TDTA has a positive and significant relationship with a female director, firm age, and CEO dual at significance levels of 5% and 10% respectively.

Board size, ROA, EBT, and size of the firm have a negative and insignificant relationship with TDTA. Board size, ROA, and Size of the firm have a negative and insignificant association with TDTA. Female directors and age both have positive significance with TDTA. Board Ind, CEO dual, and growth have a negative and significant relationship with TDTA. The female director has a negative and significant relationship with board size, CEO duality, ROA, ROE, and size of the firm. The female director has a positive and significant relationship with growth and age. Board Ind and FD have negative and insignificant relations with each other. Board size has positive and insignificant relation with board Ind and size. The positive and significant relationship between board size and CEO dual, ROA, ROE, and age. Growth and board size are negative and significant relationships. ROA, ROE, Size, and firm age-positive and significant relationship between board Ind. The association between board Ind and CEO duality, growth negative and significant. ROA

and ROE both have a negative and significant association with CEO duality at 10% and 5% respectively. CEO duality association with growth and size have positive and significant at 1% and 10%. Age and CEO duality have a positive and insignificant association. ROE and ROA have a negative and insignificant association. Growth, size, and age have a positive and significant relationship with ROA. Growth and ROE positive and significant relationship. Age and ROE negative and significant association and the age of the firm's ROE have a positive and insignificant relationship. Size and growth are positive and significant associations with each other. Age of the firm has a negative and significant relationship with growth and size.

## 4.3 SDTA Effects on ROA

Table 04 indicates the result of SDTA on ROA. STDA effect on ROA with moderate variables. Regression outcomes reveal SDTA adverse and strongly significant effect on ROA in model 01 table 04 (-.072378; Sig < 0.01). this result illustrates that these two are related to each other, and if you increase the SDTA it will reduce the firm performance ROA. Control variables in model 01 show that growth positive & statistically significant effect, Firm size has negative & significant impact and firm age has positive & insignificant effects. Furthermore, F statistics show that in model 01 test is appropriate and good the P-Value 0.000 is less the 0.01, R square 52% indicate that impact on ROA due to independent variables.

**Table 4**
*Panel data Regression ROA dependent, SDTA Independent*

| Variables | Model 1 | | | Model 2 | | | Model 3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | 0.174 | 1.9 | 0.058* | 0.148 | 1.55 | 0.122 | 0.148 | 1.55 | 0.122 |
| SDTA | -0.072 | -5.82 | 0.000*** | -0.073 | -5.81 | 0.000*** | -0.147 | -2.27 | 0.023** |
| FD | | | | -0.001 | -0.23 | 0.815 | -0.007 | -1.46 | 0.144 |
| BS | | | | -0.003 | -0.35 | 0.727 | -0.009 | -0.87 | 0.384 |
| B Ind | | | | 0.005 | 0.54 | 0.589 | 0.002 | 0.19 | 0.849 |
| CEO Dual | | | | 0.027 | 1.29 | 0.198 | 0.034 | 1.49 | 0.138 |
| STDA* FD | | | | | | | 0.049 | 2 | 0.045** |
| STDA*BS | | | | | | | 0.044 | 1.08 | 0.281 |
| STDA*Bind | | | | | | | 0.03 | 0.4 | 0.688 |
| STDA*CEOD | | | | | | | -0.052 | -0.68 | 0.497 |
| Growth | 0.008 | 4.1 | 0.000*** | 0.008 | 4.11 | 0.000*** | 0.008 | 4.14 | 0.000*** |
| Size | -0.012 | -6.39 | 0.000*** | -0.012 | -6.32 | 0.000*** | -0.012 | -6.34 | 0.000*** |
| Age | 0.02 | 0.82 | 0.413 | 0.02 | 0.83 | 0.407 | 0.022 | 0.94 | 0.348 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0 | | |
| R sq | 0.516 | | | 0.516 | | | 0.518 | | |
| Adj R sq | 0.483 | | | 0.483 | | | 0.483 | | |
| Std error | 0.012 | | | 0.013 | | | 0.065 | | |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.10*& significant effect (.0081963; Sig < 0.01). size of the firm has a negative and significant effect (-.0118767; sig < 0.01). Firm age has a positive and insignificant result. Model 03 the F-statistics (0.000 < 0.01) show that the test is appropriate and good, while R Sq indicates 51.78% variation due to explanatory variables. Model 03 result supports the Hypothesis H2 in form of SDTA and ROA, which Means female directors strengthen the association among CS & FP.

The finding of model 01 supports the alternative hypothesis H1 in form of SDTA. This result little follow the pecking order theory cost of debt decrease firm performance. Model 02 in Table 04 shows corporate governance dimensions and SDTA effects on ROA. SDTA indicates the negative and statistically significant (-.072524; sig < 0.01), same as model 01. Female directors and board size both are negative & statistically insignificant impact, board Ind and & CEO duality have a positive and significant impact on ROA. F Statistics (0.000 < 0.01) shows that the model test is good and R square relives the 52% variation in ROA due to explanatory variables.

**Table 5**
*Panel data Regression ROE dependent, SDTA Independent*

| Variables | Model 4 | | | Model 5 | | | Model 6 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | -0.244 | -4.950 | 0.000*** | -0.295 | -5.760 | 0.000 | -0.299 | -5.820 | 0.000 |
| SDTA | 0.082 | 12.200 | 0.000*** | 0.079 | 11.870 | 0.000*** | 0.083 | 2.390 | 0.017** |
| FD | | | | -0.010 | -4.940 | 0.000*** | -0.012 | -4.990 | 0.000*** |
| BS | | | | 0.017 | 3.110 | 0.002*** | 0.016 | 2.810 | 0.005*** |
| B Ind | | | | 0.000 | 0.080 | 0.936 | 0.001 | 0.110 | 0.914 |
| CEO Dual | | | | -0.002 | -0.150 | 0.878 | 0.000 | -0.020 | 0.986 |
| SDTA*FD | | | | | | | 0.023 | 1.760 | 0.079* |
| SDTA*BS | | | | | | | -0.001 | -0.050 | 0.959 |
| SDTA*Bind | | | | | | | -0.001 | -0.030 | 0.972 |
| SDTA*CEOD | | | | | | | -0.008 | -0.190 | 0.847 |
| Growth | 0.001 | 1.340 | 0.180 | 0.001 | 1.350 | 0.178 | 0.001 | 1.340 | 0.181 |
| Size | 0.024 | 23.590 | 0.000 | 0.024 | 23.910 | 0.000 | 0.024 | 23.820 | 0.000*** |
| Age | 0.003 | 0.270 | 0.785 | 0.008 | 0.650 | 0.515 | 0.010 | 0.740 | 0.458 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0.0000*** | | |
| R sq | 0.253 | | | 0.266 | | | 0.267 | | |
| Adj R sq | 0.202 | | | 0.214 | | | 0.214 | | |
| Std error | 0.001 | | | 0.007 | | | 0.035 | | |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.1*

Model 03 shows the result of independent variables on dependent variables with moderating variables. SDTA has a negative effect on ROA but statistically significant, which indicates that corporate governance variables have moderation among SDTA & ROA. STDA*FD interaction among SDTA & ROA, it has positive & statically significant (.0490885; Sig < 0.05). this finding tells us adding female members to board size affects the CS decision-making and company performance ROA. Support the H2, a female director creates a strong association among SDTA & ROA. STDA*BS indicates BS is moderate between SDTA and ROA. BS has positive & significant impact among SDTA & ROA. Outcomes does not support the H4 BS does not create a strong relationship between CS (SDTA) & FP (ROA). SDTA*B Ind has positive and insignificant, means does not moderate the between SDTA and ROA. It is not supporting hypothesis 03, B Ind does not create strength between SDTA and ROA. SDTA*CEO D negative & statistically insignificant impact between SDTA and ROA. CEO dual does not develop a relation between SDTA and ROA. Control variables in model 03 growth has positive.

## 4.4 SDTA Effects on ROE

Table 05 shows the result SDTA to ROE and moderating effects of corporate governance between dependent and independent variables. SDTA has positive and significant effect on firm performance return on equity (.0817396; sig < 0.01). This regression result indicates that if the firm increases the short-term debt, then it will increase the firm performance. This finding Rejects the hypothesis H1, capital structure and firm performance have negative relationship. Control variables size has positive and statistically significant effects (.0237159; Sig < 0.01), and firm age and growth have a positive and insignificant impact. F-Statistics (0.000 < 0.01) elaborate test is good R sq value 25.31% explain the influence independent variables over dependent variables. Regression result of SDTA on ROE supports tradeoff theory. Regression model 05 results show the effects of SDTA and CG variables on ROE. SDTA has a positive & statistically significant impact on the ROE (.0792114; sig <0.01) same as model 04. On the other hand, model 05 shows that corporate governance variables female director and CEO dual have negative and insignificant effects on the ROE, Board size and board Ind have positive & insignificant impact on ROE. Control variables size has a positive & significant impact, and growth and age have positive and insignificant impacts. R Sq 26.55% shows variation in dependent variable due to explanatory variables and F Statistics (0.000 < .01) shows the model fitness.

Model 05 shows the result with SDTA on ROE with moderator variables CG. SDTA positive & significant impact on ROE. Moderation female directors between SDTA and ROE (SDTA*FD). SDTA*FD shows that positive & significant impact among SDTA & ROE same as SDTA & ROA. Female directors in board size support selecting the efficient financing decision, this result

supports our hypothesis 02 and we reject the null hypothesis. SDTA*BS shows interaction term BS between SDTA & ROE, the regression outcomes reveal that BS has a negative & no significant impact between SDTA and ROE (-.00113; Sig < 0.10). this result shows that the BS whether it is large or small has no effects between SDTA and ROE, same between SDTA and ROA in model 3. So, BS does not improve the connection among CS (SDTA) & firm profitability and does not support hypothesis 04 in form of capital structure (SDTA).

SDTA*B Ind indicates the interaction term of Ind director between SDTA and ROE. It has a negative and insignificant impact between SDTA and ROE (-.0014006; sig < 0.1). This result indicates that board Ind has no impact between SDTA and ROE same as SDTA & ROA. Thus, it doesn't support H3. B Ind does not develop a strong relationship between CS (SDTA) & FP. SDTA*CEO D shows interaction terms among SDTA & ROE. SDTA*ROE adverse and insignificant impact between SDTA and ROE (-.0079714; sig < 0.10) same as model 03 between SDTA and ROA. CEO Dual has no impact between SDTA, ROE, and ROA as well. Furthermore, F-statistics (0.0000 < 0.01) show that the overall model is fit and the test is appropriate. R Sq 26.67% tells us the influence on ROE due to explanatory variables.

**Table 6**
***Panel data Regression ROA dependent, LDTA Independent***

| Variables | Model 7 | | | Model 8 | | | Model 9 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | 0.0321817 | 0.33 | 0.739 | 0.0117148 | 0.12 | 0.907 | -0.0345115 | -0.29 | 0.772 |
| LDTA | 0.2112243 | 4.53 | 0.000*** | 0.2090698 | 4.47 | 0.000*** | 0.6855524 | 1.14 | 0.255 |
| FD | | | | 0.001039 | 0.28 | 0.777 | -0.0142243 | -1.45 | 0.147 |
| BS | | | | -0.0015912 | -0.16 | 0.874 | 0.0538136 | 2.03 | 0.043** |
| B Ind | | | | 0.0024143 | 0.24 | 0.807 | -0.0270052 | -1 | 0.319 |
| CEO Dual | | | | 0.0260638 | 1.24 | 0.216 | -0.0229646 | -0.56 | 0.575 |
| LDTA*FD | | | | | | | 0.1432866 | 1.61 | 0.107 |
| LDTA*BS | | | | | | | -0.557787 | -2.26 | 0.024** |
| LDTA*Bind | | | | | | | 0.3002168 | 1.23 | 0.22 |
| LDTA*CEO D | | | | | | | 0.445908 | 1.28 | 0.202 |
| Growth | 0.0077412 | 3.9 | 0.000*** | 0.0077675 | 3.91 | 0 | 0.0079563 | 4 | 0.00*** |
| Size | -0.0059783 | -2.52 | 0.012** | -0.0060471 | -2.55 | 0.011 | -0.0058197 | -2.46 | 0.014** |
| Age | 0.0245604 | 1.03 | 0.305 | 0.023878 | 0.99 | 0.321 | 0.0239028 | 0.99 | 0.321 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0.0000*** | | |
| R sq | 0.5131 | | | 0.5134 | | | 0.5155 | | |
| Adj R sq | 0.4799 | | | 0.4793 | | | 0.4806 | | |
| Std error | 0.0465838 | | | 0.0467249 | | | 0.6019207 | | |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.1*

## 4.5 LDTA Effect on ROA

Table 06: Regression analysis between LDTA and ROA indicates in model 07 LDTA has a positive and significant impact on the ROA (.2112243; sig < 0.01). The finding in model 07 supports trade-off theory, which indicates finance assets from debt increase the firm performance and reject the null hypothesis. Control variables growth in sales impact positive and significant impact, size of the firm has negative and significant impact and age of firm has a positive and insignificant impact. Furthermore, f statistics (0.0000 < 0.01) show that the test is appropriate and good. R Sq value of 51.31% indicates changes in ROA due to independent variables. Model 8 results indicate the result of independent variables on dependent variables. Here we can see that LDTA positive & significant impact on ROA (.2090698; sig < 0.01). Female directors, Board Ind, and CEO D have positive & insignificant impacts on firm performance and return on assets. The BS negative and insignificant impact on ROA. F-Statistics (0.000 < 0.01)

which explains the model fitness and test is good. R Sq 51.34% explains the influence of explanatory over dependent variables.

Moderating impact of corporate governance between LDTA and ROA. Model 09 shows FD moderates the relation between LDTA and ROA representing the (LDTA*ROA). Regression finds that FD positive and insignificant link between LDTA and ROA. Through this result, we reject the H2. The female director does not strongly influence LDTA and ROA. The interaction term of board size between LDTA and ROA represents the (LDTA*BS) it shows the negative and significant impact between LDTA and ROA (-.557787; Sig < 0.05). Result reveals increasing BS reduces the association among LDTA & ROA, so we reject hypothesis 04 if you increase the board size it does not create a strong connection among LDTA & ROA. LDTA*B Ind and LDTA*CEO duality have positive insignificant impact between LDTA and ROA, regression result (.3002168; Sig > 0.1) and (.445908; Sig > 0.1) respectively. In that case, the results are not supported by hypotheses 03 and hypothesis 05. Control variables growth positive & significant connection, size of business adverse & significant impact while age of firm has a positive and insignificant impact. Furthermore, F-statistics (0.0000 < 0.01) show that model is good and tested appropriately. R Sq value 53.15% variation due to explanatory variables.

## 4.6   LDTA Effect on ROE

Table 07 shows the results of LDTA impact on the ROE and corporate governance moderation impact between LDTA and ROE. Model 10 result shows that LDTA has a adverse & significant impact on the ROE (-.8469427; sig < 0.01). This result supports Hypothesis 01. Capital structure (LDTA) adverse connection with ROE. Outcomes supports pecking order theory. Control variables in model 10, growth has a positive and significant impact, size has a negative and significant impact while age of the firm has a negative and insignificant impact. F-Statistics (0.000 < 0.01) tells us model test is appropriate and significant. R sq 58.95% shows the variation in ROE due to independent variables. Model 11 shows that LDTA and corporate governance variables impact the ROE. LDTA has a negative and significant impact on the ROE (-.8539746, sig < 0.01), the same as in model 10. Corporate governance variables female director has a negative and insignificant impact on ROE (-.0133575; sig < 0.01). Board size positive and significant impact (.0089829; sig < 0.05).

**Table 7**
*Panel data Regression ROE dependent, LDTA Independent*

| Variables | Model 10 | | | Model 11 | | | Model 12 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | 0.315 | 8.190 | 0.000*** | 0.258 | 6.610 | 0.000*** | 0.300 | 6.500 | 0.000*** |
| LDTA | -0.847 | -45.680 | 0.000*** | -0.854 | -47.080 | 0.000*** | -1.263 | -5.400 | 0.000*** |
| FD | | | | -0.013 | -9.390 | 0.000*** | -0.005 | -1.300 | 0.195 |
| BS | | | | 0.009 | 2.300 | 0.021** | -0.010 | -0.960 | 0.335 |
| B Ind | | | | 0.008 | 1.970 | 0.049** | 0.012 | 1.170 | 0.240 |
| CEO Dual | | | | 0.010 | 1.190 | 0.234 | 0.004 | 0.230 | 0.817 |
| SDTA*FD | | | | | | | -0.082 | -2.370 | 0.018** |
| SDTA*BS | | | | | | | 0.188 | 1.960 | 0.050** |
| SDTA*BIND | | | | | | | -0.055 | -0.580 | 0.562 |
| SDTA*CEOD | | | | | | | 0.082 | 0.600 | 0.547 |
| Growth | 0.002 | 2.450 | 0.014** | 0.002 | 2.500 | 0.012** | 0.002 | 2.450 | 0.014** |
| Size | -0.002 | -2.120 | 0.034** | -0.002 | -1.970 | 0.049** | -0.002 | -2.060 | 0.040** |
| Age | -0.014 | -1.430 | 0.152 | -0.007 | -0.740 | 0.461 | -0.007 | -0.760 | 0.447 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0.0000*** | | |
| R sq | 0.590 | | | 0.610 | | | 0.612 | | |
| Adj R sq | 0.562 | | | 0.582 | | | 0.584 | | |
| Std error | 0.019 | | | 0.018 | | | 0.234 | | |

**Note:** Sig at the level .01***; Sig at the level .05**; Sig at the level 0.1*

Board independence also has a positive and significant impact on the ROE (.0075542; Sig < 0.05). CEO dual has a positive and insignificant impact on the ROE (.009726; Sig < 0.1).

Control variables in model 11 growth have a positive and significant impact, Size has negative and insignificant and firm age has a negative and insignificant impact. F Statistics (0.000< 0.01) shows the model's fitness. R Sq 60.98% tells us the impact on ROE due to independent variables. Moderating impact of corporate governance between LDTA and ROE result present in model 12. The female director shows the interaction term between LDTA and ROE (LDTA*FD). The female director has adverse & significant impact between LDTA & ROE (-.0818795; Sig < 0.05). It explains that female directors on board will not strong relationship between LDTA and ROE, so we reject Hypothesis 02. BS moderates' relationship link LDTA & ROE (LDTA*BS).

BS has a positive & significant impact between LDTA & ROE (.1879422; Sig < 0.05). Outcomes indicates that BS creates a strong connection among LDTA & ROE, large board size help to select efficient long-term debt to finance the assets and supports hypothesis 04. Board Ind moderation term represents (LDTA*B Ind) between LDTA and ROE. It indicates that B Ind has a negative and insignificant impact between LDTA and ROE, model 09 table 06, board and also has an insignificant impact. So, it is not supported by hypothesis 03. Board Ind does not create a strong connection among CS (LDTA) & FP (ROA) & (ROE). Interaction term CEO dual between LDTA and ROE represents (LDTA* CEO Dual). Its shows that CEO dual charge has a positive and insignificant impact between LDTA and ROE (.0816105; Sig < 0.1) same as table 06 model 09. The regression result does not support hypothesis 05. CEO dual charge in a firm does not develop a strong association among CS (LDTA) between FP ROA & ROE. Control variables in model 12 growth have a positive & significant impact, size adverse & significant impact, while age of the firm has a negative and insignificant impact. F-Statistics (0.000 < 0.01) and R Sq value shows that 61.16% effects on ROE due to explanatory variables.

## 4.7    TDTA Effects on ROA

Regression result TDTA impact on the return on assets in table 08. Model 13 shows that TDTA negative & significant impact on the ROA. (.2112243; Sig < 0.01). Model 13 result supports hypothesis 01. Capital structure in form of LDTA has a negative impact on ROA. Outcomes supports pecking order theory, which says that using more debt than equity will reduce the firm performance. Control variables in Model 13, growth positive & significant impact, while size negative & significant impact and age of firm has a positive and insignificant impact. In addition, R Sq has a 52.45% influence on ROA due to explanatory variables. F-Statistics (0.0000 < 0.01) shows that overall good fit and test is appropriate. Model 14 regression result which TDTA negative significant impact on ROA (-.2090698; sig < 0.01) same as in model 13. Corporate governance variables FD & BS have negative & insignificant impact on ROA, while B Ind & CEO D have positive & insignificant impact on the return on assets. Model 14 F-statistics (0.0000 < 0.01) indicate that model test is good and R Sq value 52.52% explain variation on ROA due to explanatory variables. Model 14 results also support the pecking order theory. Model 15 in table 08 moderation result between TDTA and ROA. The regression Results are TDTA and FD (TDTA*FD). Female director moderates the relationship between TDTA and ROA (.0801133; sig < 0.01), which shows positive & significant impact. The FD on board creates good decision-making regarding capital structure (TDTA). Model 15 results indicate that we don't reject the H2. The female director creates a strong relationship among TDTA & ROA.

Interaction effect of BS between TDTA & ROA. TDTA*BS represent the positive and significant impact on the ROA (.076338; sig < 0.05). this result tells us to increase the board size will increases the strength between TDTA and ROA. This result supports the H4, we don't reject the alternative hypothesis. TDTA*Board Ind (.0484891; Sig > 0.1) and TDTA*CEO Dual (.0873594; sig > 0.10) have positive and insignificant impact between TDTA and ROA. These findings are not supporting H5 and H3. Control variables in model 15 have regression result growth has positive and significant impact same as model 13 and 14, size of firm has negative & significant impact and age of firm. Furthermore, the F-Statistics (0.0000 < 0.01) shows overall model good fit. The R Sq 49.78% shows that influence on ROA due to explanatory variables.

**Table 8**
***Panel data Regression ROA dependent, TDTA Independent***

| Variables | Model 13 | | | Model 14 | | | Model 15 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | 0.221 | 2.430 | 0.015** | 0.190 | 2.000 | 0.046** | 0.219 | 2.290 | 0.022** |
| TDTA | -0.089 | -8.630 | 0.000*** | -0.090 | -8.690 | 0.000*** | -0.389 | -4.870 | 0.000*** |
| FD | | | | -0.002 | -0.590 | 0.553 | -0.018 | -3.570 | 0.000*** |
| BS | | | | -0.004 | -0.430 | 0.667 | -0.021 | -1.760 | 0.079* |
| B Ind | | | | 0.005 | 0.560 | 0.578 | -0.003 | -0.210 | 0.831 |
| CEO Dual | | | | 0.032 | 1.520 | 0.129 | 0.015 | 0.570 | 0.569 |
| TDTA*FD | | | | | | | 0.080 | 4.310 | 0.000*** |
| TDTA*BS | | | | | | | 0.076 | 2.120 | 0.034** |
| TDTA*Bind | | | | | | | 0.048 | 0.930 | 0.355 |
| TDTA*CEO D | | | | | | | 0.087 | 1.280 | 0.199 |
| Growth | 0.008 | 3.930 | 0.000*** | 0.008 | 3.940 | 0.000*** | 0.008 | 3.940 | 0.000*** |
| Size | -0.015 | -8.000 | 0.000*** | -0.015 | -7.920 | 0.000*** | -0.015 | -7.980 | 0.000*** |
| Age | 0.022 | 0.920 | 0.357 | 0.023 | 0.960 | 0.335 | 0.032 | 1.330 | 0.183 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0.0000*** | | |
| R sq | 0.525 | | | 0.525 | | | 0.532 | | |
| Adj R sq | 0.492 | | | 0.492 | | | 0.498 | | |
| Std error | 0.010 | | | 0.010 | | | 0.080 | | |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.1*

**Table 9**
***Panel data Regression ROE dependent, TDTA Independent***

| Variables | Model 16 | | | Model 17 | | | Model 18 | | |
|---|---|---|---|---|---|---|---|---|---|
| | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value | Coeff | T-Value | P-Value |
| Constant | -0.246 | -4.820 | 0.000*** | -0.297 | -5.610 | 0.000*** | -0.306 | -5.700 | 0.000*** |
| TDTA | 0.009 | 1.530 | 0.125 | 0.006 | 1.040 | 0.297 | 0.059 | 1.310 | 0.189 |
| FD | | | | -0.011 | -5.430 | 0.000*** | -0.009 | -3.270 | 0.001*** |
| BS | | | | 0.017 | 3.010 | 0.003** | 0.016 | 2.500 | 0.013** |
| B Ind | | | | 0.002 | 0.380 | 0.707 | 0.005 | 0.680 | 0.496 |
| CEO Dual | | | | -0.005 | -0.400 | 0.691 | 0.006 | 0.410 | 0.683 |
| | | | | | | | -0.007 | -0.710 | 0.475 |
| | | | | | | | 0.003 | 0.150 | 0.877 |
| | | | | | | | -0.016 | -0.560 | 0.574 |
| | | | | | | | -0.047 | -1.230 | 0.217 |
| Growth | 0.002 | 1.660 | 0.097* | 0.002 | 1.660 | 0.097* | 0.002 | 1.680 | 0.094* |
| Size | 0.025 | 23.570 | 0.000*** | 0.025 | 23.880 | 0.000*** | 0.025 | 23.810 | 0.000*** |
| Age | 0.002 | 0.160 | 0.870 | 0.008 | 0.590 | 0.558 | 0.007 | 0.530 | 0.599 |
| Prop F. Stat | 0.0000*** | | | 0.0000*** | | | 0.0000*** | | |
| R sq | 0.204 | | | 0.219 | | | 0.220 | | |
| Adj R sq | 0.150 | | | 0.164 | | | 0.164 | | |
| Std error | 0.006 | | | 0.006 | | | 0.045 | | |

**Note:** Sig at the level.01***; Sig at the level.05**; Sig at the level 0.10*

## 4.8   TDTA Effects on ROE

Results reveal that TDTA has positive & insignificant impact on ROE (.0088688; Sig < 0.1). This result supports the MM theory capital structure (TDTA) has no impact on ROE. TDTA has a adverse and significant impact on ROA in model 13. So, Capital structure (TDTA) has an impact on ROA but an impact on ROE. So, Hypothesis H1 is partially accepted. Control variables growth and size have positive & significant impact and the age of firm has negative and insignificant impact. F-statistics (0.0000 < 0.01) tells us model fitness, while R sq value 20.39% shows the impact on ROE due to independent variables. Model 17 has the result of TDTA and corporate governance variables over ROE. TDTA has positive & significant impact on ROE (.0059981; Sig < 0.10) same as in model 16. The female director has negative & significant impact on the FP (-.0109646; Sig < 0.01). BS has positive & significant impact on (.0166219; Sig < 0.01). Board Ind has a positive & insignificant impact on the ROE, CEO dual has a negative & insignificant impact on the ROE. Control variables growth & size both have positive & significant impact & age has positive & insignificant impact. F-Statistics (0.000 < 0.01) indicate that the overall model test is good and R sq has a 21.91% influence on ROE due to explanatory variables.

Interaction corporate governance variables among TDTA & ROE in model 18. Female director interaction term represents (TDTA*FD). FD has no significant impact between TDTA and ROE (-.0074261; sig < 0.1) and no supported H2. The female director does not develop a strong connection among TDTA & ROE. BS moderation term represents TDTA*BS. BS has a positive and insignificant impact (.0031143; Sig < 0.1) and does not support the H4. Board size does not create a strong relationship between TDTA and BS. Board Ind moderate between shows the TDTA*B Ind. B Ind negative & insignificant impact between TDTA & ROE (-.0164733; Sig < 0.10). Connection among TDTA & ROE will not strong with the presence of board Ind. So, these results do not support the H3. The moderation of CEO duality between TDTA and ROE represents (TDTA*CEO D). The CEO dual has negative & no significant impact between TDTA & ROE (-.0469348; Sig < 0.1). This result represents not strong link among TDTA & ROE due to CEO's dual charge, so it is not supporting the H5, capital structure (TDTA) and firm performance (ROE) has no strong relationship with each other if CEO has dual charge. Control variables growth & size have positive & significant results and firm age has positive & insignificant impact. F-Statistics in model 18 (0.0000 < 0.01) show the model fitness and test is appropriate. The value of R Sq 22% shows that variation in return on equity is due to explanatory variables.

## 5.    Conclusion and Recommendations

This research investigates the moderating role of corporate governance in the relationship between corporate structure and firm performance. Sample of the study includes the Panel data of 148 non-financial firms belonging to 16 different sectors companies listed on the PSX. Panel regression model with random effects is used to analyze the data. Analysis yield mix results of the impact of capital structure on firm performance with the moderation of corporate governance. Short-term debt and long term debt have a significant negative impact on ROA which is in line with the proposition that debt increases the risk of the firm which results in increased cost of capital (Nguyen & Nguyen, 2020; Salim & Yadav, 2012). However, short-term debt and long term debt have a positive relationship with ROE which is in agreement with the earlier literature (Noreen, 2019; Sivalingam & Kengatharan, 2018). Furthermore, total debt has also shown the similar results on ROA and ROE. Results of the moderation reveal that some components of corporate governance moderate the relationship of capital structure and firm performance. Board size and gender diversity of the board is found to moderate the relationship of capital structure and firm performance. Larger board size and female representation on the board affects the firm performance positively.

These results have practical implications for the firm management and policy makers. Following the code governance role 2017, the presence of female directors improves the firm performance. Therefore, firm management and policy makers should emphasize on the gender

diversity of the board of directors. Similarly, larger boards are also associated with the better firm performance, so policy makers should ensure that board size should be adequate.

There are some limitations of this study. This study has taken only few dimensions of corporate governance. Several other corporate governance dimensions can be used as moderators which may yield interesting results. Furthermore, data of the study includes only 144 firms. Future studies with a larger sample could be conducted to get more comprehensive results.

**Authors Contribution**
Waseem Anwar: design of the work, critical revision, incorporation of intellectual content
Sidra Liaqat: introduction, data analysis and interpretation, drafting the article
Muhammad Waris: data collection, literature search, drafting the article

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## References

Abdullah, H., & Tursoy, T. (2021). Capital structure and firm performance: evidence of Germany under IFRS adoption. *Review of Managerial Science, 15*(2), 379-398. doi:https://doi.org/10.1007/s11846-019-00344-5

Abor, J. (2007). Debt policy and performance of SMEs: Evidence from Ghanaian and South African firms. *The journal of risk finance, 8*(4), 364-379. doi:https://doi.org/10.1108/15265940710777315

Alves, P., Couto, E. B., & Francisco, P. M. (2015). Board of directors' composition and capital structure. *Research in International Business and Finance, 35*, 1-32. doi:https://doi.org/10.1016/j.ribaf.2015.03.005

Alves, S. (2020). CEO Duality and Firm Performance: Portuguese Evidence. In *Conceptual and Theoretical Approaches to Corporate Social Responsibility, Entrepreneurial Orientation, and Financial Performance* (pp. 227-246): IGI Global.

Anderson, R. C., Reeb, D. M., Upadhyay, A., & Zhao, W. (2011). The economics of director heterogeneity. *Financial Management, 40*(1), 5-38. doi:https://doi.org/10.1111/j.1755-053X.2010.01133.x

Arora, A., & Bodhanwala, S. (2018). Relationship between corporate governance index and firm performance: Indian evidence. *Global Business Review, 19*(3), 675-689. doi:https://doi.org/10.1177/0972150917713812

Ashraf, M., Ameen, A., & Shahzadi, K. (2017). The Impact of Capital Structure on Firm's Profitability: A Case of Cement Industry of Pakistan. *International Journal of Business and Social Science, 8*(4), 140-147.

Aziz, U., Butt, A. A., & Tasawar, A. (2013). Does board mechanism matter in augmenting the financial performance of firms in Pakistan? *Science International, 25*(3), 627-630.

Bajagai, R. K., Keshari, R. K., Bhetwal, P., Sah, R. S., & Jha, R. N. (2019). Impact of ownership structure and corporate governance on capital structure of Nepalese listed companies. In *Business governance and society* (pp. 399-419). London: Springer.

Bajaher, M., Habbash, M., & Alborr, A. (2021). Board governance, ownership structure and foreign investment in the Saudi capital market. *Journal of Financial Reporting and Accounting, 20*(2), 261-278. doi:https://doi.org/10.1108/JFRA-11-2020-0329

Balagobei, S. (2018). Corporate governance and firm performance: Empirical evidence from emerging market. *Asian Economic and Financial Review, 8*(12), 1415-1421. doi:https://doi.org/10.18488/journal.aefr.2018.812.1415.1421

Bashir, Z. (2021). Corporate governance and capital structure as driving force for financial performance: Evidence from non-financial listed companies in Pakistan. *Business Review, 15*(1), 108-133. doi:http://dx.doi.org/10.2139/ssrn.3936401

Beck, T., Behr, P., & Guettler, A. (2013). Gender and banking: are women better loan officers? *Review of Finance, 17*(4), 1279-1321. doi:https://doi.org/10.1093/rof/rfs028

Bennouri, M., Chtioui, T., Nagati, H., & Nekhili, M. (2018). Female board directorship and firm performance: What really matters? *Journal of Banking & Finance, 88*, 267-291. doi:https://doi.org/10.1016/j.jbankfin.2017.12.010

Bhat, K. U., Chen, Y., Jebran, K., & Bhutto, N. A. (2018). Corporate governance and firm value: a comparative analysis of state and non-state owned companies in the context of Pakistan. *Corporate Governance, 18*(6), 1196-1206. doi:https://doi.org/10.1108/CG-09-2017-0208

Bhatt, P. R., & Bhatt, R. R. (2017). Corporate governance and firm performance in Malaysia. *Corporate Governance, 17*(5), 896-912. doi: https://doi.org/10.1108/CG-03-2016-0054

Dang A, R., Houanti, L., Le, N. T., & Vu, M.-C. (2018). Does corporate governance influence firm performance? Quantile regression evidence from a transactional economy. *Applied Economics Letters, 25*(14), 984-988. doi:https://doi.org/10.1080/13504851.2017.1390309

Danoshana, S., & Ravivathani, T. (2019). The impact of the corporate governance on firm performance: A study on financial institutions in Sri Lanka. *SAARJ Journal on Banking & Insurance Research, 8*(1), 62-67. doi:https://doi.org/10.5958/2319-1422.2019.00004.3

Daskalakis, N., Balios, D., & Dalla, V. (2017). The behaviour of SMEs' capital structure determinants in different macroeconomic states. *Journal of Corporate Finance, 46*, 248-260. doi:https://doi.org/10.1016/j.jcorpfin.2017.07.005

Detthamrong, U., Chancharat, N., & Vithessonthi, C. (2017). Corporate governance, capital structure and firm performance: Evidence from Thailand. *Research in International Business and Finance, 42*, 689-709. doi:https://doi.org/10.1016/j.ribaf.2017.07.011

Drobetz, W., Schillhofer, A., & Zimmermann, H. (2004). Corporate governance and expected stock returns: Evidence from Germany. *European financial management, 10*(2), 267-293. doi:https://doi.org/10.1111/j.1354-7798.2004.00250.x

Ganiyu, Y. O., & Abiodun, B. Y. (2012). The impact of corporate governance on capital structure decision of Nigerian firms. *Research Journal in Organizational Psychology & Educational Studies, 1*(2), 121-128.

Gill, A., Biger, N., & Mathur, N. (2011). The effect of capital structure on profitability: Evidence from the United States. *International journal of management, 28*(4), 3-15.

Gompers, P., Ishii, J., & Metrick, A. (2003). Corporate governance and equity prices. *The quarterly journal of economics, 118*(1), 107-156. doi:https://doi.org/10.1162/00335530360535162

Harris, M., & Raviv, A. (1990). Capital structure and the informational role of debt. *The journal of finance, 45*(2), 321-349. doi:https://doi.org/10.1111/j.1540-6261.1990.tb03693.x

Hashimi, F. A. (2011). Pakistan's code of corprrorate governance 2002.

Hermuningsih, S., Kusuma, H., & Cahyarifida, R. A. (2020). Corporate governance and firm performance: An empirical study from Indonesian manufacturing firms. *The Journal of Asian Finance, Economics and Business, 7*(11), 827-834.

Iqbal, M., & Javed, F. (2017). The moderating role of corporate governance on the relationship between capital structure and financial performance: Evidence from manufacturing sector of Pakistan. *International Journal of Research in Business and Social Science, 6*(1), 89-105. doi:https://doi.org/10.20525/ijrbs.v6i1.624

Javeed, A., Yaqub, R. M. S., & Aslam, M. A. (2017). Revisiting capital structure and firm value: moderating role of corporate governance: Evidence from Pakistan. *European Journal of Business and Management, 9*(16), 39-48.

Kajananthan, R. (2012). Effect of corporate governance on capital structure: case of the Srilankan listed manufacturing companies. *Researchers World, 3*(4), 63-71.

Kalyanaraman, L., & Altuwaijri, B. (2016). The linkage between excess board independence and capital structure: An exploration in the context of listed companies in Saudi Arabia. *Journal of Applied Finance and Banking, 6*(3), 129-144.

Kang, M., & Ausloos, M. (2017). An inverse problem study: credit risk ratings as a determinant of corporate governance and capital structure in emerging markets: evidence from Chinese listed companies. *Economies, 5*(4), 47. doi:https://doi.org/10.3390/economies5040047

Kao, M.-F., Hodgkinson, L., & Jaafar, A. (2018). Ownership structure, board of directors and firm performance: evidence from Taiwan. *Corporate Governance, 19*(1), 189-216. doi:https://doi.org/10.1108/CG-04-2018-0144

Khan, W., Naz, A., Khan, M., Khan, W. K. Q., & Ahmad, S. (2013). The impact of capital structure and financial performance on stock returns "A case of Pakistan textile industry.". *Middle-East Journal of Scientific Research, 16*(2), 289-295.

Khodavandloo, M., Zakaria, Z., & Nassir, A. M. (2017). Capital structure and firm performance during global financial crisis. *International Journal of Economics and Financial Issues, 7*(4), 498-506.

Kumalasari, G. V., Murhadi, W. R., & Wijaya, L. I. (2019). *The effect of good corporate governance on capital structure in financial sector firms listed on the Indonesia stock exchange over the period of 2012-2016*. Paper presented at the 16th International Symposium on Management (INSYMA 2019).

Le, T. P. V., & Phan, T. B. N. (2017). Capital structure and firm performance: Empirical evidence from a small transition country. *Research in International Business and Finance, 42*, 710-726. doi:https://doi.org/10.1016/j.ribaf.2017.07.012

Liu, Y., Wei, Z., & Xie, F. (2014). Do women directors improve firm performance in China? *Journal of Corporate Finance, 28*, 169-184. doi:https://doi.org/10.1016/j.jcorpfin.2013.11.016

Mohan, A., & Chandramohan, S. (2018). Impact of corporate governance on firm performance: Empirical evidence from India. *IMPACT: International Journal of Research in Humanities, Arts and Literature, 6*(2), 209-218.

Morellec, E., Nikolov, B., & Schürhoff, N. (2012). Corporate governance and capital structure dynamics. *The journal of finance, 67*(3), 803-848. doi:https://doi.org/10.1111/j.1540-6261.2012.01735.x

Mumtaz, R., Rauf, S. A., Ahmed, B., & Noreen, U. (2013). Capital structure and financial performance: Evidence from Pakistan (Kse 100 Index). *Journal of basic and applied scientific research, 3*(4), 113-119.

Nandi, S., & Ghosh, S. (2013). Corporate governance attributes, firm characteristics and the level of corporate disclosure: Evidence from the Indian listed firms. *Decision Science Letters, 2*(1), 45-58.

Nazir, M. S., Aslam, A., & Nawaz, M. M. (2012). The impact of CEO duality on capital structure: A case from non-financial sector of Pakistan. *American Journal of Scientific Research, 56*(56), 5-12.

Ngatno, Apriatni, E. P., & Youlianto, A. (2021). Moderating effects of corporate governance mechanism on the relation between capital structure and firm performance. *Cogent Business & Management, 8*(1), 1866822. doi:https://doi.org/10.1080/23311975.2020.1866822

Nguyen, H. T., & Nguyen, A. H. (2020). The impact of capital structure on firm performance: Evidence from Vietnam. *The Journal of Asian Finance, Economics and Business, 7*(4), 97-105. doi:https://doi.org/10.13106/jafeb.2020.vol7.no4.97

Nooitgedagt, H. (2020). *The effect of corporate governance mechanisms on capital structure of Dutch listed firms.* (Master), University of Twente,

Noreen, U. (2019). Impact of capital structure on profitability: A comparative study of Islamic and conventional banks of Pakistan. *The Journal of Asian Finance, Economics and Business, 6*(4), 65-74. doi:https://doi.org/10.13106/jafeb.2019.vol6.no4.65

Nunes, P. M., & Serrasqueiro, Z. (2017). Short-term debt and long-term debt determinants in small and medium-sized hospitality firms. *Tourism Economics, 23*(3), 543-560. doi:https://doi.org/10.5367/te.2015.0529

Pham, D., & Pham, Q. (2020). The impact of CEO duality on firm performance: Examining the life-cycle theory in Vietnam. *Accounting, 6*(5), 737-747.

Qadorah, A. A. M., & Fadzil, F. H. B. (2018). The relationship between board size and CEO duality and firm performance: Evidence from Jordan. *International Journal of Accounting, Finance and Risk Management, 3*(3), 16-20. doi:https://doi.org/10.11648/j.ijafrm.20180303.11

Salim, M., & Yadav, R. (2012). Capital structure and firm performance: Evidence from Malaysian listed companies. *Procedia-Social and Behavioral Sciences, 65*, 156-166. doi:https://doi.org/10.1016/j.sbspro.2012.11.105

Sewpersadh, N. S. (2019). A theoretical and econometric evaluation of corporate governance and capital structure in JSE-listed companies. *Corporate Governance, 19*(5), 1063-1081. doi:https://doi.org/10.1108/CG-08-2018-0272

Shalim, R. W., & Hatane, S. E. (2017). Pengaruh Corporate Governance Terhadap Earning Management dengan Capital Structure Sebagai Variabel Intervening. *Business Accounting Review, 5*(2), 169-180.

Sheikh, N. A., & Wang, Z. (2012). Effects of corporate governance on capital structure: empirical evidence from Pakistan. *Corporate Governance, 12*(5), 629-641. doi:https://doi.org/10.1108/14720701211275569

Sivalingam, L., & Kengatharan, L. (2018). Capital structure and financial performance: A study on commercial banks in Sri Lanka. *Asian Economic and Financial Review, 8*(5), 586-598.

Srem-Sai, J. (2018). Corporate governance and the capital market in Ghana: the stymieing role of the state. *African Journal of International and Comparative Law, 26*(3), 285-308.

Tariq, R., & Rasheed, M. S. (2018). Ownership Structure, Corporate Governance and Capital Structure: Evidence from Countries having FPI in Pakistan. *Journal of Insurance and Financial Management, 3*(5).

Vijayakumaran, S., & Vijayakumaran, R. (2019). Corporate governance and capital structure decisions: Evidence from Chinese listed companies. *Journal of Asian Finance, Economics and Business, 6*(3), 67-79. doi:http://dx.doi.org/10.2139/ssrn.3411462

Zaid, M. A., Wang, M., Abuhijleh, S. T., Issa, A., Saleh, M. W., & Ali, F. (2020). Corporate governance practices and capital structure decisions: the moderating effect of gender diversity. *Corporate Governance, 20*(5), 939-964. doi:https://doi.org/10.1108/CG-11-2019-0343