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Dynamics of Leverage Policies: Comparative Analysis of Shariah Compliant and non-Compliant Firms

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Abstract: This study aims to check the influence of corporate governance on the leverage policies of Shariah-compliant and NSC firms. Also, their speed of adjustment toward optimal leverage is compared. The dynamic system GMM technique confirms that corporate governance is an essential feature in leveraging the policies of Shariah-compliant and NSC firms. However, the board size, board independence, CEO duality, and auditor reputation determine the leverage policy of Shariah-compliant firms. Board size, ownership concentration, and auditor reputation determine the leverage policy in NSC firms. Additionally, NSC firms adjust their leverage more quickly than Shariah-compliant firms.

Keywords: Shariah Compliant, Non-Shariah Compliant Corporate Governance, Dynamic Leverage Policies, Speed of Adjustment

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1. Introduction

Due to their commitment to Islamic principles, Shariah-compliant (SC) and non-Shariah compliant businesses (NSC) in Pakistan have different financing, investing, and payout policies. SC businesses adhere to rules based on SC enterprises in Pakistan function according to the rules of Islamic finance, which forbid actions like charging or paying interest (riba), being overly uncertain (gharar), and participating in ventures that are prohibited (haram) by Islamic law (Al Rahahleh et al., 2019). These businesses adhere to these principles by using alternative financing techniques. Murabaha is a well-known cost-plus-profit transaction whereby a company buys an asset and sells it to the client at a higher price, enabling the postponement of payment (Mansoori et al., 2011). Musharakah is a different strategy; it is a financing model based on partnerships where two or more parties invest money and split the gains and losses (Kayed, 2012).

SC businesses emphasize equity-based financing above debt-based financing when making financing decisions (Gunn & Shackman, 2014). To raise money, they turn to strategies like issuing Islamic bonds (sukuk), which indicate ownership in an underlying asset (Mawardi et al., 2022). Following Islamic beliefs, sukuk are designed to give investors a part of the asset's cash flows rather than interest payments. SC businesses may also use Islamic banks and financial organizations that provide financing options compliant with Islamic law. SC businesses in Pakistan must ensure their investments adhere to Islamic norms. Investments in industries like alcohol, gambling, pork, and traditional banking institutions are outlawed (Mawardi et al., 2022). Instead, they concentrate on sectors including halal food, healthcare, technology, renewable energy, and ethical investments regarded as permitted (halal) by Islamic law.

In order to make sure that their investments are compliant with Islamic values, these companies frequently go through stringent screening procedures.

Another area where SC and non-compliant businesses differ is dividend distribution. According to Islamic financial standards, profits from non-compliant activities are considered unclean (haram) and cannot be paid as dividends (Ahmed et al., 2019). SC businesses must, therefore, closely examine their revenue sources to ensure their profits come from legal sources. Additional requirements, such as the absence of excessive debt, adherence to moral norms, and satisfaction of the requisite purifying requirements, are attached to the distribution of dividends for these businesses. Removing impurities from the company's profits is one of these purification standards.

On the other hand, non-compliant businesses in Pakistan do not follow Shariah laws and have more freedom in their choices regarding financing, investments, and dividend payouts (Alam et al., 2017). Traditional financing options are available to them, such as issuing conventional debt instruments like bonds and borrowing money from commercial banks with interest. Additionally, non-compliant businesses have access to a wider variety of investments and are not constrained by Islamic law regarding the industries they can invest in. The purifying criteria imposed on SC corporations do not apply to dividend payments made by non-compliant firms.

Though few researchers have looked into the matter and concluded that Shariah compliance influences businesses' leverage choices (Alnori & Alqahtani, 2019; Yildirim et al., 2018), the factors that affect the leverage and the application of pertinent theories for SC and NSC enterprises, there is, however, limited agreement. Also, some studies pointed out that corporate governance is relevant to leverage policies of the firms. In this regard, (Chang et al., 2015) found that corporate governance significantly affects leverage policies in China. Likewise, research done (Kieschnick & Moussawi, 2018) found that corporate governance is more relevant to the leverage policies of older firms. Additionally, the dynamics of capital structure are studied by (Gyimah et al., 2021; Nguyen et al., 2021), and they found that dynamic leverage is affected by the corporate governance practices of firms.

Although, the literature presented above shows a strong connection among corporate governance and leverage policies. However, it is noted that none of the studies have used Pakistani data to explore if corporate governance in Pakistani firms has any connection with their leverage policies. This study is an attempt fill this research gap by utilizing empirical data from Pakistani firms to explore the nexus of corporate governance and the dynamics of their leverage policies. Also, previous literature fails to explore if corporate governance affects the leverage policies of SC and NSC firms. This study is the pioneer in exploring the dynamics of leverage policies of Shariah complaints and non-compliant firms concerning the corporate governance practices of these firms. According to (Ullah et al., 2022), corporate governance practices of SC and NSC are not the same, and they have distinct leverage policies. Hence, it is worth checking if corporate governance practices' impact on leverage policies differs in these companies.

Given the above facts, it is impossible to extract a sole study in Pakistan regarding the dynamics of leverage policies in corporate governance. Hence, the current study has three main contributions. The first is to investigate if corporate governance practices are relevant to leverage policies of Pakistani firms. Secondly, to do a comparative analysis of SC and NSC firms regarding the nexus among corporate governance and leverage policies. The third is to utilize a Dynamic System GMM technique to enhance the understanding regarding the dynamics of leverage policies of SC and NSC firms of Pakistan.

The motivation behind this study is to compare the dynamics of leverage policies of SC and NSC firms in Pakistan. Also, to compare the effect of corporate governance on the leverage policies of these two groups of companies. The remaining paper has the following structure. Section 2 is a brief literature review, and the methodology is

presented in Section three. Section 4 presents the results of the GMM method, followed by the conclusion and policy recommendation section.

2. Literature Review

2.1 Financing/leverage policies of SC

Profitability is regarded as one of the most essential factors in determining leverage. Profitability and leverage have a continuously favorable connection, according to empirical investigations. Increased profitability improves a company's capacity to pay off its debt, lowering the danger of financial difficulties and bankruptcy (Memon et al., 2021). Leverage has been widely studied as an outcome of firm size. Due to their greater access to alternative sources of finance and improved creditworthiness, evidence shows that bigger enterprises often have lower leverage ratios. This conclusion is supported by a recent study by (Bhat et al., 2020), which emphasizes that bigger enterprises have more freedom to raise money via stock markets, lowering their dependence on debt financing. The percentage of tangible assets in a company's asset structure is called its "tangibility." Leverage and tangibility have a constant beneficial association, according to studies. The tangible assets serve as collateral and lower the agency fees related to loan financing (Gómez & Castro, 2016). Leverage and growth have a complicated connection that has given rise to various conclusions. While some studies indicate a negative connection among growth and leverage, others find a positive one, showing that fast-expanding businesses tend to depend more on debt financing (Eggers, 2020). The term "non-debt tax shield" describes the tax benefits obtained from non-debt financing sources such as operational losses, investment tax credits, and depreciation. According to studies, companies tend to have lower leverage ratios when their non-debt tax shield values are more significant (Sogorb, 2018).

2.2 Governance practices and leverage policies

Corporate governance is a crucial aspect of firm's functioning, particularly concerning shareholder rights. Numerous studies have examined the effect of corporate governance on leverage, but the relationship remains unclear (Chang et al., 2014; Graham et al., 2014, 2015). Some research suggests that unregulated firms increase their debt levels to gain tax benefits, while others argue that higher regulations lead to higher debt (Chipeta & Deressa, 2016). Corporate governance can be measured using indices such as the G-index and E-index, which assess qualities like shareholders' rights and agency conflict costs (Bebchuk et al., 2013). Managers tend to invest in less risky projects to protect their job security and further their self-interest. However, effective corporate governance policies restrict their actions. The qualities of corporate governance within a firm, such as shareholder rights, are essential in assessing its impact on leverage ratios. Research has focused on three dimensions of corporate governance mechanisms: board structure, auditor characteristics, and ownership structure.

Board size, representing the number of board members, has shown consistent results concerning leverage ratios (Tornyeva, 2012). An increase in board size can enhance external links and improve access to external resources, leading to increased debt. However, excessive debt may not be necessary for firms with better corporate governance and control systems. Board independence, measured by the percentage of outside directors, is negatively associated with leverage ratios (Martínez-Ferrero & García-Meca, 2020). Studies have shown that board independence positively affects firm performance (A.A Zaid et al., 2020; Bhatt & Bhattacharya, 2017; Detthamrong et al., 2017; Maturity et al., 2016). CEO duality, where the CEO is also a Chairman of the board, has been explored through agency theory and stewardship theory (Dakhlallh et al., 2019; Mubeen et al., 2020). Agency theory suggests a negative relationship between CEO duality and corporate control and performance, while stewardship theory suggests a

positive relationship (Davis et al., 2018). Ownership concentration, measured by the percentage of shares held by the three largest shareholders, can influence leverage ratios (Alipour et al., 2015). Higher concentration may lead to lower debt levels as shareholders prioritize their own interests. Auditor reputation, both internal and external, is also crucial in corporate governance (Alzeban & Sawan, 2015; Bansal & Sharma, 2016). Reputed auditors ensure information integrity, reducing stakeholders' information risk and the cost of capital (Elewa & El-Haddad, 2019; Sayyar et al., 2015).

Hypothesis:

Hypothesis 1: Board size is significantly related to leverage policies

Hypothesis 2: Board independence is significantly related to leverage policies

Hypothesis 3: CEO duality is significantly related to leverage policies

Hypothesis 4: Ownership concentration is significantly related to leverage policies

Hypothesis 5: Auditor reputation is significantly related to leverage policies

Hypothesis 7: The speed of adjustment toward the optimal capital structure of Sharia-compliant and non-compliant firms are significantly different.

3. Methodology:

3.1 Data Description

Data from 2005 to 2022 to examine how financial leverage behaves in SC and non-compliant enterprises is used in this study. Data is taken from SBP's financial statement analysis and the firms' annual reports. Additionally, several leverage metrics are used in the relevant literature, and they may be generally divided into two types. Measures of value include total value, book value, and market value. Because total value leverage is seen to be more realistic in literature, it is determined to rely on total value metrics (Fajaria, 2018). As far as the corporate governance factors are concerned, board size (BSIZE) is the number of board members, board independence (BIND) is the number of independent board members, CEO duality (CEO) is if the same person is board chairman and CEO, auditor reputation (AUDIT) is a dummy variable which takes the value of 1 if firm hires auditor from top 4 audit firms and 0 otherwise, and ownership concentration is the percentage of shares in top ten shareholders.

3.2 Dynamic System-GMM Estimation

This study utilized dynamic panel data estimation. Dynamic models were developed based on firm-specific, and governance-related. The “Generalized Method of Moments (GMM)” technique was employed to examine the data, which is a novel approach compared to the traditional use of OLS models. The dynamic nature of capital structure decisions was recognized, and the GMM model was chosen for its ability to address issues such as simultaneity, variable omission bias, and endogeneity. The GMM estimation method is considered superior in managing endogeneity and handling omitted variables and unobserved heterogeneity (Arellano & Bond, 1991; Holtz-eakin, 1987). The decision to use dynamic GMM estimation was supported by the guidance of (Roodman, 2009). System GMM estimation, which treats the model as a system of differential equations with predetermined instrument conditions, was deemed appropriate due to potential fixed effects with heteroscedasticity and endogeneity. Lag values were also incorporated into the analysis, considering the expectation that leverage is influenced by a firm's historical position.

The dynamic trade-off hypothesis, which contends that businesses aspire to move to optimal target leverage when the adjustment cost is less than the cost of staying unadjusted, provides the justification for the use of dynamic analysis in the study of leverage. The GMM model addresses the limitations of static models (OLS, fixed effect model), captures long-term relationships, and is robust against endogeneity and heterogeneity issues. The choice of the GMM model for dynamic estimation is supported

by its efficiency in incorporating both time series and cross-sectional estimation. Previous research conducted in developed economies has also utilized the GMM model with leverage as an independent variable. Overall, the use of dynamic panel data estimation with GMM is a significant and innovative approach in understanding the dynamics of capital structure decisions.

The explanatory firm-specific variables are included in Eq-1, together with the time-fixed impact and an unobservable firm-fixed effect.

$$Lev_{it} = \beta_0 + (1-\lambda)Lev_{it-1} + \beta_1(SIZE)_{it-1} + \beta_2(PROF)_{it-1} + \beta_3(TANG)_{it-1} + \beta_4(GROW)_{it-1} + \beta_5(NDTS)_{it-1} + \beta_6(DIV)_{it-1} + \mu_i + \mu_t + \varepsilon_{it} \quad \text{Eq-1}$$

The explanatory governance-specific variables are also included in Eq-2, along with the time- and firm-fixed effects, which are unobservable.

$$Lev_{it} = \beta_0 + (1-\lambda)Lev_{it-1} + \beta_1(BSIZE)_{it-1} + \beta_2(BIND)_{it-1} + \beta_3(CEO)_{it-1} + \beta_4(OWN)_{it-1} + \beta_5(AUDIT)_{it-1} + \mu_i + \mu_t + \varepsilon_{it} \quad \text{Eq-2}$$

The macroeconomic explanatory variables are included in Eq-3, together with the time-fixed impact and the unobservable firm-fixed effect.

$$Lev_{it} = \beta_0 + (1-\lambda)Lev_{it-1} + \beta_1(SIZE)_{it-1} + \beta_2(PROF)_{it-1} + \beta_3(TANG)_{it-1} + \beta_4(GROW)_{it-1} + \beta_5(NDTS)_{it-1} + \beta_6(DIV)_{it-1} + \beta_7(BSIZE)_{it-1} + \beta_8(BIND)_{it-1} + \beta_9(CEO)_{it-1} + \beta_{10}(OWN)_{it-1} + \beta_{11}(AUDIT)_{it-1} + \mu_i + \mu_t + \varepsilon_{it} \quad \text{Eq-3}$$

This section may be divided by subheadings. It should provide a concise and precise description of the experimental results, their interpretation, as well as the experimental conclusions that can be drawn.

3.3 Target Leverage

System-GMM has an advantage over other estimation techniques for panel data analysis because it is robust for short panel biases and endogeneity (Clark et al., 2009). Further estimation is checked for the robustness of heteroskedasticity and serial correlation of data series.

In this study, we postulate that target leverage for our sample firms is a function of the prior period's firm and governance characteristics.

$$Lev^*_{it} = \alpha + \sum_{j=1}^{M} X_{ji(t-1)} + \varepsilon_{it} \quad \text{Eq-4}$$

Using Eq-4, we estimate a year-wise series of target leverage for SC and NSC.

3.4 Two-stage partial adjustment model and speed of adjustment

As followed by top journal research studies on SOA, we apply a two-stage Partial adjustment model (Fama & French, 2002; Titman, 2004) for each sector and subsector sample to estimate and compare SOA toward target leverage. For the frictionless world, each year, the actual change in leverage equals the expected change in leverage, or firms adjust 100% towards target leverage for that firm.

$$(Lev_t - Lev_{t-1}) = (Lev^*_t - Lev_{t-1}) \quad \text{Eq-5}$$

Lev^*_t is the optimal target leverage of the firm in the current year t, and Lev_t is the observed leverage of the firm in the current year t. At the same time, Lev_{t-1} is the observed actual leverage of the firm in one lag year t-1. However, in the real world of imperfections and adjustment costs, firms adjust to optimal leverage with a speed of less than 100%. If λ is the coefficient of adjustment speed, then:

$$(Lev_t - Lev_{t-1}) = \lambda(Lev^*_t - Lev_{t-1}) + \varepsilon_{it} \quad \text{Eq-6}$$

Here, $(Lev_t - Lev_{t-1})$ represents the observed change in leverage while $(Lev^*_t - Lev_{t-1})$ is the target change from the previous period's leverage ratio. As mentioned earlier, in a perfect market or without any friction, the observed change is equal to the target change in leverage $(Lev_t - Lev_{t-1}) = (Lev^*_t - Lev_{t-1})$.

4. Results

4.1. Dynamic Panel Data Analysis

The dynamic panel data estimate outcomes are shown in Table 1 for all companies combined and for SC and NSC enterprises. The most notable finding is that these enterprises' leverage is also dynamic. In every scenario that has been documented, the lag value of leverage is quite essential. Dynamic evaluation factors for SC businesses include profitability, tangibility, growth, non-debt tax shield, the board size, board independence, CEO duality, and auditor repute. Nevertheless, profitability, board size, ownership concentration, and auditor repute are significant factors in NSC businesses.

The study's results indicate that profitability has a considerably negative impact on both book and market leverage for both types of businesses. To minimize asymmetric information costs, successful enterprises are better positioned to finance their assets internally rather than externally, as predicted by the pecking order theory. This finding is aligned with the results of (Alnori & Alqahtani, 2019). The study also found a significant inverse association between tangibility and the leverage of SC and NSC enterprises. According to the pecking order hypothesis, companies with greater levels of physical assets may experience less information asymmetry and, as a result, have a greater incentive to issue stock (Sheikh & Qureshi, 2017). This study lends credence to that idea. The matching concept is used by (Onofrei et al., 2015) to further explain the unwanted tangibility-leverage link, whereby static assets are supported with long-term debt and current assets with short-term debt.

Table 1: Dynamic Panel Data Analysis

	Overall Sample	SC Firms	NSC Firms
TD(-1)	0.634***	0.612***	0.609***
SIZE	−0.005	−0.001	−0.007
PROF	−0.256	−0.502***	−0.681**
TANG	−0.187***	−0.148***	−0.183
GROW	−0.062*	−0.093***	−0.124
NDTS	1.784***	1.345***	1.478
BSIZE	0.060	−0.073**	0.169*
BIND	−0.031	−0.032*	−0.013
CEO	0.041***	0.050***	0.014
OWN	0.033	−0.0003	0.155**
AUDIT	0.021	0.017**	0.094*
AR(1)	0.08	0.17	0.06
AR(2)	0.26	0.38	0.18
Sargan Test	471.5	379.66	270.70

[1] Note: Leverage (Total Debt/Total Asset) is a dependent variable; robust standard errors are used to calculate the stated coefficients. Asymptotically N (0, 1), AR (1) and AR (2) are tests for first- and second-order serial correlation, respectively. These evaluate the dynamic system estimation's first difference residuals.
*Significant at 10% level
**Significant at 5% level
***Significant at 1% level

Growth opportunities significantly negatively impact leverage in Sharia-compliant firms and the overall sample of firms. This is against the expectations, which means these internally generated firms in growing firms are sufficient to finance their growth. Hence, they avoid debt financing. This outcome is against the results of (Rashid et al.,

2020). Contrary to what we expected, NDTS positively associates with the overall and SC company types' leverage. The findings contradict the trade-off theory and maintain that NDTS does not replace the debt tax shield (Katper, 2021).

As far as the corporate governance factors are concerned, board size significantly negatively impacts the leverage of SC firms. In contrast, in NSC firms, this impact is significant and positive. A plausible explanation for this nexus is that larger boards may lead to more conservative financial policies, resulting in lower leverage for SC firms and higher leverage for NSC firms. SC firms may have more conservative financial policies due to their adherence to Islamic principles. In contrast, non-SC firms may be more willing to take on debt to finance their growth. It can be noted that board independence significantly negatively affects the leverage of Sharia-compliant firms. According to a study by (Tawfik & Elmaasrawy, 2023) leverage of SC firms can be affected negatively by board independence.

The CEO duality is significantly and positively connected to the leverage of the overall sample and SC firms. However, in NSC firms, there is no association between these two variables. One possible explanation is that CEO duality may lead to more efficient decision-making and better monitoring of financial policies, which may result in higher leverage for SC firms. SC firms may benefit from having a single person in charge of both the CEO and board chair positions, which may lead to more effective implementation of their conservative financial policies. In the case of ownership concentration, the impact is significant and positive only for NSC firms. Ownership concentration may lead to more efficient decision-making and better monitoring of financial policies (K Katper et al., 2018), which may result in higher leverage for NSC firms. Auditor reputation has a noteworthy positive impact on the leverage of SC and NSC firms. The channel through which this happens is indirect. A higher Auditor reputation may increase the confidence of lenders and investors, which may make it easier for firms to obtain debt financing and increase their leverage (Fitri et al., 2021). Higher-quality financial reporting may increase the credibility of the financial statements, leading to higher confidence among lenders and investors.

4.2. Speed of Adjustment in the Shariah Compliant

The previous section's results and discussion substantiate the dynamic nature of financial leverage for the SC and NSC firms. However, the significant dynamic nature of financial leverage suggests a need for targeted financial leverage, which deviates from the present level of leverage. Table 2 addresses the study's sub-objective and calculates the speed of adjustment towards the targeted financial leverage for overall SC and NSC firms in Pakistan.

Table 2: Speed of Adjustment and half-life (years, months) for Pakistani firms

Sample	(1-λ)	λ	log(0.5)	log(1-λ)	log(0.5)/log(1-λ)	Half-Life
Overall	0.636	0.364	-0.301	-0.19654	1.53 Years	18 Months
SC	0.721	0.279	-0.301	-0.14206	2.12 Years	25 Months
NSC	0.404	0.596	-0.301	-0.21538	0.765 Years	09 Months

The table uses panel data for 17 years, from 2005 to 2023, to show the expected annual speed of adjustment (SOA) toward target leverage. The adjustment's speed is indicated by λ. Half-life is the number of months that the SOA suggests it will take a company to reach its objective level of financial leverage.

NSC firms have an advantage over SC firms because they have a shorter half-life of only nine months (0.76 years) to achieve their target financial leverage. In contrast, SC firms have a prolonged speed of adjustment, taking 25 months (2.12 years) to fix their financial leverage. Overall, firms in Pakistan have a half-life of 18 months (1.53 years), which is seven months less than that of SC firms and nine months more than the half-life of NSC. The difference between the speed of adjustment is described by (Hameed et al., 2019) as

if the cost of adjustment is high, a business adjusts more slowly, while a firm with reduced adjustment costs adjusts more quickly toward its goal capital structure or debt ratio.

Likewise, Sharia-compliant firms may have limited access to debt financing due to the restrictions on interest-based financing. This may limit their ability to adjust their capital structure quickly (Alnori & Alqahtani, 2019). Also, Sharia-compliant firms may rely more on equity financing, which may be slower to adjust than debt financing. This may be due to the preference for profit and loss-sharing arrangements over interest-based financing. Another reason is explained by (Hussain et al., 2018) as Sharia-compliant firms may need more debt financing experience, making them less comfortable with adjusting their capital structure quickly. Similarly, sharia-compliant firms may have more conservative financial policies due to their adherence to Islamic principles. This may make them less willing to take on debt and adjust their capital structure quickly. Last, Sharia-compliant firms may need more access to Sharia-compliant debt instruments, limiting their ability to adjust their capital structure quickly.

*4.3. **Summary of Key Results***

Table 3: Summary

Sample	Speed of Adjustment	Determinants of Leverage
Overall Sample	18 Months	Tangibility, Growth, Non-debt tax shield, CEO duality
Shariah Compliant	25 Months	Profitability, Tangibility, Growth, Non-debt tax shield, the Board size, Board independence, CEO duality, Auditor reputation
Non-Shariah compliant	09 Months	Profitability, the Board size, ownership concentration, Auditor reputation

5. Conclusions

The current study aims to fill the research gap in finding the nexus between corporate governance and leverage policies. Specifically, the comparison is made between SC and NSC to know how each corporate governance factor is related to their leverage policies. Also, the speed of adjustment toward the target leverage is compared for SC and NSC firms. Results of the Dynamic GMM approach confirm that board size, board independence, CEO duality, and auditor reputation significantly impact the leverage of SC firms. However, in the case of NSC firms, the board size, ownership concentration, and auditor reputation are significantly related to their leverage. Regarding the speed of adjustment toward the optimal leverage, it is much better in NSC firms. These firms adjust their leverage level more quickly as compared to SC firms.

5.1 Policy implications

Understanding the influence of "corporate governance" on leverage policies in Pakistani firms has important policy implications. Effective corporate governance practices can enhance firms' financial health and stability, improve investor confidence, and foster sustainable economic growth. Policymakers should strengthen corporate governance regulations, promote board independence and expertise, enhance

shareholder protection, develop corporate governance education, encourage voluntary adoption of best practices, and facilitate collaboration between firms and investors. These policy measures will contribute to improved governance practices, leading to more prudent and sustainable leverage policies and fostering a conducive business environment in the country.

5.2 Limitations and Future Research Directions

Although the current study provides a comprehensive overview of the connection among corporate governance and leverage policies of SC and NSC firms, however, a few limitations can be addressed in future research. Data constraints are the first limitation; hence, future studies should include a larger sample of firms to enhance generalizability. Also, future studies can use data from other developing countries to compare the results. Likewise, the same comparison can be made to different industries to check if corporate governance factors impact their leverage policies. Lastly, other proxies of corporate governance can be included in the analysis to validate the results.

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