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Influence of Transparency and Disclosures on the Dividend Distribution Decisions in the Firms: Do Profitability and Efficiency of Firms Matter?

Shailesh Rastogi [1], Geetanjali Pinto [2], Amit Kumar Pathak [3], Satyendra Pratap Singh [4], Arpita Sharma [5], Souvik Banerjee [6], Jagjeevan Kanoujiya [5] and Pracheta Tejasmayee [1,*]

1 Symbiosis Institute of Business Management, Symbiosis International (Deemed) University, Nagpur 440008, India; krishnasgdas@gmail.com
2 PGDM Finance, SIES School of Business Studies, Mumbai 400706, India; geetanjali.pinto1977@gmail.com
3 College of Economics and Business Administration, University of Technology and Applied Sciences, Al Khuwair, P.O. Box 74, Muscat 133, Oman; amit.pathak@utas.edu.om
4 Alliance School of Business, Alliance University, Bengaluru 562106, India; satyendras.14@gmail.com
5 Symbiosis Institute of Business Management, Symbiosis International (Deemed) University, Pune 412115, India; arpitasharma@sibmpune.edu.in (A.S.); jagjeevan24288@yahoo.co.in (J.K.)
6 Management Development Institute Murshidabad, Murshidabad 742235, India; souvik.2005@gmail.com
* Correspondence: prachetatejasmayee1998@gmail.com

Abstract: The purpose of this study is to determine if the impact of transparency and disclosure (TD) levels on shareholders' current income (dividends) is moderated by technical efficiency (te) and profitability. The study employs econometrics on panel data from 78 BSE-listed enterprises across the 2016–2020 sample period. This conclusion suggests that when TD grows, dividends tend to drop initially, but above a certain threshold level, growing TD levels lead to increased payouts. Furthermore, dividends are adversely associated with the moderating variable "te" in terms of both constant and variable return to scale. On the other hand, moderation by profitability was shown to have a substantially favourable effect on dividends. According to this study, a company's dividend policy is influenced by its TD levels, which are controlled by its efficiency and profitability. Developing a TD index provides more information on the efficacy of the corporate governance (CG) system. The study's distinctiveness lies in examining the relationships between transparency, disclosures, and these aspects as they relate to profitability, efficiency, and dividend distribution choices to ascertain whether the companies' operating effectiveness and financial success matter in this circumstance. The study's practical and policy implications relate to societal repercussions, which include encouraging more openness and responsibility in business practices, thereby increasing confidence and accountability in decisions about dividend distribution, regardless of efficiency and profitability. The study's originality is in examining how profitability, efficiency, and dividend distribution decisions relate to transparency and disclosures to determine if companies' operating efficiency and financial success matter in this situation.

Keywords: transparency and disclosure; corporate governance; dividends; efficiency; profitability

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1. Introduction

The abbreviation VUCA, standing for "volatility", "uncertainty", "complexity", and "ambiguity", has been used to describe the situation across the globe for more than four decades. However, due to numerous alterations in the current global scenario, it is no longer considered appropriate. Hence, the world is now being described as BANI, which refers to "brittle", "anxious", "nonlinear", and "incomprehensible". In the present scenario, all the critical systems are essentially interconnected so that failure of one will lead to a cascading effect on others, thus making the situation very brittle and leading to anxiousness. Moreover, small changes or decisions can have an enormous rippling impact, thus

leading to a nonlinear cause–effect pattern. Such nonlinear patterns, therefore, give rise to incomprehensible events and decisions. There is a need for resilience, mindfulness, adaptivity and, most notably, increased transparency and disclosure by which business houses and organisations operate to respond to these current challenges.

Several financial scams across developed and developing nations have resulted in global recognition of the importance of sound CG mechanisms. A comprehensive CG mechanism is crucial in assuaging the agency's problems and ensuring efficient utilisation of globally scarce resources. Transparency and disclosure (TD) practices are prominent in evaluating companies' quality of CG policies (Aksu and Kosedag 2006). Due to the continuous efforts of regulators and national authorities in stock markets and stock exchanges, there has been a considerable improvement in the quality of CG practices being implemented globally. The Asian Corporate Governance Association (ACGA) and "Credit Lyonnais Securities Asia" (CLSA) have evaluated the environmental, social, and governance (ESG) performance of companies listed across 12 countries from the Asia-Pacific region.

In comparison to 2018, India also continued to rank in seventh position in 2020. Even though its score improved by 4% to 58% in 2020, it is nevertheless trailing behind Australia, Hong Kong, Singapore, Taiwan, Japan, and Malaysia, showing that India has further potential to improve. The main reason for the lack of India's ranking improvement is the lack of transparency from regulators (CLSA 2020). Furthermore, as stated by ACGA in its most recent report, while India's ranking in the World Bank's measure of ease of doing business has significantly improved, there is still a need to strengthen the country's CG systems (ACGA 2021).

As discussed in the literature review, information disclosure affects the firm's cost of capital and value. As a result, TD will impact the dividend distribution decision. Furthermore, dividends serve as a CG device to address the agency problem between shareholders and management as a result of differing views on the optimal allocation of the firm's resources (Easterbrook 1984).

In addition, dividend distribution is usually an uncertain option for various reasons. Academics, managers, and shareholders are all perplexed by it (Ooi 2001). The ambiguity of dividend payment (or non-payment) is widely established in theory and actual data. Hence, it is obvious to expect that TD will clarify dividend distribution decisions. Moreover, as established by Kilincarslan 2019, most of the earlier dividend studies have been conducted in the US and UK. There is also a need to evaluate the dividend puzzle in more detail from the viewpoint of an emerging economy, and Temiz (2021) has also highlighted the necessity to provide new evidence on developing economies. Additionally, Nashier and Gupta (2020) have confirmed that enormous variations exist between developed and developing nations. Furthermore, Hasan et al. (2021) also confirm the existence of (i) very few studies concerning emerging markets, and (ii) country-wide differences in factors motivating payment of dividends.

Only a few studies covered in this section's literature review have examined the influence of TD on dividend policy. Furthermore, none of the previous research has established TD's influence on dividends for Indian corporations. Both TD and dividends are critical elements of corporate governance decision-making practices. The current study observes that their connectivity needs to be explored from different angles. As a result, we are motivated to fill this void by providing empirical insights into the relationship between TD and dividends through this study.

The TD level is measured based on a TD index (framework outlined in Section 3.3). This paper also evaluates the impact of technical efficiency (te) and profitability (opm) (both used as moderating variables) on dividends. Control variables are the log of sales and the log of market capitalisation. For this purpose, we utilise data from all non-financial corporations in the S&P BSE 100 index from 2016 to 2020. We show a strongly negative association between TD and dividends in four models (models 1, 2, 4, and 5). In the nonlinear model (Model 2), we find that TD considerably influences dividends. This study

suggests that, initially, when TD levels rise, dividends tend to fall; nevertheless, beyond a certain point, an increase in TD levels leads to an increase in dividends.

Furthermore, for the moderating variable, technical efficiency (te), it is discovered that it is adversely associated with dividends in terms of both constant and variable returns to scale. More efficient corporations tend to pay smaller dividends because they have more profitable projects available for investment. At the same time, moderation by profitability is found to positively impact dividends. Thus, it implies that more profitable firms support the payment of more dividends.

Consequently, this study contributes in several ways by providing better insights for managers, investors, regulators, and researchers into the efficacy of the corporate governance system by developing a TD index for an emerging market economy, India. Firstly, the TD index used in this study will help them measure the disclosure level followed by Indian companies. Secondly, the results of this study can be used for assessing the impact of TD (serving as a CG mechanism) on the current shareholder income (dividends). Lastly, using technical efficiency computed using Data Envelope Analysis (DEA) as a moderating variable also aids in bridging another gap in the existing literature, as prior studies have not employed this technique to estimate the efficiency's impact on dividends.

The remainder of the study is organised as follows: the next section covers the relevant literature on which we base our hypothesis. Section 3 discusses our sample data, variables, and study methods. Section 4 presents the data analysis findings, followed by a commentary in Section 5. Finally, Section 6 concludes the study and discusses future research opportunities.

2. Review of Literature

2.1. Impact of Corporate Governance Mechanism on Various Factors

Many studies have enumerated the importance of a sound CG mechanism, particularly TD, for improvement in the current economic scenario. (Dimitropoulos and Tsagkanos 2012) says that the quality of corporate governance leads to greater profitability and viability. Many studies have also evaluated the relationship between CG and (i) the overall success of companies (Korent et al. 2014), (ii) transparency and financial disclosure (Mallin 2002), (iii) dividend policy (Garay and González 2008), (iv) risk profile/risk disclosure (Elshandidy and Neri 2015), (v) investor protection (Klapper and Love 2004), (vi) firm performance (Aebi et al. 2012), (vii) valuation of a company (Adawi and Rwegasira 2013), and (viii) formation of a board-level technology committee (Premuroso and Bhattacharya 2007).

2.2. Impact of Transparency and Disclosure on Various Factors

Further, disclosure on corporate social responsibility (CSR) practices is part of the non-financial disclosure. It has also been found to improve the financial transparency of an organisation (Nair et al. 2019). TD communicates financial and non-financial data to stakeholders (Bushman et al. 2004). Numerous studies have also been conducted to assess the influence of TD on various economic parameters. In studies such as Lawrence (2013) and Azrak et al. (2020), TD has been linked to stock market gains. Furthermore, studies discovered a link between TD and (i) a lower cost of capital (Frost et al. 2005; Botosan 2006), (ii) reduction in stakeholders' ambiguity (Hail 2002), (iii) safeguard against stakeholders' protection rights (Bebchuk et al. 2009), (iv) reduction in volatility or controlling risk, (v) reduction in information asymmetry (Lai et al. 2014), (vi) long-term financial strength (Jones et al. 2012), (vii) size of the firm (Hanifa and Rashid 2005), (viii) growth prospects (Hanifa and Rashid 2005), (ix) external financing needs/debt (Hanifa and Rashid 2005), (x) ownership concentration (Hanifa and Rashid 2005), (xi) price to book value ratio (Berglöf and Pajuste 2005), and (xii) firm value.

2.3. Impact of Transparency and Disclosure on Dividends

Bebczuk (2007) evaluated the impact of CG practices and ownership structure on Argentinian listed companies' financial performance and dividend payout. They developed a

TD index (TDI) based on available public information to determine the level of CG practices implemented in the country. The TDI developed by them contained 32 elements further grouped into three sub-groups, namely board (13), disclosure (13), and shareholders (6). Their research discovered a link between TDI and a company's success as measured by its return on assets (ROA) and Tobin's Q. They also discovered that TDI is related to the cash dividend to cash flow ratio in Argentinian listed firms.

In keeping with Bebczuk (2007), the Modified TDI (MTDI) was created, which is used to assess the number of disclosure practices adopted in Malaysian listed firms. The authors find that MTDI is related positively to performance and inversely to the company's leverage. However, they do not see any significant impact of TD on bankruptcy risk and dividends.

Kowalewski et al. (2008) also evaluated the impact of CG mechanisms (by employing TDI) on Polish listed companies' dividend payout. They report that a rise in TDI leads to a corresponding increase in dividends, thus concluding that companies with lesser TDI tend to pay lesser dividends. This situation aligns with the findings of Mitton (2004). A TDI was devised by Kowalewski et al. (2008) to evaluate the CG mechanisms adopted by Indonesian companies. They do, however, identify a negative link between TDI and dividends. This circumstance suggests that, due to Indonesia's deficient CG systems, corporations are more likely to pay enormous dividends to persuade shareholders to invest in their enterprises. These data support the substitution theory proposed by La Porta et al. (2000).

The specific ownership structure is also essential in infusing an environment of good CG and TD practices in an organisation (Shleifer and Vishny 1997). Hence, various studies have also estimated the influence of ownership structure on dividends (Majumdar and Chhibber 1999). Additionally, López-Iturriaga and Santana-Martín (2015) have shown an opposite association between shareholder coalitions and dividend distribution policy (including share buyback). This situation implies that predominant shareholders can use partnerships to strengthen their control over the company and obtain exclusive advantages.

2.4. Impact of Profitability and Technical Efficiency (Moderating Variables) on Transparency and Disclosure and Dividends Connection

According to behavioural finance, there is a clear correlation between risk and variations in dividends. The theoretical underpinning of dividend decision-making models, which usually involve rational actors, is Expected Utility Theory (EUT) (Von Neumann and Morgenstern 2007). It is commonly accepted that the most important tool for examining decisions in the face of ambiguity is EUT. According to EUT, there is a positive correlation between risk and dividend variations. The available evidence indicates that although EUT serves as the main tool for decision making, decision makers frequently ignore its fundamental tenets.

Prospect Theory (PT), a decision-making model under risk, was proposed by Kahneman and Tversky based on EUT (Kahneman and Tversky 1979). PT is founded on EUT, although it goes against the core principles of that ideology. Eventually, in 1992, Kahneman and Tversky expanded on Prospect Theory (PT) to create Cumulative Prospect Theory (CPT)—a brand-new theory (Tversky and Kahneman 1992). With any predefined number of outcomes, CPT assists decision-makers in making decisions about uncertain prospects. Previous research indicates that the financial markets typically react more forcefully to announcements of dividend reductions than to those of dividend increases (Gebka 2019; Hasan 2021). This indicates that TD influences the dividends of a firm.

Fama and French (1999) find that profitable companies having limited growth distribute significant dividends. Similar results are seen in many other studies. Further, it has been found that enhanced disclosures encourage the management to be sensitive towards shareholders' concerns, thus improving capital investment efficiency (Lai et al. 2014). Technical efficiency indicates the maximum utilisation of input resources to have the desired output.

Lo and Lu (2006) employed three inputs (operating expenses, equity, cost of sales) and three outputs (operating profit, return on equity, and revenue) to find efficiency. Acharya

et al. (2011) reported that external and internal governance mechanisms improve firm efficiency. Akhigbe et al. (2017) also said that TD and profit efficiency are positively associated and that increased disclosures also lead to a drop in capital cost. Falavigna and Ippoliti (2022) investigated the role of institutional efficiency and found a positive correlation between judicial delay and the decisions made by SMEs regarding dividend payments. This suggests that small firms are more inclined to distribute dividends in order to boost confidence in the local capital market as judicial inefficiency rises.

As seen from the above discussion on TD, there have been mixed results regarding the impact of TDI on dividends. Further, none of the studies has gauged TD's impact on dividends for listed Indian companies. To our knowledge, this is the only study that has included 102 qualities based on (i) OSIR, (ii) FTID, (iii) BMSP, and (iv) SETWD to develop a TDI and evaluate its impact on dividends for listed Indian companies. Hence, using the data for non-financial Indian companies, we investigate the relationship between TDI and dividends by testing the following hypothesis based on the abovementioned theories:

H1: *TD impacts the dividend policy under the moderating effect of profitability and efficiency.*

3. Results

3.1. Statistical Summary

Table 1 provides the statistical summary of the variables for analysis. The mean value of Div is 0.128 (close to a minimum (min)). This highlights that, on average, the DPR in sample firms is relatively low during the study period. TD's mean value of 0.574 indicates a moderate level of TD outcome as the value is slightly nearer to the maximum (max). This result shows that an average sample firm reveals 57.40% of the information. The technical efficiency under crs (te_crs) and vrs (te_vrs) has mean values of 0.571 and 0.630 (both close to max), respectively, indicating that 57.1% and 63% of input resources are utilised on average by sample companies. Opm with a mean value of 0.191 (slightly proximate to max) shows a fair operating profit margin. l_mcap and l_sales also offer a fair amount of the firm's value as market capitalisation and sales, with averages of 10.464 and 9.479 (natural log value of the amount in INR crore), respectively. The higher (or lower) value of standard deviations signifies the higher (or lower) variability in sample firms for a particular variable.

Table 1. Correlation matrix.

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) TD	1.0000								
(2) dtd	1.0000 ** (0.0000)	1.0000							
(3) dtd2	−0.4746 ** (0.0000)	−0.4746 ** (0.0000)	1.0000						
(4) dcrs_te	0.2348 ** (0.0000)	0.2348 ** (0.0000)	0.0378 (0.2979)	1.0000					
(5) i_dtd_dcrs_te	0.0616 (0.0897)	0.0616 (0.0897)	0.2596 ** (0.0000)	−0.1199 ** (0.0009)	1.0000				
(6) dvrs_te	0.2090 ** (0.0000)	0.2090 ** (0.0000)	0.0139 (0.7026)	0.8845 ** (0.0000)	−0.1799 ** (0.0000)	1.0000			
(7) i_dtd_dvrs_te	0.0251 (0.4888)	0.0251 (0.4888)	0.2228 (0.0000)	−0.1785 ** (0.0000)	0.9164 ** (0.0000)	−0.2135 ** (0.0000)	1.0000		
(8) dopm	0.0454 (0.2117)	0.0454 (0.2117)	0.0433 (0.2330)	0.1917 ** (0.0000)	−0.1018 ** (0.0050)	0.1736 ** (0.0000)	−0.1129 ** (0.0018)	1.0000	
(9) i_dtd_dopm	0.0636 (0.0799)	0.0636 (0.0799)	0.0178 (0.6246)	−0.0987 ** (0.0064)	0.2804 ** (0.0000)	−0.1104 ** (0.0023)	0.2490 ** (0.0000)	0.0943 ** (0.0093)	1.0000

Table 1. *Cont.*

Descriptive Statistics				
Variables	**Mean**	**SD**	**Min**	**Max**
Div	0.1282356	0.4034409	−0.0405	7.5
TD	0.57444	0.0922634	0.3103448	0.7793103
dtd	−0.0020011	0.0923241	−0.2660937	0.2028718
dtd2	0.0085165	0.0122646	8.25×10^{-6}	0.0708058
dcrs_te	-5.04×10^{-16}	0.3283297	−0.5378434	0.4281566
i_dtd_dcrs_te	0.0071088	0.0292741	−0.0903073	0.1146847
dvrs_te	2.43×10^{-16}	0.3580748	−0.5963618	1.213638
i_dtd_dvrs_te	0.0069009	0.0321929	−0.1699376	0.1281372
dopm	-1.83×10^{-16}	0.1445518	−0.591205	1.019934
i_dtd_dopm	0.0006044	0.0132884	−0.1133964	0.1010025
lsales	9.479545	1.476338	4.110874	13.33065
lmcap	10.46412	1.284616	3.955634	13.83282

Note: ** is for significance at 0.05. Mean refers to the average, SD refers to the standard deviation, minimum refers to the minimum, and maximum refers to the maximum.

3.2. Correlation and Endogeneity

The correlation matrix in Table 1 shows that the correlation coefficient between dvrs_te and dcrs_te is positive with a value of 0.8845. In addition, i_dtd_dvrs_te and i_dtd_dcrs_te have positive correlation coefficients with a value of 0.916. Both correlation coefficients (cc) have a value of more than 0.800. Consequently, these variables are not included in any of the models to deal with multicollinearity. The rest of the cc values are less than 0.800; therefore, multicollinearity does not exist (Baltagi 2008).

The endogeneity test results are shown in Table 3. The Durbin Ch2 and Wu Hausman tests were performed to observe the endogeneity between the explanatory and dependent variables. The third lag value of variables is instrumented. The results reveal that the endogeneity issue exists due to two variables, i.e., TD and i_dtd_dcrs_te. Hence, these variables are endogenous, having a reverse causal effect. Therefore, this paper uses dynamic models using the GMM system for consistent outcomes.

3.3. Regression Outcomes

This study analyses the data using dynamic regression models, and the models are tested for suitability by observing model diagnostics. The Arellano–Bond test at lag one and lag two is performed. Both have insignificant *p*-values (>0.05) in all models (see Table 3). Hence, we fail to reject the null of no autocorrelation (Baltagi 2008; Wooldridge 2015). The Sargan test with significant *p*-values (<0.05) shows that there might be an over-identification issue in all models (see Table 3). Hence, robust t-statistics are considered (Baltagi 2008; Wooldridge 2015).

Table 2 shows that Div (−1) (DPR of the previous year) is significant and positive in all models with a *p*-value less than 0.05. Hence, we conclude that the current year's dividend policy is positively influenced by the dividend policy of the previous year. The TD is negative but significant for Div in four models (Models 1, 2, 4, and 5). Hence, a higher TD of a firm lowers the dividend distribution (Div). This means TD adversely affects the dividends distribution.

However, TD is found to be positive and significant in Model 3. Nevertheless, the nonlinear establishment revealed by Model 2 indicates that TD negatively affects Div to a minimum extent. Thereafter, it increases Div because dtd2 is positively significant for Div (a U-curved relation) and has a significant positive coefficient (0.652).

Table 2. Result (dynamic models).

DV: Div	Model 1 (Base_Model)	Model 2 (Quadratic_Model)	Model 3 (Interaction_1)	Model 4 (Interaction_2)	Model 5 (Interaction_3)
	Coeff.	Coeff.	Coeff.	Coeff.	Coeff.
Div (−1)	0.023 *** [0.000]	0.023 *** [0.000]	0.006 *** [0.000]	0.008 *** [0.000]	0.023 *** [0.000]
TD	−0.291 *** [0.010]	-	-	-	-
dtd	-	−0.299 *** [0.024]	0.173 *** [0.017]	−0.059 *** [0.018]	−0.271 *** [0.015]
dtd2	-	0.652 *** [0.024]	-	-	-
dcrs_te	-	-	−0.182 *** [0.003]	-	-
i_dtd_dcrs_te	-	-	−0.860124 *** [0.040]	-	-
dvrs_te	-	-	-	−0.138 *** [0.002]	-
i_dtd_dvrs_te	-	-	-	−0.597 *** [0.026]	-
dopm	-	-	-	-	−0.05 [0.005]
i_dtd_dopm	-	-	-	-	0.629 *** [0.098]
lsales	−0.045 *** [0.000]	−0.046 *** [0.000]	−0.041 *** [0.001]	0.044 *** [0.001]	0.047 *** [0.000]
lmcap	−0.061 *** (0.001)	−0.060 *** [0.001]	−0.026 *** [0.001]	−0.033 *** [0.002]	−0.057 ***
Cons.	1.347 *** [0.019]	1.182 *** [0.016]	0.800 *** [0.029]	0.896 *** [0.029]	1.163 *
Sragan Test	51.014 ** (0.0393)	50.636 ** (0.0424)	56.653 ** (0.0117)	61.812 ** (0.0034)	53.482 (0.0236) **
AR(1)	−1.1748 (0.2401)	−1.1754 (0.2399)	−1.1506 (0.2499)	−1.1469 (0.2514)	−1.174 (0.2401)
AR(2)	1.020 (0.3076)	1.019 (0.3078)	1.042 (0.2970)	1.049 (0.2940)	1.027 (0.3041)
Durbin Chi-2	6.71443 ** (0.0096)	0.481342 (0.4878)	5.22784 ** (0.0222)	1.18431 (0.2765)	1.01534 (0.3136)
Wu-Hausman Test	6.73034 ** (00.0097)	0.477701 (0.4897)	5.21506 ** (0.0227)	1.17486 (0.2788)	1.00701 (0.3160)

Note: The Sargan test under GMM framework is used to examine the over-identification issues having null hypothesis "there is no over-identification problem". The Arellano–Bond test is used for serial autocorrelation in the first differenced error terms of the order 1. *** shows significance at 1%, and ** shows significance at 5%. The *p*-values are placed in (). The value in [] is the standard error (SE). * represents significance at 0.05. Div (Dividend) is an endogenous variable.

The coefficient of i_dtd_dcrs_te is negative (−0.860) and significant (Model 3). Similarly, in Model 4, i_dtd_dvrs_te also has a negative (−0.597) and significant coefficient at 5% significance. This result implies that TD is detrimental to dividend policy (Div) at higher efficiency of firms and vice versa. Figures 1 and 2 show that TD negatively affects Div when firms have high technical efficiency. However, this association is positive with Div when efficiency is low. It means efficiency lowers the association of TD and dividend distribution.

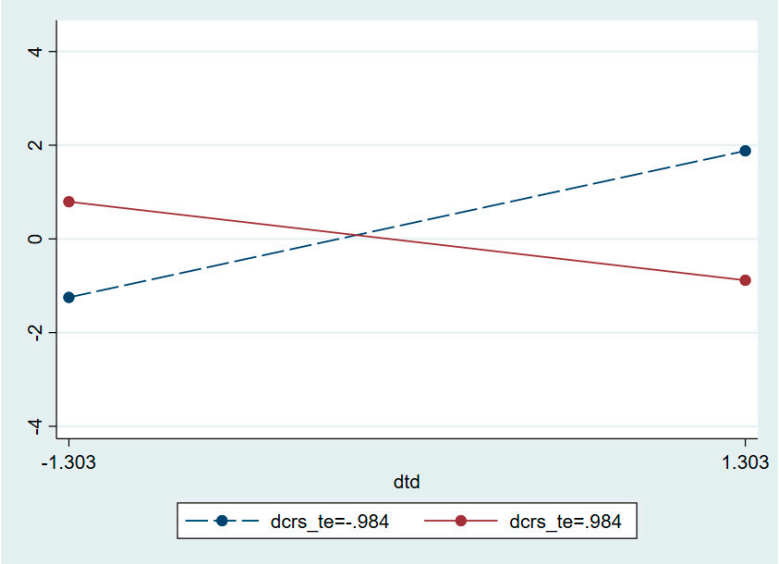

Figure 1. Interaction Graph 1 (i_dtd_dcrs_te). Source: STATA 16 was used to construct the graph. The solid line in the graph represents the moderating variables' low-level effect, while the long-dashed line represents their high-level impact.

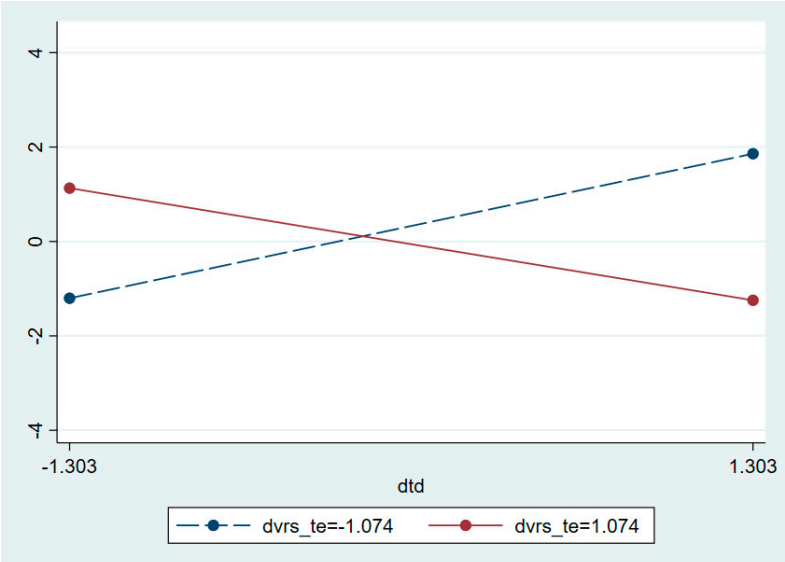

Figure 2. Interaction Graph 2 (i_dtd_dvrs_te). Source: The graph was created using STATA 16. The graph's solid line indicates the moderating variables' low-level influence, while the long-dashed line shows the high-level impact.

In Model 5, i_dtd_dopm has a positive and significant coefficient of 0.629. TD enhances dividend distribution (Div) at a higher operating margin (profitability). It also means profitability improves the positive association of TD and Div. Figure 3 demonstrates that TD positively associates with Div at a high profitability (operating margin). The control variables l_sales and l_mcap are negative but significant in all models at a 5% significance level (Table 2).

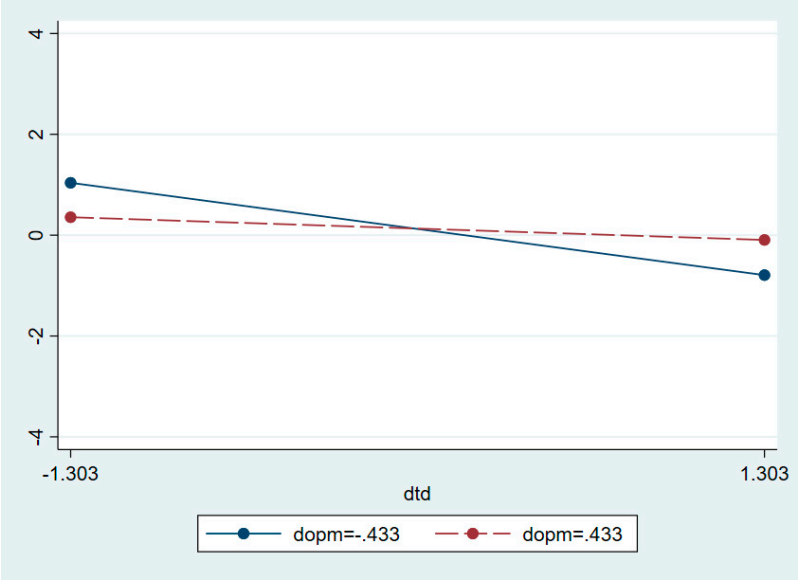

Figure 3. Interaction Graph 3 (i_dtd_dopm). Source: STATA 16 was used to construct the graph. The graph's solid line reflects the moderating variables' low-level influence, while the long-dashed line represents the high-level impact.

3.4. Results' Robustness

The results' robustness (Woodward 2006) must be addressed to deliver reliable evidence. Hence, the study's findings were verified using multiple models following a multi-model strategy (Woodward 2006). This paper specifies five models to check the impact of TD on Div in several ways (linear, nonlinear, and interaction effect). Most of the models corroborate that TD affects a firm's dividend policy. The results are similar in each case (Model 1 to 5). Therefore, the similarities in the results confirm the result's robustness.

4. Data and Research Methodology

4.1. Data

This research uses panel data of 78 firms listed on the BSE (Bombay Stock Exchange) India under S&P's BSE 100 index for five years (2016–2020). Out of 100 indexed companies, only 78 firms (non-financial) were taken into the sample for a balanced panel. The financial firms were excluded because their annual reporting approach is quite different. The period of this study is believed to be essential to find novel evidence as Indian corporates have undergone many regulatory changes during this post-reform period. The implementation and amendments of "The Insolvency and Bankruptcy Code (IBC) 2016" and "The Company Act, 2013" also make this period necessary for investigation. The IBC 2016 Indian bankruptcy law aims to unify the current system by establishing a single statute for both bankruptcy and insolvency. "The Company Act 2013" is an Indian Parliament act for Indian company law (Kanoujiya et al. 2023). The CMIE (Centre for Monitoring Indian Economy) Prowess and BSE databases are the sources of data. Table 3 provides detailed definitions of the variables employed in this paper.

Table 3. List of variables.

SN	Variable	Type	Code	Definition	Citations
1	Dividend ratio	DV	Div	DIV represents dividend policy and proxies the dividend payout ratio (DPR). DPR is computed as an annual equity dividend paid to shareholders divided by net income.	Bhattacharya et al. (2020) Dewasiri et al. (2019)
2	Transparency and Disclosure (T&D)	IV †	TD	It reflects transparency and disclosure and is measured by drafting a T&D index. The framing of the T&D index is explained in Section 3.3. A higher T&D index means greater T&D by the firm.	Arsov and Bucevska (2017), Aksu and Kosedag (2006).
3	Technical efficiency (Constant return to scale)	IV ††	crs_te	It shows the firm's technical efficiency measured via Data Envelope Analysis (DEA). It means how efficiently the firm utilises the input resources to get specific output assuming a constant return to scale.	(Ray 2020)
4	Technical efficiency (Variable return to scale)	IV ††	vrs_te	It also shows the firm's technical efficiency assuming a variable return to scale and is measured by DEA.	Ray (2020)
5	Operating margin	IV ††	opm	One of the measures of a company's success is operating profit on sales in Indian Rupees (opm = operating profit ÷ Sales or Revenue from Operations)	(Filer and Golbe 2003; Park et al. 2009)
6	Market Capitalisation	IV †††	lmcap	It is calculated by multiplying the total number of a company's shares by the share's current market price. It serves as a gauge of a company's valuation. The market capitalisation's natural log is used to address discrepancies with high numbers.	(Marito and Sjarif 2020)
7	Sales	IV †††	lsales	It is the number of products and services traded for money. A natural log of sales is calculated using the number of sales (in Indian rupees).	(Megginson et al. 1994)

Note: DV is for dependent variables, and IV is for independent variables. † is the indicator of the explanatory variable, †† is the indicator of moderating variable, and ††† shows the control variable.

4.2. Methodology

This quantitative study performs Panel Data Analysis (PDA) because this reveals information regarding both time series and cross-sections (Hsiao 2007; Wooldridge 2015). Moreover, the PDA approach also gives unbiased results because the PDA is not prone to endogeneity problems. The dynamic models of PDA are used for testing the assumed hypotheses because they not only provide a lag association of the dependent variable, but these models can better deal with endogeneity issues to deliver reliable results. The system GMM models are followed for the hypothesis testing. This paper establishes five models (one for the base or linear association, one for the quadratic or nonlinear relationship, and the remaining three models for interaction effects with moderating variables) as mentioned below:

$$\mathrm{Div}_{it} = \beta_1 \mathrm{Div}_{it\ (-1)} + \beta_2 \mathrm{TD}_{it} + \beta_3 \mathrm{l\_mcap}_{it} + \beta_4 \mathrm{l\_sales}_{it} + u_{it} \quad (1)$$

$$\mathrm{Div}_{it} = \beta_1 \mathrm{Div}_{it\ (-1)} + \beta_2 \mathrm{dtd}_{it} + \beta_3 \mathrm{dtd2}_{it} + \beta_4 \mathrm{l\_mcap}_{it} + \beta_5 \mathrm{l\_sales}_{it} + u_{it} \quad (2)$$

$$\mathrm{Div}_{it} = \beta_1 \mathrm{Div}_{it\ (-1)} + \beta_2 \mathrm{dtd}_{it} + \beta_3\ \mathrm{i\_dtd\_dcrs\_te}_{it} + \beta_4 \mathrm{l\_mcap}_{it} + \beta_5 \mathrm{l\_sales}_{it} + u_{it} \quad (3)$$

$$\mathrm{Div}_{it} = \beta_1 \mathrm{Div}_{it\ (-1)} + \beta_2 \mathrm{dtd}_{it} + \beta_3\ \mathrm{i\_dtd\_dvrs\_te}_{it} + \beta_4 \mathrm{l\_mcap}_{it} + \beta_5 \mathrm{l\_sales}_{it} + u_{it} \quad (4)$$

$$\mathrm{Div}_{it} = \beta_1 \mathrm{Div}_{it\ (-1)} + \beta_2 \mathrm{dtd}_{it} + \beta_3\ \mathrm{i\_dtd\_dopm}_{it} + \beta_4 \mathrm{l\_mcap}_{it} + \beta_5 \mathrm{l\_sales}_{it} + u_{it} \quad (5)$$

and, $u_{it} = \mu it + vit$.

Div is the dependent variable and its lag variable is represented by Div (−1). TD is the primary explanatory variable. The demeaned values of TD, dtd and dtd2 = dtd∗dtd, are also independent variables used to explain nonlinear relationships. The technical efficiency values at constant and variable returns to scale are denoted dcrs_te and dvrs_te (demeaned values), respectively, and dopm (demeaned values) represents the operating margin of firms. The three interaction terms with primary explanatory variable TD and the moderating variables technical efficiency (crs), technical efficiency (vrs), and operating margin are i_dtd_dcrs_te (=dtd∗dcrs_te), i_dtd_dvrs_te (=dtd∗dvrs_te), and i_dtd_dopm (=dtd∗dopm), respectively. Demeaned values can handle extreme value inconsistencies or multicollinearity (Baltagi 2008; Wooldridge 2015). Furthermore, the control variables (l_sales and l_mcap) are also included in the models for a good fit. Variables are briefly described in Table 1. The following subsections present a detailed discussion of measuring the approach of TD and te (technical efficiency). β_1 to β_5 are coefficients of the variables. u_{it} accumulates regular error (vit) and individual effects (μit).

4.3. Transparency and Disclosure

In the extant literature, it was found that Aksu and Kosedag (2006) and Hassan (2012) built a TD index to quantify the extent of TD in a firm. They broadly considered three categories: OSIR, FTID, and BMSP. They considered 98 to 106 attributes to draft the index. However, this study included the SETWD category to build a new and more robust TD index. SETWD, as a new category, was considered due to its importance in contemporary business practices and reporting strategies. According to several studies, non-financial performance is said to increase a company's worth. The state of intangibles, customer satisfaction, corporate governance procedures, risk management, product development, reliability, human capital, and sustainable development are some indicators. The list might not be exhaustive, but it provides good non-financial determinants of the firm's valuation (Amir and Lev 1996; Ittner and Larcker 1999). Therefore, the current study incorporates 102 attributes based on the discussed categories to build the index. FTID, BMSP, OSIR and SETWD have 30 features, 29 points, 10 details, and 33 attributes, respectively. Furthermore, consistent with Aksu and Kosedag (2006) and Hassan (2012), a binary approach is used to quantify the TD index. "1" is allotted to the information availability, and "0" is for the absence of the information (attribute).

4.4. Efficiency

Data Envelope Analysis (DEA) is used to compute a firm's efficiency (te) (Cooper et al. 2011; Shao et al. 2019). Technical efficiency indicates the maximum utilisation of input resources to have the desired output. As employed by Lo and Lu (2006), three inputs (operating expenses, equity, cost of sales) and three outputs (operating profit, return on equity, and revenue) are used to find efficiency. Consistent with several studies such as Shao et al. (2019), this study also uses DEA due to its nonparametric approach, which needs no prior specifications. Hence, it finds the best model to deliver consistent results (Shao et al. 2019). The higher value of efficiency means the firm is highly efficient.

Moreover, we consider "te" in constant returns to scale (crs) and variable returns to scale (vrs). The "crs" assumption considers output changes proportionally as input changes, whereas "vrs" assumes that output does not change in the same proportion as input changes (Cooper et al. 2011). According to Wilson (2018), DMU count should be larger than the product of the number of inputs and the number of outputs. Hence, it is also ensured that the adopted DEA analysis is valid as the DMU counts are larger than double the product of the numbers of inputs and outputs (78 > 12, where there are 78 firms as DMUs and 3 × 3 × 2 = 12 includes three inputs and three outputs).

4.5. Profitability

In addition to technical efficiency, profitability is also taken as one of the moderating variables in this paper. Profitability is proxied by the opm (operating margin) and

computed as operating profit divided by sales or revenue (see Table 1), as discussed in Park et al. (2009).

4.6. Control Variables

Models also include two control variables to fit them well (Baltagi 2008; Wooldridge 2015). Including control variables improves the model to enhance the internal validity of explanatory variables. l_mcap, indicating market capitalisation, and l_sales or revenue from operations (see Table 1) are the two control variables included in the models.

5. Discussion

The results explained in the previous section show enough evidence in favour of the study's assumed hypothesis (H1). Stable dividends are considered crucial by managers. We also reported that companies prefer to establish a particular level of dividend payout and consider the profits earned in the current year and dividends paid during the preceding year for determining the current dividend payout policy. In line with Mishra and Narender (1996), we also find proof of the applicability of Lintner's paradigm for companies listed in India. It is found that the current year's dividend policy is positively affected by the dividend policy of the previous year.

Like Gebka (2019), Hasan (2021), Hasan et al. (2021), and Setiawan and Phua (2013), we also find that TD is significantly but inversely associated with dividends in four models (Models 1, 2, 4, and 5). This result indicates that an increase in TD by a company leads to a reduction in dividends. However, TD is found to be positive and significant in Model 3. This supports Kowalewski et al. (2008). Moreover, the nonlinear establishment revealed by Model 2 indicates that TD negatively affects Div. Then, it increases Div because dtd2 is positively significant for Div (a U-curved relation). This situation implies that as a company improves its transparency and disclosure practices up to a certain threshold, there is a reduction in dividends. However, further improvement in TD practices leads to an increase in dividends. These results align with La Porta et al. (2000)'s outcome agency model (OAM). As per the OAM, suitable CG mechanisms increase dividend payouts. This theory is also confirmed in a cross-country comparison (Sawicki 2009). Similarly, Yarram (2015) confirmed the same for Australia; Garay and González (2008) for Venezuela; and Rajput and Jhunjhunwala (2019) for India and Sri Lanka.

The study finds that the moderating variable, technical efficiency (under both constant and variable returns to scale), is significantly but adversely connected to dividends. This result implies that TD is detrimental to dividend policy (Div) in firms with higher efficiency. This result suggests that a rise in TD will result in a drop in dividends, but this negative impact would be lower for firms with higher efficiency. Hence, it can be construed that more efficient firms would distribute dividends and retain the balance of profits to be used efficiently for future growth and expansion of the business. Further, this association is positive with dividends when efficiency is low. This result implies that less efficient firms would prefer to distribute more profits as dividends instead of re-investing into their business (due to poor efficiency). This result contradicts Lo and Lu (2006) and Akhigbe et al. (2017). Further, the moderating variable, operating profit, is positively related to dividends. This situation implies that TD enhances dividend distribution (Div) at a higher operating margin. Earlier studies have also confirmed that firms having higher profitability pay out more dividends, whereas companies with more investment avenues pay out lower dividends (Easterbrook 1984).

Abor and Bokpin (2010), who evaluated the dividend-paying behavior of 34 developing economies, found that both size and market capitalisation significantly negatively impact dividends. In line with this, we also find that both the control variables, l_sales and l_mcap, are significantly inversely related to dividends. A possible justification for an inverse relationship between the size and dividend policy could be that larger companies may have higher growth opportunities that need to be financed using retained earnings.

6. Conclusions

The findings reveal that a higher TD level leads to lower dividends. Their nonlinear relationship also implies that TD is detrimental for dividends up to a threshold. After that, it starts improving shareholders' current income (dividends). It is also found that efficiency as a moderator negatively influences the relationship between TD and dividends. However, profitability positively influences their relationship (TD and dividends).

6.1. Contribution

The current findings uniquely and significantly contribute to the existing literature on dividends and CG through the study's novel and robust evidence on the connection between TD and dividends in different settings (linear, nonlinear, and moderating). Hence, this study provides more comprehensive outcomes regarding the association between TD and dividends.

6.2. Implications

The findings also have significant implications for all stakeholders, namely that TD should be treated as a critical element in corporate decision and policy making to benefit the firm's growth and the income of all stakeholders. The study also has implications for investors, indicating that a higher degree of TD does not guarantee a better dividend distribution. This result also implies that less efficient firms would prefer to distribute more profits as dividends instead of re-investing into their business, because of poor efficiency. Disclosure with higher profitability of firms is good for better dividend distribution. Hence, managers should focus on better profitability.

6.3. Limitations and Study's Future Scope

This study also has certain limitations. The study was limited to the scope of Indian corporates. However, we believe that it delivers insights into other economies of similar nature. The study utilises the most advanced approach to comprehensively assess TD per the existing literature. However, it has its limitations due to the absence of information. The current limitations of the study lead to the study's future scope, which can include other economies. This study is limited to nonfinancial firms. Hence, it can be extended to financial firms in future studies.

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