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Article

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Determining the key factors of corporate leverage in Indian manufacturing firms using dynamic modelling

Ishfaq Gulzar^{1*} and S.M. Imamul Haque¹

Abstract: Using a data set of Indian Manufacturing companies (NSE 500), this paper examines the relationship between corporate governance characteristics and firm-specific factors in predicting leverage decisions of a firm. The paper specifies partial adjustment model and utilises System Generalised Method of Moments (GMM) to find out the factors affecting speed of adjustment. The results of this study show that non-debt tax shield positively affects SOA, whereas growth, tangibility and firm size negatively influence SOA. In the case of corporate governance variables, board size, board independence, ownership concentration and corporate governance index reveal a positive influence on SOA. The paper also confirms that it takes around 2.65 years to offset half of the target leverage from current leverage.

Subjects: M4; G3; G32

Keywords: Corporate governance; speed of adjustment; leverage; Generalised Method of Moments (GMM)

1. Introduction

Financial leverage is defined in a vast body of research studies. However, actual results are inconclusive and no one agrees on a single generalised theory that applies to all. Capital structure is one of the most baffling topics discussed in the vast segment of corporate finance over the decades (Haron & Adeyemi, 2016; Kumar et al., 2017; Ramli et al., 2019; Khaw, 2019; Haron et al.). A range of theories have emerged to describe the choice of capital structure, such as the pecking order theory, free cash flow theory, signalling theory, trade-off theory, and the market timing theory (Zwiebel, 1996). These theories back the fact that capital structure is chosen voluntarily by managers. Mukherjee and Mahakud (2012) claim that the dynamic trade-off is more suitable for Indian firms as that of any other theory explaining leverage ratio. The nexus between corporate governance characteristics and capital structure is largely established by (Berger et al., 1997; Friend & Lang, 1988). The foregoing literature has produced varied results with mixed explanations; wherein some researchers find a positive relationship between leverage and governance, others observed negative governance effects on debt. The underlying reason is associated with the rationale that a strategic choice involving external funding or capital structure may be significantly influenced by fair and open corporate governance processes. Agency problems between shareholders and management arise when a robust governance mechanism is not in place. These problems occur due to a weak legal and regulatory environment, a lack of consistency in accounting and auditing standards, and poor management techniques. In order to mitigate agency issues, corporate governance is essential for balancing the interests of shareholders and management.

Effective debt financing results from a sound corporate governance system that minimises conflicts of interest between shareholders and principal (Ferri & Jones, 1979; Jensen, 1986). In a more precise sense, the governance-leverage connection may be impacted by the *structure* of corporate governance. La Porta et al. (1997), La Porta & Lopez-de-Silanes (1998) states that the development of capital markets, the protection of owners' interests, and the rights of creditors are all significantly influenced by the legal environment, which has a profound impact on the financing decisions of a firm. Strong evidence is provided by Aggarwal and Goodell (2014a) to support their claim that better investor protection is positively correlated with access to debt financing. They also claim that the financing choice of a firm will be influenced by the actual and perceived transaction costs associated with resolving asymmetric information. Bajaj, Kashiramka, and Singh (2018) argue that an over or under-leveraged firm relative to the optimal level would impede firm valuation based on the trade-off hypothesis. Similarly, Khan et al. (2022) argued that inappropriate leverage structures can result in bankruptcy in a firm. So it is imperative for managers of the company to make well-articulated plans to ensure better capital requirements and avoid any block in investment opportunities (Chakrabarti & Chakrabarti, 2019).

The issue concerning India's manufacturing sector is crucial and has gained a lot of attention due to its fast-changing institutional framework (Sofat & Singh, 2017). This sector presently contributes 16% to India's GDP and is expected to contribute 25–30% by the end of year 2025 (IBEF). As per McKinsey report,¹ this sector would need investments worth \$1.0 trillion to \$ 1.5 trillion over the next 7 years to double its GDP. In this way, capital structure holds the key to increasing productivity and performance of a company. An optimal capital structure is required for developing countries like India in order to maximise market value by minimising the cost of capital (Chadha & Sharma, 2015). This makes it crucial to identify all the variables that contribute to achieving the ideal capital composition. In addition, majority of research works are skewed towards certain governance factors while ignoring a gamut of variables like audit quality and ownership structure. Apart from that, to the best of our knowledge, there is no study to date that has analysed how CGQ (corporate governance quality) influences leverage in the Indian context. The current study is the first of its type to make a convincing determination about whether and how ownership concentration and distinctive governance characteristics help to solve the issue of gaining better finance structures. Hence, it seems plausible to assume that analysing more factors with "firm-specific characteristics" is highly required to extract solid results. It is also critical to understand if the consequences of the trade-off and pecking order theories are more relevant to Indian manufacturing companies.

This study seeks to bridge this aperture by comprehensively examining a number of corporate governance traits and their effects on the speed of adjustment for Indian manufacturing enterprises. Focusing on emerging markets like India makes sense because legislation related to accounting requirements, information disclosure, and securities trading are ineffective, so corporate governance as an instrument helps to alleviate the problem in better financing structure. This nation has typical traits of an emerging market, including quick economic development and a still-developing judicial system (World Bank, 2018). We use data from 119 publicly traded companies listed on the Indian stock market between 2011 to 2020. the data is analysed using Generalised Method of Moments.

The remainder of this paper is organised as follows: Section 2 discusses the literature review on the subject, the third section presents research methodology along with the description of variables. The fourth section presents the descriptive statistics, and the last section concludes the paper.

2. Literature review

Leverage is explained as total debt, which is current liabilities plus long-term debt divided by total assets (Fathi et al., 2014). Leverage acts as an important determinant for investors in stock

evaluation. The risk associated with financial leverage is also referred to as the additional burden put on shareholders due to the company's usage of debt. The theoretical consideration takes into account two contradictory views on debt financing. One body of research suggests that debt has an advantage over equity, because debt acts as a tax shield (Modigliani & Miller, 1963), an indication of firm quality (Ross, 1977), agency cost (Jensen, 1986), and the information role of debt (Harris & Raviv, 1991). Harris and Raviv (1990) state that the conflict between shareholders and managers stem from the fact that managers hold the entire residual claim and, as a result, do not fully benefit from their activities that increase profits. Instead, they incur some costs, which limit their capacity to enjoy perquisites. The alternative literature, however, contends the negative effects of debt occur due to financial distress costs (Kim, 1978; Kraus & Litzenberger, 1973). Pettit and Singer (1985) argue that firms should resort to less debt when there is a greater likelihood of going bankrupt due to an increase in the cost of debt. Similarly, Roslee (2017) put it that the high degree of inability and pressure on the company to service the debt cause owners to run a huge risk when they choose to employ financial leverage.

2.1. Corporate governance

"Corporate governance addresses the ways through which funders of firms assure themselves of getting a return on their investment" (Shleifer & Vishny, 1997). Good governance improves firm performance and its competitiveness, to achieve business excellence. In the last decade and a half, corporate governance has undergone a metamorphosis in the financial markets. However, weak decisions expose firms to severe crises (Al Amosh & Khatib, 2021; Hazaea et al., 2021). The information asymmetry between managers and shareholders is reduced by sound corporate governance. Better decisions through the prism of corporate governance related to the ideal capital structure have a practical significance on the growth of a firm (Zhou et al., 2021). Claessens et al. (2002) posits that a solid corporate governance structure provides a variety of benefits to a firm, such as greater access to finance, lower cost of capital, and better returns which play a cognisant role in providing accurate and clear information to all stakeholders. Theoretically, organisations with poor corporate governance structure may need to employ more or less leverage, whereas strong corporate governance can reduce agency costs and has less likelihood to be leveraged.

2.2. Board size

Board of directors are a crucial part of the corporate governance system. They are tasked with creating and putting into practice the strategies and keeping an eye on the activities of top management (Jensen & Meckling, 1976). Managers prefer to reduce financial leverage, when a better governance structure is in place (Wen et al., 2002). It has been found that more active boards tend to reduce financial leverage during financial crises. However, Dalton et al. (1999) claim that larger boards increase the pool of directors' expertise, knowledge, and intellect that may be utilised for decision-making. Anderson and Reeb (2004) argue that larger boards have higher coordination and processing costs, which makes it difficult for them to take decisions. Abor (2007) observed a negative relationship between board size and speed of adjustment. Similarly, Berger et al. (1997) demonstrate a negative relationship between board size and financial leverage. Sewpersadh (2019) also depicts that leverage is adversely affected by the size of the board. In view of this, the following hypothesis is tested:

H_1 : Board size has a positive impact on financial leverage in Indian manufacturing firms.

2.3. CEO duality

When a CEO holds the dual position of chief executive officer and chairman on the board, this tends to increase his/her power to exert influence (Peng, 2004). Despite the growing criticisms of CEO holding the dual position with excessive hierarchical power in both management and control, a large proportion of Indian firms have a dual structure on their board. A strand of literature has emerged to explain that CEO duality is related to the firm's financing decisions. Abor (2007), Mokarami et al. (2012), and Wellalage and Locke (2012) assert that CEO duality

reduces communication conflicts and enables them to pursue an objective debt financing strategy. Similarly, Faleye (2004) states that duality may reduce information asymmetry and lead to greater access to external financing. On the other side, Vakili Fard et al. (2011) argue that firms with CEO duality have a higher leverage ratio. Similarly, Simpson and Gleason (1999) put that duality allows the CEO to wield more power, thus reducing their effectiveness of control and cause either under or over-leverage, based on the risk attitude of the CEO.

H₃: The presence of CEO duality on the board positively influences financial leverage in Indian manufacturing firms.

2.4. Board Independence

Non-executive directors are defined as individuals who are not directly employed by the company and have no economic or psychological dependence on its magnitude (Baysinger & Butler, 1983). Non-executive directors are entrusted with the supervisory and balancing role, besides the role of executive directors in general (Waduge, 2010). Sheikh and Wang (2012) and Kajanathan (2012) observed a significant and positive relationship between the percentage of non-executive directors and a firm's leverage. In a similar vein, Harford et al. (2008) found a strong correlation between leverage and the board of directors and pointed out that independent directors are efficient in enforcing discipline among managers. Independent directors boost firm's capacity to access capital availability (Chen & Hsu, 2009) and also ensure protection of debt-holders interests in a transparent manner financial transparency (Zaid et al., 2020). The other researchers disagree and argue that independent directors may not be helpful for several reasons, including directors' lack of expertise and experience needed to raise meaningful objections. Therefore, all these studies suggest that the influence of independent directors on leverage decisions is still questionable and needs to be further examined. We hypothesise the following.

H₂: Board independence positively impacts financial leverage in Indian manufacturing firms

2.5. Ownership concentration

Controlling shareholders are regarded as an internal governance elements who are said to affect the formation of the corporate governance system due to their additional monitoring abilities. Schmid (2013) maintains that block holders across the world are typically influenced to maintain control over their firms through the use of debt financing. Bui (2022) suggests that ownership concentration plays an essential role and can serve as a substitute for other monitoring mechanisms, such as leverage and institutional investors. Block holders own a tiny percentage of the company's shares and the loss brought on by management decisions is distributed across several small shareholders. Organisations with dispersed ownership and control have less incentive to supervise and control. However, Liu et al. (2011) observed that external block holders positively impact debt financing. Friend and Lang (1988) and Fosberg (2004) showed that firms with ownership concentration have higher levels of debt than firms with low levels of concentration. Similarly, Stulz (2005) argues that large blockholders may serve their own interests, which may significantly influence leverage decisions of a firm. Against this, Wiwattanakantang (1999) discovered that a higher concentration of ownership has a negative impact on debt ratio. This divergence leads to a pervasive problem resulting in the expropriation of minority shareholders by the large shareholders. Due to the fear of expropriation, minority shareholders tend to increase the costs of capital, which cause inefficient management. Based on these studies, the following hypothesis is proposed.

H₄: Ownership concentration positively influences financial leverage in Indian manufacturing firms.

2.6. Audit quality

Audit is required to maintain financial transparency to give shareholders, creditors, and depositors a reasonable guarantee that corporate management will not commit fraud. If financial statements provide information to market players (such as shareholders and potential investors), there would be an issue about the reliability and correctness of the data they present. In this regard, an auditor's reputation may significantly contribute to minimise information risk for investors and, eventually, decrease firm's cost of capital (Azizkhani et al., 2010). Therefore, auditors are crucial in ensuring accuracy of information. However, not all auditors may provide the same degree of service. Broye and Weill (2008) pinpointed that the appointment of a Big five auditor guarantees credibility of accounting data used to price debt and to assess the risk of covenant violation.² Pittman and Fortin (2004) shows that employing a high-quality auditor enable young firms to reduce their interest rates (costs) on debt. This improved quality leads to a positive impact on firms financing decisions by reducing the information asymmetry between knowledgeable managers and uninformed suppliers of capital. We argue and test this hypothesis whether the big four auditing firms have any impact on financial leverage of manufacturing companies in India. Because the accuracy of a company's financial statements is crucial to the smooth operation of the capital markets and plays a significant role in reducing this asymmetry.

H_5 : Companies audited by big four audit firms have a positive impact on financial leverage in Indian manufacturing firms.

2.7. Gender diversity

Risk tolerance is a crucial determinant of the difference between men and women that has been highlighted in the research. A great chunk of research describes that males and females are endowed with different biological and psychological differences that impact their risk preferences. Certain studies among them suggest that women are more risk-averse as compared to men in general and less confident (e.g., Barber & Odean, 2001; Croson & Gneezy, 2009; Bertrand, 2011, 2009). Schicks (2014) observed that male borrowers have a larger debt risk than female borrowers. Adams and Ragunathan (2014) also found that women in finance may be much less risk-averse than other women and men in finance. Usman et al. (2019) showed that companies with more diversity on the board borrow at lower interest rates and utilise less debt. We are therefore curious to know how gender diversity plays a unique role in influencing firms financing decision choices. In such a way, the following hypothesis is proposed.

H_6 : Presence of women on the board positively impacts the financial leverage of manufacturing firms in India.

3. Data and methodology

3.1. Data

In this study, we look at the link between corporate governance and capital structure in Indian manufacturing firms. The study focused on NSE (National Stock Exchange) 500 firms listed in India between 2010 to 2020. This time span (2010–2020) witnessed growth in awareness of corporate governance practice in India, making it an opportune time to analyse corporate governance dynamics. The rationale of choosing NSE companies is that these companies are market leaders in their respective industries, and the impact of CG on these companies will establish precedence for other companies to follow. The initial sample consisted of 500, but we excluded 250 financial companies because these companies are subject to different rules and regulations. Also, due to a lack of data and missing variables, the final sample was restricted to 119 manufacturing firms, yielding 952 firm-year observations. The statistics were obtained from Prowess IQ (release 1.96), an electronic database maintained by the Centre for Monitoring Indian Economy (CMIE).

3.2. Methodology

The standard partial adjustment is similar to that of Flannery and Rangan (2006) and (Kayhan & Titman, 2007), which stands as:

$$LEV_{i,t+1} - LEV_{it} = \alpha + \delta(LEV_{it-1} - LEV_{it}^*) + \varepsilon_{it} \quad (1)$$

Where LEV_{it} and $LEV_{i,t+1}$ denotes observed and optimal leverage. This δ (lambda) measures the speed at which firms undertake partial adjustment towards leverage; when δ reaches 1, then entire adjustment is made at its target leverage. However, if SOA is 0, there is no adjustment towards leverage.

The estimated target leverage ratio is derived from the given equation:

$$LEV_{it}^* = \beta X_{it} + \mu_{it} \quad (2)$$

Plugging equation 1 and equation 2, we get the following equation:

$$LEV_{it} = (1 - \alpha)LEV_{it-1} + \sum_{n=1}^N \lambda_k X_{kit} + \mu_i + \eta_t + \varepsilon_{it} \quad (3)$$

Where $\lambda_k = \alpha\beta_k$

To investigate how corporate governance structures influence leverage decisions, the dynamic leverage decision model based on GMM approach of Arellano and Bover (1995) and Blundell and Bond (1998) is used for the manufacturing companies from 2010 to 2020 as presented in Equation 3. GMM is used to control the endogeneity concern, which arises out of unobserved heterogeneity and simultaneity. Where μ_i represents time-invariant unobservable firm-specific effects, η_t represents time-specific effects, which are common to all firms and can change through time and ε_{it} is the error term. The GMM estimators suggest to ensure that there are no over-identified restriction in the model, which is catered with the Hansen J test. The dynamic model also ensure that the data does not have second-order autocorrelation in the first difference residuals as suggested by AR (1).

3.3. Corporate Governance Quality (CGQ). We have used Principal Component Analysis (PCA) to combine corporate governance attributes in addition to utilising specific proxies that reflect different aspects of a corporate governance system. PCA offers the advantage of reducing multicollinearity across various governance qualities in addition to providing an all-encompassing assessment. The factor loadings obtained from the seven governance variables: Board Size, Board Independence, Gender Diversity, CEO duality, Audit quality, CEO pay, and Ownership Structure. Their loadings are 0.557, -0.0068, 0.3914, 0.6763, -0.1419, 0.4551, and -0.4769, respectively. None of the PCA components has an eigenvalue larger than 1. Evidently, lower agency disputes and better overall governance quality are associated with a higher score for the component.

4. Empirical findings

4.1. Descriptive statistics

Table 1 and 2 provides the descriptive statistics of all variables. The table shows book leverage has a mean of 0.19 with a standard deviation of 0.319. It is pertinent to mention that leverage fluctuates greatly between manufacturing firms as the minimum leverage is zero and maximum goes upto 29%. The high variation indicates that certain firms are more hesitant to incorporate debt in their capital structure. Board size varies in the range of 3 to 22 directors in some firms. The independent directors present at the board fluctuate from a minimum of 14% to the maximum of all the directors on the board. The descriptive results show that 44% of the companies have representation of women on the board. However, certain companies do not follow the recommendation laid down in the Companies Act, 2013 for the presence of women on the board. Similarly, the dummy variable of BIG4 (Audit Quality) shows that 44% of the

Table 1. Variable Description

Variable	Definition
Leverage	Book value of total debt/ book value of total assets
Board size	Total Number of directors on the board
Board independence	Number of independent directors of total directors
Gender Diversity	Dummy of 1 is assigned to a company if the women is present on the board, otherwise 0
CEO duality	Dummy variable that takes value “1” when the CEO is also chairman of the board else it is given “0”
Audit Quality	Dummy variable 1 if the company is audited by BIG4 companies, otherwise 0
CEO pay	Natural log of total remuneration paid to the CEO of a company
Ownership structure	Percentage of equity held by promoters and institutions
Firm Size	Logarithmic value of total assets
Growth	Sales at (t + 1- sales at t-1)
Non-debt tax Shield	Depreciation divided by total assets
Profitability	Ratio of earnings before interest and tax divided by total assets
Tangibility	Property, plant& equipment as a proportion of total assets
Aggregate Governance Quality	The principal component analysis factor obtained from the seven governance variables that is, Board Size, Board Independence, Gender Diversity, CEO duality, Audit quality, CEO pay, Ownership Structure Their loadings are 0.557, -0.0068, 0.3914, 0.6763, -0.1419 0.4551, and -0.4769 respectively.

Source: Based on prior literature

Table 2. Descriptive Statistic

Variable	Obs	Mean	Std.Dev.	Min	Max
Leverage	1190	1.009	3.149	0	29.08
Board Size	1190	9.237	2.771	3	22
Board Independence	1190	0.534	0.13	0.143	1
Gender diversity	1190	0.739	0.44	0	1
Audit Quality	1190	0.234	0.424	0	1
CEO duality	1190	0.374	0.484	0	1
CEO Pay	1190	3.513	1.361	-3.182	7.179
Ownership concentration	1190	55.699	12.679	26.73	88.58
Growth	1190	0	0	0	0.001
Non-debt tax Shield	1190	.136	0.803	0	10.081
Firm Size	1190	10.626	1.428	6.571	16.09
Profitability	1190	.22	0.291	-0.204	4.104
Tangibility	1190	1.068	6.506	0	93.318
CGI	1190	0	1	-2.285	2.593

Source: Authors calculations

Table 3. Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)
(1) leverage	1.000												
(2) Board Size	-0.167	1.000											
(3) Board Independence	0.081	-0.226	1.000										
(4) Gender diversity	-0.033	0.101	-0.002	1.000									
(5) Audit quality	0.004	0.035	0.034	-0.091	1.000								
(6) CEO duality	0.019	0.152	0.001	0.064	-0.128	1.000							
(7) CEO pay	0.015	0.066	0.057	0.031	0.087	0.150	1.000						
(8) Ownership	0.043	-0.091	-0.216	-0.044	-0.021	-0.124	-0.072	1.000					
(9) Growth	0.082	-0.202	-0.062	-0.136	-0.033	-0.043	-0.266	0.068	1.000				
(10) Non debt tax Shield	0.304	-0.071	0.004	-0.036	-0.039	-0.090	-0.027	-0.019	0.169	1.000			
(11) Firm Size	-0.150	0.369	0.045	0.089	-0.029	0.118	0.279	-0.085	-0.596	-0.192	1.000		
(12) Profitability	0.046	-0.125	0.030	-0.062	-0.078	-0.052	-0.046	-0.031	0.135	0.119	-0.317	1.000	
(13) Tangibility	0.172	-0.046	-0.025	-0.026	-0.060	-0.070	-0.025	0.008	0.122	0.795	-0.170	0.080	1.000

companies are audited by the big four audit companies of the world. About 63% of board features the separation of CEO and Chairman on the board. CEO Pay which is a natural log of total remuneration paid to the CEO of a company shows a minimum value of -3.182 to the maximum of 7.179 . Promoters and institutional owners own 88% of the total outstanding shares. An average firm has assets with a log of 10.626 with its earnings before interest and tax (22%), tangible assets (6.5), depreciation (13%) and sales growth in the natural log terms shows a value of 0. The CGI index derived from the Principal component analysis has a mean of 0, and its 99th percentile is 2.15 (not shown).

4.2. Correlation analysis: The existence of multicollinearity problems among the variables often leads to flawed results and spurious conclusions. The correlation matrix presented in Table 3 shows that none of the variables has a correlation exceeding 0.8 or more. Further, the variables were cross-checked against VIF, which also showed a value of 1.64 which is below the threshold value of 10 (Hair et al., 2006). Hence, all the variables are free from the multicollinearity problem.

4.2. Main analysis and discussion

This study investigated the impact of corporate governance on leverage decisions using dynamic estimator based on a generalised method of moments (system GMM). The two diagnostic tests of the GMM model, which are 1st order and 2nd order autocorrelation tests, provide the absence of autocorrelation in the data. Similarly, the Hansen J statistic provides the validity of instruments. The lagged leverage appears to be positive and significant, which confirms that the leverage ratio converges towards optimal (target) capital structure over time, which is consistent with dynamic trade-off theory.

Table 5, presents the dynamic estimates of our hypotheses H_1, H_2, H_3, H_4, H_5 and H_6 . The coefficient of LEV_{it-1} is 0.770, signifies an average SOA of 0.23, i.e. (1–0.77). This SOA is considerably slower compared to the estimates indicated in the studies, which is around 0.25, as observed by (Lemmon, Roberts, and Zender 2008). Using the Huang and Ritter (2009) computation of the number of years of SOA, which is $\ln(0.5)/\ln(1-\alpha)$, we derive a value of

Table 4. Variance Inflation Factor

	VIF	1/VIF
Firm Size	3.810	0.262
Non Debt Tax Shield	2.800	0.357
Tangibility	2.760	0.362
Audit Fee	2.700	0.370
Sales Growth	1.740	0.575
Board Size	1.340	0.748
CEO pay	1.300	0.772
Profitability	1.210	0.826
Gender Diversity	1.040	0.959
Board Meetings	1.190	0.837
Board Independence	1.150	0.866
ROA	1.140	0.879
OWSC	1.130	0.886
Audit Quality	1.130	0.886
Firm Age	1.120	0.895
CEO duality	1.110	0.899
Mean VIF	1.640	

Source: Author's Calculations

Table 5. Static and dynamic estimates from the data

	(1)	(2)	(3)	(4)
VARIABLES	OLS	Fixed Effect	Sys. GMM	Sys. GMM
Lev_{t-1}	0.799***	0.552***	0.770***	0.177***
	(0.0187)	(0.0298)	(0.00992)	(0.00932)
Panel A: Firm Variables				
Sales growth	-137.6	-1,946*	-942.8*	-1,478***
	(599.9)	(1,168)	(495.1)	(300.6)
Non-debt-tax-shield	0.842***	0.938***	1.149***	1.374***
	(0.114)	(0.177)	(0.0234)	(0.0270)
Firm size	-0.0906*	-0.481***	-0.0672	-0.906***
	(0.0519)	(0.182)	(0.0993)	(0.223)
Profitability	0.0266	0.0601	0.00495	0.0221
	(0.207)	(0.266)	(0.0540)	(0.0686)
Tangibility	-0.0876***	-0.102***	-0.113***	-0.0899***
	(0.0139)	(0.0147)	(0.00329)	(0.00124)
Year			-0.0158	0.0611**
			(0.0234)	(0.0238)
Panel B: Governance Variables				
Board Size			0.0644***	
			(0.0212)	
Board Independence			1.982***	
			(0.310)	
Gender Diversity			-0.197	
			(0.305)	
Audit Quality			-0.00692	
			(0.522)	
CEO Duality			-0.341**	
			(0.144)	
CEO Pay			0.0599	
			(0.0684)	
Ownership Concentration			0.0414***	
			(0.0145)	
CGI				0.1777***
				(0.331)
Constant	1.130*	5.666***	28.87	-112.9**
	(0.598)	(1.995)	(46.64)	(45.73)
1 st order auto correlation			-2.23**	-2.23**
2 nd order auto correlation			1.00	0.83
Hansen J- Statistic			17.47	36.42
Observations	1,071	1,071	1,071	1,071
R-squared	0.680	0.312		
Number of firms		119	119	119

Note: Standard errors in parentheses

*** p < 0.01, ** p < 0.05, * p < 0.1

2.65, which indicates that it takes around 2.65 years to offset half of the target leverage from the current leverage. The economic vindication underlying the higher speed of adjustment in the Indian manufacturing firms establishes that these firms enjoy more benefits of achieving target capital structure than the recapitalisation costs (Sinha & Vodwal, 2022). The study argues that a larger board size and the presence of more independent directors on the board increases the confidence of debt providers, which results in more leverage for the firms. The regression coefficient of board size results shows a significant and positive relationship with SOA, which validates the fact that there is a specialised division of knowledge between large firms and capital market access. Board independence shows a positive and significant relationship with target leverage. These results confirm that independent directors and board size help speed up capital structure rebalancing. The larger boards with diverse knowledge and expertise improve the confidence of lenders and result in more debt creation Table 4.

Similarly, the presence of more non-executive directors is a sign of transparency and vigilant monitoring by outsiders. However, CEO duality reports a negative and significant relationship. The duality results indicate that the CEO prevents managers from attaining optimal target leverage. These results contradict the study of Liao et al. (2015), who observed an insignificant relationship between CEO duality and speed of adjustment in the U.S firms. Women directorship and CEO pay do not show a significant relationship. Ownership concentration holds a positive relationship with target leverage. The findings suggest that companies under concentrated ownership tend to pursue optimal debt ratio quickly. Overall, the results from the different variants of our PCA-based corporate governance index in specification (4) expose a significant coefficient of 0.18. The findings imply that a one unit increase in the CG index leads to a corresponding increase in the market debt-to-capital ratio of 18 percentage points, *ceteris paribus*. These results indicate that companies with strong governance do not stay closer to the target.

Firm characteristics such as sales growth attract a negative and significant coefficient. These results are consistent with trade-off theory, which states that growth firm tends to curtail financing through debt. Manufacturing firms with higher growth potential do not adjust faster towards their optimal capital structure. Firm size shows an insignificant relationship with leverage, which is consistent with Chen and Hsu (2009), who reported unclear evidence of a relationship between the two. Profitability does not establish a significant relationship with the speed of adjustment, which is in consonance with the study of Long and Maltiz (1985), who also observed a positive but insignificant relationship between the two. The dynamic trade-off theory states that leverage can negatively impact profitability in the data due to several frictions (Frank & Goyal 2009).

Tangibility variables show a negative relation with SOA, which signifies the effect of tangible as collateral to increase costs of distress and debt-related agency issues. These results are against the study of (Castro et al., 2016), who observed a positive relationship between the two and expressed that tangible assets lower expected distress costs. Non-debt tax shield affects the SOA significantly. These results again confirm the trade-off theory and validate that if depreciation is the principal component of a firm's non-debt tax shield, then the company holds higher tangible fixed assets that generate proportionally higher amounts of depreciation and, therefore, substantial tax shields (Buvanendra et al., 2017).

5. Conclusion

One of the important questions raised in the study has been whether strong corporate governance reduces firms financing risk. As the capital structure plays a different role in different industries, we argue that the target leverage is a relevant factor to explain the current debt and the adjustment behaviour of Indian manufacturing firms. Differently put, we suggest that firms with strong corporate governance system will exhibit a shorter deviation from the target capital structure and a higher adjustment level as compared to firms with weak governance system. However, the results provide mixed evidence, many regulators across the globe believe that

firms with vibrant governance mechanisms would decrease the probability of taking on excessive risk (e.g., over-leveraged) and improve firm performance. We find that for manufacturing firms, corporate governance (i.e., women directorship, audit quality and CEO pay) do not have a significant impact on the speed of adjustment. However, we find that board size, board independence, and ownership concentration positively affect the speed of adjustment. The study recommends that optimal leverage decisions must be made in conjunction with other firm-level features to provide a comprehensive corporate response to a firm's debt and financing sources that maximise shareholder wealth. The tangibility variables naturally and immediately follow the fundamental logic of the pecking order theory, which is attributed to the negative influence of asymmetric information on the value of a firm. Purchasing physical assets involves investing more money, which results in an increase in leverage.

Our findings are consistent with the view that good corporate governance reduces financial leverage and emphasises its significance for Indian manufacturing companies. This study has several limitations that render scope for future research. We highlighted internal governance factors rather than external ones. Second, the moderating relationship is not examined in the study. The current capital structure theories make a number of bold assumptions about how corporate governance, business characteristics, and leverage relate to one another. Our opinion is that corporate governance interpretation has to be further developed beyond what is written in the literature.

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Availability of data and material

It will be available on request.

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The authors declare that they have no competing interests.

Authors Individual Contribution

IG: Conceptualization, formal analysis, data curation, writing—original draft, reviewing and editing, software, methodology. SMH: Resources, data curation—reviewing and editing. All authors have read and approved the manuscript.

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Notes

1. A new growth formula for manufacturing in India | McKinsey
2. We stick to the convention of referring to the major audit firms as the Big 6. Due to various mergers and the dissolution of Arthur Andersen, the actual number of major firms has decreased over time from eight in the 1980s to four at present.

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