

# Impact of Transparency and Disclosure on the Valuation of Firms: Under the Influence of Inventory

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**Abstract-** Logistics play an important role for a firm's smooth performance with proper governance. They're for, the study's main aim is to explore the relationship between transparency and disclosure (TD) on the effect of the valuation of firms under the inventory, where inventory is a moderator. This study used panel data regression (PDR) methodology for the data analysis. Data has been taken from the CMIE Prowess database of the listed health firms listed in BSE100 for five fiscal years (2016-2020). The findings reveal that T&D has a negative impact on firms' value under the effect of inventory in Indian health firms. This implies that the higher level of T&D lowers firm's value when inventory is low in health firms in India. The findings of this study have essential implications for policymakers, managers, and other stakeholders concerned with the Indian health industry. This study significantly contributes to the existing body of knowledge in literature related to inventory and logistics, corporate governance, and firm's performance in health industry.

**Indexed Terms-** Transparency and disclosure, Firm, Inventory Management, Healthcare, E-Logistics.

## I. INTRODUCTION

The Healthcare sector in India is one of the largest contributors to the Indian economy in terms of employment and revenue. As per reports by the India Brand Equity Foundation (2022), the Indian healthcare sector is predicted to triple in size between 2016 and 2022, rising at a CAGR of 22% to reach US\$ 372 billion in 2022, up from US\$ 110 billion in 2016. Further, to improve the country's healthcare infrastructure, the Indian government plans to implement a credit incentive program of Rs. Five hundred billion (US\$ 6.8 billion). More than 181.52 crore COVID-19 vaccine doses had been

administered across the country as of March 21, 2022, adding to the accomplishments in the healthcare sector. While we highlight the growth in the industry, continuous increase in healthcare expenses, growing market demands, the appearance of new ailments and treatments, advancements in technology, and rising customer dissatisfaction are some of the emerging challenges faced by the industry [24], [37], [39]. Hence, it is essential to understand the different dimensions impacting the functioning of firms in the healthcare sector.

The authors argue that sound corporate governance (CG) practices can help the healthcare sector minimize its challenges and facilitate the smooth functioning of the industry. However, limited attention has been given to the association between CG and the healthcare sector in literature. Because India is now one of the world's largest growing economies, Indian companies' CG processes and procedures require special attention. This motivated the authors to get deeper insights into the association between CG and the valuation of a firm.

Therefore, the contribution of the study is threefold. First, the present examines the association between CG practices and their impact on a firm's valuation in the healthcare sector. Two primary aspects of CG selected for the study are transparency and disclosure (T&D) [36], [40], [45]. Firm valuation is defined as a market-to-book ratio (MTB). Second, the study introduces inventory as the interaction variable between the association of T&D and MTB. Unlike other industries that have successfully implemented supply chain management techniques, the healthcare industry is lagging due to various factors, including outdated technology, regulatory concerns, poor distribution, and inventory management processes [32], [47], [7], [9]. Hence, we examine the role of inventory in healthcare as a moderating variable to

assess the interaction between T&D and MTB. Third, we discuss and contribute to the limited body of knowledge in the healthcare sector and CG practices.

The present study and its findings are unique. There have been numerous studies on how TD affects valuation. No study, however, has attempted to correlate the relationship of TD with the valuation company under the inventory moderator. One of the study's notable accomplishments is that it contributes to the literature on the healthcare industry [3], [10], [15]. The findings of the study have several critical consequences for administrators. Administrators should avoid inflating disclosures since it may bring temporary benefits [17], [16], [4], [8]. In the long term, such conduct might backfire and be self-defeating. As a result, managers must show discretion and adhere to best CG practices regarding disclosures.

The first point of the paper discusses the Introduction of the problem and the second point on the review of related literature, conceptual framework, and hypothesis formulation; the third point is the data and methodology. The fourth point is the study's results, and the last point is the discussion and conclusion of the study.

## II. LITERATURE REVIEW, THEORETICAL FRAMEWORK, AND HYPOTHESIS DEVELOPMENT

### A. *Transparency and Disclosures (T&D)*

Financial reporting opacity has contributed to a firm's value in the capital market [11], [21]. Due to a lack of important information, market price dispersion may emerge from companies' insufficient financial disclosures. Information asymmetry and agency bottlenecks can be alleviated with more transparency and disclosure [13], [23]. Reduced asymmetry of the relationship between an organization and stakeholders would allow shareholders to make more informed investment decisions and enhance investor retention initiatives [41], [30], [57], [56]. T&D in financial and non-financial aspects, along with other good CG practices, can positively impact the firm's valuation [31], [37], [29]. One of the essential components in minimizing information asymmetry is good corporate disclosure, defined as "a formal communication from corporations combining economic, financial, and non-

financial information." As a result, financial statements have advanced to the point where companies willingly divulge information about many aspects of their operations in order to earn the trust of respective investors. The essential thing that a corporation reveals on its own initiative in addition to what is required by law [20], [26]. Trueman (1986) observed that in competitive markets, businesses seek to differentiate themselves from their competitors, and one method to do so is to provide more extensive disclosures than respective competitors. This strategy became known as the signaling theory. In Malaysia, Abdul Rahman et al (2011) identified a link between market value measures and voluntary disclosures, which led to increased openness.

### B. *Inventory Management*

Healthcare logistics includes handling physical products and associated information flows from the receipt of medical commodities such as medications and medical equipment within a hospital through their distribution at patient medical centers [24]. Further, supply chain management includes purchasing and procurement, inventory management, logistics management, and warehouse management. The study focuses on inventory management in the healthcare sector. Balancing expenses with the proper inventory quantity to provide quality and timely patient care is one of the most challenging tasks in healthcare supply chain management [2], [37]. Current operating room planning techniques rely on resource excess planning to cope with complicated and the last adjustments, resulting in inventory material wastage due to poor planning, a lack of awareness of appropriate inventory levels, and a failure to adhere to budgetary restrictions. [2], [44], [43], [50]. Due to hospitals' increasing number and variety of physical products, many capitals is locked up in inventory. Increasing the operational efficiency of hospital supply chain activities by focusing on inventory renewal depending on product consumption and irrespective of item variability. Financial performance measurements, such as inventory holding cost, stock value, and average response cost, were discovered by Jarrett (1998) to detect supply chain cost drivers and help in the transition to a more effectively managed supply chain. An efficient inventory management system, according to the authors, provides enhanced workflow for all

personnel, improved inventory and waste control, considerable cost savings, increased traceability, data collection, and individual case costing. As a result, the study investigates the function of inventory management in modulating the relationship among T&D and firm valuation. A high inventory will improve the link between T&D and business valuation, whereas a low inventory would reduce it.

*C. Firm Valuation*

Corporate governance and business value have recently received a lot of attention. Companies with stronger corporate governance, according to Gompers et al. (2003), have higher market values, increased earnings, larger increased sales, and fewer operating expenses. Nekhili et al. (2012) investigated many dimensions of corporate governance in French corporations, including board size, equity-based management remuneration, board independence, and audit committee independence. The link between ownership structure, R&D transparency, and company value was also investigated in a selection of French businesses. In India, particularly in healthcare, the link between T&D and corporate valuation is understudied. Hence the authors contribute to this niche area by examining how T&D as a corporate governance practice leads to a positive valuation of a firm. Further, the moderating role of inventory is a novel contribution to the study of voluntary disclosures and firm value.

*D. Theoretical Framework and Hypothesis Development*

Because transparency and disclosures are fundamental components of CG, it is difficult to ignore them while addressing transparency [42]. Unlike earlier studies, Bhimavarapu (2022) revealed that corporate transparency did not affect business value. Kumar and Kidwai (2018) demonstrated that CSR disclosures positively enhance company value. In contrast, Oino (2020) on South African listed businesses and Hassan (2012) on Indonesian listed enterprises find empirical evidence that, despite their numerous benefits, social disclosures do not necessarily boost firm value. The previous discussion attests to the perplexity of the link between disclosures and value, and it explores new data to determine the relationship among transparency disclosures and firm valuation. It is also clear from the

literature that research has either studied diverse sectors or a distinct sector such as manufacturing or information technology. Still, none of the studies have focused on the healthcare industry—in light of this gap, the following hypothesis is proposed.

H1: Transparency and disclosure significantly impact the valuation of firms under the moderation of inventory.

III. DATA AND METHODOLOGY

*A. Data*

The current paper uses the panel of data of the listed health firms in BSE100 India with a sample time of 5 years period (2016-2020). Only those firms are analyzed with valuable data to provide consistent results. The retrieval of data is done from the CMIE database. The variables incorporated in the study are explained in Table I.

TABLE I. LIST OF VARIABLES

Variable	Type	Code	Definition	Citation
Firm's Valuation (Market to book ratio)	DV	MTB	It is computed as the ratio of market to book price of an equity share of the firm. A higher value indicates a higher valuation.	Chen, L., & Zhao, X. (2006)
Transparency and Disclosure (T&D)	EV	tdi	It is used to quantify the level of T & D (See Appendix 1).	Kamal Hassan and Arsov and Bucevska (2012) (2017).
Inventory	MV	i_int	It is the total value of inventory	Saha and Ray (2019)

			preserved by the firm. The value is in terms of INR crore.	
Sales	CV	I_sales	It is also indicating the firm's value. The amount of sales is taken in INR. The natural log of sales is taken.	Jayadev (2013) and Dias (2013)
Note: DV, EV, MV, and CV represent the dependent variable, explanatory variable, moderating variable, and control variable, respectively.				

**B. Methodology**

The panel data models are deployed for the data analysis for the hypothesis testing because these models are more useful than applying only time-series or cross-sectional analysis [22], [6], [48], [49]. It delivers more information as it incorporates features of both time-series and cross-section. The model is developed using 2SLS regression due to the existence of endogeneity [51], [52], [53]. The following model is specified:

$$MTB_{it} = \alpha + \beta_1 tdi_{it} + \beta_2 i\_int_{it} + \beta_3 int\_td_{it} + \beta_4 l\_sales_{it} + u_{it}$$

Eq.1

$$\widehat{tdi}_{it} = \beta_0 + \beta_1 l\_sales_{it} \quad (1st\ stage)$$

Eq.2

$$MTB_{it} = \alpha + \beta_1 \widehat{tdi}_{it} + \beta_2 i\_int_{it} + \beta_3 int\_td_{it} + \beta_4 l\_sales_{it} + u_{it} \quad (2nd\ stage)$$

Eq.3

The MTB is the dependent variable representing the firm's value of firm 'i' at time 't'. tdi, i\_int, and int\_tdi are the independent variables representing the T&D index, amount of inventory, and interaction-term (including inventory and T&D). A control variable, l\_sales is also involved in the model to keep it a good fit.  $u_{it}$  and  $\alpha$  is the error-term and constant. The hats over the variable indicate estimated values. tdi is instrumented using l\_sales.

**IV. RESULTS**

**A. Descriptive statistics and correlation**

**TABLE II. DESCRIPTIVE STATISTICS**

Variables	Mean	SD	Min	Max
MTB	4.172	1.801	1.000	9.180
tdi	0.653	0.043	0.586	0.744
i_int	7.645	0.88	5.85	9.02
I_sales	8.700	0.79	5.30	9.49

Note: \* indicates significance at 0.05.

Sources: Authors' own analysis.

**TABLE III. CORRELATION MATRIX**

VAR	tdi	i_int	I_sales
MTB			
tdi	1		
i_int	0.315*	1	
I_sales	0.008	0.620*	1

Note: \* indicates significance at 0.05.

Sources: Authors' own analysis.

Tables II and III consist of descriptive statistics and the correlation coefficients of variables. tdi has an average of 0.643, inclining to Max. It indicates the sample firm's, on average, has a fair level of T&D. On average, the firm's value in terms of MTB is relatively low as its mean value is 4.172 (down to Min). i\_int has the mean value of 7.646 (slightly nearer to Max), indicating a fair inventory in sample firms. I\_sales with a mean value 8.707, which is relatively high as it is inclined to Max.

**B. The outcome of regression analysis**

**TABLE IV. STATIC PANEL DATA REGRESSION ANALYSIS (2SLS MODEL)**

Part A (Coefficient Analysis) Dependent Variable: MTB			
	Estimates		
Variable Name	Coefficient	SE	p-value
Const	33.33*	3.538	0.006
tdi	-9.299*	1.822	0.009
i_int	-3.584*	4.281	0.049
int_tdi	-8.874*	0.193	0.038
I_sales	0.518*	12.162	0.007

Part B (Model Estimates)			
F-test (Model)	91.57*(.000)		
R-Square	0.7152		
est (Fixed Effect)	8.03*(.000)		
Breush-Pagan Test (Random Effect)	28.29*(.000)		
Hausman Test	3.60*(.000)		
ogeneity tests:			
pin-Ch2 test	4.690**(0.030)		
hausman test	4.298**(0.050)		
Note: * shows that the coefficient has p-value<0.01(5% significance level), ** for p-value <0.05, and *** for p-value <0.01.			

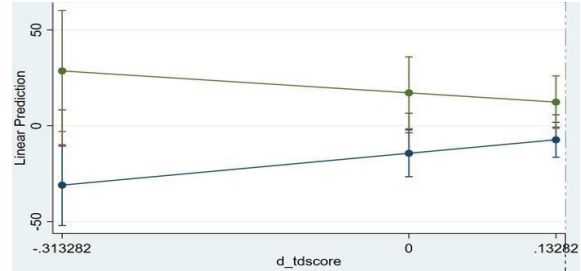
Table IV consists of the results of the regression analysis. The model is tested for the fixed effect (FE) and the random effect (RE) by the F-test (for FE) and the Bruesch-Pagan test (for RE). Both tests exhibit significant p-values at 5% significance. However, the endogeneity problem also exists in the model, as confirmed by the significant p-values of the Durbin-Chi2 test and the Wu-Hausman test. Therefore, the 2SLS model is applied for the regression analysis [6], [22], [54], [55].

In Table IV the coefficients of tdi, i\_int, and int\_tdi (interaction-term) are both negative (-9.299 for tdi, -3.584 for i\_int, and -7.157 for int\_tdi) and significant at 5%. Therefore, it indicates that tdi and i\_int are negatively associated with MTB. It means a higher amount of disclosure and inventory brings down the firm's value. The negative coefficient of int\_tdi implies that the firm's inventory adversely affects the firm's value (MTB) under the influence of higher T&D.

It is also apparent from the figure below (Figure I) that when the level of T&D decreases (green line) with the increment of inventory (blue line), the firm's value increases. It is also observed that when the level of T&D is high and the inventory is low, then the changes in the firm's value are more incredible.

However, the low T&D and high inventory levels show lower firm value differences.

FIGURE I. INTERACTION GRAPH



V. DISCUSSION AND CONCLUSION

The main hypothesis of this study assumes that the firm's transparency and disclosure significantly affect the firm's value under the moderation of inventory. The outcome of the analysis reveals enough evidence that this hypothesis cannot be rejected. However, the association between T&D and firm's value is negative. This implies that the higher level of T&D lowers firm's value when inventory is low in health firms in India.

From the theoretical viewpoint, the findings of the study deliver noticeable contributions both to T&D literature and literature on firms' value in the health industry in India. From a practical standpoint, this study provides important implications for government, policymakers, and managers regarding trending T&D issues to lower agency problems. The findings also reveal the moderating role of inventory in the connection between T&D and firm's value. Hence, this segment of inventory in firms should not be avoided. Therefore, all the stakeholders in the Indian health industry should consider these elements critically to achieve sound policy, management, and investment decisions in the health industry.

The study's limitations include the coverage of sample size and its geographical scope. Future researches in this direction can be extended to other industries and other economies. There might be other moderators who can impact the association of T&D and the firm's value. Thus, such moderators should also be explored in future studies.

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