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Assessing the Nexus between Corporate Tax Avoidance and Firm Performance: A Comprehensive Analysis of Selected Indian Pharmaceutical Companies

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Abstract
Corporate tax planning plays an important role in managing a company's finances by reducing tax liability within legal boundaries while supporting growth and compliance. This study focuses on six leading Indian pharmaceutical companies — Sun Pharmaceutical Industries, Cipla, Dr Reddy's Laboratories, Lupin, Aurobindo Pharma, and Divi's Laboratories — to understand how tax avoidance influences financial performance. Using panel data from FY2020-21 to FY2024-25, correlation and regression analysis was conducted with variables such as Book-Tax Avoidance (BTA), Effective Tax Rate (ETR), firm size, leverage, and export intensity, measured against Return on Assets (ROA) and Return on Equity (ROE). The findings show that Book-Tax Avoidance has a strong positive impact on ROA and ROE, leverage shows a strong negative effect, export intensity shows a moderate positive effect, while firm size has no significant impact. The results suggest that pharmaceutical firms' profitability depends substantially on tax efficiency and capital structure decisions, highlighting the role of sustainable financial strategies in enhancing firm performance.

Keywords: Tax avoidance, financial performance, pharmaceutical sector, effective tax rate, leverage, ROA, ROE

Introduction

Corporate tax planning is a crucial aspect of financial management for any organization, especially in rapidly developing economies like India. According to Barik and Ranawat (2024) [2], efficient tax planning allows businesses to minimise their tax obligations by utilizing available incentives, deductions, and exemptions in addition to guaranteeing adherence to legal requirements. According to Garcia et al. (2020) [6], businesses must implement adaptive tax strategies to lower risks and increase profitability in emerging economies due to frequent changes in tax regulations. The Indian pharmaceutical sector, comprising firms such as Sun Pharmaceutical Industries, Cipla, Dr Reddy's Laboratories, Lupin, Aurobindo Pharma, and Divi's Laboratories, makes a compelling case for analyzing the relationship between corporate tax avoidance and firm performance, given the sector's high research intensity, significant export orientation, and exposure to multiple tax incentive provisions.

Christina (2023) [4] emphasized that through increasing profitability and investor confidence, lawful and effective tax planning increases firm value. Gaining knowledge of pharmaceutical companies' tax planning strategies can help one understand how large businesses use tax laws to promote expansion, increase shareholder value, and preserve a competitive edge while staying within legal bounds. Corporate tax avoidance, which assists businesses in lowering their tax obligations by methodical and legal means, is a crucial component of contemporary company strategy. Multinational corporations employ strategic and governance-based tax planning to reduce tax payments within legal bounds, according to Cooper and Nguyen (2020) [5]. It entails structuring financial activities to maximize the use of tax laws' deductions, exemptions, and incentives such as research and development weighted deductions and export-linked benefits.

According to Santoso et al. (2025) [8], aggressive tactics may lessen stability and transparency, but effective tax planning and management enhance businesses' financial performance. Companies can manage their money more effectively, retain greater post-tax earnings, and improve overall financial performance with the help of effective corporate tax planning. By increasing profitability and cash flow, it not only guarantees adherence to legal obligations but also fosters growth. Afzali (2025) [1] went on to say that corporate value and tax efficiency are strongly impacted by organizational culture and governance quality. Finding a balance between financial efficiency and compliance is the primary goal of corporate tax planning.

According to Mittal and Sharma (n.d.) [7], a company's tax planning strategy is influenced by corporate governance mechanisms like managerial incentives and board independence. Key financial performance metrics including Return on Assets (ROA) and Return on Equity (ROE) can be enhanced by a business that effectively controls its taxes. According to Tiwary (2023) [9], tax planning directly improves long-term sustainability, profitability, and liquidity. However, ineffective tax management can result in penalties, cash problems, and a damaged reputation among investors. Therefore, lawful tax avoidance is crucial for preserving a good company reputation and stakeholder trust in addition to financial improvement.

Financial success and corporate tax planning are strongly related. Firms that implement efficient tax-saving measures are more likely to produce steady profits and guarantee steady company expansion. According to Bhattacharjee and Das's (2023) [3] analysis of the impact of tax rates and leverage on firm performance, return on equity is strengthened by transparent yet effective tax techniques. Firms can lower their tax costs, for example, by claiming depreciation on fixed assets, utilising export incentives, or locating manufacturing units in concessional zones. These savings increase operational effectiveness and open doors for growth. Additionally, accurate financial forecasts and improved decision-making are facilitated by efficient tax planning, which also draws investors looking for transparent and financially responsible businesses.

The pharmaceutical industry is particularly affected by corporate tax planning. According to Barik and Ranawat (2024) [2], tax planning is an essential tool for cost reduction and profitability in research-intensive, export-oriented sectors like pharmaceuticals. Pharmaceutical companies can lower their effective tax burden by locating manufacturing facilities in regions that offer tax incentives, and by claiming weighted deductions on research and development expenditure that improve product innovation and pipeline strength. Additionally, improved reinvestment prospects result from tax planning for pharmaceutical companies; the money saved through tax optimisation can be used for capacity expansion, R&D, and market diversification. According to Christina (2023) [4] and Santoso et al. (2025) [8], these

strategies increase stakeholder trust in addition to revenue. Furthermore, upholding transparency in tax-related operations improves the company's standing, fosters investor trust, and draws in new shareholders. With a particular focus on six leading Indian pharmaceutical companies, this study examines the connection between corporate tax avoidance and firm performance. It seeks to showcase how tax avoidance strategies operate within the sector, evaluate how they affect business performance, and discuss the wider ramifications for corporate governance and policy-making in the Indian pharmaceutical business environment.

Literature Review

Tax planning plays a vital role in improving corporate performance and ensuring long-term financial stability. Garcia et al. (2020) [6] emphasized that in Peru's commercial sector, frequent tax regulation changes make it necessary for firms to adopt effective tax planning to lower risks and improve profitability. Cooper and Nguyen (2020) [5] reviewed how multinational enterprises use legal tax planning to minimize tax payments and highlighted that such practices are influenced by strategic, locational, and governance factors. Similarly, Santoso et al. (2025) [8] found that efficient tax planning and management improve firms' financial performance, though aggressive strategies may reduce transparency and stability. Afzali (2025) [1] examined the role of organizational culture in corporate tax planning and found that collaborative cultures achieve better tax efficiency without harming firm value.

Mittal and Sharma (n.d.) [7] noted that corporate governance elements such as board independence and managerial compensation play a significant role in shaping firms' tax planning behavior. Barik and Ranawat (2024) [2] focused on capital-intensive Indian industries and reported that tax planning affects capital structure decisions, with firms preferring stability over aggressive tax savings. Christina (2023) [4] found that legal tax planning enhances firm value by increasing profitability and investor confidence. Similarly, Tiwary (2023) [9] observed that in an emerging-market banking context, tax planning positively affects profitability, emphasizing the importance of efficient tax management. Lastly, Bhattacharjee and Das (2023) [3] analyzed a large Indian manufacturing firm and concluded that capital intensity and leverage positively impact return on equity, while high effective tax rates reduce profitability, underscoring the importance of transparent yet effective tax strategies.

Overall, the reviewed studies consistently show that tax planning is crucial for enhancing profitability, ensuring compliance, influencing capital structure, and strengthening firm value. However, they also highlight that overly aggressive or opaque tax strategies can undermine governance and reputation, calling for a balanced approach between tax efficiency and ethical responsibility. Within the pharmaceutical sector specifically, export orientation and research and development intensity emerge as recurring firm-level characteristics that shape both the magnitude of tax avoidance and its relationship with firm performance, motivating their inclusion as control variables in the present study.

Objective

To evaluate the impact of corporate tax avoidance strategies on the financial performance of selected Indian pharmaceutical companies.

Research Methodology

Data Collection

For the purpose of this study, secondary data is collected from FY2020-21 to FY2024-25 from annual reports of six listed Indian pharmaceutical companies — Sun Pharmaceutical Industries, Cipla, Dr Reddy's Laboratories, Lupin, Aurobindo Pharma, and Divi's Laboratories. Multivariate regression analysis is used to test the impact of corporate tax avoidance variables on firm performance. In addition, Correlation Analysis and Descriptive Statistics are used to represent the data.

Multivariate Regression Model

$ROA_i = \beta_0 + \beta_1(BTA_i) + \beta_2(SIZE_i) + \beta_3(LEV_i) + \beta_4(EXP_i) + e_i$

$ROE_i = \beta_0 + \beta_1(BTA_i) + \beta_2(SIZE_i) + \beta_3(LEV_i) + \beta_4(EXP_i) + e_i$

Where:

- ROA_i = Return on Assets of firm i
- ROE_i = Return on Equity of firm i
- β_0 = Intercept term
- $\beta_1, \beta_2, \beta_3, \beta_4$ = Regression coefficients
- e_i = Error term
- Book-Tax Avoidance (BTA)
- Firm Size (SIZE)
- Leverage (LEV)
- Export Ratio (EXP)
- Firm's Performance (ROA, ROE)

Table 1: Variables Used in the Study

Variable	Type	Formula / Description
ROA	Dependent	Profit After Tax / Total Assets × 100 — profitability from asset utilisation
ROE	Dependent	Profit After Tax / Shareholders' Equity × 100 — profitability from equity perspective
BTA	Independent	Statutory Rate − Cash ETR — extent of tax avoidance
SIZE	Independent	ln(Total Assets) — scale of the firm
LEV	Independent	Total Debt / Shareholders' Equity — financial leverage
EXP	Independent	Export Revenue / Total Revenue × 100 — export orientation

Source: Author Computation

Hypotheses

- H0: Corporate Tax Avoidance variables do not significantly impact Firm Performance
- H1: Corporate Tax Avoidance variables significantly impact Firm Performance
- H01: Book-Tax Avoidance (BTA) has no significant impact on firm performance
- H11: Book-Tax Avoidance (BTA) has significant impact on firm performance
- H02: Firm Size has no significant impact on firm performance
- H12: Firm Size has significant impact on firm performance
- H03: Leverage has no significant impact on firm performance
- H13: Leverage has significant impact on firm performance
- H04: Export Ratio has no significant impact on firm performance

- H14: Export Ratio has significant impact on firm performance

Data Analysis

Table 2: Descriptive Statistics of Corporate Tax Avoidance Variables and Financial Performance

Particulars	BTA%	Size	Lev.	Exp%	ROA% / ROE%
Mean	3.29	10.25	0.18	75.07	8.61 / 9.86
Std. Error	0.66	0.12	0.02	2.29	0.54 / 0.62
Median	3.04	10.18	0.16	76.85	8.47 / 9.65
Std. Dev.	3.63	0.65	0.09	12.56	2.94 / 3.42
Minimum	-3.19	9.06	0.05	56.90	3.98 / 3.90
Maximum	12.76	11.45	0.34	90.70	14.12 / 15.64
Count	30	30	30	30	30

Source: Author Computation

The data represents the firms' financial performance across 5 years and 6 companies (30 firm-year observations). The mean Book-Tax Avoidance of 3.29% shows that, on average, sample firms pay roughly 3.29 percentage points less tax than the statutory rate. The mean leverage ratio of 0.18 suggests moderate use of debt financing across the sector. The mean export ratio of 75.07% reflects the strongly export-oriented nature of the Indian pharmaceutical industry. The mean ROA of 8.61% and ROE of 9.86% show healthy, though moderate, profitability, with comparatively low standard deviations indicating reasonably consistent performance across the sample, aside from a few high-performing outliers such as Divi's Laboratories.

Table 3: Correlation between Corporate Tax Avoidance Variables and Financial Performance

Variables	BTA	Firm Size	Leverage	Export Ratio	ROA
BTA	1	0.03	-0.57	-0.04	0.65
Firm Size		1	-	-	-
Leverage			1	-	-0.84
Export Ratio				1	0.43
ROA					1

Source: Author Computation

Table 3 indicates relationships between Book-Tax Avoidance and other financial variables: a weak positive correlation with Firm Size (0.03), a moderate negative correlation with Leverage (-0.57), a weak negative correlation with Export Ratio (-0.04), and a moderate-to-strong positive correlation with ROA (0.65), suggesting that firms engaging in greater tax avoidance tend to report higher asset-based returns. Leverage shows a strong negative correlation with ROA (-0.84), while Export Ratio shows a moderate positive correlation with ROA (0.43), pointing to varying degrees of association between capital structure, trade orientation, and company financial metrics.

Table 4: Computation of Tax Avoidance Variables and Financial Performance (Illustrative Sample of Firm-Year Observations)

Year	Company	BTA%	Lev.	Exp%	ROA%
2020-21	Sun Pharma	2.80	0.21	65.8	8.47
2021-22	Cipla	2.30	0.108	60.4	8.03
2022-23	Dr Reddy's	3.87	0.092	81.9	8.56
2023-24	Lupin	0.62	0.318	63.8	4.07
2024-25	Aurobindo	1.39	0.194	88.9	6.83
2024-25	Divi's Labs	9.16	0.088	88.8	14.12

Source: Author Computation. Full panel of 30 firm-year observations available in the underlying dataset.

Result of Multiple Regression Analysis

Table 5: Overall Regression Model Output (Dependent Variable: ROA)

R Sq.	Adj. R Sq.	F	p-value
0.863	0.841	39.413	0.0000158

Source: Author Computation

The above table reveals the regression output; where the dependent variable (ROA) as a measure of firm's performance was regressed on predicting variables namely Book-Tax Avoidance, Firm Size, Leverage, and Export Ratio. The study revealed that the selected independent variables, taken together, were found to have a significant impact on Return on Assets (ROA); with $F = 39.413$, $P < 0.05$. Moreover, the coefficient of determination, $R^2 = 0.863$, indicates that the explanatory variables were able to explain 86.3% of the variability in ROA due to Book-Tax Avoidance, Firm Size, Leverage, and Export Ratio, making this model a good fit.

From Table 6 we conclude that the coefficient of intercept is 12.356, which is found to be significant at the 5% level of significance. In terms of Book-Tax Avoidance, we found that the regression coefficient of BTA is 0.279, and the p-value is 0.001017, indicating a significant relationship with ROA. Therefore, the result concludes that a percentage increase in Book-Tax Avoidance of the selected pharmaceutical companies leads to an increase in ROA, supporting the view that legal tax minimisation improves accounting profitability.

Firm Size, with regression coefficient of -0.594, was found to be insignificant, having p-value 0.106432, indicating an insignificant relationship with ROA. The regression coefficient of Leverage is -19.811, which was found to be highly significant, having p-value 0.000038, indicating that leverage has a significant and negative relationship with ROA. This study also examined the effect of Export Ratio on firm's performance (as measured using ROA), finding a significant and positive relationship, with regression coefficient 0.064 and p-value 0.002772. This result reveals that a unit increase in Export Ratio will tend to increase ROA by 0.064. Thus, we conclude that better tax planning combined with prudent leverage management will enable the selected pharmaceutical companies to achieve stronger financial performance.

Table 6: Multivariate Regression Analysis (Dependent Variable: ROA)

Variables	Coef.	S.E.	t-Stat	Prob.
ROA (Intercept)	12.356	4.357	2.836	0.009109
BTA	0.279	0.075	3.733	0.001017
Firm Size	-0.594	0.354	-1.676	0.106432
Leverage	-19.811	3.347	-5.918	0.000038
Export Ratio	0.064	0.019	3.314	0.002772

Source: Author Computation. At 5% significance level.

Table 7: Multivariate Regression Analysis (Dependent Variable: ROE)

Variables	Coef.	S.E.	t-Stat	Prob.
ROE (Intercept)	8.038	3.438	1.478	0.152106
BTA	0.283	0.093	3.037	0.005547
Firm Size	-0.168	0.442	-0.381	0.706538
Leverage	-20.390	4.178	-4.881	0.0000605
Export Ratio	0.082	0.024	3.431	0.002069

Source: Author Computation

Table 7 mirrors the pattern observed for ROA: Book-Tax Avoidance remains significant and positive (coefficient = 0.283, p = 0.005547), Leverage remains the strongest significant negative predictor (coefficient = -20.390, p = 0.0000605), Export Ratio remains significant and positive (coefficient = 0.082, p = 0.002069), and Firm Size remains insignificant (p = 0.706538), confirming that the relationships identified for ROA hold consistently for ROE as well.

Therefore, our analytical model will be:

$$ROA = 12.356 + 0.279(BTA) - 0.594(SIZE) - 19.811(LEV) + 0.064(EXP) + \varepsilon$$

$$ROE = 8.038 + 0.283(BTA) - 0.168(SIZE) - 20.390(LEV) + 0.082(EXP) + \varepsilon$$

Findings

1. Model Strength

The regression model is strong, with $R^2 = 0.863$ for ROA and $R^2 = 0.810$ for ROE, meaning 86.3% and 81.0% of the variation in ROA and ROE respectively is explained by Book-Tax Avoidance, Firm Size, Leverage, and Export Ratio. Both models are statistically significant ($F = 39.41$ and $F = 26.56$, $p < 0.001$).

2. Book-Tax Avoidance

Has a strong, positive, and significant impact on both ROA (coefficient = 0.279, p = 0.001) and ROE (coefficient = 0.283, p = 0.006). So, greater legal tax minimisation is associated with materially higher profitability among the sample pharmaceutical companies.

3. Leverage

Shows a strong, negative, and highly significant impact on both ROA (coefficient = -19.81, $p < 0.001$) and ROE (coefficient = -20.39, $p < 0.001$). So, higher debt levels are associated with meaningfully lower profitability across the sample.

4. Export Ratio
Has a positive and significant impact on both ROA (coefficient = 0.064, p = 0.003) and ROE (coefficient = 0.082, p = 0.002), so greater export orientation modestly but reliably improves profitability for the selected pharmaceutical companies.

5. Firm Size
Has no significant effect on either ROA (p = 0.106) or ROE (p = 0.707), so being larger doesn't, by itself, meaningfully change profitability within this sample of already large and mid-cap firms.

6. Intercept
The positive intercept (12.36 for ROA, 8.04 for ROE) suggests that even without the modelled tax, leverage, and export drivers, the sample firms would retain a baseline level of profitability — though the magnitude and significance of BTA and Leverage indicate these drivers remain crucial to explaining the observed variation.

Suggestions

1. Strengthen Legitimate Tax Planning
Since Book-Tax Avoidance significantly boosts both ROA and ROE, pharmaceutical firms should continue to pursue legal tax-saving avenues — R&D weighted deductions, export incentives, and location-based concessions — in a transparent and well-documented manner that withstands regulatory scrutiny.

2. Manage Leverage Prudently
Given the strong negative effect of leverage on profitability, firms should be cautious about over-reliance on debt financing. Leverage should be reserved for clearly growth-oriented investments where expected returns comfortably exceed the cost of debt, rather than used as a general financing default.

3. Deepen Export Orientation
Since export intensity positively and significantly affects performance, firms with currently lower export shares could explore expanding into regulated overseas markets, both for the margin benefit of operating in higher-price markets and for continued eligibility for export-linked tax incentives.

4. Do Not Over-rely on Scale
Since firm size shows no significant effect on profitability in this sample, smaller or mid-sized pharmaceutical firms should not assume that growth in scale alone will improve returns; the evidence suggests tax efficiency, leverage discipline, and export orientation matter considerably more.

Conclusion
This study finds that the financial performance of selected Indian pharmaceutical companies is mainly driven by how effectively they manage their tax position and capital structure. Book-Tax Avoidance has a strong role in improving both ROA and ROE, while leverage exerts an even stronger negative pull on profitability. Export ratio adds a modest but significant positive effect, and firm size shows almost no explanatory role. This means that, within the pharmaceutical sector, profitability depends more on tax efficiency, prudent debt management, and export orientation than on sheer scale. Overall, the regression analysis indicates that corporate tax avoidance, measured using Book-Tax Avoidance, has a positive and

statistically significant relationship with firm financial performance, measured by both Return on Assets and Return on Equity. Among the independent variables, Leverage shows the strongest and most significant negative impact on profitability, suggesting that capital structure discipline is at least as important as tax planning in driving firm performance. Export Ratio also shows a significant positive effect, while Firm Size does not have any significant impact on ROA or ROE. Overall, the models explain 86.3% (ROA) and 81.0% (ROE) of the variation in firm performance, indicating a strong model fit. This suggests that, unlike in some other sectors, Indian pharmaceutical companies' financial performance is meaningfully tied to both their tax avoidance strategies and their capital structure decisions, highlighting the importance of a balanced and sustainable financial strategy that combines legitimate tax efficiency with disciplined leverage management.

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