CORPORATE TAXATION AND VALUATION OF FIRMS UNDER MANUFACTURING AND SERVICE SECTOR

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Abstract

The present paper attempts to analyze whether firm value of pharmaceutical companies under manufacturing sector and hotel companies under service sector is affected by corporate taxation or not. The study is based on secondary information such as financial statements of the selected companies. The study period is from 2001-02 to 2016-17. Tobin Q is used as proxy for measuring firm value. The tax variables are statutory tax, effective tax and tax savings. Pearson product moment correlation is used to measure relationship between firm value and tax variables. The status of firm value is explored by descriptive analysis. The effect of tax on firm value after partial out the effect of firm characteristics is ascertained by multiple regression analysis. The firm characteristics used here are financial risk, growth, size, tangibility, liquidity, non-debt tax shield. It is found that firm value (Tobin Q) is moderately related to statutory tax in pharmaceutical manufacturing companies and such relationship is identified when companies in both sectors are pooled together but same is not true in the case of hotel service companies. However, firm value of hotel service companies is negatively correlated with deferred tax at moderate level. At the same time, there is no unique impact of statutory tax on firm value of companies in both sectors. On the other hand, effective tax has positive effect and tax saving has negative effect on firm value of hotel service companies.

Keywords -   Tobin Q, Statutory tax, Effective tax, Tax savings and Firm characteristics

Introduction

In the area of public finance, taxation of corporate income is widely discussed issue as not only the income are taxed at corporate level but also the taxation of capital gains, i.e., taxation of income generated from trading shares of the corporate companies. So, the corporate taxation is likely to affect the valuation of firm in the stock market. Moreover, corporate companies do not have physical reality rather they are entirely composed of accounting and legal rules. Also, corporate activities are given more importance so much so that the researchers in economies and finance tend to analyze the effect of corporate taxation on corporate performance, corporate valuation in the market and corporate growth. In this scenario, this paper attempts to ascertain whether corporate taxation really affect the valuation of corporate companies in the market or not.

Review of Literature

Desai and Hines (2002)[1] analyzed the firm performance and tax planning behaviour of firms. They investigated the relationship between tightening of tax systems and market value of firms based on 850 listed firms in US and it was cross sectional study. Simple regression and t-tests were used to establish the relationships. The authors established that intensive tax planning was associated with higher firm performance. On the other hand, they reported that tightening of the tax system was positively associated with higher market performance of firms.

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Gompers, Ishii and Metrick (2003)[2], in their study employed Tobin q as the primary dependent variable while evaluating the relationship between firm value and tax avoidance. They excluded using deferred tax expense as tax variable as current tax avoidance activity may result in changes to future tax liabilities and thus create a mechanical correlation between the dependent variable and the measure of tax avoidance.

Desai and Dharmapala (2009)[3] found a positive association between book-tax differences and Tobin's Q only for firms classified as strong-governance. Their evidence suggested that investors value tax avoidance depending on firms' corporate governance strength. Thus, prior research indicated that investors value firms' tax avoidance activities depending on their belief of who between shareholders and managers captured the benefits of such activities.

Wang (2010)[4] examined the relationship among tax avoidance, corporate transparency and firm value. The authors used cash effective rates and permanent book-tax difference to measured tax avoidance, which firm value as proxy by Tobin's Q using sample S and P 1500 firms in the period 1994-2001. They found positive significant relationship between tax avoidance and firm value.

Carlos (2014)[5] examined how the market rewarded firms' tax avoidance after the tax environment changes of the early 2000s and whether firms' governance strength influenced those rewards. A panel of U.S. firms for the period 1997–2005 was used to implement a differences-in-differences analysis. Results from association tests on the effect of tax avoidance and regulatory changes on stock returns indicated that, on average, tax avoidance received a lower valuation in the high-regulation period (years 2003–2005) relative to the low-regulation period (years 1997–2000).

Lestari and Wardhani (2014)[6] analyzed the effect of tax planning on firm value with board diversity as moderating variable. The research was conducted for non-banking and financial firms in Indonesia Stock Exchange for 2010 to 2011. His study found positive relationship between tax planning and firm value. The study also found that board diversity could increase the positive influence of tax planning into firm value.

Rotimi and Henry (2017)[7] examined corporate taxes and performance of manufacturing firms in Nigeria using correlation and regression analysis. The findings of the study confirmed that there was significant relationship between corporate tax and performance of manufacturing companies in Nigeria. The study further showed that high corporate tax rate could impair profits leading to distorting investment decision.

Ayuba and Tanko (2018)[8] studied the impact of corporate tax and firm characteristics on the performance of manufacturing firms in Nigeria for a period of 10 years. Regression analysis was used to analyze the secondary data extracted from the financial reports of the selected manufacturing firms. Corporate tax, firm age and firm size were used as independent variables while ROA (Return on Assets) was used as proxy for performance. The findings revealed that corporate tax and firm age positively and significantly influence the profitability while firm Size had a significant but negative effect on the profitability.

Objectives of the Study

The following are the objectives for the present research paper:

1. To evaluate the degree of relationship between corporate tax and Tobin Q, a proxy for firm value.
2. To ascertain the effect of corporate taxation on Tobin Q after controlling the effect of firm characteristics.

Methodology

The present work is mainly based on secondary data, which are financial statements of the pharma manufacturing hotel service companies. The study period is 16 years from 2001-02 to 2016-17. Tobin Q is used as proxy for firm value. Statutory tax, effective tax and tax savings are the tax variables in the study. Tax saving is the difference between statutory tax and effective tax. Financial risk, growth, size, tangibility, liquidity and non-debt tax shield are firm characteristics included in the regression analysis. The following formula is adopted for calculating Tobin Q.

$$Tobin\ Q = \frac{(Equity\ Market\ Value + Liabilities\ Book\ Value)}{(Equity\ Book\ Value + Liabilities\ Book\ Value)}$$

The statistical techniques used in the present paper ranges from descriptive, Pearson product moment correlation to multiple regression analysis. The status of firm value in terms of Tobin Q is ascertained by descriptive statistics such as mean, standard deviation, minimum and maximum. The relationship between tax and firm value is evaluated by correlation analysis. The regression is run for each tax variable, i.e., separately for statutory tax, effective tax and tax savings on Tobin Q. The regression is run separately for manufacturing and service sector. The statistical significance of the difference in tax effect between two

sectors is evaluated by Z statistics for difference in the estimated beta coefficients of tax variable in two models as proposed by Clogg et al (1995). The model equation and Z statistics formula are given hereunder.

$$Y_{it} = \alpha + \beta_1 X_{it} + \beta_2 FR + \beta_3 Growth + \beta_4 Size + \beta_5 Tang +$$
$$\beta_6 Liq + \beta_7 NDTS + \varepsilon$$

Where

Y_{it}	=	Tobin Q (Firm Value) for firm 'i' at time 't'
X_{it}	=	Tax variable (Statutory Tax, Effective tax and Tax Savings)
FR	=	Financial risk (Earnings before interest tax divided by Earnings after interest and tax)
Growth=		Growth in sales (($Sales_{it}$ – $Sales_{it-1}$)/ $Sales_{it-1}$)
Size	=	Business size (Natural log of Total Assets)
Tang	=	Tangibility (Fixed assets / Total assets)
Liq	=	Liquidity (Current assets / Current liabilities)
NDTS	=	Non-debt tax shield (Earnings before interest and tax plus depreciation divided by Total assets)

The formula for Z-statistic is:

$$Z = \frac{\beta_1 - \beta_2}{\sqrt{SE\beta_1{}^2 - SE\beta_2{}^2}}$$

Where

Z	=	Test statistics
β_1	=	Coefficient of tax in model for Sector 1
β_2	=	Coefficient of tax in model for Sector 2
$SE\beta_1$	=	Standard error of β_1
$SE\beta_2$	=	Standard error of β_2

Results and Discussion

Table 1 shows the mean, standard deviation, minimum and maximum of Tobin Q for pharma manufacturing and hotel service companies. As shown in the table, the Tobin Q, on the average, is 3.47 for manufacturing sector and 2.29 for service sector, which are much higher than one (Tobin Q equals to 1 mean the market value of the firm fully based on its assets, less than 1 means the market value is less than the total value of assets and Tobin Q greater than 1 indicates that the market value is higher than the value of total assets), in turn indicating that pharma and hotel companies are highly valued in the market. The minimum value of 0.91 for manufacturing and 0.44 for service sector shows that some companies in the respective sector have underperformed the market in some year. The mean Tobin Q of 2.98 for pooled companies also envisages that the pharma manufacturing and hotel service companies are highly valued in the market.

From the observation of the correlation results reported in Table 2, it is understood that the statutory tax is correlated negatively at 10 per cent significant level with Tobin Q of pharma manufacturing companies but there is no significant correlation of effective tax and tax savings with firm value (Tobin Q). For selected hotel companies under service sector, effective tax is correlated positively with firm value (Tobin Q).

The regression results for firm value (Tobin Q) with tax and financial control variables reported in Table 3 reveal significant model fit for manufacturing and service with R^2 value of 0.1560 and 0.2802 and Adjusted R^2 value of 0.0992 and 0.2102 respectively. But, the estimated coefficient for statutory tax, is not significant in both models, in turn indicating the fact valuation of pharma manufacturing and hotel service companies is unaffected by the statutory tax.

As shown in Table 4, the models for manufacturing and service sectors are fitted significantly with degrees of freedom adjusted explained variance (Adjusted R^2) of 9.97 per cent and 27.93 per cent respectively. The effective tax is significant only in the model for service sector (hotel service companies). That is, effective tax has significant unique influence on firm value of hotel service companies whereas it has no influence on firm value of pharma manufacturing companies. However, the

difference in unique effect of effective tax on firm value between two sectors is not statistically significant .

It can be observed from Table 5 that the fitted regression model is significant for manufacturing (R^2 = 0.1564, Adjusted R^2 = 0.0996, F value = 2.76, $p < 0.05$), and service (R^2 = 0.3463, Adjusted R^2 = 0.2828, F value = 5.45, $p < 0.01$). The estimated coefficient tax savings is negative and significant in the model for hotel service companies and insignificant in the model for pharma manufacturing companies. This picture envisages that the unique influence of tax savings is insignificant on firm value of pharma manufacturing companies and significant on firm value of hotel service companies but the observed difference in the unique influence of tax savings on firm value does not statistically significant between two sectors.

Conclusion

This study attempted to empirically evaluate the effect of corporate taxation on valuation of the pharma manufacturing and hotel service companies in Indian context using Tobin Q as proxy for firm value and statutory tax, effective tax and tax savings as corporate tax variables. The effect of corporate tax on firm value was ascertained after controlling the effect of firm characteristics. The results of the analysis clearly indicated that the pharma manufacturing and hotel service companies were highly valued in the market. An inverse relationship between statutory tax and firm value was found in pharma manufacturing companies whereas a direct relationship between effective tax and firm value was found in hotel service companies from simple correlation analysis.

On the other hand, the results of the regression revealed that valuation of pharma manufacturing and hotel service companies was unaffected by the statutory tax At the same time, effective tax was found to be unique tax variable significantly influencing firm value of hotel service companies but it had no influence on firm value of pharma manufacturing companies. However, the difference in unique effect of effective tax on firm value between two sectors was found to be statistically insignificant. Tax savings had unique significant negative effect on firm value of hotel service companies whereas it had no such effect on firm value of pharma manufacturing companies. However, unique impact of tax savings did not differ between two sectors. On the whole, it was concluded that there was unique effect of corporate tax on hotel service companies but it was not true in the case of pharma manufacturing companies. It was however concluded that corporate tax effect on firm value did not differ between two sectors.

References

[1] Desai, M. A., and Hines, J. R. Jr. (2002). Expectations and expatriations: Tracing the causes and consequences of corporate inversions. *National Tax Journal,* Vol.55, pp.409–441

[2] Gompers, P. A., J. Ishii and A. Metrick (2003) "Corporate Governance and Equity Prices" Quarterly Journal of Economics, 118, 107-155

[3] Desai, Mihir A. and Dharmapala, Dhammika, Corporate Tax Avoidance and Firm Value, *Review of Economics and Statistics*. Available at SSRN: https: // ssrn.com /abstract = 689562 or http: // dx.doi.org / 10.2139 / ssrn.689562

[4] Wang, T.X. (2010), Tax Avoidance, Corporate Transparency, and Firms Value. Available from: http://www.ssrn.com.

[5] Carlos E. Jimenez-Angueira (2014). "The Effect of Tax Regime Changes on the Market Valuation of Tax Avoidance?", *Journal of Finance and Accountancy*, Vol.15, April, pp.1-20.

[6] Lestari, Nanik and Wardhani, Ratna. (2015). "The Effect of Tax Planning to Firm Value with Moderating Board Diversity", *International Journal of Economics and Financial Issues*, Vol.5, Special Issue, pp.315-323.

[7] Rotimi, O., and Henry, A. W. (2017). Manufacturing firms in Nigeria; Corporate taxes and performance, *EPRA International Journal of Economic and Business Review*, Vol.5, Issue 4, pp.14–24.

[8] Ayuba, Augustine and Tanko, Muhammed (2018). "Corporate Tax, Firm Characteristics and Profitability of Manufacturing Firms in Nigeria", *African Journal of Management*, Vol.3, No.1, pp.144-161

Table 1: Firm Value (Tobin Q) of Selected Companies under Manufacturing and Service Sector

Sector	Mean	SD	Min	Max
Manufacturing	3.47	1.64	0.91	9.95
Service	2.29	1.75	0.44	10.33
Combined	2.98	1.78	0.44	10.33

Source: Financial Statements of selected years; N = 112.

Table 2: Correlation between Corporate Tax and Tobin Q

Tax Variable	Manufacturing Sector	Service Sector	Combined
Statutory Tax	-0.1676#	-0.1139	0.0266#
Effective Tax	0.0730	0.1924#	0.2868
Tax Savings	0.0475	-0.0224	0.0158

Source: Financial Statements of selected years; **Significant at 1% level

Table 3: Effect of Statutory Tax on Tobin Q (Firm Value) between Manufacturing and Service Sector

Variables	Regression Equation	
	Manufacturing Sector	Service Sector
Intercept	-0.248 -(0.04)	11.950# (1.85)
Statutory Tax	0.024 (0.17)	-0.162 -(0.99)
Financial Risk	-0.113 -(0.36)	-0.138* -(2.10)
Growth	1.367# (1.87)	1.385* (2.41)
Size	0.470* (2.49)	-0.201 -(0.87)
Tangibility	-2.545 -(1.03)	-1.761* -(2.16)
Liquidity	-0.229 -(1.46)	-0.557# -(1.79)
Non-Debt Tax Shield	9.908 (0.36)	-32.652* -(2.29)
R Square	0.1560	0.2802
Adjusted R Square	0.0992	0.2102
F Value	2.75*	4.00**
Degrees of Freedom	7,104	7,72
Z normal test comparing beta coefficient of statutory tax between two sectors		
Difference in betas	**SE of Beta difference**	**Z normal test value**
0.1862[NS]	0.2191	0.85 (p value = 0.3954)

Source: Annual Reports of Selected Pharmaceutical and Hotel Companies; NS – Not significant
*Significant at 5% level; **Significant at 1% level

Table 4: Effect of Effective Tax on Tobin Q (Firm Value) between Manufacturing and Service Sector

Variables	Regression Equation	
	Manufacturing Sector	**Service Sector**
Intercept	0.737 (0.38)	5.079* (2.54)
Effective Tax	0.005 (0.29)	0.036** (2.82)
Financial Risk	-0.147 -(0.42)	-0.183** -(2.81)
Growth	1.359# (1.89)	1.490** (2.71)
Size	0.446* (2.43)	-0.092 -(0.44)
Tangibility	-2.459 -(0.99)	-1.329# -(1.71)
Liquidity	-0.228 -(1.46)	-0.706* -(2.37)
Non-Debt Tax Shield	9.206 (0.33)	-36.409** -(2.73)
R Square	0.1565	0.3432
Adjusted R Square	0.0997	0.2793
F Value	2.76*	5.38**
Degrees of Freedom	7,104	7,72
Z normal test comparing beta coefficient of statutory tax between two sectors		
Difference in betas	**SE of Beta difference**	**Z normal test value**
-0.0305[NS]	0.0223	-1.36 (p value = 0.1725)

Source: Annual Reports of Selected Pharmaceutical and Hotel Companies; NS – Not significant
*Significant at 5% level; **Significant at 1% level

Table 5: Effect of Tax Savings on Tobin Q (Firm Value) between Manufacturing and Service Sector

Variables	Regression Equation	
	Manufacturing Sector	Service Sector
Intercept	0.917 (0.42)	6.421** (3.24)
Tax Savings	-0.005 -(0.27)	-0.036** -(2.89)
Financial Risk	-0.142 -(0.41)	-0.186** -(2.85)
Growth	1.354# (1.88)	1.501** (2.73)
Size	0.444* (2.39)	-0.107 -(0.51)
Tangibility	-2.462 -(0.99)	-1.263 -(1.62)
Liquidity	-0.227 -(1.45)	-0.699* -(2.35)
Non-Debt Tax Shield	9.379 (0.34)	-37.418** -(2.80)
R Square	0.1564	0.3463
Adjusted R Square	0.0996	0.2828
F Value	2.76*	5.45**
Degrees of Freedom	7,104	7,72
Z normal test comparing beta coefficient of statutory tax between two sectors		
Difference in betas	**SE of Beta difference**	**Z normal test value**
0.0312^{NS}	0.0224	0.0224 (p value = 0.1628)

Source: Annual Reports of Selected Pharmaceutical and Hotel Companies; NS – Not significant
*Significant at 5% level; **Significant at 1% level