# IMPACT OF CORPORATE TAX RATE ON CAPITAL STRUCTURE OF LISTED COMPANIES IN SRI LANKA

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## ABSTRACT

As debt capital becomes a significant factor regarding company financing, the decision regarding the capital structure also becomes crucial because the capital structure is a combination of both debt and equity capital. Practically, it is challenging to determine the optimal capital structure due to a clash of different factors influencing the capital structure. According to contemporary literature, these factors, directly and indirectly, affect the capital structure exemplifying various conclusions. Corporate tax rate could be identified as one of the determinants of capital structure which is still has a dearth of studies conducted in Sri Lanka, and further limited studies conducted also have contradictory findings. Therefore, there is a necessity to conduct research on the impact of corporate tax rate on the capital structure in the Sri Lankan context. The population of this study was companies listed in the Colombo Stock Exchange (CSE) in Sri Lanka. Out of the population, 88 companies were selected as the sample representing 18 sectors in CSE excluding only banking, software and service sectors. Data were gathered from 2018 to 2022 from published annual reports of selected companies. Regression was used as the analysis technique to identify the critical statistical points, which guided the test of the hypothesis of this research. Debt-equity ratio was employed as the dependent variable while effective tax rate was employed as the independent variable of this study. Firm age and firm size were used as the control variables of this research. The regression analysis found that the company's debt capital will increase in Sri Lanka when reducing the corporate tax rate. Moreover, the P value of this research findings is greater than the acceptable level under the 95% significant level. According to the findings, there is no significant impact of the corporate tax rate on the capital structure of listed companies in Sri Lanka.

***Keywords: Capital Structure, Corporate Tax Rate, Effective Tax Rate, Debt to Equity Ratio***

# 1. INTRODUCTION

## 1.1 Research background

Regardless of the business size, environment, and context, every business struggles to select the best financing method (Barbuta-Misu & Bodea, 2014). Internal sources of retained earnings and external sources of borrowing or equity are taken as the primary sources of financing in the company (Mostafa & Boregowda, 2014). Gatchev et al. (2009) found, short and long-term debt or equity are the most significant sources of financing.

Though capital structure plays an important role, it cannot function independently. Non-financial companies in the UK have a positive impact on the capital structure with asset structure, size and profitability of the company (Bennett & Donnelly, 1993). Profitability, taxes, tangibility and growth positively impact the capital structure decision in listed companies in Thailand (Wiwattanakantang, 1999). Profitability, growth, size, tangible assets, cost of debt and tax effect have a significant impact on the capital structure in Indian companies (Anshu & Kapil, 2014). Mostafa and Boregowda (2014) state that when making corporate financial decisions, corporate tax plays a significant role. Moreover, if a country has a high tax rate, the debt ratio also becomes higher due to tax advantages.

## 1.2 Research problem

According to past studies conducted in several countries and industries, they identified numerous factors that could be affected the capital structure either directly or indirectly. Some researchers studied government and private company capital structure determinants in India (Anshu & Kapil, 2014). Wiwattanakantang (1999) found growth, profitability, tangibility and taxes as the Thailand non-financial firms' capital structure determinants. Based on Turkish lodging companies' evidence, found effective tax rate, tangibility of assets and return on assets as the capital structure determinants (Karadeniz et al., 2009). Therefore, we can identify corporate tax rates as one of the determinants of capital structure. However, there is still a dearth of studies conducted in the Sri Lankan context about the capital structure determinants, especially the corporate tax rate with capital structure (Pratheepan & Banda, 2016; Vijayakumaran & Vijayakumaran, 2011).

## 1.3 Research question

Concerning the research gap, formulate the research question which expected to address through this research, which is;

Does the corporate tax rate affect the capital structure?

To address the research question, defined the research objectives to support fulfilling the research gap. The objectives that are going to attain in this research are,

1. To identify whether the corporate tax rate impacts the capital structure.
2. To identify the recent corporate tax rate impact on the capital structure of companies listed in CSE in Sri Lanka.

### 1.4 Significance

As per the problem statement, this research can contribute to the existing literature under the Sri Lankan context to fulfill the research gap. Bringing almost all the sectors of CSE as the sample, which fills in 30% of companies with the very recent five years of data, puts additional significance to this research. There are two practical significance of this research findings. They assist companies in deciding their debt and equity capital structure and to decide whether corporate tax rates should be considered or not regarding capital structure decisions.

## 2. LITERATURE REVIEW

### 2.1 Capital structure

According to Du et al. (2019), capital structure is the combination of equity and debt structure which not only safeguards the operation life cycle but strengthens the operation by giving economic, social and environmental privileges.

The survey of capital structure has evolved into a notable factor because decisions regarding capital structure have become one of the critical financial judgments that management must formulate (Karadeniz et al., 2009). Moreover, modifications in the company's capital structure guide alterations in the firm value, profitability, cost of capital and return on equity (Barbuta-Misu & Bodea, 2014).

### 2.2 Corporate tax

Tax is “a compulsory contribution imposed by a public authority, irrespective of the exact amount of service rendered to the taxpayer in return, and not imposed as a penalty for any legal offense” (Dalton, 1922, p. 50). Though companies use numerous strategies in their tax planning to diminish tax liability using the loopholes in taxation (Perera, 2021), every business should implement their corporate taxation as it is a crucial factor (Bizna et al., 2018).

Usually, businesses try to resist corporate tax to retain their profit within the company. Nonetheless, the firm assigns its compassion to the corporate tax,

significantly when amending the corporate tax policies will influence the change of capital structure and sustainability of the company (Bizna et al., 2018). Researchers have demonstrated that as one of the capital structure determinants, corporate tax fluctuations significantly affect the company's capital structure and other factors (Anshu & Kapil, 2014; Wiwattanakantang, 1999). Therefore, corporate tax is a crucial concern regarding the capital structure opinions in every company.

### 2.3 Capital structure theories

With the dynamic change of the economy and market, the justification of the capital structure also shifts gradually with numerous viewpoints on the research findings. According to the literature, some theories profoundly illustrate capital structure from various perspectives using Modigliani and Miller (MM) theory and Trade-off theory.

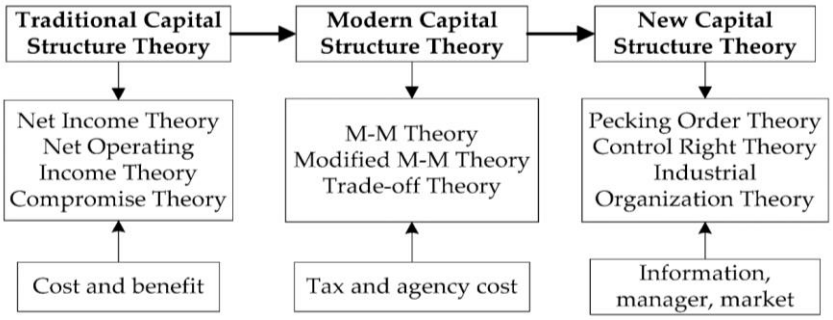


**Figure 1: Development of capital structure theory**
*Source: Constructed based on literature*

Early the MM theory in 1958, there was no generally accepted theory for capital structure, which evolved the first theory explaining capital structure (Luigi & Sorin, 2009). This theory also named as the irrelevance theory, which illustrates the value of a firm that does not influence the capital structure (Pratheepan & Banda, 2016). Modigliani and Miller furthermore executed research in 1963, encompassing tax with the capital structure, finalizing the importance of tax in a capital structure (Modigliani & Miller, 1963).

The trade-off theory was initially operated by Myers in 1984 to rectify the MM theory further while illustrating the usefulness of tax (Mostafa & Boregowda, 2014). This theory forces companies to utilize additional debt than agency cost theory and bankruptcy theory interpreting optimal capital structure with a mix of equity and debt while offsetting the cost and benefit of debt (Lemmon & Zender, 2008). According to this theory, with the tax windfall, the company can utilize its entire financing using debt finance (Luigi & Sorin, 2009). However, organizations have to discover the optimal capital structure that stabilizes the advantages and disadvantages of the debt to attain the benefit of this theory

because the growth in debt level automatically increases the agency cost and bankruptcy cost while diminishing the value of the firm (Karadeniz et al., 2009).

### 2.4 Empirical review

Corporate tax impact on the capital structure not have been opposed in the Sri Lankan context even though there is other country research which already found their corporate tax impact on the capital structure. In United Kingdom, firms found a positive long-term effect of corporate tax rates on the capital structure (Devereux et al., 2017). Meanwhile, Gulf Cooperation Council region found that there is both direct and indirect influence on the capital structure from taxes (Temini et al., 2016). In German multinational companies', researchers have found that though the tax is a burden to the company, it will affect the leverage not only increasing external debts but also pushing to increase internal debts within the organization (Buettner et al., 2009). Even though there are many literature reviews executed to investigate the corporate tax impact on capital structure, there are numerous conclusions and findings as the above justifications. These various conclusions and the absence of the Sri Lankan context dominated to implementation of this research.

## 3. METHODOLOGY

### 3. 1 Research design

This research analysis comprises statistical content; therefore, this is quantitative and the philosophy can be specified as the positivist philosophy. Under the deductive approach, this research exercises the actuality of existing theories. Research methodology selection can be the mono-method quantitative analysis technique restricted to one methodology technique having archival research strategy which will be a time-consuming data-gathering strategy. Even though this is a sophisticated strategy, this can obtain extra reliable data if it is a sensible source such, as original or authorized documents. This research time horizon can be identified as a longitudinal study because this assesses the same sample at several time points and these are the primary characteristics intended for the research design to execute this research methodology.

### 3.2 Operationalization of Variables

To verify the tax impact on the capital structure, recognized vital variables to bring out the hypothesis to convey the quantitative methodology which is illustrated in table 1.

**Table 1: Operationalization of variables**

| Variable | Description | Measurement |
|---|---|---|
| **Corporate Tax rate (Independent)** | Effective tax rate | Tax expense / EBT* |
| **Capital structure (Dependent)** | Debt to equity ratio | Total debt / Total equity |
| **Firm Size (Control)** | Total assets of the company | Greater than one million |
| **Firm Age (Control)** | Registered years in CSE | More than five years |

Source: Janssen & Buijink, (2000).

Below conceptual framework illustrates how methods and variables correlate with others graphically.

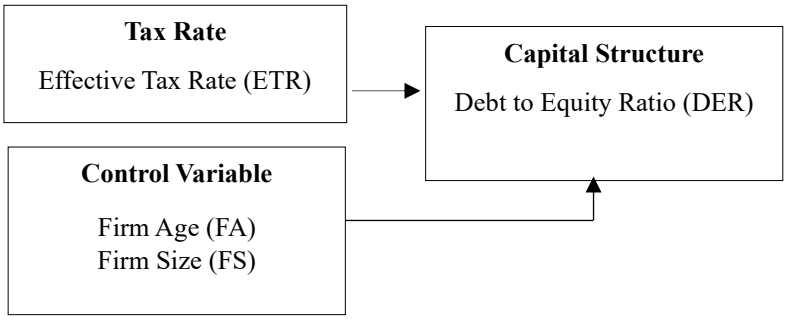


**Figure 2: conceptual framework**

*Source: Constructed by Authors*

### 3.3 Population

To investigate the impact of corporate tax on capital structure, the most desirable companies are those listed under CSE. Obtaining listed companies can validate companies belonging to twenty sectors in Sri Lanka. Another significance is that when investigating the tax rate impact, it will be advantageous to use listed companies because it can be noticed how a slight change in tax rate affects a large company shortly. Also, only listed companies can publicly boost their equity capital by issuing shares.

### 3.4 Sample selection

The primary sample selection technique was the proportionate sample selection method used to symbolize fifty percent of each sector. Therefore, this sample represents each sector equally, covering all the sectors in CSE within a hundred

and fifty companies. By having a proportionate sample technique along with the stratified sampling method in this research, able to give equal representation for the twenty sectors in CSE.

### 3.5 Data collection

This research gathers data by using secondary data. Using yearly reports can effortlessly collect details of capital structure with the authorization of directors and auditors. Though the annual report provides authorized information when collecting tax data, using the company's tax return is more reliable, but these are highly confidential details. Therefore, this research can only use an annual report to obtain data on both capital structure and tax details.

### 3.6 Method of analysis

This research investigates the corporate tax rate modifications and how it affects the capital structure explaining how one variable changes with another variable, illustrated by the statistical regression technique. Additionally, regression analysis is an acceptable method to investigate the impact or association of variables.

Model 1 (DER) = $\beta_0 + \beta_1 ETR + \beta_2 FA + \beta_3 FS + \varepsilon$…….(1)

Where, $\beta_0, \beta_1, \beta_2, \beta 3$ are the regression coefficient and $\varepsilon$ is the random error of the mode.

DER = Debt to Equity Ratio

ETR = Effective Tax Rate

FA = Firm Age

FS = Firm Size

### 3.7 Hypothesis

To complete the conclusion in this deductive approach research, researchers must first identify the hypothesis. According to this research, the following will show the hypothesis which is going to test.

$H_{0:}$ There is no impact between corporate tax rate and capital structure

$H_{1:}$ There is an impact between corporate tax rate and capital structure

# 4. FINDINGS AND DISCUSSION

## 4.1 Overview of analysis

According to table 2: descriptive statistics table, the eighty-eight companies, symbolizing thirty percent (30%) of the population, did not contain interest-bearing debt in some years from 2018 to 2022. Due to that, the DER shows zero as the minimum value in the sample. Exhibiting less than one as the maximum on DER specifies that selected companies in this sample do not lean on interest-bearing borrowings to finance. Therefore, the company has less risk in financing as everyone has equity and there is less than one debt to settle. Moreover, for one equity, there is 0.29 interest-bearing debt according to this sample ($M$ = 0.29) and a standard deviation of 0.16 ($SD$ = 0.16) in DER as the dependent value.

ETR has eleven percent ($M$ = 11%) as the average value in the sample, while the standard deviation indicates forty percent ($SD$ = 15%). The negative ETR implies the company's tax return, and in this sample, there is a negative ETR (-30%) which shows the minimum tax return that a company can have. Having more than fifty percent as the maximum ETR (57%) reveals how the company should pay as tax expenses from their taxable income.

Contradicted to other variables, firm size has vast amounts; therefore, these large amounts are transformed to log quantities for analysis purposes. The Log Firm Size (FS) value comprised a minimum of 8.04 and a maximum of 11.49. When enlarging this log value approximately, it reflects one hundred and nine million as the minimum value and three hundred and eleven billion as the maximum total asset value of this sample. As the companies, Mercantile Shipping Company PLC has the minimum asset value, and LOLC Finance PLC has the maximum asset value in this sample. The average total asset value of this sample is approximately six billion, and as the log value, it is ten (M = 9.87).

The minimum firm age of this sample is eight years from the incorporation date of the company, and Company A has this minimum age. In comparison, Company B has the maximum FA of hundred and forty-three years. The average FA indicates thirty-three years (M = 33.34), while the standard deviation of this FA indicates fourteen years (SD = 14).

**Table 2: Descriptive statistics**

| Variables | Minimum | Maximum | Mean (M) | Std. Deviation (SD) |
|---|---|---|---|---|
| **DER** | 0 | 0.81 | 0.29 | 0.16 |
| **ETR** | -30 | 57 | 10.51 | 14.58 |
| **Log FS** | 8.04 | 11.49 | 9.877 | 0.55 |
| **FA** | 8 | 143 | 33.02 | 14 |

Source: SPSS result based on annual reports from 2018 to 2022

## 4.2 Effective tax rate

As the independent variable measurement, the effective tax rate reflects the percentage that the company actually paid as the tax expense from their taxable income under the composed tax rate by law. Below graphical chart shows the average value of the ETR of the sample from 2018 to 2022.

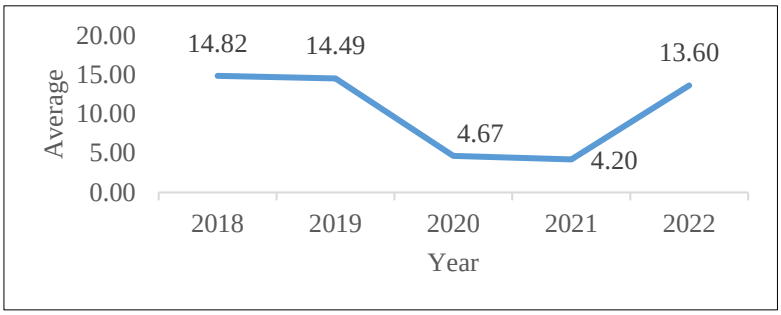


**Figure 3: Average of effective tax rate**

*Source: Collected data based on annual reports from 2018 to 2022*

According to figure 3, there was a 14.82% average ETR in 2018, and this diminished to 14.49% in the year 2019. In 2020, the average ETR decreased from 14.49% to 4.67%. One of the possible justifications for this transition is the tax rate. Based on Sri Lankan Inland Revenue Department data, the standard corporate tax rate was 28% for both 2018 and 2019, but with effect from the first of January 2020, the standard corporate tax rate was deducted to 24% from 28%. Therefore, for the year 2019/20, most of the companies used 28% only until the third quarter, and for the last quarter, they used 24% to calculate their tax expenses. These tax removals dominate to lower tax expenses and lower ETR. From 2020 to 2021, the average ETR will decrease to 4.20% because this 2020/21 year only influences the 24% tax rate. However, under the 24% standard corporate tax rate in the 2022 average, ETR boosted to 13.60% from 4.20%. One of the apparent justifications for this increment was that 2022 had the highest earnings before tax amount between 2018 and 2022. The below table 3 simply demonstrates the average EBT amount for each year, and having a vast EBT led

to having a high ETR compared to previous years, which operated under lower corporate tax rates.

**Table 3: Average Earing Before Tax**

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **EBT** | 1.1 billion | 0.8 billion | 0.5 billion | 1.0 billion | 2.5 billion |

Source: Collected data based on annual reports from 2018 to 2022

### 4.3 Debt to equity ratio

This DER is the critical measurement used to assess the dependent variable of the company's capital structure because the mix of debt and equity primarily encompasses the capital structure. To instantly identify the data, the below figure will be illustrated using the graphical method.

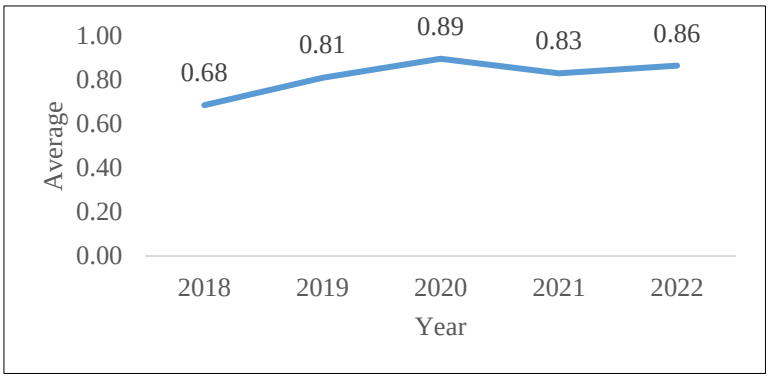


**Figure 4: Average of DER**

*Source: Collected data based on annual reports from 2018 to 2022*

According to this 4th graphical illustration, the average DER deliberately increased from 2018 to 2020 because, from 2018 to 2020, debt and equity moderate amounts enhanced each year, contradicting the previous year. Moreover, these years' average debt amounts define more than half the amount of equity amount, according to the sample data. These data will simply show up in table 4. However, in the year 2021, the average DER diminished to 0.83 with the change of one equity. The possible justification for this decline would be to have less debt amount compared to the previous year, and also, the debt amount exemplifies less than half of (48%) equity amount. In the year 2022, DER again heightened because this year has the highest debt and equity between 2018 and 2022 year.

**Table 4: Debt and equity in each year**

| Year | 2018 | 2019 | 2020 | 2021 | 2022 |
|---|---|---|---|---|---|
| **Debt** | 4.4 billion | 5.1 billion | 5.4 billion | 5.3 billion | 7.6 billion |
| **Equity** | 8.3 billion | 8.6 billion | 9.6 billion | 11 billion | 14 billion |

Source: Collected data based on annual reports from 2018 to 2022

According to the result in table 5, in our sample, there is a moderately positive impact between the DER and ETR. Yet, this positive impact becomes insignificant because of the higher significance level (P=0.343). However, the DER and FA were statistically significant (0.020 < 0.05) and had a weekly positive relationship. Moreover, the relationship between DER and FS, ETR, and FA, and ETR and FS showed a weekly positive relationship, as well as statistically insignificant results, as these three relationships went beyond the 0.05 significant level. Among these four significant relationships, only DER with ETR and DER with FS have become insignificant. By identifying as statistically significant describe that under the 95% confidence level, the data obtained from the population are true and not biased.

**Table 5: Pearson's Correlation Coefficient**

| Variable | DER | ETR | FS | FA |
|---|---|---|---|---|
| **DER** | 1 | | | |
| **ETR** | 0.36 | 1 | | |
| **FS** | 0.129 | .150** | 1 | |
| **FA** | .181** | .171** | -.240** | 1 |

Source: SPSS result based on annual reports from 2018 to 2022

*Note***:* Correlation is significant at a 0.05 level

According to table 6, R Square denotes the coefficient of determination. It will describe how the dependent variable responds to the independent variable. According to the below model summary statistic, a 6.5% impact arises from ETR, FS and FA on the DER

**Table 6: Model Summary**

| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate |
|---|---|---|---|---|
| **1** | 0.256 | 0.065 | 0.043 | 0.153 |

Source: SPSS result based on annual reports from 2018 to 2022

According to this 7 ANOVA data table, the P value is less than 0.05 (P=0.037<0.05). Therefore, the F value is statistically significant and significantly impacts the DER on ETR.

**Table 7: Result of ANOVA**

| Model | | df | F | Sig. |
|---|---|---|---|---|
| **1** | Regression | 3 | 2.912 | 0.037 |
| | Residual | 125 | | |
| | Total | 128 | | |

Source: SPSS result based on annual reports from 2018 to 2022

### 4.4 Regression analysis

According to table 8, it shows the constant factor, which demonstrates how the dependent variable behaves when independent variables such as the effective tax rate and the control variables of firm age and firm size remain constant.

**Table 08: Regression Coefficient**

| | Unstandardized Coefficients | | Standardized Coefficients | |
|---|---|---|---|---|
| **Model** | B | Std. Error | Beta | Sig. |
| **(Constant)** | -0.321 | 0.265 | | 0.229 |
| **ETR** | 0.000 | 0.001 | -0.032 | 0.720 |
| **Size** | 0.054 | 0.026 | 0.189 | 0.039 |
| **Firm Age** | 0.003 | 0.001 | 0.232 | 0.012 |

Source: SPSS result based on annual reports from 2018 to 2022

$$\text{Model 1 } (DER) = -0.321 + -0.032\,ETR + 0.189\,FA + 0.232\,FS \text{ .....(2)}$$

As an independent variable measurement, the effective tax rate shows a higher P value of 0.05 (P=0.720). This reflects that, under the 95% confidential level, the effective tax rate is insignificant. Further, the effective tax rate negatively impacts the debt-equity ratio as it has a negative beta value under the regression coefficient analysis.

However, the control variables of firm size and firm age can generate a positive impact on the debt-equity ratio. When firm size changes in one unit, the debt-equity ratio changes to 0.189 ($\beta$=0.189) positively. Not only firm size but also firm age also changes positively in 0.232 ($\beta$=0.232). Moreover, with this positive impact on the dependent variable, both firm age and firm size are statistically significant, as they have less than 0.05 as the P value.

Based on Table 8 regression coefficient analysis, able to observe that the independent variable does not have a statistically significant impact on the debt-equity ratio. In contrast, both control variables are statistically significant. On the other hand, only the independent variable has a negative impact, while control variables have a positive impact on the dependent variable.

### 4.5 Hypothesis testing

According to the above test of regression, the P value of the independent variable is greater than the 95% confidence level (P=0.720). Therefore, the independent variable is statistically insignificant, and it declares that it cannot reject the null hypothesis. Further, it describes no statistical impact on the debt-equity ratio with the effective tax rate.

## 5. CONCLUSION

### 5.1 Key findings

When a company has debt capital, it only reflects a maximum of 80% of total equity because the full value of the DER is 0.81 (Maximum = 0.81). Moreover, the average value of total debt is equal to less than half of the total equity (M = 0.29). When looking at the independent variable, companies have to pay nearly 11% (M=10.51) of their profit before tax. Regarding firm age, most companies have almost 30 years of experience in their industry.

When studying the effective tax rate, further identified that the drop in effective tax is mainly affected by the recent changes in tax reduction in the 2020 year because the tax expense amount reduces when the standard corporate tax rate decreases. Though the effective tax rate reflects massive changes from 2018 to 2022, the debt-to-equity ratio mostly stays the same as like's effective tax rate. However, the effective tax rate debt to equity ratio dropped and gradually increased.

According to the correlation analysis, only firm age and firm size have a negative impact on each factor, and other factors have a positive effect. However, this positive impact on the DER with ETR rate and the DER with FS is insignificant. Other than these variables, the rest can significantly impact their dependent variables.

This negative relationship between capital structure and the tax rate was explained by some research (Jin, 2021). This broad sample only uses one variable measurement, and the limitations of the analysis can be a reason for this insignificant result in this research study. Temimi et al., (2016) also found that the effect of tax rates changes from one company sector to another. Further, there might be hidden factors that cause a wrong abnormal result. According to Tandon et al., (2020), this COVID 19 affects the global economy, financing, debt level,

tax revenue, and fiscal and monetary policy worldwide. The COVID impact during the research study period in Sri Lanka also discusses some Sri Lankan articles (Deyshappriya, 2021; Gnanachandran & Chellakumar 2020).

Finally, according to our study, changes in the corporate tax rate will not significantly affect the capital structure in the Sri Lankan context, but when the tax rate reduce, the debt capital will increase; hence, it has a negative relationship. However, according to the literature, this can happen as Macnamara (2019) stated that this tax advantage on debt is also meager, and the impact is minimal, which causes the DER to fall.

### 5.2 Implications

Practically, this research is going to be vital for the students for their academic motives, for the investors who seek information about Sri Lankan capital structure, and for researchers for their future research. Theoretically, this research will be considered to study MM theory and tradeoff theory as the major theories about capital structure. Further, this research is going to be substantial in identifying how the Sri Lankan tax rate impacts the capital structure of listed companies.

Future research can also reference those studying the capital structure and tax rates. When analyzing the capital structure and tax rate, it is recommended to use different variable measurements for the analysis; hence, this study only uses one measurement to analyze both independent and dependent variables. Having both insignificant and significant outcomes under this research, future researchers can study further to fill the research gap based on this research outcome.

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