

## South Asian Firms Pre and Post Covid-19 Capital Structure Behavior

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### Abstract

This study aims to identify the capital structure speed adjustment of South Asian firms, post Covid 19 crisis period. Using a total sample firm of 685 observations, the study found that the speed adjustments of Indian and Pakistani firms are 11.88% and 17.25 %, respectively. On average, Indian firms take 4.21 years to adjust partially whereas it is 2.9 years for firms in Pakistan. Secondly, this paper examines the regional variation among South Asian countries' adjustment speed and the determinants that affect this speed. To examine the post-global Covid 19 crisis behavior (economic recovery period) of firms' capital structure in the South Asian market, the current research first attempted to understand the regional macroeconomic variation in the capital structure. The Two-stage linear regression estimator is used due to its reliability over other estimation methods. The findings of the study provide an understanding of how economic stimulus packages affect the adjustment speed of capital structure in India, but its effect in Pakistan is not significant. It also sheds light on the other variables like size, profitability, tangibility, and GDP that affect financial leverage and the speed of adjustment towards target leverage.

**Keywords:** Capital structure, Target leverage, Speed adjustment, Economic recovery, Two stage regression,

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## Introduction

The concept of capital structure irrelevance, as proposed by Modigliani and Miller (1958) states that in a perfect market, there is no relationship between the capital structure decision and firm value. Nevertheless, in the imperfect markets where we are living today, certain internal and external factors affect the capital structure of the company. Notably, during macroeconomic shocks, firms usually try to adjust to the optimal level of capital structure, but as a result, they deviate from their optimal target. Whereas, in the economic recovery period, the firms redirect their capital structure towards optimal levels.

In South Asia, the differences among the regional economies are at a high level, which results in an imbalanced economic development of the region. Taking data from 2015 and onwards as an example ( because unavailability of data for the Maldives before 2015), we have found that the GDP per capita PPP of Maldives, Sri Lanka and Bhutan was 6972.74, 5451.89 and 3723.98 US Dollars. Whereas, For Pakistan, India, Bangladesh, and Nepal it was 3486.72, 2570.43, 1692.83 and 1585.51 USDollarsr (World Bank, 2021). Additionally, the gap between the higher GDP per capita and the lower per capita increased in 2020, here we take 2020 as the start of the economic recovery period. For example, the GDP per capita PPP of Maldives the wealthiest state became more than five times of Nepal the most impoverished state, whereas, it was four times in 2015. We assume that the dispersion among the South Asian region's economic development is due to the variation in the companies' growth in different regions. To determine the regional variation in the companies' average size concerning total assets, this study will collect data from the average-size companies from two big South Asian countries India and Pakistan because the data is not available for the rest of the countries for the sampled period. The larger average company size total assets was observed in countries like India, and Pakistan, we name this as a region, and for the rest of the countries, the data is not available. Furthermore, this categorization of the region will provide a clue for further analysis to be taken to understand the variation in the adjustment speed of the capital structure.

The impact of the global pandemic is also felt by many South Asian firms. The GDP growth rate which shows the economic recovery after the 2019 crisis also indicates regional variability in 2020, for the Countries in South Asia such as India, and Maldives had a GDP growth rate of more than 7%. Bhutan had a GDP growth rate of about 7%, Bangladesh had a GDP growth rate of 5%, and the rest of the South Asian countries had a GDP of growth rate less than 5%, surprisingly, for Pakistan, it was -1.33% in 2020 and reached 6.03% in 2021. The recovery of countries with significant exports maintained the overall progress of the region. The significant variances in the GDP growth rate raised the question of whether the adjustment speed of capital structure changes among South Asian countries.

Firms set high leverage in growing capital markets (Mahmud & Qayyum, 2003). The possible reason could be that the reliance on leveraged finance indicates a good relationship with banks, a stable financial environment, and healthy competition. In an efficient market, firms take debt financing or issue securities whichever has a more significant benefit. However, the debt to total capital ratio is high in the weak markets also, because firms opt for debt financing through bank

loans contrast with that of issuing equity. These situations lead to higher debt in a firm's capital structure for developed as well as emerging markets. Asian firms use more debt than equity when there is a need for external financing (Chong & Law, 2012). South Asian markets particularly India and Pakistan have a mixture of debt and equity finance. However, there is substantial support for debt market and banking sector loans to firms in Pakistan whereas the Indian capital market is favorable for both equity and debt financing. Most of the firms in developing markets use short-term finance even some of them have no longer debt finance at all. This, in turn, reduces the debt financing in the short term, but it can increase the operational and financial risk, which hinders the long-term growth of the company and economy (Chen, Jiang, & Lin, 2014).

Additionally, in South Asia, the majority of equity financing is at the national level while debt financing depends on the region because it varies. The vertical banking system is closely related to such regional variation when it relates to debt financing. We claim that the regional dissimilarity in the adjustment speed of the capital structure of firms is due to the differing regional features of debt financing. This paper will take the data of average-sized firms. It investigates the regional variation of companies' capital structure speed of adjustment and the determinants that affect this decision.

## Literatur Review

Graham and Harvey (2001) mentioned that 80% of CFOs confirmed the existence of an optimal capital structure. These CFOs strive to achieve that optimal level by taking into account companies' operational decisions. The market timing effect on financial leverage is weak, but the adjustment cost is a significant determinant affecting the speed of capital structure adjustment (Baker & Wurgler, 2002). Due to the adjustment cost, firms strive for a continuously optimal capital structure (Leary & Roberts, 2005). Flannery and Rangan (2006) studied capital structure theories and concluded the existence of longer-term capital structure optimization. The above-discussed studies clarify that there is an optimal capital structure, and firms adjust to their optimal level.

The second point that makes other studies close to our study is the speed adjustment cyclicity. According to the study by Lööf (2003), the cost of adjustment is not the only factor affecting the adjustment speed. Some macroeconomic variables, such as interest rates and the GDP growth rate of a country, influence the adjustment speed of capital structure. When the interest rate volatility on a company's credit indicates the company's default risk partly, then the credit spread measures the default risk. Only large and government-owned companies with good credit ratings issue bonds in the market due to bond market underdevelopment. Therefore, it is challenging for the market to cover every listed firm nationwide. Therefore, for the macroeconomic variable, we only use the GDP growth rate. Huang (2006); Hackbarth, Miao, and Morellec (2006) have found that during an economic boom period, the threshold for the speed adjustment of capital structure is low, whereas in a recession, the adjustment speed is higher. Using a multi-period dynamic model, Leary and Roberts (2005) found that a company in a desirable range controls its capital structure, which is consistent with the study of Fama and French (2002) where the capital structure of the firm is mean-reverting. The firm's capital structure shows geographical variations (Fan, Titman, & Twite, 2012). The study of Cook and Tang (2010), reflected by using dynamic partial adjustment,

indicates that the capital structure adjustment speed is faster in an economic boom. Mukherjee and Mahakud (2010) argued that the type of financing differs among South Asian countries, where the speed of adjustment is higher in a more market-oriented environment. Nevertheless, their study could not specify the regional variation. Moreover, they did not mention the crisis and recovery period, which, according to our understanding, has a great impact on the capital structure adjustment phenomenon. In this paper, we will find the regional variation of capital structure adjustment speed among the seven South Asian countries from an economic shock and recovery perspective.

The third point in the literature is the cost of adjustment speed. In emerging markets, such as India, market-to-book ratio, size, tangibility, and profitability are significant factors influencing adjustment speed (Rugimbana, Mukherjee, & Mahakud, 2010). The same factors also affect the financial leverage of both book and market value and are consistent with the study of Frank and Goyal's (200's six key elements. Also, a low GDP growth rate, indicated as a macroeconomic factor, surprisingly has a positive relationship with the speed of adjustment (Tzang, Wang, & Rahim, 2013). Cross-country analysis shows that the speed of adjustment differs for different countries due to macroeconomic factors. Studies related to the regional variation from the cost of adjustment outlook are rare in South Asia.

In conclusion, there is less evidence available to examine the firm-fixed factors that affect the capital structure adjustment speed of South Asian countries, and very few have extended their study to measure the impact of macroeconomic variables. Notably, according to our best knowledge, no such study has been conducted before to investigate the regional variation in capital structure adjustment speed from an economic shock and recovery period perspective of South Asian countries. The significant contribution of this paper is to examine the regional variation in the capital structure speed of adjustment of South Asian firms and the determinants that affect this speed. The second contribution and objective are to analyze how economic recovery affects the mechanism of adjustment speed after the economic shock."

## Methodology

We use Hovakimian, Opler and Titman's (2001) two-stage partial dynamic adjustment model for capital structure speed adjustment. Furthermore, we assume that firms take time and costs to adjust to a target leverage ratio and the adjustment cannot be achieved instantaneously. The model sets the company's target leverage ratio to be related to firm characteristics of the previous financial year. We combine Fama and French (2002) and Kayhan and Titman (2007) to incorporate macroeconomic variables into the two-stage partial dynamic adjustment model. The purpose is to better estimate firms' target leverage ratio, and then to introduce the speed of adjustment  $\delta$  to arrive at an integrated dynamic adjustment model for capital structure. We use the following two-stage partial dynamic adjustment model for capital structure.

Assuming a firm's target leverage ratio ( $TarLev_{i,t}$ ) is a function of a vector of firm characteristics ( $X_{i,t-1}$ ) and the macroeconomic index ( $Macro_{i,t-1}$ ).

$$Tarlev_{i,t} = \beta X_{i,t-1} + \beta Macro_{i,t-1} \tag{1}$$

In a perfect market with zero cost of adjustment, a firm can adjust to its target debt/asset ratio rapidly. However, in practice where adjustment incurs costs, a firm cannot fully adjust to its target capital structure, but partially. In Eq. (1) a firm’s target debt/asset ratio ( $Tarlev_{i,t}$ ) cannot be estimated directly from its financial reports. Therefore, we introduce the second stage.

$$Lev_{i,t} - Lev_{i,t-1} = \delta (Tarlev_{i,t} - Lev_{i,t-1}) + \varepsilon_{i,t} \tag{2}$$

In Eq. (2),  $Lev_{i,t}$  and  $Lev_{i,t-1}$  denote the actual debt/asset ratio of firm  $i$  at time  $t$  and  $t-1$ .  $\delta$  represents the speed of adjustment in the firm’s capital structure between time  $t$  and  $t-1$ . Now replacing the  $Tarlev_{i,t}$  with the equation (3) we get

$$Lev_{i,t} - Lev_{i,t-1} = \delta (\beta X_{i,t-1} + \beta Macro_{i,t-1} - Lev_{i,t-1}) + \varepsilon_{i,t} \tag{3}$$

The higher the value of  $\delta$  the higher the speed of adjustment.  $\delta = 1$  indicates that a firm has adjusted exactly to its target capital structure. Due to the costs of adjustment, we let  $\delta$  take a value between 0 and 1 where  $\varepsilon_{i,t}$  is the residual. By rearranging eq (3), we get

$$Lev_{i,t} = (1 - \delta) Lev_{i,t-1} + \delta \beta X_{i,t-1} + \delta \beta Macro_{i,t-1} + \varepsilon_{i,t} \tag{4}$$

In the above regression model, the coefficient of the one period lag of the firm’s debt/asset ratio reflects the speed of adjustment in the firm’s capital structure, i.e. the greater  $1-\delta$ , the slower the speed of adjustment and vice versa.

**Table 1 Variables**

Name of the variable	Measurement	Theoretical background
Dependent Variable		
Lev	Book value of leverage	Mai, Meng, and Ye (2017)
Independent Variable		
Size	Log of total asset	Tahir and Mushtaq (2016)
Tangibility	Fixed Assets/Total Assets	Haron, Ibrahim, Nor, and Ibrahim (2013)
Profitability	ROA	Tahir and Mushtaq (2016)
GDP Growth rate	Annual GDP growth rate	Mai, Meng, and Ye (2017)
Economic Recovery Period	0 for financial crisis, 1 for economic recovery period	Author’s own

**Results & Discussion**

We collect firm and macroeconomic data for the available South Asian countries from 2010 to 2021 to analyze the trend of the speed of adjustment. The two countries, namely Afghanistan and Maldives have no data available on Osiris database. Furthermore, applying the data availability time frame from 2010-2021 also excluded two more countries Nepal and Bhutan because they do not have ten years of data that may enable us to include in our sample. This leaves us with a sample of four South Asian country's data namely India, Pakistan, Sri Lanka and Bangladesh for our study. Again, by applying the average size assumption, we are left with the data of two: countries namely India and Pakistan. These are the two most prominent economies regarding GDP in the South Asian region among the eight countries. The capital structure of the firms in these countries typically portrays the overall trend of the region, but anyhow there are individual differences. The rationale for studying these two countries is to generalize the results on overall the region as these are the dominating countries in South Asia.

Particular emphasis will be given to the economic recovery period after the Covid 19 which according to our study starts from 2020 onwards. We will find the regions with higher per capita and firm growth rate have a higher speed of capital structure adjustment than the other regions. Furthermore, these countries have a market-oriented environment and larger size firms which will also positively affect the rate of adjustment. The analysis will indicate the significant geographical dispersion in the adjustment speed of capital structure during different times. Additionally, the leverage and the speed of adjustment during and after the pandemic will show the trend of listed firms' leverage and the speed of adjustment towards the optimal capital structure.

*Descriptive Analysis*

**Table 2** Descriptive statistics for firms listed on the Bombay Stock Exchange of India

	$\Delta$ GDP	D/A	DUMMY	GDP	SIZE	PROF	TANG
Mean	0.018364	0.642409	0.727273	7.433636	14.41534	8.122883	0.549284
Median	1.130000	0.631119	1.000000	7.180000	14.11992	6.820000	0.542317
Maximum	9.270000	7.712269	1.000000	10.76000	18.50695	41.35000	3.410283
Minimum	-7.860000	0.122177	0.000000	2.900000	11.26419	-24.13000	0.011179
Std. Dev.	3.687655	0.527061	0.445941	2.300230	1.384648	8.127308	0.271296
Observations	385	385	385	385	385	385	385

The descriptive analysis Table 2 and Table 3 shows all the firms included in the sample from two countries India and Pakistan. The purpose is to estimate the speed of adjustment for both countries separately; we divided the sample data into country wise.

**Table 3:** Descriptive statistics for firms listed on the Pakistan Stock Exchange

	$\Delta$ GDP	D/A	DUMMY	GDP	IN SIZE	PROF	TANG
Mean	0.051211	0.549158	0.727273	3.863636	11.69466	9.157545	0.557772
Median	0.550000	0.529659	1.000000	4.400000	11.13553	8.575000	0.602353
Maximum	1.830000	0.998634	1.000000	6.180000	15.60404	55.36000	0.999976
Minimum	-3.130000	0.066769	0.000000	1.610000	7.315884	-61.52000	0.033321
Std. Dev.	1.331935	0.238787	0.446038	1.449775	2.012962	13.57769	0.217374
Observation	330	330	330	330	330	330	330

### *Target leverage Existence*

It is shown in Tables 4 and 5 below that the one period lag of the Debt/ Assets ratio is significant at a 1 percent level for both countries. The coefficient of less than 1 shows that the firms in these countries have the target leverage and they make an adjustment towards that target. Companies adjust towards their target leverage, but there are inevitable market imperfections such as information asymmetry and adjustment costs that stop them from fully adjustment towards the target but partially. The firms do not adjust to their targets fully even if they recognize that the current leverage is not optimal (Heshmati, 2001). To sum up, we find that the South Asian firms particularly firms in India and Pakistan have the target leverage ratio because of the coefficient of one period lag of debt/assets ratio greater than 0 and less than 1. The lower the coefficient of the lag leverage, the higher the speed of adjustment towards the target leverage (Ozkan, 2001;Gaud, Jani, Hoesli, & Bender, 2005).

**Table 4:** Panel regression results (India)

Dependent Variable: DEBT\_ASSETS  
Method: Panel Two-Stage Least Squares  
Sample (adjusted): 2010-2021  
Periods included: 11  
Cross-sections included: 35  
Total panel (unbalanced) observations: 349

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.727476	0.046198	15.74675	(0.0000)***
Leverage <sub>-1</sub>	0.881232	0.009087	96.9772	(0.0000)***
Size	-0.001009	0.002799	-0.360658	0.7186
Profitability	-0.001568	0.000468	-3.348345	(0.0009)***
Tangibility	-0.021651	0.017642	-1.227214	(0.2206)
GDP Growth	-0.004625	0.002742	-1.686518	(0.0926)*
Change in GDP	0.004258	0.001839	2.315281	(0.0212)**
Covid 19	-0.007882	0.010855	-0.726075	0.4683
R-squared	0.985177			
Adjusted R-squared	0.984873			

Table 4 shows the results of the estimation equation (3). One period lag of the debt/Assets ratio shows the speed adjustment of the capital structure which for India is  $(1-0.8812)$  11.88%. The low speed of adjustment towards the target shows that in India, the adjustment cost is higher and the firms in the country take a longer time to adjust towards the target fully. The half-life adjustment is 4.21 years which means that the firms in the country take 4.21 years to adjust to the optimal leverage partially. There is a negative relationship between the debt-asset ratio and the size which is quite different from the previous literature, but the relation is not significant. Profitability has a negative and significant relationship with the debt assets ratio which means that when the internal funds are available, there is less demand for the external source of financing. This result is consistent with the results of Rajan and Zingales (1995) and Huang and Song (2006). The tangibility also has a negative impact on the leverage but with a less significant result. We have found that the GDP growth rate in India hurts the leverage which means that when the GDP of the country increases, the leverage decreases. This may be due to the less efficient market, where firms take more equity finance if the market price of the stocks is overpriced. Additionally, it shows that the equity market in the country is relatively developed than the debt market. This result is inconsistent with Mai, Meng, and Ye (2017) and Cook and Tang (2010) where there is a positive relationship between GDP and the growth rate of the financial leverage of the firms. However, the change in the GDP rate, which in this study used as a separate explanatory variable has a positive and significant relationship with the leverage. It shows that a change in the GDP also brings a positive change in the financial leverage of the firms. The firms leverage up when there is a boom in the economy. Here also, it is not confirmed that a positive change in GDP leads to a positive change in the leverage because we also have a negative change in our study data for the change in GDP variable. We have just a few negative signs for the variable 'change in GDP' so we can generalize the result as 'when there is a change in the GDP rate, the leverage will change positively. A dummy variable showing the effect of the economic recovery period on the leverage which starts from 2020 onwards. The period 2019 was selected for the Covid 19. As shown in Table 3 above, the dummy variable has no significant effect on the financial leverage of the firms although shows a negative sign but with a probability of 0.4683 which is not significant. We can conclude that the economic recovery period in India does not affect the firm's leverage ratio. The possible reason may be the small data sample selection of this study or maybe that India has not been affected by the crisis of Covid 19 which could differentiate the economic recovery period from the crisis period.

DEBT\_ASSETS<sub>-1</sub> is one period lag which shows the capital structure speed of adjustment. LN SIZE is the natural log of the total assets which shows the firm size. PROF is the profitability of the firms i.e. ROA before interest and tax. TANG represents the tangibility of firms; calculated as fixed assets/total assets. GDP-GROWTH RATE shows the country's GDP growth. CHANGE\_IN\_GDP represents the rate of change in the GDP of the country. DUMMY represents the dummy variable 1 for the economic recovery, and 0 shows the crisis period. P value in the parentheses, \*, \*\* and \*\*\* denotes significance level at the 10%, 5% and 1% respectively.



**Table 5** Panel Regression Results (Pakistan)

Dependent Variable: DEBT\_ASSETS

Method: Panel Two-Stage Least Squares

Sample (adjusted): 2010 2021

Periods included: 11

Cross-sections included: 30

Total panel (balanced) observations: 330

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.358528	0.089841	3.990709	(0.0001) ***
Leverage $_{-1}$	0.827594	0.091666	9.028333	(0.0000) ***
Size	0.021429	0.005730	3.740114	(0.0002) ***
Profitability	-0.007329	0.000872	-8.399641	(0.0000) ***
Tangibility	0.001440	0.053480	0.026928	0.9785
GDP growth	-0.002705	0.009926	-0.272538	0.7854
Change in GDP	-0.002440	0.016498	-0.147917	0.8825
Covid 19	0.018756	0.050500	0.371400	0.7106
R-squared	0.417354			
Adjusted R-squared	0.403386			
Prob(F-statistic)	0.000000			

As shown in Table 5, the speed adjustment which is measured by one period lag of debt/assets ratio for Pakistani firms is  $(1-0.8275)$  17.25% which is quite higher than the speed of capital structure in India. Firms in Pakistan take 2.90 years to adjust towards their targets partially. The possible reason would be the nature of the market, where the financial market in Pakistan dominates with debt financing. Firms prefer debt financing when there is a need for external finance. The size of the firm has a positive effect on the leverage which means that with the increase in the size of the company, the leverage also increases. This is consistent with the trade-off theory of capital structure and the study of Tahir, Mushtaq, Nasir and Khan (2017) where the larger the size of the firm, the lower the transaction cost which leads to a higher debt ratio. Opler and Titman (1994) also confirm the positive relationship of firm size with the debt/asset ratio and give the reason that large firms have more diversified operations and the chances to become financially distressed are minimal. Profitability has a negative and significant relationship with the debt assets ratio which means that when the internal funds are available, there is less demand for the external source of financing. This result is consistent with the results of Rajan and Zingales (1995) and Huang and Song (2006). The result for the profitability to affect the leverage for both of the countries is significant. However, Tangibility, GDP growth rate, Change in GDP and Dummy variables have no significant effect on the financial leverage. It shows that the GDP growth rate of the country does not affect the leverage. The possible reason may be the small sample data, or the GDP growth rate has no direct effect on the debt financing market. Moreover, the GDP growth rate of Pakistan remains volatile throughout the sample period which could not significantly affect it, or the banking sector is irresponsive to the volatility in the GDP growth rate. Just like the GDP growth rate, there is also no effect of the change in the GDP on the leverage.

The last variable is the Dummy variable for the economic recovery period, which in the case of Pakistan also has no significant effect on the debt/asset ratio of the firms. We found the same result for India, and the possible reason as mentioned earlier is that the South Asian market is not responsive to the economic recovery and crisis period because the Covid 19 had no severe effect on the capital markets of the region.

**Factors affecting the speed of adjustment**

Table 6 below shows the results for the factors affecting the rate of adjustment where the negative sign on the coefficient of the interaction of one-period lag ratio, i.e., Debt\_Assets<sub>-1</sub> and the determinants of the adjustment speed be interpreted differently. The negative sign of the respected coefficients must be considered as there is a positive relationship between the determinants and the speed of adjustment. Whereas the positive sign shows the negative relationship between them. The said approach has already been used in the literature such as Mukherjee and Mahakud (2010), Aybar-Arias, Casino-Martínez and López-Gracia (2012) and Haron, Ibrahim, Nor, and Ibrahim (2013) respectively.

**Table 6** Determinants of speed adjustment (India)

Dependent Variable: DEBT_ASSETS		
Variable	Coefficient	Prob.
C	0.645556	0.0000***
DEBT-ASSET <sub>-1</sub>	-0.881232	0.0000***
DEBT-ASSET <sub>-1</sub> × LN_SIZE	0.103445	0.0000***
DEBT-ASSET <sub>-1</sub> × PROF_	0.002857	0.1655
DEBT-ASSET <sub>-1</sub> × TANG	0.045342	0.0762*
DEBT-ASSET <sub>-1</sub> × GDP GROWTH	0.080971	0.0000***
DEBT-ASSET <sub>-1</sub> × CHANGE_IN_GDP	-0.069228	0.0000***
DEBT-ASSET <sub>-1</sub> × DUMMY	-0.063316	0.0518*

Table 5 results portray a healthy relationship between the size of the firms and the speed of adjustment with the p-value = 0.01. Here the positive coefficient is interpreted as there is a substantial negative impact of the size on the speed adjustment. More giant firms in the country are not seriously concerned with the adjustment to their targets, the small firms due to bankruptcy cost and information asymmetry cost are more concerned towards their target leverage. Small firms have a higher speed of adjustment than larger firms. One possible reason could be that the larger firms have easy access and good relations with the financial institutions that make credit facilities more accessible. This result is not consistent with Mukherjee and Mahakud (2010), and Haron et al., (2013). Profitability also has a negative impact on the speed of adjustment which validates the early result that the profitable firms have low leverage level but the significance level is not high enough to accept it. There is a negative effect of the tangibility on the adjustment speed which also confirms the earlier results that the large and tangible firms do not adjust towards their target but remain far from their optimal target. The change in the GDP rate has a positive impact on the speed of adjustment. Firms adjust faster when there is a change in the GDP of the country. This is also in line with the following result of the economic recovery the speed of adjustment. As shown in the result, in the economic period which in our study starts from 2020, there is a change

in the GDP of the country. To sum up, both the time dummy (which indicates the economic recovery period) and the GDP account for a higher speed of adjustment in the country. So, there is a significant and positive effect of the economic recovery period on the speed adjustment of capital structure. We can conclude that during the economic period, Indian firm's speed adjustment towards the target was higher before the pandemic.

**Table 7** Determinants of speed adjustment (Pakistan)

Dependent Variable: DEBT_ASSETS		
Variable	Coefficient	Prob.
C	0.550855	0.0000***
DEBT-ASSET <sub>-1</sub>	2.705683	0.0098***
DEBT-ASSET <sub>-1</sub> × LN_SIZE	-0.019233	0.7502
DEBT-ASSET <sub>-1</sub> × PROF_	-0.013525	0.1262
DEBT-ASSET <sub>-1</sub> × TANG	-1.387952	0.0130**
DEBT-ASSET <sub>-1</sub> × GDP	-0.096015	0.3943
DEBT-ASSET <sub>-1</sub> × CHANG	0.212724	0.2436
DEBT-ASSET <sub>-1</sub> × DUMMY	-0.132260	0.8129

Table 7 shows the result of the factors which affect the speed adjustment of firms in Pakistan. We note that in the country only the tangibility has a significant and positive effect on the adjustment speed. The main variables like a dummy for the economic recovery period and the GDP growth has no significant relationship with the speed of adjustment in Pakistan. The possible reason could be that firms in the country have not been affected by the pandemic severely which might bring change in the speed adjustment after the crisis. Here we note that the speed adjustment of the firms is independent of the economic period and growth rate of the country's economy. This result is very different from the Indian firms results because they are responsive to the economy and the growth rate of the country.

**Robustness check**

The null hypothesis in the Wald test statistic shows that the coefficients of all the determinants of the speed of adjustment are equal to zero. Whereas, for both the countries India and Pakistan, we found that the coefficients are not equal to zero which enabled us to reject the null hypothesis.

**Conclusion**

Our study investigates the South Asian firms' target leverage and the efforts made to adjust towards that target. It shows the magnitude of the speed of adjustment when there is a deviation from the target. Furthermore, it also finds out the factors that are reasonably essential to affect the speed adjustment. The findings provide an addition to the existing literature on capital structure adjustment. Taking the period from 2010 to 2021, where 2020 and onward account for the economic recovery period enabled us to examine and measure the target capital structure, what are the factors that affect the financial leverage, the speed adjustment magnitude and last but not least the factors which affect the speed of adjustment.

The results of the study show that the firms in India and Pakistan have the target leverage ratio that they want to achieve. However, there are certain adjustment costs involved that preclude them from fully adjustment towards the target but partially. Financial leverage which in our study is calculated as the book leverage ratio of firms depends upon certain factors like size, profitability, tangibility and the rate of change in the GDP in India. However, in Pakistan's GDP growth rate, the change in the GDP and economic recovery period have no significant effect on the financial leverage of a firm. Whereas size, profitability and tangibility were found to be significant in affecting the financial leverage.

Once we have found the target leverage, then with the dynamic two-stage regression we find out the speed adjustment. On average, the speed adjustment of Indian firms is 11.88% which means that the Indian firms take 4.21 years to reach their target leverage partially. On the other hand, Pakistani firms have a higher speed adjustment of 17.25% which makes them adjust to the target partially within 2.90 years. It shows that the firms in India are under-adjusted and taking a longer time to reach their optimal leverage. One possible reason could be that the firms in India usually are larger than the firms in Pakistan, and they prefer not to adjust because they have excellent credit ratings and good relations with the financial institutions. This also validates the earlier negative impact of the size on the speed adjustment in India. Pakistani firms usually take debt financing, and in debt financing, they take more short-term financing which in turn leads them to a higher speed adjustment towards their target capital structure.

After finding the rate of adjustment, we find some of the significant factors which affect the speed adjustment. The main variables of this study like a change in GDP and dummy variables for economic variables have a significant influence on the speed of adjustment of Indian firms which is quite a new finding to be added in the literature. The economic recovery period that begins in the year 2020 has a significant positive influence on the capital structure speed adjustment. During this period there were also variations in the GDP growth rate, and this too affected the speed of adjustment. Surprisingly these two factors have no significant effect on the speed adjustment of the firms in Pakistan. However, there is considerable variation in the GDP growth, but it is not significant to affect the speed of adjustment which may be due to a small sample bias.

The findings of this paper give some ideas regarding capital structure decisions to managers, policymakers and the financial institutions in India and Pakistan as well as the other stakeholders who have financial relations with the firms in these countries. This paper fills the gap in the literature regarding emerging markets' speed adjustment. It will open a new avenue of research to find out more about the economic shock and recovery period.

### **Limitations and Future Recommendations**

There are certain limitations in our study that need to be highlighted. The first limitation is the small data sample selection. We have selected only 65 companies for 11 years (35 from India and 30 from Pakistan). The number of firms in the region, especially in India is very high, so selecting a few companies may not help us to generalize the result to the entire country or the region. The second limitation is that the firms selected for our study do not distinguish industries as it is

recommended for future research that if fewer companies are selected, a particular industry selection may provide a better understanding that may be generalized on the overall industry of the country or the region. The third limitation would be that we only measure the book value of leverage which is consistent with few studies, but the measurement of market value also provides a significant result which may improve the findings of this study.

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