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Financial Conservatism and Speed of Adjustment towards Target Capital Structure: Empirical Evidence from Pakistan

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Abstract

This study is the first to empirically examine whether the speed of adjustment (SOA) of capital structure is asymmetric between financially conservative (FC) and non-financially conservative (NFC) firms in Pakistan over the period 1998-2014. Using GMM estimation method for estimating target net debt ratio and OLS for estimating speed of adjustment, we examine when and to what extent these firms adjust their leverage towards the target. The results reveal that the adjustment process is quite asymmetric and the magnitude of the SOA is always greater for NFC than FC firms. We observe that FC firms show higher SOA when they deviate below the target regardless of financial imbalances. In contrast, NFC firms are more responsive to financial deficits irrespective of the deviation from the target. Yet, we show that both FC and NFC firms move with higher SOA towards the target capital structure when they deviate below the target and face financial deficits.

Keywords: financially conservative firms, net debt ratio, net debt target, target capital structure, speed of adjustment.

1. Introduction

Heterogeneity of adverse selection costs and adjustment costs across firms cause differences in the target capital structure of firms. Further, these costs slow down the speed of adjustment (hereafter SOA) towards the target leverage (Myers, 1977). The pecking order theory, the market timing theory, and the irrelevance theory do not assent upon the existence of an optimal debt level. Nevertheless, an enormous amount of the empirical evidence is in support of the target capital structure (Faulkender, Flannery, Hankins, & Smith, 2012; Huang & Ritter, 2009). However, according to a survey of U.S. CFOs, firms keep various levels of flexibility in their target leverage (Graham & Harvey, 2001). The CFOs of European firms also consider financial flexibility to be an imperative factor for capital structure choice (Brounen, De Jong, & Koedijk, 2006). Two firms facing similar adjustment costs might not attain the target at the same speed due to different concerns for flexibility. The existence of transaction costs (Leary & Roberts, 2005) and adverse selection costs (Myers & Majluf, 1984) may prompt a firm to become financially flexible by keeping higher cash reserves and avoiding debt financing for exploiting the future investment opportunities with sufficient debt capacity (Modigliani & Miller, 1958). Modigliani and Miller (1958) assert that firms keep spare debt capacity even in a frictionless world. Financial flexibility is considered as one of the most dominant reasons of financial conservatism. Financial constraints are the second important factor that engenders financial conservatism. According to the pecking order theory, a firms' internally generated cash can be used for the purpose of financing positive net present value (NPV) investments. Thus, the cash is considered as an alternative of debt. The practitioners and scholars consider cash as negative debt (Bigelli, Martín-Ugedo, & Sánchez-Vidal, 2014; Gamba & Triantis, 2008). Thus, "Financial conservatism is achieved with both low debt ratio and high levels of cash holdings" (Bigelli et al., 2014). Given this, we predict that if FC policy is a voluntary decision of a firm, than it will use its cash as well as borrowing capacity to fulfil its financial needs whenever it will face financial deficits. Faulkender et al. (2012) show cash flow to be an important determinant for capital structure adjustments. They find a significant role of cash flow in determining the speed at which firms adjust their capital structure towards the target leverage. However, the existing cash position of firms can also substitute some external financing, particularly when the fixed cost of visiting capital market is higher. Hoarding cash reduces the expected financial constraints in the future (Almeida, Campello, & Weisbach, 2004). Accordingly, we define FC firms with the debt ratio net of cash. To keep into account the persistence of low-levered behavior, we define firms falling in the lowest quintile of industry adjusted net debt ratio (hereafter NDR) for two years consecutively as financially conservative and the rest of the firms as non-financially conservative. Estimation of the SOA for FC firms enables us to examine whether FC firms strive back to their low leverage target when they deviate from it. Similarly, asymmetric estimates of the SOA for above- and below-target leverage would be interpreted as the existence of different costs and benefits of adjustment. However, we predict that the SOA towards the target is lower for FC firms than that of NFC firms. This can be predicted because the firms having low leverage bear significantly low cost of deviations from the target and are expected to get less benefit from the capital structure adjustment.

Huang and Ritter (2009) state that the speed of adjustment is one of the most important concerns of empirical research on capital structures. The significance of SOA for understanding firms' financing behavior has also several important implications for the financial conservatism behavior of firms. However, this phenomenon is surprisingly ignored in the empirical literature so far. Dang (2013) is an exception, who made an important contribution towards this by measuring deviations from target leverage for zero-levered UK firms. According to Dang (2013), firms are likely to move towards their leverage target when the deviation of conservative firms becomes large. However, their study only provides the impact of deviation from the target on conservative debt policy and does not provide any estimate of SOA towards the target. The behavior of FC firms regarding their deviation from the target capital structure and adjusting towards that target is a question that is not yet explored in the literature. It is also worthwhile to explore whether FC firms adjust their capital structure with different speed when they are above or below the target. As per the pecking order theory, the adjustment of leverage is done according to financing requirements of firms. Accordingly, it is also important to determine empirically whether firms' financial positions (deficits/surpluses) influence adjustment process.

Faulkender et al. (2012) provide a comparison of over- and under-levered firms. However, they categorize over-levered and under-levered firms according to the deviations from the target debt ratio. The specification of low leverage in our study is inspired by observed NDR. Departing from the existing studies, the aim of our study is to estimate the SOA of FC firms as compared to NFC firms. By doing this, we would be able to understand whether FC and NFC firms move towards their capital structure targets differently. We also examine whether both types of firms adjust their capital structure towards the target when they are above or below the target leverage. We build our argument on the premise that since FC firms have significantly different financing behavior than NFC firms, they would exhibit different adjustment behavior too. FC firms have different motives concerning optimal debt target and deviating from that target. The existing literature on capital structure adjustments has documented that financing imbalances significantly affect capital structure adjustment behavior of firms (Baum, Caglayan, & Rashid, 2017; Byoun, 2008). Therefore, we also estimate the role of a financial deficit and surplus in determining adjustment speeds. Specifically, we determine whether adjustment speed is influenced by financial deficits/surpluses and which type of firm (FC or NFC) is more sensitive to financing imbalances. A firm can easily get back towards the target by paying off outstanding debt if it has a financial surplus and deviates above the target. If the cost of equity issuance is higher than it will retire its debt, whereas if cost of generating debt is greater than it will retire equity (Byoun, 2008). However, firms may not need to get back to the target if they have financial surpluses and are below the target. Since financial deficits require a firm to get more funds, it will have to arrange the financing from the capital market. However, it is relatively difficult to get back to the target if a firm already deviates above during the phase of financial deficits. A firm will definitely move towards the target with a significant SOA if it is below the target. This study mainly adds to the prevailing literature on the speed of adjustment from two aspects. First, it uses net debt ratio instead of debt ratio. Second, by using a unique definition of financially conservative firms, it estimates asymmetric SOA for conservative and non-conservative firms.

The findings of the study confirm our prediction that FC firms exhibit slower SOA towards the target capital structure than NFC firms. We observe substantially higher SOA for all sample firms when they are in a financial deficit and deviate below the target. It can be inferred from the findings that FC firms adjust slower their capital structure towards the target level than NFC firms do. The findings also suggest that internally generated cash flow is the preferable financing choice by the firms. Due to adverse selection and transaction costs, adjustments in capital structure are significantly increased by the financial imbalances (deficits/surpluses). The SOA for NFC firms is increased more than double at the time of financial deficits and deviation below the target than that of during periods of financial surpluses and deviation above the target. FC firms only show a significant SOA towards the target net debt ratio when they are below the target regardless of the financing gap. This implies differential adjustment behavior for the firms following FC policy. The investors and other decision makers should incorporate net debt ratio for decision making. Future studies needs to compare the SOA of net debt ratio with debt ratio and cash ratios.

The structure of the paper is arranged as follows. The subsequent section provides the review of the relevant literature along with the proposed hypotheses. Section 3 gives details about the econometric models, data, and methodology. Next section describes the outcomes of the empirical analysis. The last section of the paper provides conclusions of this research effort.

2. Literature Review and Hypotheses Development

According to (Graham & Leary, 2011), most of the studies find too low SOA to declare the application of the dynamic trade-off theory. They believe that the SOA for the full sample, regardless of the varying characteristics and goals of firms, generate biased estimates. The heterogeneity in leverage ratios implies variations of SOA across different firms. Accordingly, the estimate of the SOA by using all firms as one sample can lead to downward bias. Thus, estimating the SOA across different subsamples can improve the results (Cook & Tang, 2010). Though a number of recent studies have addressed this issue by estimating adjustment speeds for different groups of firms (Baum et al., 2017; Byoun, 2008; Dang, Kim, & Shin, 2012; Elsas & Florysiak, 2011; Faulkender et al., 2012; Rashid, 2016). Similarly, Ahsan and Qureshi (2017) find different SOA for pre and post financial liberalization. They find the SOA for Pakistani firms ranges between 24 to 54 percent. Analogously, Abdeljawad and Mat Nor (2017) assert that over-levered firms face higher cost of deviation as their SOA is higher than that of under-levered firms.

Lemmon, Roberts, and Zender (2008) find the persistence of capital structure decisions for both high- and low-levered firms. They observe a consistent trend of high or low leverage behaviour over the years. Drobetz and Wanzenried (2006) also claim that firms with above target debt in one year are observed to follow the above target debt in the next year too. DeAngelo and Roll (2015) assert that firms' leverage position is sticky in the short run only, yet low leverage policy is relatively more stable. If capital structure is highly value relevant than the SOA would be higher in case of deviations from the target capital structure. Moreover, if the cost of equity is more sensitive to the change in leverage, then a firm will move faster to achieve its optimal capital structure. Zhou, Tan, Faff, and Zhu (2016) estimate the SOA towards optimal debt target by dividing the firms into subsample. They find no impact of cost of equity on leverage deviations in low-levered subsample. The results of their study prove that the coefficient of leverage deviation is statistically significant in case of over-leveraged firms, whereas, it is insignificant in case of under-leveraged firm. Financial constraints are considered to be the most evident reason for following FC policy. If FC and NFC firms face different levels of financing frictions and constraints, their adjustment behavior must vary from each other. FC firms prefer to keep debt capacity and financial flexibility in their capital structure. Thus, they will move slowly towards the target. Given this all, we construct the following hypothesis.

H_1: SOA of NFC firms is greater than FC firms.

Booth, Aivazian, Demirguc-Kunt, and Maksimovic (2001) find Pakistan to be among the high debt group in developing countries. This study also shows that corporate tax advantage is very high in Pakistan as compared to other developing countries. The trade-off theory predicts high leverage ratio, when the tax shield benefit is high. Similarly, Ahsan and Qureshi (2017) argue that raising debt is easier in Pakistan than raising equity as Pakistan is a bank-based economy. We can say that the cost of adjustment is lesser when firms are below the target as compared to when they are above the target leverage. With this premise, we can hypothesize the following.

> H_2: SOA for deviation above the target is smaller than the deviation below the target.

The aim of this paper is not only to estimate SOA for all firms but also to examine asymmetries in adjustment process for FC and NFC firms. Thus, H2 to H7 will be estimated using full sample as well as for FC and NFC firms, separately. A firm will move towards its target capital structure if the adverse selection cost of financing is less than the cost of staying away from the target (Byoun, 2008). The imperfect capital market and unpredictable environment of Pakistan may inflate both adjustment cost and adverse selection costs. On the contrary, in the view of Zhou et al. (2016), SOA is expected to be faster in case of financial deficits as firms have to contact the capital market to fulfil their financing needs. Financial deficits force firms to generate funds from external sources, resulting rapid capital structure adjustments. In contrast, financial surpluses may not induce firms for readjustment, in particular, when the adverse selection cost is high. We therefore hypothesize the following.

> H_3: The SOA is smaller when the firm is in a financial surplus as compared when it faces a financial deficit.

Financial deficits (surpluses) are the amount of external financing required to be financed (retired). Financing gaps provide the reason for adjustments in capital structure. Similarly, deviations (above/ below) from the target capital structure determine the direction of adjustments. Byoun (2008) finds that firms having above target debt ratios with financial surpluses adjust more quickly to their target leverage than the firms having financial deficit. Motivated by these findings, our study also aims to find out the SOA of Pakistani listed firms towards their target when they deviate (above/ below) and face financing gap (surplus/deficit). If the financial surplus is supplemented with the deviation above the target, it provides strong incentive to the firm to retire its debt. Thus, we hypothesize the following.

> H_4: The SOA for firms in a financial surplus is greater (smaller) when they deviate above (below) the target.

Deviations above the target along with financial surpluses provide more convenience for the firms to get back to the target. However, if a firm is suffering from a financial deficit with deviation above the target, it will be difficult for the firm to reduce the level of debt. Therefore, we expect the following.

> H_5: The SOA for firms in a financial surplus will be greater than for firms in a financial deficit with deviation above the target.

Financial deficits create urgency for generating external financing. The motivation for the adjustment to the target becomes even stronger if a financial deficit is supplemented with a deviation below the target. In case of financial surpluses, we expect higher coefficients for SOA when a firm deviates above the target and in case of financial deficits we expect higher SOA when a firm deviates below the target. Byoun (2008) also states that both situations, a surplus with above target debt and a deficit with below target debt, are highly motivating for the adjustment towards the target. Yet, it would be interesting to examine SOA in these two cases. However, it would be relatively stronger motive for the firms to achieve its target, in the phase of financial deficits with below target debt.

> H_6: The SOA for firms in a financial surplus with deviation above the target will be lesser as compared to the firms in a financial deficit with deviation below the target.

A financial deficit requires firms to arrange new funds to finance its financing gaps. It would be relatively tougher for firms to adjust their capital structure when they are in a financial deficit than financial surplus. However, if adverse selection cost is high, the financial deficit with a deviation below the target provides stronger incentive to firms issue new debt and to adjust the capital structure towards the target. Thus, we expect the following.

> H_7: The SOA for firms in a financial deficit will be lesser when firms will deviate above the target as compared to when they deviate below the target.

3. Methodology

3.1 Model Specification

Target net debt ratio (NDR) is predicted by regressing the lagged values of explanatory variables on the observed net debt ratio. The following equation represents the cross sectional regression equation that we estimate for obtaining the predicted values of NDR.

$$NDR_{it}^{T} = X_{it-1}\beta + \mu_{it} \tag{1}$$

where NDR_{it}^{T} stands for net debt ratio it is equal to "total debt minus cash divided by total assets". β shows the slope coefficient. X_{it-1} is the vector of firm-specific variables for the preceding year that are used as determinants of target NDR. μ_{it} is the error term. Target NDR is not directly observable. Both NDR_{it}^{T} and β depends upon the NDR of the last year. Following the existing literature, a partial adjustment model is used to measure the SOA towards target level.

$$NDR_{it} - NDR_{it-1} = \lambda(NDR_{it}^{T} - NDR_{it-1}) + \mu_{it} \tag{2}$$

where $NDR_{it}$is the actual net debt ratio (leverage net of cash) of firm *i* in year t. NDR_{it-1} is the leverage of previous year. λ shows the SOA towards the target NDR. A firm moves λ percent towards its target NDR during a period of time. $NDR_{it}^{T} - NDR_{it-1}$ measures deviation from the target NDR. NDR_{it}^{T} is the target NDR for all firms that can be estimated from equation (1). If we put the value of target NDR from equation (1) to equation (2), we get

$$NDR_{it} = X_{it-1}\beta\lambda + (1-\lambda)NDR_{it-1} + \mu_{it} \tag{3}$$

Following Faulkender et al. (2012), we use equation (3) for the estimation of the SOA. The regression results are used to predict the target net debt ratio for the whole sample. We use the same specification for determining the target NDR for the full sample. Most of the empirical studies ignore the heterogeneity in the SOA towards the target across the sample firms. Considering whole sample at once gives inappropriate approximations for SOA (Graham & Leary, 2011). We add the existing stream of literature by dividing the sample into FC and NFC firms. We expect differential behavior for adjusting towards their target. Thus, we estimate SOA for FC and NFC firms, separately. We can simplify equation (2) by replacing deviations of NDR from the target $(NDR_{it}^{T} - NDR_{it-1})$ with DvT_{it} and changes in actual net debt ratio from previous year for firm *i* in year t $(NDR_{it} - NDR_{it-1})$ with ΔNDR_{it}. We get

$$\Delta NDR_{it} = \lambda(DvT_{it}) + \mu_{it} \qquad (4)$$

To test the constructed hypotheses, we estimate equation (4) separately for NFC, FC, and the whole sample. According to H_1, λ for NFC firms is expected to be greater than for FC firms, that is, $\boldsymbol{\lambda_{NFC}} > \boldsymbol{\lambda_{FC}}$. The negative deviation from the target represents an above target debt, whereas, positive deviation represents below target NDR. To estimate SOA for both positive and negative DvT_{it}, we introduce two dummies in the above equation

$$\Delta NDR_{it} = \alpha + (\beta_1 D_{it}^{abo} + \beta_2 D_{it}^{bel})DvT_{it} + \mu_{it} \qquad (5)$$

where α is the intercept that shows fluctuations in the leverage due to other factors than deviations. DvT_{it} captures the deviation from the target NDR. It is calculated by the difference of previous year leverage from the target NDR. D_{it}^{abo} is a dummy that is equal to '1' if leverage deviates above the target and '0' otherwise. β_1 is the SOA towards the target NDR when the observed NDR deviates above the target. D_{it}^{bel} is a dummy that is equal to '1' if the observed leverage ratio deviates below the target and '0' otherwise. β_2 shows the SOA towards the target NDR when the observed NDR deviates below the target. As per H_2, we expect $\beta_1 < \beta_2$ or $(\beta_{D^{abo}} < \beta_{D^{bel}})$. To evaluate the impact of financing needs on SOA, we introduce two dummies representing financial deficits and surpluses. The model takes the following form.

$$\Delta NDR_{it} = \alpha + (\beta_1 F_{it}^{sur} + \beta_2 F_{it}^{def})DvT_{it} + \mu_{it} \qquad (6)$$

A financial deficit is calculated by subtracting the cash flow from the sum of capital expenditure, dividend and change in net working capital. F_{it}^{sur} represents a dummy variable that is equal to 1 if a firm has financial surpluses (a negative financial deficit) and zero otherwise. F_{it}^{def} is a dummy variable that is equal to 1 if a firm is in financial deficit (positive financial deficits) and zero otherwise. β_1 captures SOA if a firm is in financial surplus. β_2 measures SOA when a firm is in a financial deficit. As per H_3, we expect SOA for firms in financial surpluses to be less than for financial deficits for all categories of firms i.e. $\beta_1 < \beta_2$ or $(\beta_{F^{sur}} < \beta_{F^{def}})$.

A financing deficit or surplus and deviation above or below induce firms to move towards the target. In case of financial surpluses, firms can easily retire their debt if it deviates above the target. However, if the firm is in a financial deficit, it will exhibit significant speed if it is below the target. Based on these predictions, we add interactions for the dummy variables of financing gap (surplus/ deficit) with the dummy for the deviation (above/ below). The model takes the following form.

$$\Delta NDR_{it} = \alpha + (\beta_1 D_{it}^{abo} + \beta_2 D_{it}^{bel})DvT_{it} F_{it}^{sur} + (\beta_3 D_{it}^{abo} + \beta_4 D_{it}^{bel})\, DvT_{it} F_{it}^{def} + \mu_{it} \qquad (7)$$

In equation (7), β_1 shows the SOA towards the target NDR when the observed NDR is above the target along with a financial surplus. β_2 shows the SOA towards the target NDR when a firm deviates below the target and has a financial surplus. β_3 shows the SOA towards the target NDR when a firm deviates above the target and exhibits a financial deficit. Finally, β_4 is the SOA towards the target NDR when a firm deviates below the target and exhibits a financial deficit.

As per H_4, we expect that $\beta_1 > \beta_2$ *or* $(\beta_{(F^{sur}D^{abo})} > \beta_{(F^{sur}D^{bel})})$ in equation 7, while H_5 states that $\beta_1 > \beta_3$ or $(\beta_{(F^{sur}D^{abo})} > \beta_{(F^{def}D^{abo})})$. According to the next hypothesis (H_6), the SOA for firms in a financial surplus with deviation above the target will be lesser than for firms in financial deficit with deviation below the target i.e. $\beta_1 < \beta_4$ or $(\beta_{(F^{sur}D^{abo})} < \beta_{(F^{def}D^{bel})})$. According last hypothesis, H_7, we expect that $\beta_3 < \beta_4$ *or* $(\beta_{(F^{def}D^{abo})} < \beta_{(F^{def}D^{bel})})$. One should note that we test hypothesis 1 for FC and NFC firms, separately. However, all other hypotheses will be tested separately for FC, NFC, and the total sample.

3.2 Data

Initially, we take all available data of non-financial firms listed at Pakistan Stock Exchange (PSX) from different volumes of “Balance Sheet Analysis of Non-Financial Companies” published by State Bank of Pakistan. Firms are categorized into different sectors according to the classification given by the website of PSX. After collecting the data we apply certain filters for cleaning the data. We drop firm-year observations if total assets were missing, zero or negative. We also drop firm-year observations showing negative or missing value of equity. This study covers a period of seventeen years spanning from 1998 to 2014.

3.3 Variables Definitions

3.3.1 Financially Conservative Firms

Both high cash and low debt levels represent financial conservatism. Hence, we use the net debt ratio as proxy for financial conservatism proposed by Bigelli et al. (2014). Net debt ratio (NDR) is calculated by the following formula

$$Net\ Debt\ Ratio(NDR) = (Total\ Liabilities - Cash)/TA$$

The resultant net debt ratio is industry adjusted by subtracting the industry median from it. Like previous studies (Acharya, Almeida, & Campello, 2007; Bigelli et al., 2014), percentile approach is used for identifying the conservative firms. A firm is categorized as FC if it ranks in the lowest quintile for at least two consecutive years. We require persistence of at least two years for the firms to be categorized as FC. Thus, for the purpose of analysis of the SOA we have kept the firms having more than three years of data. Our final sample is comprised of 5615 observations and 403 firms. Approximately 14% firm-year observations are found to be conservative in the total sample. The percentage of FC firms significantly varies in different industries.

3.3.2 Determinants of Target Net Debt Ratio (NDR)

For estimating target net debt ratio we employ the firm-specific target leverage determinants used by Byoun (2008). These determinants include industry median, operating profit, natural log of total assets, tangibility, non-debt tax shield, and dividend pay-out ratio, market to book ratio, marginal tax rate and z-score. We do not include the variable of research and development, as data on this variable are not available for majority of Pakistani firms. These variables are defined below.

Median Industry NDR: Industry net debt ratio is the median of yearly net debt ratios of individual firms for each industry. Industry median leverage acts as the proxy for a number of factors like uniqueness, intangibility, manager sentiments, etc. (Frank & Goyal, 2004). The existing literature provides evidence for the positive effect of industry median on firm leverage (Byoun, 2008; Zhou et al., 2016). Firms in an industry have similar debt ratios because they share common tax structure, subsidies, asset risk, and profitability conditions.

*Size: "*Size is the natural log of book assets". Size is one of the most important determinant of firm leverage. It is also used as a proxy for financial constraints, as larger size firms can afford higher debt ratios. Thus, a positive effect of size on leverage is predicted as per the trade-off theory. On the other hand, larger firms are expected to issue more equity due to more transparency and less information asymmetry. Thus, the pecking order theory predicts a negative effect of size on leverage (Drobetz, Schilling, & Schröder, 2015)

*Profit: "*Profit is the ratio of earnings before interest and taxes to total assets". As per the trade-off theory, the benefits of debt should be balanced against the cost of financial distress. Profitable firms have less chances of bankruptcy. Thus, they can enjoy tax shield benefits of high debt levels. Moreover, higher leverage reduces the agency cost of free cash flow problem. The trade-off theory predicts a positive while the pecking order theory predicts a negative effect of profit on leverage (Ozkan, 2001).

Market to book: "Market to book is the ratio of the market value of equity plus book value of debt to the total assets". Market to book ratio is also considered as the proxy of growth opportunities and market expectations. High growth firms are more profitable and require more funds to exploit its investment opportunities. The value of high growth firms depends upon its future profitable investment that cannot be collateralized. By keeping low leverage, growing firms also protect its future financing ability. Thus, the trade-off theory supports the negative relation of market to book ratio with leverage. Myers (1977) also advocates a negative relationship between debt ratio and the market to book ratio. The growing firms might need more funds than available retained earnings. Thus, a positive relationship of growth opportunities with leverage can be predicted as per the pecking order theory (Smith, Chen, & Anderson, 2015).

*Tangibility: "*Tangibility is the ratio of net fixed assets to the total assets". Tangible assets depict higher debt capacity due to high collateralized worth. Though the existing studies presents both positive and negative relationships, the trade-off theory states a positive effect of tangibility on leverage (Drobetz & Wanzenried, 2006).

*Non-Debt Tax Shield: "*Non debt tax shield is calculated by dividing the depreciation expense to total assets". Higher non-debt tax shield benefits reduce the attractiveness of interest related benefits. Hence, most of the capital structure literature provides support for the existence of a negative impact of non-debt tax shield on leverage. Higher non-debt tax shield benefit reduces the attractiveness of interest tax shield benefit (Dang, 2013).

*Marginal tax rate: "*Marginal tax rate is equal to the corporate tax rate if a firm has a positive net income before taxes and zero otherwise". This measure captures the effect of marginal tax effects (Byoun, 2008). Increases in tax rate increase the tax shield benefit of debt. Therefore, leverage is positively related to marginal tax rate as per the trade-off theory.

Dividend Pay-out: "Dividend pay-out is the ratio of dividend payment to the total assets". It is difficult to maintain high dividend pay-out for highly levered firm. On the other hand, an equity oriented firm keeps high dividend pay-out to reduce the information asymmetry.

Altman z-score: "z-score is calculated by the following formula that is modified by MacKie- Mason (1990) (3.3(operating profit) + 1.4(retained earnings) + sales + 1.2(net working capital))/total assets". Byoun (2008) use modified version of Altman z-score for estimating the target capital structure. This is used as a proxy for the probability of bankruptcy. High z-score indicates less chances of bankruptcy. Altman z-score is expected to influence firm leverage positively as high credit worthiness indicates more debt capacity.

3.3.3 Financial Deficit

It is well documented in the literature that financing gap either a deficit or surplus significantly influences adjustments of capital structure towards the target (Baum et al., 2017; Smith et al., 2015). To estimate the influence of financing needs on the SOA, we have calculated the financial deficit by the following formula

$$Financial\ Deficit = (Capex + \Delta \text{NWC} + \text{Div}) - \text{CF}$$

where $Capex$ is capital expenditure, ΔNWC is a change in net working capital and Div is total dividend. CF stands for cash flow from operations. A positive value of financial deficit shows a deficit while a negative value represents a financial surplus.

4. Data Analysis

4.1 Descriptive Statistics

Panel A of Table 1 shows the summary statistics for the values of net debt ratio, debt to assets ratio, cash ratio, cash flow, financial deficit and target capital structure determinants for all sample firms. Panel B of the table shows the mean values for NFC and FC firms separately as well as t-test for the significance of the difference of means. As shown in the table, all characteristics except size, non-debt tax shield and market to book ratio, of NFC firms are significantly different from FC firms. NFC firms have higher debt ratios, lower cash balances, lower cash flows and higher net debt ratio than FC firms. The financial deficit of NFC firms is significantly higher than FC firms.

"Panel A of the table 1 (below) gives the summary statistics of net debt ratio and explanatory variables of all sample firms. First column depicts the results of the mean values for all sample firms. Second column gives results for standard deviation. Panel B depicts the difference of mean values between NFC (non-financially conservative) and FC (Financial conservative) firms respectively. Last column gives the results of t-test for the comparison of means between NFC and FC. NDR stands for net debt ratio that is calculated by the ratio of debt net of cash to total assets. TDA is total debt to total assets. Cash ratio is cash to total assets. CF is cash flow to total assets. FD represents financial deficit, it is calculated by subtracting the cash flow from total of capital expenditure ratio, dividend ratio and changes in net working capital. Ind_NDR is industry median of net debt ratio. Size is the natural log of book assets. Profit is the ratio of earnings before interest and taxes to total assets. Mkt_Bk is the ratio of the market value of equity plus book value of debt to the total assets. Tangibility is the ratio of net fixed assets to the total assets. NDTS is non debt tax shield calculated by dividing the depreciation to total assets. Tax is marginal tax rate. It is equal to the corporate tax rate if a firm has positive net income before taxes and zero otherwise. DPO is dividend pay-out to total assets ratio. AZ stands for Altman z-score. It is calculated by the following formula (3.3(operating profit) + 1.4(retained earnings) + sales + 1.2(net working capital))/total assets".

Table 1: Summary statistics and comparison of means between financially conservative and non-conservative firms

Variables	Panel A		Panel B		
	Mean	SD	NFC	FC	t-test
NDR	0.536	0.247	0.597	0.162	57.78***
TDA	0.582	0.212	0.631	0.280	52.37***
Cash ratio	0.045	0.087	0.033	0.118	-26.92***
CF	0.096	0.182	0.084	0.168	-11.95***
FD	-.0145	0.231	-.003	-.052	5.54***
Ind_NDR	0.558	0.128	0.562	0.530	6.61***
Size	14.257	1.671	14.269	14.179	1.4
Profit	0.083	0.162	0.076	0.122	-7.45***
Mkt_Bk	1.124	1.684	1.126	1.112	0.22
Tangibility	0.467	0.245	0.481	0.383	10.49***
NDTS	0.038	0.046	0.038	0.038	0.16
Tax	0.259	0.156	0.253	0.297	-7.37***
DPO	0.021	0.048	0.017	0.043	-14.40***
AZ	1.569	1.536	1.482	2.099	-10.54***

* $p<0.10$, ** $p<0.05$, *** $p<0.01$

4.2 Target NDR Estimation

Our model for the target NDR (equation (3)) contains lagged dependent variable. The presence of lagged dependent variables creates the problem of autocorrelation. Secondly, keeping in view our explanatory variables, the causation can occur in both directions. This causes the regressors to correlate with the error term. Lastly, the number of firms are greater than number of years (N > T). Thus, OLS and fixed effects estimators are not suitable for this model. Following Faulkender et al. (2012), we use the two-step system GMM estimation method suggested by Blundell and Bond (1998) to determine the target NDR. Table 2 provides the results of the GMM estimation. Panel A shows the coefficients, standard errors, and significance for one year lagged explanatory variables used as determinants of target NDR. The coefficient for the lagged value of NDR is positive and statistically significant. However, the magnitude of SOA is approximately 20 percent that is quite low (1-0.795). This indicates a high cost of adjustment. Buvanendra, Sridharan, and Thiyagarajan (2018) find almost double SOA for Srilankan firms. Öztekin and Flannery (2012) find comparable SOA (approximately 23 percent) for Indian firms.

"Panel A of the table 2 (below) provides the GMM coefficients and standard error estimates for the following dynamic regression equation.

$$NDR_{it} = \beta\lambda X_{(it-1)} + (1-\lambda) NDR_{(it-1)} + \mu_{it}$$

where NDR_{it} is the observed net debt ratio of the firm. It is the ratio of debt net of cash to the total book assets of the firm. $NDR_{(it-1)}$ is the NDR of the preceding year. λ is the speed of adjustment and β is the coefficient. Subscripts i and t represents the firm and time respectively in panel data. $X_{(it-1)}$ is the vector of explanatory variables used as determinants of leverage. These determinants are defined as follows. Ind_NDR is industry median of net debt ratio. Size is the natural log of book assets. Profitability is the ratio of earnings before interest and taxes to total assets. Market to book is the ratio of the market value of equity plus book value of debt to the total assets. Tangibility is the ratio of net fixed assets to the total assets. NDTS is non debt tax shield calculated by dividing the depreciation expense to total assets. Tax is marginal tax rate. It is equal to the corporate tax rate if a firm has positive net income before taxes and zero otherwise. DPO is dividend pay-out to total assets ratio. AZ stands for Altman z-score. It is calculated by the following formula (3.3(operating profit) + 1.4(retained earnings) + sales + 1.2(net working capital))/total assets. Panel B of the table enlist the diagnostic tests necessary for validity of GMM".

Table 2: Two step system GMM regression estimates target net debt ratio

Panel A: GMM estimation results		
Variables	**Coefficient**	**Standard Error**
NDR	0.795	(0.032)***
Ind_NDR	0.121	(0.038)***
Size	0.006	(0.002)***
Profit	-0.391	(0.104)***
Mkt_Bk	0.019	(0.005)***
Tangibility	0.076	(0.021)***
NDTS	0.150	(0.124)
Tax	-0.067	(0.033)**
DPO	-0.571	(0.176)***
AZ	0.024	(0.006)***
Constant	-0.069	(0.034)**
Panel B: Diagnostic tests		
Chi2	4376.277***	
N	2196.000	
N_g	342.000	
Ar (2)	-0.349	
p-value	0.727	
Sargan	90.063	
p-value	0.165	
J-statistic	89.465	
p-value	0.176	

* p<0.10, **p<0.05, *** p<0.01. The instrumental variables for the equation include fifth to fourth lags.

The estimation results show a positive impact of median industry leverage on the net debt ratio. The positive association of industry median with net debt ratio is consistent with the existing evidence (Byoun, 2008; Frank & Goyal, 2004). Consistent with the trade-off theory that supports the positive relation of size with leverage our findings confirm the positive size effect. Most of the empirical evidence supports the positive impact of size on leverage (Baum et al., 2017; Marchica & Mura, 2010). The coefficient of profitability shows a highly significant but negative impact on firms' leverage that is consistent with the dynamic trade-off theory as well as the pecking order theory. This result is in line with the previous study on Textile sector of Pakistan by Naveed, Ramakrishnan, Ahmad Anuar, and Mirzaei (2015).The literature indicates the existence of both positive (Baum et al., 2017) as well as negative (Elsas & Florysiak, 2011; Zhou et al., 2016) effects of firm profitability on leverage. The agency theory suggests a positive relation between leverage and profitability due to free cash flow problems. Our results for the profitability variable show the existence of the pecking order theory. The market to book ratio shows a positive effect on leverage. This ratio is considered as the proxy for firm growth. The positive relation suggests that growing firms need more external financing that results in a higher debt ratio. The existing studies find mixed results regarding the relation of market to book value with leverage. Though many studies have reported a negative relationship (Drobetz et al., 2015; Lemmon et al., 2008), our results reveal a positive effect of the market to book ratio on leverage. Yet, our finding is consistent with Rajan and Zingales (1995) and Flannery and Rangan (2006). High growth firms get greater opportunities to adjust their leverage due to their frequent interaction with the capital markets (Dang et al., 2012).

As shown in Table 2, the positive coefficient of tangibility is consistent with the prediction of the trade-off theory. High tangibility reduces information asymmetry and creates the ability to generate more debt. Moreover, capital market transaction costs are relatively lesser for bigger and more tangible firms. Non-debt tax shield is insignificant but has a positive coefficient. The depreciation expense is an alternative for tax shield benefit. Thus, it is expected to negatively influence the leverage ratio. Alternatively, more tangible firms have more depreciation expense that predicts a positive relation as per the trade-off theory. The trade-off theory strongly predicts the positive effect of taxes on leverage. A number of empirical studies confirm this too (Byoun, 2008). However, consistent with De Jong, Kabir, and Nguyen (2008), we do not find any evidence to support this argument. We find a negative effect of dividend pay-out on the net debt ratio. As dividend can substitute interest payment, the negative relation of dividend pay-out with leverage is consistent with agency cost of free cash flow (Jensen, 1986). The coefficient for Altman's z-score shows a positive sign that is consistent with the notion that firms with low bankruptcy risk can afford high leverage ratios. Panel B shows the diagnostic test necessary for the validity of the GMM results. Insignificant AR (2) test provides the evidence that the second order serial correlation does not exist. The validity of the instruments is also very crucial for GMM estimation that is tested using Sargan test. We can accept the null hypothesis of instrument validity, as the p-value is greater than any acceptable level of significance.

4.3 Speed of Adjustment

Following Faulkender et al. (2012), pooled OLS with robust standard errors is used for the estimation of SOA. As shown in Table 3, all firms move toward the debt target with a significant speed. However, the SOA for NFC firms is greater than the FC firms. The significance of SOA shows that all firms attempt to move towards their debt target whenever they deviate from the target. These results also show that the SOA is asymmetric between FC and NFC firms. The SOA for the full sample (24.2%) lies in between FC (16%) and NFC (31.2%) firms. Our finding that high levered firms show higher SOA is consistent with the findings of Faulkender et al. (2012).

This result supports the notion that high-levered firms are under greater pressure to maintain their debt ratios. This result represents the fact that instead of taking whole sample at once, dividing the sample into subcategories gives better estimate of the SOA. It can also be inferred that the capital structure decisions vary across different types of firms and we cannot estimate the same model for all firms. These results are sufficient to accept our first hypothesis that the SOA for NFC firm is greater than FC firms.

Estimates of pooled OLS regression with robust standard error used to calculate the following model are given in the table 3 (below).

$$[\![\Delta NDR]\!]_{it}=\lambda(DvT_{it})+\mu_{it}$$

where $[\![\Delta NDR]\!]_{it}$is the change in actual net debt ratio from previous year for firm i in year t. λ shows the speed of adjustment towards target net leverage. A firm moves λ percent towards its target leverage during a period of time. OLS regression robust results of speed of adjustment for the full sample are shown column (1) for financially conservative (FC) firms are given in column (2) and for nonfinancial conservative firms (NFC) are given in column (3).

Table 3: Speed of adjustment of the firms towards their net debt target

	Full Sample	**FC**	**NFC**
DvT	0.242***	0.159***	0.312***
	(0.044)	(0.057)	(0.061)
Constant	-0.006***	-0.016***	-0.003*
	(0.002)	(0.005)	(0.002)
F-stat.	29.819***	7.718***	26.294***
N	4940	778	4162

* p<0.10, **p<0.05, *** p<0.01

4.4 SOA with Deviation Above or Below

As depicted in Table 4, the regression results of equation (5) show differential SOA for above and below the target debt ratio separately. Here again, the SOA for NFC firms is highest for both above and below deviation from the target as compared to other categories. Contrary to the results of Byoun (2008) for US listed firms and Baum et al. (2017) for UK listed firms, our results show higher SOA for below target deviation as compared to above target deviation. This behaviour is consistent in all three categories. However, NFC firms show highest SOA (38.3%) for deviation below the target as compared to the deviation above the target (18.2%). FC firms show higher and significant SOA (22%) for below the target deviation as compared to above the target (0.026) which is insignificant. According to Leary and Roberts (2005), firms dynamically respond to any deviation from their optimal leverage due to change in market prices of shares or issuing new shares. However, the presence of adjustment cost prevents firms to immediately approach the target level. Huang and Ritter (2009) also show that firms do have a target capital structure, but they move toward their target at a very moderate speed. If a firm has a target leverage ratio than any deviation from this target will cost to the firm. Accordingly, the firm will adjust towards the target only if its cost of doing so is less than the cost of deviation from the target (Fischer, Heinkel, & Zechner, 1989)

Table 4 shows the statistical significance for the difference between coefficients for dummy above and below target. One should note that though the value of $\beta 2$ is higher in all three regressions but it is statistically significant for FC firms. The coefficient of deviation below the target is higher than above the target for FC, NFC as well as for full sample. Our second hypothesis is not accepted for NFC and full sample. However, it is accepted for FC firms. These results show that the cost of staying above the target for FC firms is lesser as compared to the cost of staying below the target. The estimates of SOA for FC firms suggest that although FC firms maintain low target NDR than NFC firms, they quickly move towards the target if they fall below their target NDR. The FC firms may do so to avoid the cost of staying below the target NDR, as it is easy for them to get the debt and adjust their leverage to the target. In contrast, the estimated SOA suggests that FC firms do not bother to adjust when they are above the target NDR as staying above the target is less costly for them because of having low target NDR as compared to NFC firms that have relatively higher leverage target. On the contrary, the coefficients for SOA does not vary statistically for above as compared to below the target deviation for NFC. We can infer that NFC firms pursue their target NDR more aggressively than FC firms, regardless of whether they are above or below the target NDR. This finding is also consistent with Abdeljawad and Mat Nor (2017), who show that over-leveraged firms face more pressure to move towards the target due to high cost of deviation.

Estimates of pooled OLS regression used to calculate the following model are given in the table 4 (below).

$$\Delta NDR_{it}=\alpha + (\beta_1 D_{it}^{abo}+\beta_2 D_{it}^{bel})DvT_{it} + \mu_{it}$$

where ΔNDR_{it}s the change in actual net debt ratio from previous year for firm i in year t. α is the intercept that shows changes in the leverage due to factors other than the deviation. DvT_{it} captures the deviation from the target leverage, it is calculated as the difference of previous year leverage from the target leverage. β_1 is the speed of adjustment towards the target leverage if it deviates above the target. β_2 shows the speed of adjustment towards the target leverage if it deviates below the target. OLS regression robust results of speed of adjustment for the full sample are shown in column (1) for financially conservative (FC) firms are given in column (2) and for nonfinancial conservative firms (NFC) are given in column (3).

Table 4: Estimate of speed of adjustment for the firms towards their debt target along with the deviation above and below from the target

	Full Sample	**FC**	**NFC**
$D^{abo}.DvT$	0.139**	0.026	0.182***
	(0.056)	(0.050)	(0.066)
$D^{bel}.DvT$	0.293***	0.220***	0.383***
	(0.071)	(0.075)	(0.108)
Constant	-0.009***	-0.021***	-0.007**
	(0.003)	(0.006)	(0.003)
F-stat.	18.685***	4.845***	20.118***
Prob ($\beta_1 = \beta_2$)	0.147	0.047	0.1873
N	4940	778	4162

* p<0.10, **p<0.05, *** p<0.01

4.5 SOA and Role of Financing Needs

The role of financing needs is depicted in Table 5. The purpose of the regression equation (6) is to investigate the role of financing gap in defining the SOA towards target. All regression equations show higher coefficients for SOA in financial deficits. Dang and Garrett (2015) also show higher SOA for the firms facing financial deficits than the firms that have financial surpluses. The reason for higher SOA in case of a financial deficit is greater pressure of financing needs.

The results of the regression that represents the estimates for the whole sample show positive and highly significant SOA for both surpluses and deficits. However, the SOA for firms having a financial surplus (16.7%) is fairly below the SOA for firms with a deficit (44.7%). This difference is also statistically significant. NFC firms also show positive and significant coefficients for SOA during financial surpluses (20.2%) as well as financial deficits (57.2%). This difference is also statistically significant. The behavior of FC firms is relatively different. They adjust their leverage to the target with a speed of 26% per annum when they face financial deficits, whereas, they adjust with a speed of only 13.8% in periods when they have financial surpluses. Yet, this difference is not statistically significant. The estimated SOA indicate that, NFC firms do more rapid adjustments in their capital structure irrespective of financial deficits or surpluses, as compared to FC firms. This finding makes sense because NFC have higher target NDR than FC and deviating from the target NDR is definitely costly for them. Therefore, they attempt to adjust more rapidly towards the target by utilizing excess funds or financing deficits. Based on the findings presented in Table 5, we accept our third hypothesis for NFC firms and for the full sample. These results provide support to the application of the pecking order theory in Pakistan as this theory predicts that, financial deficit induces the firm to make an adjustment of capital structure.

Estimates of pooled OLS regression used to calculate the following model are given in the following table 5.

⟦ΔNDR⟧_it=α⟦+ (β_1⟧_ ⟦F_it^sur+β⟧_2 F_it^def)DvT_it +μ_it (6)

Where ⟦ΔNDR⟧_its the change in actual net debt ratio from previous year for firm i in year t. α is the intercept that shows changes in the leverage due to factors other than the deviation. Financial deficit is calculated by subtracting the cash flow from the sum of capital expenditure, dividend and change in ratio of net working capital excluding cash.

F_it^sur represents dummy that is equal to 1 if firm has financial surplus (negative deficit) and zero otherwise. F_it^def is a dummy that is equal to 1 if firm is in financial deficit and zero otherwise. β_1 captures SOA if firm is in financial surplus. β_2 measures SOA for the firm in financial deficit. OLS regression robust results of speed of adjustment for the full sample are shown in column (1) for financially conservative (FC) firms are given in column (2) and for nonfinancial conservative firms (NFC) are given in column (3). Robust standard error is given in parenthesis.

Table 5: Estimate of Speed of Adjustment for the firms towards their low debt target along with financial surplus and deficit

	Full Sample	FC	NFC
$F^{sur}.DvT$	0.167***	0.138*	0.202***
	(0.035)	(0.075)	(0.041)
$F^{def}.DvT$	0.447***	0.260***	0.572***
	(0.113)	(0.100)	(0.153)
Constant	-0.006***	-0.016***	-0.004**
	(0.002)	(0.005)	(0.002)
F	19.005***	4.452**	18.937***
Prob ($\beta_1 = \beta_2$)	0.017	0.291	0.019
N	4801	754	4047

* p<0.10, **p<0.05, *** p<0.01

4.6 Interaction of Distance from the Target with Financial Imbalance

Table 6 shows the results of equation (7) that includes the interaction terms between financial surplus/deficit and deviation above/below. The results for the whole sample firms show highest SOA when firms deviate below the target and have a financial deficit (49.7%). Contrary to the results of Byoun (2008), we find the highest SOA (70%) for firms those are below the target and have financial deficits (D_it^bel*DvT_it* F_it^def). The SOA is also positive and significant when firms deviate above the target and face financial deficits for full sample (29.9%) as well as for the case of NFC (30.2%) firms. Generally, it is believed that it is relatively easier for firms to move toward the target when they have financial surpluses. However, the estimated SOA tells the different story. The SOA is significantly lower in periods when firms have financial surpluses. This finding holds regardless they are below or above their target. Yet, we observe that firms in financial surpluses adjust their capital structure more rapidly towards the target if their leverage is below the target as compared to above the target. When we compare the SOA across NFC and FC firms we find that both types of firms adjust their capital structure differently when they have financial surpluses and are above and below the target. For example, although there is a minor difference in the SOA of both groups of firms when they are below the target, FC firms do not show significant adjustments when they are above the target. It implies that FC firms only alter their capital structure when they are below the target irrespective of whether they have financial surpluses or deficits. Specifically, we find that the estimated SOA for NFC having financial surpluses is 11.8% per year when they are above the target and 25.1% per year when they are below the target. The corresponding figures for FC firms having financing surpluses are only 1.16% and 23.5% per annum, respectively. These findings suggest that FC firms utilize their debt capacity to fulfil their financial needs.

FC firms do not show significant SOA toward target NDR in periods of financial surpluses, particularly when they are above the target leverage. Baum et al. (2017) find higher SOA in periods when firms are above the target regardless of the financing gaps. In contrast, we find higher SOA for firms those are below the target. The adjustment behavior of these firms also indicate that the cost of equity issuance is higher as compared to debt. Another possible reason for such outcome is that the firms in Pakistan are operating under highly concentrated family ownership structure and they might avoid issuing new equities which is required to make any adjustment towards the target when they are above the target. Moreover, since most of firms are highly politically connected, they may prefer and not face any difficulty to rollover their debt obligations. Further, we find that the magnitude of SOA substantially varies across FC and NFC firms. The different results of SOA for FC and NFC firms are sufficient to declare the distinctive behavior of these firms.

Estimates of pooled OLS regression with robust standard error used to calculate the following model are given in the table 6.

$$\Delta NDR_{it} = \alpha + (\beta_1 D_{it}^{abo} + \beta_2 D_{it}^{bel}) DvT_{it} F_{it}^{sur} + (\beta_3 D_{it}^{abo} + \beta_4 D_{it}^{bel}) DvT_{it} F_{it}^{def} + \mu_{it}$$

"where ΔNDR_{it}, α, and DvT_{it} are the same like in previous equations. D_{it}^{abo} is a dummy that is equal to '1' if leverage deviates above the target and '0' otherwise? F_{it}^{sur} is a dummy variable equal to '1' if financial deficit is negative and '0' otherwise. β_1 shows the speed of adjustment towards the target leverage if it deviates above the target and exhibit financial surplus. D_{it}^{bel} is dummy that is equal to '1' if leverage deviates below the target and '0' otherwise. β_2 shows the speed of adjustment towards the target leverage if it deviates below the target and exhibit financial surplus. F_{it}^{def} is a dummy variable equals to '1' if financial deficit is positive and '0' otherwise. β_3 shows the speed of adjustment towards the target leverage if it deviates above the target and exhibit financial deficit. β_4 is the speed of adjustment towards the target leverage if it deviates below the target and exhibit financial deficit. OLS regression robust results of speed of adjustment for the full sample are shown in column (1) for financially conservative (FC) firms are given in column (2) and for nonfinancial conservative firms (NFC) are given in column (3)".

Table 6: Estimate of speed of adjustment for the firms towards their low debt target along with the deviation above/below from the target and financial deficit/surplus

	Full Sample	FC	NFC
$F^{sur}.DvT.D^{abo}$	0.095*	0.016	0.118*
	(0.050)	(0.046)	(0.063)
$F^{sur}.DvT.D^{bel}$	0.213***	0.235**	0.251***
	(0.054)	(0.114)	(0.069)
$F^{def}.DvT.D^{abo}$	0.299**	0.356	0.302**
	(0.124)	(0.368)	(0.132)
$F^{def}.DvT.D^{bel}$	0.497***	0.290***	0.701***
	(0.151)	(0.111)	(0.227)
Constant	-0.009***	-0.022***	-0.008**
	(0.003)	(0.006)	(0.003)
F-stat.	11.815***	2.878**	11.990***
Prob ($\beta_1 = \beta_2$)	0.150	0.097	0.207
Prob ($\beta_1 = \beta_3$)	0.099	0.356	0.153
Prob ($\beta_1 = \beta_4$)	0.022	0.030	0.026
Prob ($\beta_3 = \beta_4$)	0.367	0.867	0.181
N	4801	754	4047

* p<0.10, **p<0.05, *** p<0.01

4.7 Summary of Constructed Hypotheses

Table 7 presents the summary of the hypotheses. We accept our first hypothesis as the coefficients of SOA for NFC firms are considerably higher. It implies that FC firms are susceptible to higher adjustment cost as compared to NFC firms (Ramakrishnan, 2012). A higher SOA also imply the application of dynamic trade-off theory for NFC firms.

Our second hypothesis is accepted for FC firms. The coefficient of SOA is higher when firms are below their target in all regressions. Nonetheless, this coefficient is only statistically significant for FC firms. The maximum net debt ratio is less than 50% (un-reported) for FC firms. Thus, even if they are above their targets they are not vulnerable to any risk. If we look at the summary statistics from Table 1, it is evident that FC firms pay more dividends and hence, face lower information asymmetry. Further, they have higher value for profitability and z-score and thus, are less prone to bankruptcy risk. Likewise, FC firms generate more cash flows and are less susceptible to financial deficit. These firms keep very low debt targets, so staying above the target does not increase their risk. From the low coefficients of SOA, it can also be inferred that FC firms are not actively maintaining their debt targets. The half-life of FC firms is greater than four years while half-life for NFC firms are less than two years.

Table 7: Regression Results of Hypotheses

Hypothesis	Expectation	Results		
		Full Sample	**FC**	**NFC**
H_1	$\lambda_{NFC} > \lambda_{FC}$	N/A	**Accepted**	**Accepted**
H_2	$\beta_{D^{abo}} < \beta_{D^{bel}}$	Rejected	**Accepted**	Rejected
H_3	$\beta_{F^{sur}} < \beta_{F^{def}}$	**Accepted**	Rejected	**Accepted**
H_4	$\beta_{(F^{sur}.D^{abo})} > \beta_{(F^{sur}D^{bel})}$	Rejected	Rejected	Rejected
H_5	$\beta_{(F^{sur}.D^{abo})} > \beta_{(F^{def}D^{abo})}$	Rejected	Rejected	Rejected
H_6	$\beta_{(F^{sur}.D^{abo})} < \beta_{(F^{def}D^{bel})}$	**Accepted**	**Accepted**	**Accepted**
H_7	$\beta_{(F^{def}D^{abo})} < \beta_{(F^{def}D^{bel})}$	Rejected	Rejected	Rejected

Our third hypothesis that SOA is lesser during periods of financial surplus than deficit is accepted for full sample and NFC firms. FC firms do not show significantly higher SOA for financial deficit than surplus. Fourth hypothesis is rejected in all cases. It seems that during periods of financial surpluses, firms are less concerned to get rid of the extra debt when they deviate above as compared to rebalancing when they deviate below. It shows that the adjustment cost of debt is higher than equity in financial environment of Pakistan. Fifth hypothesis is rejected for all cases. The coefficients of SOA represented by the β_1 & β_3 in Table 6 are higher for β_3 ($\beta_{(F^{def}D^{abo})}$) than for β1 ($\beta_{(F^{sur}.D^{abo})}$) in all cases of equation (7). However, they are not statistically significant for FC and NFC firms. Contrary to the hypothesis that $\beta_{(F^{sur}.D^{abo})} > \beta_{(F^{def}D^{abo})}$ we find higher coefficients for β3 than β1 in all estimated regressions.

Sixth hypothesis is accepted for all three regression equations. The coefficient β_1 and β_4 are also statistically different at 5% level of significance. Financial deficits and deviation below are the strongest motives for the adjustment of capital structure. All types of firms show highest coefficient for SOA in the case of financial deficits and deviation below ($\beta_{(F^{def}D^{bel})}$). All coefficients for financial deficits are greater than financial surpluses.

In case of last hypothesis ($\beta_3 < \beta_4$) in equation 7, we reject it for all regression. Though the coefficients of SOA are higher for β_4 than β_3, but they are not statistically significant. A financial deficit seems to be the most imperative motive for readjustment of capital structure. This result indicate the application of the pecking order hypothesis. Firms readjust their leverage if they are in deficit regardless of the deviation above or below. Overall out of twenty hypotheses, eight hypotheses are accepted.

4.8 Robustness Checks

We have used ordinary least squares for measuring SOA. For the robustness of this analysis we also measure the SOA using fixed effect regression with the same target NDR model. The results show similar trend with relatively higher SOA as compared to OLS results. For the robustness of target NDR, we use the set of six determinants specified by Frank and Goyal (2009) and Marchica and Mura (2010). These variables include size, inflation, and profitability, market to book ratio, tangibility and median industry leverage. The results for this model are robust to our specification of target NDR model. We also use fixed effect regression for determining the target NDR. We obtain similar results. However, the SOA obtained from target NDR using fixed effect regression are substantially higher.

5. Conclusion

The objective of this paper is not only to determine the SOA of FC firms towards the target but also to compare the estimated SOA across FC with NFC firms in Pakistan. Financial imbalances and deviations from the target capital structure are also taken into account while estimating adjustment speeds for full sample, FC firms, and NFC firms. The paper covers the period 1998-2014.

We find that both FC and NFC firms adjust with significantly different speed towards the target. Specifically, we show that, FC firms do slower adjustment regardless of financial imbalances and deviations from the target capital structure as compared to NFC firms. It is important to notice that the SOA for FC firms is not statistically different in case of surpluses and deficits. While SOA for NFC firms is significantly higher during periods of financial deficits than financial surpluses. However, the higher SOA for all types of firms during periods of financial deficits shows that firms are not financially constrained. According to Fischer et al. (1989), a firm will only adjusts its leverage when it passes some upper or lower hurdle due to the existence of fixed cost of adjustment. The SOA for FC firms is statistically higher during periods of deviation below the target as compared to above target deviation. It means that the cost of staying above the target is less than the cost of adjustment. These firms keep sufficient debt capacity and thus, access debt markets whenever they need. In contrast, the SOA for NFC firms is not statistically different in case of deviation above or below the target. Not only is the observed net debt ratio, but also target ratio for FC firms is quite lower than NFC firms. So moving above the target might not be a big concern for FC firms as compared to NFC firms that hover pretty closer to high net debt ratio targets. The strongest influence of financial deficits in determining the capital structure of firms is consistent with the pecking order theory. A high cost of adjustment might be the reason that firms only make adjustment when they are under pressure to visit capital markets to fulfil their financing requirements.

The findings of this paper are of significance for firm managers, investors, and academics. The results suggest that the SOA varies depending upon the existing financial policy. The policy makers should consider net debt ratio along with the debt ratio for decision-making. Significant SOA for net debt ratio implies that the capital structure theories should incorporate the cash ratio along with debt ratios for better empirical support. Moreover, the different behavior regarding of SOA in the phases of financial surplus, deficit and deviation from the target shows that different capital structure theories can be applicable to different types of firms.

The scope of this study is limited to the measurement and comparison of the SOA for FC and NFC firms. The FC firms exhibit very slow SOA that can be an indication of market timing hypothesis. Examining the market timing hypothesis on these subsamples of firms can generate better theoretical implications. Future studies can incorporate the effects of industry characteristics and corporate governance variables on the SOA. Another important factor that can affect the capital structure dynamics of firms, but not included in this paper is business group affiliation. Future studies should include these factors to drive valuable insights about capital structure adjustments. Moreover, separately examining and comparing the cash target and leverage targets can enhance our understanding on adjustment process of firms' financial policies.

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