

# FINANCIAL FLEXIBILITY AND THE SPEED OF TARGET ADJUSTMENT OF CAPITAL STRUCTURE: PANEL DATA ANALYSIS

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## Abstract

This study aims at investigating the impact of financial flexibility on the speed of target adjustment of capital structure. For this purpose, the partial adjustment model with interaction dummy term is used and tested using panel data analysis for a sample of 47 industrial firms listed in Amman Stock Exchange over the period of 1996 to 2014. The results of Random and fixed effects models showed that the target reversion of capital structure occurs slowly. The results also revealed that financial flexible firms adjust their leverage ratio much faster than less flexible firms. The tendency of making target reversion increases when inflexible firms have leverage above its target level, while inflexible firms with above-target leverage ratio adjust their leverage faster than flexible firms. These findings suggest that financial flexibility plays an important role on determining the financing decisions in Jordanian industrial firms. Moreover, they suggest how large bankruptcy risk is critical for industrial Jordanian firms. Hence, Industrial Jordanian firms should take into consideration the financial flexibility when they set their financial decisions to avoid the loss of profitable investment opportunities or experience the financial distress.

**Keywords:** Capital Structure, Financial Flexibility, Panel Data, Amman Stock Exchange

## 1. INTRODUCTION

Trade-off theory of capital structure states that value maximizing firms will identify their optimal capital structure at the point where the marginal cost of any additional unit of debt used equals its marginal benefit. This suggests that the cost and benefit of debt are the main factors influencing the impetus of value maximizing firms to revert back to their target level of capital structure. For example, if the cost of moving toward the target leverage ratio is higher than that of being away from that target, the impetus to make target reversion declines, creating low rate of target adjustment and vice versa.

However, the costs and benefits of debt are not the only factors that might determine the speed of target adjustment. Literature suggests other factors that may significantly influence the impetus of making target adjustment. Graham and Harvey (2001) found that the financial flexibility is one of the most important determinants of capital structure policy. So, they argued that it could be ranked over the tax advantage of debt, implying that seeking for financial flexibility will reduce the impetus for making target reversion. For Mahakud and Mukherjee (2011), financial constraints, ownership structure and macroeconomic conditions strongly affect the speed of target adjustment. Drobotz and Wanzenried (2006) showed that faster growing firms and those with large size of target deviations adjust their capital much quickly than less growing firms with small size of target deviations. Moreover, they provide evidence suggesting that the target adjustment rate is largely

affected by the economic conditions; firms adopt higher rates of target adjustment when economic conditions are good rather than when economic conditions are bad. This is because creating debt during recession periods will increase the probability of bankruptcy, reducing the net saving of debt, and consequently, reducing the impetus of making target reversion.

Thus, findings of previous studies suggest several determinants of the speed of target adjustment other than the costs and benefits of debt, such as the country's economic conditions, the costs of external financing, the size of target deviations, and the firm's specific factors or characteristics. Byoun (2008), who provides evidence suggesting that the target adjustment is not symmetric, found that firms with above-target leverage ratio adjust their leverage faster than those with below target leverage ratio. The finding of Byoun (2008) supports the findings of Flannery and Rangan (2006) who showed that the cost of target deviations is higher for highly levered firms than for less levered firms, making downward adjustment occurs faster than upward adjustment and implicitly, paying attention to how large financial flexibility is important for determining the capital structure policy, and consequently, the speed with which firms correct their target deviation. Graham and Harvey (2001) provide statistical survey evidence showing that financial managers in US market consider financial flexibility and credit rating as the most important determinants of capital structure policy. They argue that large-dividend paying firms have less information asymmetry than

small-non-dividend paying firms. Therefore, these firms are expected to score lower on flexibility. Consistent with these findings, Brounen et al. (2005) found that financial flexibility is more important for dividend-paying firms, suggesting that financial flexibility is the most important factor that influences the amount of debt used by UK firms. These results support Graham and Harvey's (2001) conclusion that financial flexibility is not driven by the pecking order theory. However, Drobetz and Wanzenried (2006) argued that the main objective of setting financing policy is not to mitigate the firms' cost of capital as trade off theory suggests, but to save financial flexibility, which is better explained in the context of the pecking order theory. In their pecking order theory of capitals structure, Myers (1984) and Myers and Majluf (1984) paid attention to the use of debt to avoid inefficiencies in a firm's investment decision which otherwise result from information asymmetries. This explains why firms let their earnings to determine their leverage and dividend decisions. Hence, one could expect that high profitable firms will retain more funds for financing and consequently, using less debt which makes them more financial flexible. Therefore, Myers (2001) showed that firms need to issue equities when their market values are overvalued to help firms keeping their reserve borrowing capacity high in order to avoid forgoing positive NPV project in the future. This is because overvalued shares have low information asymmetries, making the finance of new investment opportunities by equity attractive and reasonable.

The finding of Myers (2001) supports Myers (1977) who suggests that overvalued firms should use equity, not debt, for financing to save their borrowing capacity, indicating that the excessive use of debt will increase the probability of bankruptcy and create underinvestment problem if their borrowing reserve capacity is becoming close to the maximum. The underlying argument behind Myers (1977)'s statement is that, the financial flexibility that may affect the firm's financing decision, implying that financial flexibility and reserve borrowing capacity are related and consequently, affects the speed of target adjustment. The impetus of moving toward the target capital structure may depend on whether firms operate at full or below their borrowing capacity, or whether they are more or less flexible firms. For those with full borrowing capacity or less financial flexibility, creating more debt to eliminate the target divergence may not be possible because the marginal tax savings decrease at increasing rates when more debt are used for financing (DeAngelo and Masulis, 1980) or for moving toward the target level while, financially flexible firms have an ease access to external funds, which reduces the probability of facing underinvestment problem and consequently increasing their market values (DeAngelo and DeAngelo, 2007; Byoun, 2008). Chen et al., 2009 argue that firm with a high degree of financial flexibility will be more able to overcome the obstacles that may face firms and restrict their ability to finance their new investment opportunities at attractive rates. This indicates how financial flexibility is important for firms to adjust their financing plan as required. Moreover, it explains why firms try to improve or keep their flexibility

high if they want to avoid forgoing valuable investment opportunities in the future or to be flexible in moving toward their target whenever needed.

Empirical evidence derived from developed capital market suggests that financial flexibility is too important for firms having target capital structure and seeking to maximize their market value. This is mainly attributed to the fact that financial flexibility may affect their ability to generate funds externally (bonds and equity), indicating that capital market frictions still matter for firms in developed market. The finding of Fazzari *et al.*, (1988) in U.S market, that investment is highly sensitive to cash flows, supports this argument and changed the scholars' belief that the capital market frictions are only a problem for developing countries. In reality, market frictions are still restricting the access to external funds in both developing and developed markets, but they are much more severe in developing markets than developed ones. This is because developing Capital markets (including Jordan) are less developed, less competitive and suffering from the lack of compatible regulations and sufficient supervision. Hence, we expect that firms in these markets pay substantial attention to keep their financial flexibility rather than generating debt for tax considerations. In Jordan, firms do not gain much benefit from debt because the tax system allows only loss to carry forward not loss to carry backwards (Booth *et al.*, 2001).

As this is the case, a key question arises. What should be expected regarding the impact of financial flexibility on the speed rates of target adjustment in Jordan? To the best of research knowledge, no previous studies empirically investigated the impact of financial flexibility on the speed of target adjustment in Jordan. To fill this gap, we empirically investigate the impact of financial flexibility on the target adjustment rate of capital structure using a sample of nonfinancial firms listed in Amman Stock Exchange

## 2. FINANCIAL FLEXIBILITY AND TARGET ADJUSTMENT THEORY

In their classical propositions of capital structure, Modigliani and Miller (1958) argue that the capital structure has no impact on a firm's value, suggesting that the value is not influenced by the way of financing. The underlying assumption behind their propositions is that, the perfection of capital market with no market frictions at all. More precisely, transaction costs, information asymmetry, bankruptcy costs, and taxes agency costs are not relevant, which makes internal and external funds perfectly substitutes for each other. If this is the case, firms can generate funds whenever required and the need for improving and keeping financial flexibility will decline. Hence, the firm can carry out any investment opportunities as long as a profitable one or has a positive NPV, implying that leverage and investment decisions are irrelevant and independent, which makes investment decisions having no sensitivity to cash flows. This provides a reasonable explanation as to why Modigliani and Miller (1958) conclude that profitability of new investment opportunities is the sole determinant of

firms' investment decisions. However, the presence of imperfection feature of capital markets increases the need for financial flexibility when cash flows and investment opportunities are uncertain (Byoun, 2011), making investment and financing decisions more relevant. In such a case, financial flexibility becomes too important for those firms seeking to maximize value. This is because financial flexibility is concerned with the ability of accessing and restructuring the financing plans without losing valuable investment opportunities (Byoun, 2011). This argument supports Gamba and Triantis (2008) who argue that highly financially flexible firms are expected to be valued at premium higher than that of less flexible firms, suggesting a positive impact of financial flexibility on a firm's value. Franck and Mittoo (2011) argue that financial crisis will be less severe for firms with high financial flexibility than those with low financial flexibility. Their findings revealed that high financial flexible firms have high cash ratio with low leverage ratio. Consistent with this argument, Denis (2011) argues that having a high financial flexibility provides firms with the ability to avoid the risk of forgoing positive Net Present Value projects. This implies that the possibility of enhancing the firm's value for financial flexible firms will be higher than for financial inflexible firms. This may be the reason why firms seek to maintain and improve their financial flexibility at more reasonable rate. Rapp *et al.* (2014) argue that firms tend to save their financial flexibility by accumulating more cash to save their borrowing capacity for the future by exhibiting a lower debt ratio.

Therefore, firms should keep their leverage low to preserve the ability of borrowing when their financing needs are uncertain (DeAngelo and DeAngelo 2006). However, the need for financial flexibility may increase depending on whether firms are immature with more severe financial constraints. Developing financially constrained firms are expected to seek financial flexibility by lowering leverage and keeping large cash balance (Byoun, 2011). For these firms, the chance of giving up valuable investment opportunities is high enough to make them keep their borrowing capacity for future needs. This might be the reason as to why firms choose to incur the opportunity cost of investing free cash reserves in the present time and save cash to maximize their financial flexibility in the future (Clark *et al.*, 2009).

Extant literature suggests several ways of enhancing firms' financial flexibility if they need to be in a position to avoid forgoing valuable investment opportunities. Kahl *et al.*, (2008) found that firms can improve their financial flexibility by using commercial papers' market. However, Freixas, (2000) argues that only those firms with a sufficiently high demand for flexibility choose bank lending over bond financing. He attributed the reason to intermediation costs that make bank lending more expensive and flexible than bond financing. Powers and Tsyplakov (2008) found that firms can enhance their financial flexibility by retiring debt, so they suggest the use of callable bonds which can be called whenever necessary. However, creating or retiring debt depend on whether firms experience financial deficit or surplus. Firms with financial deficit are expected to create

more debt to finance their financial deficit (Denis and Mckeon, 2010). However, using financial surplus to retire debt may depend on how large will be the agency cost of free cash flow. Jensen (1986) suggests the use of debt and dividend as a substitute mechanism to mitigate the agency conflict between shareholders and managers. But firms may choose to incur the agency cost of free cash to save cash for the purpose of maximizing their financial flexibility in the future. Moreover, firms can increase or at least save their financial flexibility by increasing their retention limits (Eldomiaty and Azim, 2008). Firms can retain more of their earnings when the cost of equity financing is relatively low. Baker and Wurgler (2002) find that low-levered firms tend to be those which raised funds when their valuations were high, and conversely high leverage firms tend to be those which raised funds when their valuations were low. This, in fact, explains how large financial flexibility is affected by timing considerations and capital market conditions. Hence, firms with a high stock value should use equity not debt to save their borrowing capacity (Myers, 1977), and consequently increasing their financial flexibility to avoid under investment problem.

However, the need for preserving financial flexibility forces firms to deviate from their target capital structure (DeAngelo, *et al.*, 2010), affecting their market value and consequently, increasing the need for making capital target adjustment. The trade-off theory of capital structure, which is confirmed by the importance of a target debt ratio, ignores the link between financial flexibility and the speed rate of target adjustment. It does not take into consideration the impact of financial flexibility on target adjustment rates. According to DeAngelo and DeAngelo (2007), the link between the financial flexibility and target capital adjustment theory is still missed. However, there is some evidence to suggest that financial flexibility may significantly affect a firm's financing decision (i.e. Singh and Hodder, 2000; Graham and Harvey, 2001; Brounen *et al.* 2005; Denis and Mckeon, 2010; DeAngelo, *et al.*, 2010; amongst others) which in turns affect a firm's willingness to correct target deviations. Few of previous studies have investigated the impact of financial flexibility on the speed of target adjustment (i.e. Clark *et al.*, 2009 ; Eldomiaty and Azim 2008). Clark *et al.*, (2009) found that the need for financial flexibility, and development of the domestic equity market, bankruptcy costs, and managerial agency costs have positive and significant effects on adjustment speed. Moreover, they conclude that, if firms have target debt ratios, financial flexibility is maximized at the target capital structure which increases the impetus of making target adjustment. This provides a reasonable explanation as to why financial flexibility and the speed of target adjustment are positively related. A study conducted by Arias *et al.*, (2011) provides evidence supporting Clark *et al.*, (2009). The study found that the rate of financial flexibility is positively related to the speed of target adjustment. At high rate of financial flexibility, a firm has low leverage ratio with low probability of financial distress and thereby a bankruptcy risk. So, making target leverage adjustment will add value to the firm which is expected to decline gradually as it becomes

close to its target leverage ratio. However, Eldomiaty and Azim (2008), who have conducted a study in one of developing markets (Egypt), found the opposite. The plausible explanation of their finding may be attributed to the nature of tax and bankruptcy laws and regulations which impose firms to high expected risk of bankruptcy with low tax benefits.

It has been argued that firms may deviate from their target in response to timing considerations and capital market conditions (Huang and Ritter 2007; Marsh 1982). According to Marsh (1982), the probability of issuing equity would be high if the firm's capital structure is above its target level. Huang and Ritter (2007) showed that firms will be less sensitive to adjust their leverage when the cost of issuing equity is relatively low. These findings displayed how large financial flexibility is important for firms, making financial flexibility in the first priority over the tax advantage of debt. Hence, the willingness of enhancing their financial flexibility by issuing equity not debt induces firms to have a debt ratio below the target one. In Jordan, the tax system is significantly different from those in US and UK. It allows only loss to carry forward not to carry backwards, so Jordanian firms are expected to use less debt in their capital structure which increases their reliance on equities (see, Booth et al., 2001), and consequently, making them more flexible. Moreover, Jordan has no corporate bonds market, so firms depend heavily on bank loans which are largely affected by bank's credit policies (Maghaireh, 2004). In general, all capital market frictions are relevant in the context of Jordan such as bankruptcy costs, agency costs, information costs and non-debt tax shields. Hence, seeking financial flexibility will be one of the priorities to the Jordanian firms listed in ASE when seeking funds externally.

### 3. DATA AND MODEL SPECIFICATIONS

#### 3.1. Study Sample and Data

To accomplish the study objectives, numerous empirical models are developed and tested using pooled and panel data analysis. Panel data analysis has numerous advantages over cross sectional, time series or pooled data. It explicitly considers the heterogeneity of individual and time specific effects which makes the estimated results more efficient (Gujarati, 2003). According to Gujarati, (2003), the existence of individual and time specific effects makes OLS regression inefficient. Hence, fixed effects and random effects regressors become too necessary for the heterogeneity considerations.

Data for panel data analysis are collected from the firm's annual reports published by Amman Stock Exchange. The web site of the Amman Stock Exchange is also used to collect the data for most recent years. As the study is restricted to analyze the financing behavior of industrial firms, all non-industrial firms were excluded. The sample data set of the study is constructed to cover the period of 1996 to 2014 in accordance with the following selection criteria; firms that are engaged in acquisitions or liquidation over the study period will be excluded. Firms that are established after 1996 or have missing data will also be excluded. Hence, the study includes only industrial firms that have been

continuously listed on the Amman Stock Exchange (ASE) and that had published data continuously for at least 19 years. The application of above selection criteria results in 54 firms with 1026 observations.

#### 3.2. Empirical Models Specifications

This study aims to investigate the impact of financial flexibility on the speed rate of making target capital adjustment. For this purpose, the partial adjustment model used by Byoun (2008), Flannery and Rangan (2006), Shyam-Sunder and Myers (1999) is used:

$$LEV_{it} - LEV_{it-1} = \psi(LEV_{it}^{industry-average} - LEV_{it-1})$$

where,

$LEV_{it} - LEV_{it-1} (\Delta ALV_{it})$  represents the change in firm i's leverage ratio from year  $t$  to year  $t-1$ ,  $(LEV_{it}^{industry-average} - LEV_{it-1})$  represent the size of target deviation, which is renamed as:  $TLVD_{it} \cdot LEV_{it-1}$  is the firm i's leverage ratio at year  $t-1$ , while,  $(LEV_{it}^{industry-average})$  is the target leverage ratio of firm i. For the purpose of using the reasonable proxy for the target leverage ratio, the historical mean value of a firm's leverage ratios over the study period is used. According to Lo and Hui, (2009), this proxy for target capital structure tends to reduce the impact of momentary deviations result from business cycles, flotation costs and companies' lagged adjustments towards the target level of leverage ratio. Moreover, we used the book value of debt rather than the market value. Managers focus on book values of debt when making the leverage decision because the book debt ratio is more accurately indicates the financing mix managers have actually obtained from outsiders (Baskin, 1989) and Marsh, 1982). Moreover, the book value provides better collateral for lenders; it's primarily reflecting tangible assets. Further, it is not affected by the change in stock price (Barclay *et al.*, 1995) which is depending on a number of uncontrollable factors (Kayham and Titman, 2007). However, Hovakimian *et al.* (2001) demonstrate that the estimation results are not significantly affected by whether debt is measured by book or market value.

Based on the above analysis, this is the model that will be developed and extended to accomplish the study objectives:

$$\Delta ALV_{it} = \lambda_0 + \lambda_1 TLVD_{it} + \varepsilon_{it} \quad (1)$$

It is worth noting that the focal point of the partial adjustment model is the adjustment cost that makes actual leverage diverges from its target level, where zero adjustment costs implies no target reversion exist. This suggests that the estimated coefficient of  $TLVD_{it}$  variable ( $\lambda$ ) should be between zero and one (not zero or one) for having target adjustment.

### 3.2.1. High-Low Levered Firms Model

To examine the effect of financial flexibility on the speed rate of target adjustment, the model (1) will be re-regressed including the financial flexibility variable. As the financial flexibility refers to the reserved borrowing capacity that enables a firm to raise new debt whenever needed, firms with low leverage are expected to be flexible firms (see, Byoun(2011)). This suggests that the lower a company's debt level, the more financial flexibility the company has. So, we assume that firms with leverage ratio below the industrial average ratio are classified as financial flexible firms and given dummy value equals one ( $D_{it}^{flexible} = 1$ ), while those with leverage ratio above industrial average ratio are less flexible firms and given dummy value equals zero ( $D_{it}^{flexible} = 0$ ). Taking the industrial average for classifying flexible and inflexible firms is mainly attributed to the fact that creditors take into consideration the market position when taking decisions. Financial flexibility dummy is used to develop the interaction dummy form by adding two other explanatory variables to model (1): ( $D_{it}^{flexible}$ ) and ( $D_{it}^{flexible} * TLVD_{it}$ ). The two dummy variables in this model are used to differentiate between the intercept and slope coefficients of the financial flexibility and inflexibility (rigidity) (see, Gujarati, 2003:308).

Hence, model (1) can be re-formalized as follows:

$$\Delta ALV_{it} = \lambda_0 + \lambda_1 TLVD_{it} + \lambda_2 D_{it}^{flexible} + \lambda_3 (D_{it}^{flexible} * TLVD_{it}) + \varepsilon_{it} \quad (2)$$

For the presence of financial flexibility effect, the coefficient on interaction term ( $\lambda$ ) should be statistically significant regardless of its sign; whether it is positive or negative. The significant positive sign suggests that financial flexibility accelerate the movement toward the target adjustment and vice versa.

### 3.2.2. Earning Retention Model Specification

It has been argued that firms with expected high levels of retentions will be more probably altering their capital structure by raising more debt (Eldomiaty and Azim, 2008). This supports the prediction of March (1984) who concludes that firms with high retention rate are expected to be high financially flexible. Consistent with this argument, Myers and Majluf, (1984), who developed the theoretical framework of pecking order theory, argue that firms with high earnings volatility try to accumulate cash during good years to save their borrowing reserve. The underlying statement behind their argument is that accumulating cash action will enhance their financial flexibility, which in turn increase their ability to raise debt at more attractive rates. For this reason, Jensen and Meckling (1976) claim that firms may choose to incur the agency cost of free cash to save cash for the purpose of

maximizing their financial flexibility in the future, suggesting that the benefit of maximizing financial flexibility is higher than that of reducing free cash flows. This implies that financial flexible firms are expected to make their target reversion much faster than inflexible firms; those with low or no retention. This is because the financial flexibility makes the target reversion more beneficial for firms with leverage below the target one. More precisely, the cost of moving towards the target level will be much lower than that of being away from the target level. However, some studies provide evidence suggesting that the cost and benefit of moving towards the target level of capital structure target reversion depend on whether the firm has leverage above or below its target ones (Byoun 2008, and Flannery and Rangan, 2006). If this is the case, the target adjustment will take the form of asymmetric not symmetric adjustment, making the speed rate of target adjustment largely influenced by whether the company is financially flexible or not. This supports the conclusion of Brounen *et al.*, (2005) which states that the costs and benefits of altering leverage with the target capital structure itself are jointly important to confirm the trade-off theory of capital structure.

To examine the impact of financial flexibility on the speed rate of asymmetrical target adjustment, new model is developed to consider for having leverage above/ below its target level when firms are financially flexible and inflexible. In this model, a distinction between below-target capital structure and above-target capital structure is being made depending on whether the target deviation is positive or negative as follows:

$BelowTLDV_{it} = TLDV_{it}$  if  $TLDV_{it} > 0$ , and zero otherwise.

$AboveTLDV_{it} = TLDV_{it}$  if  $TLDV_{it} < 0$ , and zero otherwise

Where,  $TLDV_{it}$  is the target leverage deviation and calculated as  $(LEV_{it}^{industry-average} - LEV_{it-1})$

Hence, the partial adjustment model (1) can be reformulated using two dummy variables; one for financial flexibility ( $D_{it}^{Fin.flexible}$ ) and one another for financial inflexibility ( $D_{it}^{Fin.inflexible}$ ) with the other two explanatory variables representing the below-target leverage ratio ( $BelowTLDV_{it}$ ) and the above-target leverage ratio ( $AboveTLDV_{it}$ ). The study uses the change in retention as an indicator of financial flexibility

The study uses the change in retention as an indicator of financial flexibility, therefore two dummy variable- one for financial flexibility and one another for financial inflexibility- were used to construct two interaction dummy terms for flexible and inflexible firms. Based on the above specifications, model 1 can be re-written as follows:

$$\Delta LEV_{it} = \left( \lambda_1 D_{it}^{Fin.flexible} + \lambda_2 D_{it}^{Fin.inflexible} \right) + \left( \lambda_3 D_{it}^{Fin.flexible} + \lambda_4 D_{it}^{Fin.inflexible} \right) AboveTLDV_{it} + \left( \lambda_5 D_{it}^{Fin.flexible} + \lambda_6 D_{it}^{Fin.inflexible} \right) BelowTLDV_{it} + \varepsilon_{it} \tag{3}$$

Model three can be simplified as follows:

$$\Delta D_{it} = \lambda_1 D_{it}^{flexible} + \lambda_2 D_{it}^{inflexible} + \lambda_3 AboveTLDV_{it}^{flexible} + \lambda_4 AboveTLDV_{it}^{inflexible} + \lambda_5 BelowTLDV_{it}^{flexible} + \lambda_6 BelowTLDV_{it}^{inflexible} + \varepsilon_{it} \tag{3A}$$

Where,  $\Delta D_{it}$  is the debt ratio,  $AboveTLDV_{it}$  is the above-target debt ratio,  $BelowTLDV_{it}$  is the below-target debt ratio,  $D_{it}^{flexible}$  and  $D_{it}^{inflexible}$  are dummy variables for financial flexibility and financial inflexibility respectively.

Model (3) allows for the rate of target adjustment to vary depending on whether firms have financial flexibility with leverage below/above-target leverage ratio or have financial inflexibility with leverage below/above-target leverage ratio. The advantage of the above partial adjustment model of capital structure is that, first: the ability of testing the individual null hypotheses that  $\lambda_3, \lambda_4, \lambda_5$  and  $\lambda_6 = 0$ , and second the joint test for  $\lambda_3 = \lambda_5, \lambda_4 = \lambda_6$  and for  $\lambda_3 = \lambda_4 = \lambda_5 = \lambda_6$ . However, for the target convergence  $\lambda_3, \lambda_4, \lambda_5$  and  $\lambda_6$  should be greater than zero,

while for the impact of financial flexibility on the speed of target adjustment to exist, one of the estimated coefficients should, at least, be statistically significant. The joint test for  $\lambda_3 = \lambda_5, \lambda_4 = \lambda_6$  and for  $\lambda_3 = \lambda_4 = \lambda_5 = \lambda_6$  will be made using the Wald test.

#### 4. STATISTICAL ANALYSIS

##### 4.1. Descriptive Statistics

As can be seen in Table 1, the mean value of leverage ratio is 0.276 with standard deviation of 0.209. The low leverage ratio suggests that Jordanian industrial firms have changed their financing behavior from debt to equity or retained earnings. This also suggests that the Jordanian firms try to keep their leverage low to preserve their financial flexibility.

Table 1. Descriptive statistics

Variables	Mean	Std.Dev	Min	Max
Debt ratio	0.276	0.209	0.009	0.842
PROF	0.108	0.115	-0.487	0.866
Reten	0.432	0.221	0.098	1.00
Fin <sub>surplus</sub>	0.072	0.127	0.008	0.562

Note: Debt ratio ( $\Delta D_{it}$ ) is long term debt over total assets. Profitability (PROF): earning before interest and taxes to total assets. Reten is the ratio of retention to the net income. Fin<sub>surplus</sub> is the free cash flow to the total assets.

The table also shows that firms on average retained 0.432 of their net income which may be used as internal source of financing. This high mean of retention ratio reflect the severity of Jordanian capital market frictions, which in its turn, raises the cost of external financing, and consequently, increasing the reliance on internal financing. It also explains why industrial firms in Jordan experience low debt. However, other explanations could be offered as to why industrial firms experience low debt: firstly is the absence of bonds market with the adoption of conservative credit policy by Jordanian commercial banks. Secondly is the Jordanian tax law that does not encourage listed firms to use debt, and finally, explanation may also be attributed to reliance of industrial companies on stocks financing. The correlation matrix among variables reported in table 2 makes the above mentioned analysis more reasonable. The results show that profitability ratio, retention ratio, and financial surplus are negatively

related to leverage. While the correlation between profitability ratio and retention ratio is found to be positive, implying that high profitable firms are expected to experience financial surplus not deficits. Hence, one could predict that these firms would have large retention proportion, and thereby high financial flexibility.

Table 2. Correlation Matrix

Variable	LEV	PRO	RET	FIN <sub>surplus</sub>
LEV	1.000			
PRO	-0.133 (0.000)	1.000		
RET	-0.087 (0.003)	0.124 (0.000)	1.000	
FIN <sub>surplus</sub>	-0.055 (0.087)	0.352 (0.060)	-0.047 (0.155)	1.000

**4.2. Estimation Results**

For the purpose of selecting the most appropriate econometrics technique for testing the study empirical models, numerous diagnostics tests have been used, such as significant Lagrange Multiplier (LM) with significant Hausman tests. The results reveal that the  $\chi^2$  of both Lagrange Multiplier (LM) Hausman tests is found to be statistically significant. Hence, the fixed effects regressors are better than the random effect one for regressing the study empirical model. Therefore, the fixed effects model will be the one that will be discussed and interpreted. The diagnostic tests for multicollinearity, heteroskedasticity, and normality show no problems of multicollinearity, heteroskedasticity and non-normality exist, where VIF is found to be, on average, 1.21 for model 2 and 1.11 for model 3. Based on the result of Breuch-Pagan test for heteroskedasticity, the null hypothesis that the variance of the residuals is homogenous is accepted where the chi-square distribution was found to be statistically

insignificant with a p-value 0.2312 for model 2 and 2.123 with a p-value of 03421 for model 3.

*4.2.1. The estimation result of model 2*

The results presented in Table (3) show that Jordanian industrial firms identify their target leverage ratio and move gradually towards that target whenever needed. This finding is confirmed by the statistically significant coefficient on  $TLVD_{it}$ . However, the estimated coefficient suggests that these firms correct their target deviation too deliberately. The reason may be attributed to the transaction costs that Jordanian industrial firms pay for borrowing from banks. It may also be attributed the bankruptcy risk that might restrict their borrowing capacity. This conclusion would be more reasonable for two reasons; the first one is that, Jordan has no developed bonds markets, and the second one is the adoption of conservative credit policies by Jordanian commercial banks.

**Table 3.** The estimation results of model 2  
Dependent variable: the change in total debt,  $\Delta TDA_{it}$

Independent variable	Pooled OLS Model	Fixed Effect Model	Random Effect Model
Intercept	-2.312 (0.020)	-1.874 (0.042)	-1.204 (0.023)
$TLVD_{it}$	0.238 (0.013)	0.218 (0.002)	0.0241 (0.000)
$D_{it}^{flexible}$	1.014 (0.082)	0.124 (0.142)	1.324 (0.246)
$D_{it}^{flexible} * TLVD_{it}$	0.115 (0.011)	0.095 (0.011)	0.074 (0.009)
R <sup>2</sup>	0.22	0.25	0.23
F – statistic	136.32 (0.000)	112.95 (0.000)	117.32 (0.000)
LM ~ test	86.17 (0.000)		
Hausman ~ test		2.98 (0.631)	
Breuch – Pagan Hetrask test	1.245 (0.2312)		

Despite of this finding, the significant coefficient on interaction dummy term implies that financial flexibility tends to accelerate the correction of their target deviations speed of their target reversion. It is found to be statistically significant at 1%, indicating how large would be the effect of bankruptcy and agency costs of debt in Jordanian market. Hence, it is expected that the cost of raising debt for financial inflexible firms will be much higher than that of flexible firms. For flexible (less leveraged) firms, the marginal benefit of increasing debt is expected to be high. More precisely, the cost of being away from the target capital structure is higher than that of moving toward that target, increasing the impetus of flexible firms to correct target deviations much faster than inflexible firms do. Furthermore, less leveraged firms are expected to be less subject to the bankruptcy costs, raising funds at more attractive rate, and consequently correcting target deviation much faster that would otherwise be. For flexible firms, the target adjustment rate is 0.218, while it is calculated to be 0.313 for less leveraged firms, suggesting that they

need 5.64 years to correct target deviation compared with 3.69 years for flexible firms.

*4.2.2. The estimation results of model (3)*

Table (4) presents the estimation results of earning retention model (3) which allows for testing the impact of financial flexibility on the speed of downward and upward target reversion (when actual debt ratio is above and below its target level). The results show that, for both flexible and inflexible firms, coefficients on below-target leverage variable  $BelowTLDV_{it}^{flexible}$  and  $belowTLDV_{it}^{inflexible}$  are found to be statistically significant at 1% with values of 0.229 and 0.083 respectively, indicating that upward target reversion is much faster for flexible firms than for inflexible firms. This finding suggests that the borrowing capacity of industrial Jordanian firms is largely affected by the bankruptcy risk. This implies that firms with negative retention are more likely subject to the financial distress and thereby bankruptcy risk. Hence, they have no impetus to

increase their leverage ratio; in contrast, they work to reduce their leverage ratio by retiring debt when it is possible because creating debt for financially inflexible firms (those with negative retention) is too expensive. Another explanation could be attributed to the Jordanian tax system which makes firms gain no tax benefit when they are experiencing loss. This, along with the bankruptcy costs of debt; makes upward target adjustment not attractive. In other word, it makes the costs of raising debt higher than its benefits, reducing the net tax savings of debt and consequently reducing the impetus of correcting the

target deviations. The positive correlation coefficient between the changes in a firm's retention level and its profitability makes this explanation more reasonable. This also explain as to why flexible firms are less leveraged firms, implying that they will gain more debt tax benefit with low probability of financial distress. Hence, the benefit of making target reversion is higher than its costs, making the net tax benefits too high, and consequently, increasing their incentive to make upward target reversion.

**Table 4.** The estimation results of model 3A  
Dependent variable: the change in total debt,  $\Delta TDA_{it}$

Independent variable	Pooled OLS	Fixed Effects Model	Random Effects Model
$D_{it}^{flexible}$	-1.097 (0.033)	-1.297 (0.003)	-1.361 (0.023)
$D_{it}^{inflexible}$	1.811 (0.107)	1.154 (0.187)	1.131 (0.097)
$AboveTLDV_{it}^{flexible}$	0.225 (0.056)	0.231 (0.021)	0.251 (0.045)
$AboveTLDV_{it}^{inflexible}$	0.267 (0.012)	0.289 (0.032)	0.260 (0.405)
$BelowTLDV_{it}^{flexible}$	0.192 (0.063)	0.229 (0.003)	0.209 (0.004)
$BelowTLDV_{it}^{inflexible}$	0.092 (0.012)	0.083 (0.001)	0.107 (0.007)
$R^2$	0.21	0.27	.25
$F - statistic$	187.12 (0.000)	166.45 (0.000)	143.77 (0.000)
$LM \sim test$	303.98 (0.000)		
$Hausman \sim test$		478.59 (0.000)	
$Breuch - Pagan Hetrask test$	0.85 (0.357)		
$Average VIF$	1.32		

With respect to above-target leverage ratio, results are totally different from those found for flexible and inflexible firms with below-target debt ratio. It is found that inflexible firms tend to adjust their leverage much faster than flexible firms when they have leverage ratio above their target level. In other words, the downward target adjustment is much faster for inflexible firms than for flexible firms. This is because the bankruptcy risk will be much higher for inflexible firms than for flexible when the debt ratio is much higher than the target level. Compared with inflexible firms-those with negative retention- flexible firms will have sufficient cash to service debt. For flexible and inflexible firms with above-target leverage ratio, the estimated coefficients are 0.231 and 0.289 respectively with statistical significant level of 5%.

For inflexible firms, the coefficients on  $AboveTLDV_{it}^{inflexible}$  and  $BelowTLDV_{it}^{inflexible}$  are found to be statistically significant at 1% with coefficient values of 0.289 and 0.083 respectively. While for financial flexible firms, the estimated coefficients on below/above-target leverage variables-  $AboveTLDV_{it}^{flexible}$  and  $BelowTLDV_{it}^{flexible}$  - are found to be 0.231 and 0.229 respectively. This result suggests that flexible firms adjust upward adjustment faster than downward adjustment. This

finding may be attributed to the fact that firms with positive retention level will be more capable to create debt at more attractive rate. Further, they are expected to be less subject to the bankruptcy risk which maximizes their marginal tax benefits of debt, and thereby, their impetus to correct their target deviations.

Although the estimated coefficient on below/above-target debt variables for flexible firms shows some difference in values, the Wald test of the joint hypothesis that  $\lambda_3 = \lambda_5$  implies no statistically different between the adjustment rate of below-target leverage and above the target leverage, where the Ch2 is found to be statistically insignificant, hence, the null hypothesis that  $\lambda_3 = \lambda_5$  is accepted. So, one could conclude that Jordanian industrial firms consider both costs and benefits of debt when target reversion is required, supporting what have been concluded by Brounen *et al.*, (2005) that the trade-off theory of capital structure is not only established by the importance of target level but also by the costs and benefits of debt itself. This explains why some firms correct their target deviation much faster than others. It also explains as to why inflexible firms experience downward target revision much faster than their upward target reversions. This finding is confirmed by the results



of the Wild test which leads to the rejection of the null hypothesis that  $\lambda_4 = \lambda_6$ . The  $\chi^2$  of the Wild distribution is found to be statistically significant at 1% level. This suggests that firms with negative change in retention (inflexible firms) tends to quickly correct any target deviation when their debt level reaches a significantly high level, while they show less desire to correct target deviations when they are financially inflexible with debt below its target level.

## 5. CONCLUSION

The current study aims at investigating the impact of financial flexibility on the speed of target adjustment of industrial companies listed in ASE. Two measures for financial flexibility were used; leverage ratio and change in retention ratio. Using pooled and panel data analysis techniques, the study showed that industrial Jordanian firms have target level of capital structure but adjustment toward that target occurs slowly. Moreover, it revealed that financial flexibility plays an important role on determining the financing decisions in Jordanian industrial firms where firms consider the financial flexibility when the decision to make target reversion is taken. Financial flexible firms adjust their leverage ratio much faster than less flexible firms. The tendency to make target reversion increases when inflexible firms have leverage above its target level. Inflexible firms with above-target leverage ratio adjust their leverage faster than flexible firms. This finding showed how large bankruptcy risk is critical for industrial Jordanian firms. Hence, industrial Jordanian firms should take into consideration the financial flexibility when they set their financial decisions to avoid the risk of losing valuable investment opportunities or experience the financial distress. Based on these findings, the current study recommends developing Jordanian bonds market and improving the level of transparency and investors' protection.

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