Dynamics of Corporate Capital Structure Choices and Intervening Forces: Indian Evidence

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How do the firms revise their capital structure dynamics at stake? This study hypothesizes that the corporate capital structure dynamics spin at changes in the intervening forces. It shows the presence of intervening forces with the Indian firms' financing data. It methodologically uses the Partial Adjustment Models (PAM) in exploring firms' optimal dynamic adjustments and extends the PAM. It shows backward and forward adjustments at separating and semi-separating equilibriums for both high-value and low-value firms. The study also reveals that a pooling equilibrium with firms' dynamic adjustment speeds can be otherwise influenced by the standard errors in separating and semi-separating equilibriums. Firms' choice of Dynamic Adjustment Speed (DAS) is neither a generalized singleton variable, nor does it spin in similar direction across firms and intervening forces. In dynamic financing choices, DASs are divergent at firms' forward and backward adjustments across high-value and low-value firms. Firms' divergent adjustments depend on the presence of macroeconomic variables, nature (forward or backward) of adjustments, and firm-specific financing and non-financing expectation as well. The sample firms plausibly spin to divergent financing and non-financing motives at their dynamic provisions for expected changes in the exogenous variables. Firms' dynamic financing and non-financing motives intervene in their divergent DASs. The effects are transitory and temporary but deliberate at their deviations from the target capital structures. The study confirms the spin effects of intervening forces rather than labeling them as random noise only.

> *The Tax-Shield (TS) theory, the Agency Cost (AC) theory, the Pecking Order (PO) theory, the Dynamic Trade-Off (DTO) theory, and the Market Timing (MT) theory have overstressed on the different views while the facets have their specific roles. The researchers … have deviated far away and … have explained a little. … In a dynamic time frame model, firms' financing choice may neither completely in a STO nor a DTO phenomenon. It may neither completely be under the PO nor MT framework. Firms might have their independency (i.e., flexibility) of shifting their decisions from one framework to another.*
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> – **Sinha and Ghosh** (2013a, p. 12).

Introduction

How do the firms revise their capital structure dynamics at stake? In corporate finance, the query is partially addressed in a few studies like De Fiore and Uhlig (2015) and Ariff *et al*. (2008). At its core, the dynamics of firms' capital structure choices spin at changes in their intervening forces. This theoretical proposition motivates us in studying intervening forces that derive dynamics in firms' capital structure decisions. The global financial crisis of 2008-09 has also moved the present author in exploring the effects of the intervening forces on dynamics of capital structure choices.

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The dynamic "time-state-focus" as propagated in Sinha and Ghosh (2013a) has put forth a Unifying Theory of firms' joint determination of the capital structure choices. It proposes new developments amongst the existing capital structure theories, viz., the Static Trade-Off (STO) theory, Pecking Order (PO) theory, Dynamic Trade-Off (DTO) theory and market timing (MT) theory. The Unifying Theory suggests that firms' capital structure choices are reconciliatory in nature while its dynamic properties seek to use the said theories as specific strategic financing vehicles for their specific time-state-focus.

The dynamics of corporate capital structure choices depend on two endogenous decision variables—dynamic targets and adjustment speeds (Sinha and Ghosh, 2010). Firms' dynamic targets are set by their exogenous financing motives, while the adjustment speeds depend on adjustment costs. Financing motives include reduction of the costs for dynamic recapitalization, information asymmetry and failed MT efforts at capital issues. Firms logically respond to these motives by means of dynamic provisions towards their expected changes in the exogenous variables, and finally, by intervening into their adjustment speeds as required. Firms' intervening forces are different from the innovative forces in Sinha and Ghosh (2014). The former influences adjustment speeds, while the latter is the unexpected forces inducing shifts.

Interestingly, the time path of firms' leverage change is phenomenally complex. Over a feasible time for the assets' life cycle of firms, the time path of leverage change reflects firms' adjustments to shock realizations, sequential responses and intervening leverage adjustments (DeAngelo *et al.*, 2011). Firms issue the debts as the transitory financing vehicles with provisional but careful drifts from their target capital structures. Their flexibility in both financing and investment decisions creates drifts, while its failing initiates the presence of adjustment cost (Lindstrom and Hesmati, 2004; and Chun-ai and Hai-ying, 2010). That is, firms' purposeful dynamic interventions could be plugged in much time before their actual bankruptcy has appeared and they could avoid their short-term financing problems like debt indebtedness. Hence, theoretically, firms are expected to set some *ex ante* adjustment costs. These may include factors like the direct and indirect bankruptcy costs, actual or opportunity costs for tax-shield benefits, agency costs and debt covenants, the market rate of return, the risk-free rate of return and transaction costs, etc.

Now, in the stated unifying theory of Sinha and Ghosh (2013a), the presence of an efficient capital market is neither a basic assumption nor it is essential empirically. The same is not crucial either in the PO or MT theory as well. Market inefficiency exists at the presence of the anomalies and during their intervening periods of new capital issues as well (Fama, 1991). Asymmetric information costs and MT aspects deviate firms from their dynamic financing targets deliberately (Klein *et al.*, 2002). In Klein *et al.* (2002), intervening effects include—new equity issues follow earnings' announcements, equity issues follow a series of high stock returns, negative long-term returns follow equity announcement, abnormal positive long-term returns follow repurchase announcements, and positive correlation of equity announcements with those of intervening durations. If firms' managers (investors) perceive future cash flows wrongly, then their opportunities to intervene into decision dynamics fade away (Jensen, 1988). Firms' myopic MT efforts reduce their adjustment speeds. Their failed MT efforts and PO initiatives, hence, have cost implication in the course of dynamic interventions.

Firms' firm-specific non-financing targets also intervene in adjustment speeds. Firms set targets about their product markets, fixed assets' bases or net profits. They set target growth rates for their sales, turnovers of sales, asset or profitability. At new issues, they set target market power. They also set targets which have dominating influences in the product market (Boot and Thakor, 2003; Pandey, 2004; and Gamba and Triantis, 2008). These dominating firm-specific non-financing targets provide dynamic provisions for the expected changes in their exogenous variables and intervene in adjustment speeds.

Hence, the query—how do firms revise capital structure dynamics—becomes a problem statement. In revealing the same, we explore intervening roles of firms' expectations about adjustment costs and firm-specific non-financing variables. Adjustment costs include dynamic recapitalization costs, information asymmetry and unsuccessful MT efforts. The adjustment cost is inversely related to adjustment speed and expected interventions are to reduce costs of dynamic recapitalization, asymmetric information and failed MT efforts. We explore this original research query on how do firms' adjustment costs come into effect or become operational in the dynamic financing framework.

Literature Review

In the literature, there are a few studies on developing of a unifying theory of firms' capital structure dynamics. Firms primarily follow the PO-track and then shift to the STO-track, but finally, revert to the PO-tracks (Pandey, 2004). Their pursuits under the PO-track consider suboptimality that drives them to the STO-track in search of optimality (Ghosh and Sinha, 2009). Their PO-tracks also facilitate towards the MT-efforts with debt issues persistently at equity under-valuations, while the same appears erratic at their equity issues (Sinha and Ghosh, 2009). Such dynamism is contributed by firms' pursuit in creation and utilization of reserve debt capacity (Sinha and Ghosh, 2013b).

The above dynamisms are set in the pooling equilibrium and it does not separate between the high-value and low-value firms, between high-growth and low-growth firms, and between large-size and small-size firms. With debt-revisions under firms' DTO, PO and STO-tracks, the high-value and low-value firms, respectively, reconciliate at separating and semi-separating equilibriums, but these firms are intervened by their recapitalization costs and bankruptcy costs (Sinha and Ghosh, 2012). The high (low)-value firms' STO (PO)-debt revisions are exposed to lower (higher) dynamic recapitalization debt boundary (Sinha and Ghosh, 2013c). Sinha and Ghosh (2014) have showed interrelated adjustments amongst the capitals and have left unexplained the roles of intervening forces in influencing firms' adjustment speeds.

Firms' capital structures are neither at optimal always, nor their adjustment costs are static. Again, adjustment speeds are neither observable nor the determinants have unlimited roles to play (Myers, 1984; Harris and Raviv, 1991; Rajan and Zingales, 1995; and Fama and French, 2002 and 2005). In dynamic financing, adjustment speeds are inversely set by adjustment costs endogenously (DeMiguel and Pindado, 2001; Hovakimian *et al.*, 2001; Drobetz and Wanzenried, 2006; and Sinha and Ghosh, 2010). This study reviews firms' adjustment speeds at references to dynamic recapitalization, information asymmetry, MT-efforts and non-financing expectations. It sets logical arguments for the theoretical propositions.

Dynamic Recapitalization

Firms adjust and readjust debts continuously. Such adjustment is costly and slow. This appears either temporary or permanent. Its costs include the bankruptcy cost, agency cost, corporate tax, interest tax-shield benefit, assets' variance, transaction cost and risk-free interest rate (Fischer *et al.*, 1989a), and debts' maturity structure and covenant provisions (Fischer *et al.*, 1989b).

Halling *et al.* (2016) have showed that bankruptcy risk hinders operating activity, profitability and working capital. Its expectation blocks funds to production and redirects to buffer capital. It intrudes firm-value generation and enhances opportunity costs. In a dynamic setting, if debt-covenants have provision for transforming technical bankruptcy into further debt issue for interest dues, then uninterrupted business operation is possible (Kim, 2018). Agency conflict raises asset-substitution problem, it attracts bankruptcy codes and hinders firm-value. Agency cost also hinders real bankruptcy. In a dynamic setting, bankruptcy may let ownership change from equity to debt at discounted prices. Firms' expected tax also intervenes and higher tax-rate reduces debts' effective costs of capital. At future profits, progressive tax rates can provide comparative cost-benefits with firms setting-off their past losses against future profits. Debts' restructuring can again intervene at interest rates if short (long) term debts face higher (lesser) interest rates. Longer (shorter) debt-maturity diversifies (intensifies) financial and operating risks of firms.

At reorganization, ready market for fixed assets favors risky debt issue. Assets' variance represents fundamental risk. It is influenced by tangibility. Tangible assets have lesser risks than intangible assets. Hence, intervention is needed in financing intangible assets with the debt or equity. Transaction cost also intervenes in financing choices. Reorganization involves finding relevant prices (Coase, 1937; and Furubotn and Pejovich, 1972). It links coupon rate and recapitalization boundary (Fischer *et al.*, 1989a) and restricts adjustment speeds (Myers, 1993). In reorganization, transaction cost is set by asset specificity, uncertainty and frequency (Williamson, 1979); these depend on investment history, link information aspects and relate the fixed and variable components of transaction cost (Klein *et al.*, 1978).

The risk-free interest rate relates coupon rate, agency conflict and information asymmetry. It relates asset-liability and maturity-matching (Hertzberg *et al.*, 2018). At increasing time-length, macroeconomic conditions relate interest rate increasing or decreasing (Chang *et al.*, 2019). The cost of capital and internal rate of return have in-built interventions while term-structure may match assets' risk-structure. Debt-covenants relate sale of assets, dividend payment, priority rights, principal repayments, risk-return characteristics, agency control right and the coupon rates (Christensen *et al.*, 2014).

Information Asymmetry

Information asymmetry exists across investors or stocks (Arbel *et al.*, 1983; Kyle, 1985; and Merton, 1987). At information asymmetry, managers seek to increase information asymmetry to retain managerial monopoly. Limited corporate disclosure and low corporate governance also increase the asymmetry. Information asymmetry costs depend on the market structures and their recognition in the marketplaces (Stiglitz, 2002; and Lemmon and Zender, 2019).

Now, at information asymmetry, financial lemons persist in the markets (Akerlof, 1970; and Grossman and Stiglitz, 1980). It increases the bid-ask spread, reflects stocks' underlying risk, increases cost of capital and reduces return on investments (Copeland and Galia, 1983; Glosten and Milgrom, 1985; and Amihud and Mendelson, 1986). It creates adverse selection problem. Risk-averse firms and investors prefer less risky instruments to equity issues (Myers and Majluf, 1984; and Stiglitz, 2002). Hence, investors' perception intervenes in new issues. Higher disclosure reduces information asymmetry and influences stocks' prices (Campbell, 1979; and Sadeh and Kacker, 2018). Firms' dissipative dividend forces firms either to undervalue equity issue or to issue less risky debts or abandon their new projects (Tran and Ashraf, 2018). Information asymmetry in strategic investment decision intervenes financing choices and leads to suboptimal choices (Miller and Rock, 1985). Information asymmetry also exists in assets' value, classification, working capital, underlying risks, useful life, replacement cost and debt covenants (Goh *et al.*, 2018).

Market Timing Efforts

Stocks' returns explain 40% of debt dynamics and managers are "on average" successful in MT efforts (Welch, 2004). At MT-efforts with equity (debt) issues, stocks are over (under)-valued and the cost of new issue is comparatively low (Baker and Wurgler, 2002). The MT benefits are not long-lasting (Kayhan and Titman, 2007; and Mahajan and Tartaroglu, 2008). All MT-efforts are not successful always and intervention is needed if firms' MT-efforts go myopic. Myopic MT involves perceptions of time-varying miss-pricing by myopic investors or managers about firms' future cash flows (Faulkender, 2005). In market myopia, investors under (over)-value future (current) cash flows (Jensen, 1986 and 1988; and Stein, 1989). In managerial myopia, managers believe that they can time the market component of cost of equity (Baker and Wurgler, 2000). However, if firms' MT-efforts fail, firms should flexibly borrow at long- or short-maturity and align debts' returns at predictable low levels and intervene (Baker *et al.*, 2003). At failed MT-efforts, *ex ante* interventions with alternative financing strategies lead rebalancing capital structures. Firms need to respond to dynamic revisions in their financing choices and thereby, mitigate intervention at their failed MT efforts.

Non-Financing Expectations

Besides the above intervening roles of the costs of strategic financing choices, firms consider financial flexibility, high credit rating and long-term average leverage (Agarwal *et al.*, 2009). Their financing is also influenced by non-financing expectations about growth rate, corporate governance and control, capital market situation, the SEBI regulations and the chief executives' values, etc. (Jackling and Johl, 2009; and Mishra and Mohanty, 2014). Firms set targets for product-market, fixed assets, net profit, sales growth, assets' turnover or profitability. These targets are linked to firms' dynamic positioning in the product market (Fudenberg and Tirole, 1986; Chevalier, 1995; Filbeck *et al.*, 1996; and Sen and Oruc, 2009). These targets provide financing flexibility at the disagreements among alternatives and contribute to firm-value (Boot and Thakor, 2003; and Gamba and Triantis, 2008). Firms' financing choice also interacts with their product-market power (Pandey, 2004). Firm-specific non-financing expectations, hence, offer dynamic provisions for the expected changes to intervene in their adjustment speeds.

Expected Size

Firms' size can represent many things. It may represent firms' productive vis-à-vis potential immovable capital base. It may also represent the underlying soundness of firms' stakeholders at stake. However, firms cannot instantly change the size of product market, fixed assets or net profit targets. Managers have expectations as well as positioning strategies on their firm-sizes. With business expansion (exit) strategies, firms try to penetrate to increase (decrease) firm size while retention strategies require maintaining the existing size. Firms' reserve debt capacity is needed to be backed by firm size at dynamic swings in external financing. On equity (debt) issue, small (large) firms are more exposed to STO (PO)-track than large (small) firms (Fama and French, 2005; and Frank and Goyal, 2003 and 2008). The small-size firms may utilize trade-off benefits for positioning in the competitive markets and once well-placed, they may revert to follow the PO track. Firms' expected size put dynamic provisions in utilizing, maintaining, and creating of Reserve Debt Capacity (RDC). Firms' expected size depends on costs for creating dynamics of debt capacity (Sinha and Ghosh, 2013c). The lower (higher) the costs for creating dynamic RDC, the higher (lesser) is the speed of adjustment. A small firm may use size dynamics until its marginal benefit becomes equal to marginal cost. Once firms have become larger, their debt financing becomes risky and STO benefits disappear. Hence, firms need to re-create their RDCs once again.

The high-value large firms, if have utilized RDCs fully, can re-create them by invoking dynamic provisions towards profit retentions. Low-value large firms face high cost of information asymmetry and any further debt issue exceeding debt capacity creates asset-substitution problems and financial distress as well. These low-value large firms need re-creating debt capacities by issuing equity or redeeming existing debts. They can continue their positive (negative) NPV projects with equity issues (debt redemption) in the PO (STO)-track. In dynamic recapitalization, these firms face different recapitalization boundaries in their DTO-track. That is, firms' size could intervene in external issues at different adjustment speeds.

Expected Growth Rate

Firms' growth rate can spin the financing choices. Its expectations can intervene in their financial dynamics as well (Lambrecht and Myers, 2017). The low-growth firms with less financial slacks find lesser opportunity to issue the debts for their new low-growth projects than that for their assets-in-place (Myers, 1977). If these low-growth firms issue equity, then they need to disclose their true-values to the equity holder. With new low-growth projects, low-growth firms face debt-overhang and adverse selection problems (Myers and Majluf, 1984). These firms can issue equity only in the PO-track. For their new high-growth projects, the low-growth firms at fewer financial slacks can find their outstanding debts restricting new debt issues in avoiding the financial distress, and the debtholders of these firms perceive new high-growth projects as riskier than their existing assets (Myers, 1977).

Now, firms' financing dynamics incorporate swings for the best-performing and under-performing projects in an economy as well (Bravo-Biosca *et al.*, 2016). High (low)-growth firms pursue high (low) adjustment-speed in semi-separating equilibrium (Cadsby *et al.*, 1990). Hence, if firms have utilized their RDCs, the STO (PO)-track should suggest for further debt (equity) issue to finance the new low (high)-growth projects in a semi-separating equilibrium. The high-value firms here capture most of the high-growth projects while low-value firms are left with a few high-growth projects but many low-growth projects. At dynamic interventions with growth rates, a region of separating equilibrium should exist for low-value firms towards new equity issue but a pooling equilibrium for the both in general (Miglo, 2017). Firms' expectations about growth projects provide for dynamic provisions in their new capital issue.

Expected Market Power

Within the region of separating equilibrium, firms' market power is related to the cost of capital and systematic risks (Sullivan, 1978; and Moyer and Chatfield, 1983), while equity mispricing includes time-varying growth options and adverse selection (Elliott *et al.*, 2008). Outside the region of separating equilibrium, firms' market-powers proxy for competitive bargaining or monopolistic power in the product-markets and capital markets (Franck and Huyghebaert, 2004). At less information asymmetry, firms are expected to enjoy high product-market powers in communicating new projects with the equity (Cadsby *et al.*, 1990; and Choe *et al.*, 1993). At low adverse selection and information asymmetry, firms can penetrate the equity (debt) market at equity over (under)-valuations. At information asymmetry, firms' product market power may become valuable to penetrate their capital issue. In pooling equilibrium, firms' high (low) product-market power can facilitate positioning a unique business proposition and issue equity (debt) at given information asymmetry. In the separating equilibrium, however, firms with low market power will issue equity capital at presence of information asymmetry, and if equity issues fail, the new issue belongs to financial lemons in the separating equilibrium. But an *ex post* equilibrium always remains unknown in the *ex ante* environments.

A "pooling equilibrium Pareto dominates the separating equilibrium" and "the chosen pooling equilibrium is always Pareto superior to both the separating and the semi-separating possibilities" (Cadsby *et al.*, 1990; pp. 321, 340). That is, in pooling equilibrium, firms are expected to show long-run persistency. Firms' high market power can induce debt reduction at time lags if firms align their short-run adjustments in the long run (Frank and Goyal, 2004). Separating equilibrium with debt reduction persists towards the long-run pooling equilibrium even if such debt reduction is currently suboptimal. Now, in developing the rest of the study, we put forward two theoretical propositions on the intervening effects of the variables in the next section and explore the same empirically thereafter.

Theoretical Propositions

Firms have a large array of dynamic decision frames but only a few capital instruments either to increase or decrease. Given the scope of dynamic capital structure choices, firms need dynamic interventions at presence of dynamic recapitalization, information asymmetry, market timing and non-financing expectations. They are mostly constrained to position their capital issues either in a separating or semi-separating or pooling equilibrium. For firms, these become important to explore the roles of expected cost of dynamic recapitalization at different debt boundaries, the roles of information asymmetry at different levels of their reserve debt capacity, and the roles of firms' unsuccessful MT efforts at their dynamic readjustments to the adverse market conditions in the capital markets. Further, the roles of expectation with firms' size, growth rate and market power also become evident in their dynamic financing decisions and rebalancing of the capital structures as well. Firms' different active intervening forces can therefore induce dynamic provisions in dynamic swings in their adjustment speeds.

That is, at presence of the intervening forces, the center of firms' dynamic capital structure choices spins, evolves and rests with the endogenous variable of the *DAS* of firms. The higher (lower) the costs of dynamic recapitalization costs, information asymmetry and failed MT efforts, the lower (higher) are the magnitudes of their *DASs* in the dynamic readjustments of financing choices. Firms are expected to show dynamic swings in the DAS variable. The study puts forward the following two theoretical propositions and explores the same empirically.

Proposition 1**:** *Firms' expected costs for the dynamic recapitalizations, information asymmetry and unsuccessful market timing efforts as well induce dynamic swings on their DASs in the upward or downward directions.*

Proposition 2**:** *Firms' non-financing expectations about their (large or small) firm-sizes, (high or low) growth rates and (high or low) market-powers induce dynamic swings in their DASs in the upward or downward directions.*

Data and Methodology, Proposition, and Hypotheses

Firms' capital structure dynamics spin at their changes in the intervening forces. Hence, in *proposition 1*, the observed leverage ratios are expected to have references to the adjustments speeds those are related to firms' costs of dynamic recapitalization, information asymmetry and unsuccessful MT efforts. Further, in *proposition 2*, the adjustment speeds have references to firms' non-financing expectations, viz., expected firm-size, expected growth rate and expected market power. In both the cases, the observed debt ratios should show swings in their *DASs*. In the study, these dynamics are explored empirically. In defining the adjustment speeds, the methodology of empirical derivation follows Drobetz and Wanzenried (2006) but differs at specific issues on the methodological arguments (for details we refer to Sinha and Ghosh, 2010).

Data and Methodology

The methodology of the study is of twofold approach. It firstly determines the effects of the determinants and then, it explores the behaviors of the adjustment speeds at different intervening variables. The details are explained below.

Data and Study Period

We use the secondary data on firms' leverage and firm-specific variables. These are collected from the Capitaline database over the 20-year study period from 1997-98 to 2016-17. The data covers 273 Indian firms, viz., 28, 67, 75, 32, 43, and 28, for the automobile, auto-ancillary, petrochemicals and chemicals, cement, consumer durables and construction and real estate industries, respectively. In processing the data, the dynamic panel data regression methodology is used. For use of one-year lag to the dependent variable, viz., the debt to equity ratio in the explanatory variables' set, the data of the financial years 1996-97 to 1997-98, 1997-98 to 1998-99, so on and so forth are applied.

Sample Selection Criteria

In order to reduce the firm-specific biases, we exclude firms during the study period, which have suffered losses severely for more than six years period, and/or do not issue external capital that is, either debt or equity. The figures of each of the variables are scaled down with their industry average in order to reduce the industry-specific biases, if any.

Variable Definitions

Defining a set of perfect proxy variables for any empirical exploration has always remained the gray area in the literature of corporate finance. Firms' dynamic recapitalization costs may be represented by their underlying assets' variance and the size of recapitalization cost alternatively. The underlying assets' variance (σ_{it}^2) scaled down by the industry average represents firm's log-thematic value of total assets and this may also serve as a good proxy for firms' dynamic recapitalization costs. The ratio of variance of the sales turnover ratio being divided by the absolute value of the mean difference of the sales turnover ratio is used alternatively to proxy for firms' size of recapitalization costs (ρ_{it}). The latter definition incorporates the time-varying dynamic effects within the proxy variable, ρ_{it}. The sales turnover is assumed to be inversely related to the size of recapitalization costs since higher is firms' sales turnover higher is the level of customer-firm interaction, and lower is the size of recapitalization costs.

The costs of information asymmetry (K_{ait}) may be defined from the investors' perceptions about the equity returns. Since the investors include K_{ait} within the *overall cost of capital* (K_{oit}), the cost of information asymmetry, K_{ait} for the t^{th} period is to be the expected overall cost of capital $E(K_{oit})$ less the observed overall cost of capital, K_{oit}. In order to define the variable $E(K_{oit})$, the study uses the measures in Ghosh and Sinha (2009). The overall cost of capital, K_{oit} is the rate of operating profit before interest and taxes as divided by firms' market value (the market capitalization of equity plus book debts).

The Dynamic Market Timing Measure (henceforth, *DMTM*) as defined in Sinha and Ghosh (2009) could be used here in order to proxy the costs of firms' unsuccessful or failed MT efforts. Firms' failed MT efforts would be reflected in their MB ratios. A failed MT attempt with equity (debt) issue, that is, with a positive value for the Dynamic Capital Structure Variable, $DCSV_{it}$ measure, there will be a decrease (increase) in firms' Dynamic Market to Book ratio, DMB_{it}. The unsuccessful MT attempts, thus, would result in negative (positive) values with the $DMTM_{it}$ for the equity (debt) issues. Now, if such unsuccessful or failed MT attempts are consistent within firms' dynamic adjustments, then, higher (lower) is the costs of failed MT efforts or the extents of the $DMTM_{it}$ of the failed MT efforts, lower (higher) will be the speeds of adjustment. Besides the above expected adjustment cost variables, the variables on firm-specific non-financing expectations are defined in the following.

The firm-specific non-financing expectation variables are firms' expected firm size (π_{it}), *expected growth rate* (μ_{it}) and expected market power (λ_{it}). The natural logarithm of firms' net profit may serve as a good proxy for firms' size once we assume that firms' size characteristic relates to firm-value generation. The natural logarithm of firms' assets' base may also be used alternatively. Firms' growth rate, another firm-specific non-financing variable, is usually attached to evaluation of the new projects. That is, the new projects may be surrogated by the growth rate of firms' fixed assets, net profit or net sales, etc. Finally, firms' product market power or market-power may be surrogated by the value of the natural logarithm of market capitalization of the equity or by the Market to Book (MB) ratio. Besides the above, the observed leverage ratio is defined as the total debt capital divided by the equity shareholders' fund. The dynamic optimal leverage, however, is defined in the section Regression Model. The expected intervening forces, therefore, would lead adjustments in the *DASs* of firms.

Empirical Propositions and Objectives

In specifying the empirical propositions, we assume four implicit assumptions. Firstly, firms consider both the firm-specific and macroeconomic variables in a dynamic setting and determine dynamic recapitalization policy. Secondly, the macroeconomic conditions, good or bad prospects, are linked with the firm-specific and macroeconomic factors such that economic conditions provide paces for leverage adjustments. Thirdly, firms' dynamic adjustment efforts follow the normal distribution at the given level of market efficiency at the available information. Finally, the costs for dynamic adjustments reduce by greater (lesser) extent at good (bad) prospects.

This study hypothesizes that firms' factor-based adjustment speeds in the dynamic adjustments towards target leverages are different regarding to the stated propositions. Firms are expected to show dynamic swings upward or downward with changes in the expected adjustment costs for firms' dynamic recapitalization, asymmetric information and failed MT efforts and with their changes in firm-specific non-financing expectations about firms' size, growth rate and market power. In the following section, the regression models are logically developed and briefly explained.

Regression Models

The present empirical derivation follows Drobetz and Wanzenried (henceforth, DW, 2006), and it considers a dynamic recapitalization model with two decision variables—target leverage and adjustment-speed. The dynamic optimal debt level of i^{th} firm at t^{th} time for a j^{th} factor, that is, $\overset{*}{LV}_{jit}$ [with an * mark in the top-middle in the Equation (1)] is a linear vector function of the set of 'L' explanatory variables x_{jit} (that is, $j = 1, 2, \ldots L$), which includes the firm-specific factors and time-specific factors and a fixed effect (α_{0j}) as well. The optimality model is followed in the identity Equation (1).

$$\overset{*}{LV}_{jit} = \alpha_{0j} + \sum_{j=1}^{L} \alpha_j x_{jit} \qquad \ldots(1)$$

The intercept α_{0j} represents 'base leverage' in the dynamic target leverage. We assume an inbuilt optimality with the fixed effect α_{0j} keeping it at $0 < \alpha_{0j} < 1$. The coefficients α_{j-s} are specific to the variables in the dynamic setting. At presence of adjustment costs, firms partially adjust their observed debt ratios of earlier years to those of their current target debt ratio. According to DW (2006), also stated in Sinha and Ghosh (2010), firms' dynamic adjustments can be given in the notion of the Partial Adjustment Model (PAM) as given in Equation (2) and alternatively in Equation (3).

$$LV_{it} - LV_{it-1} = \delta_{jit}\left(\overset{*}{LV}_{jit} - LV_{it-1}\right) \qquad \ldots(2)$$

$$\delta_{jit} = \frac{LV_{it} - LV_{it-1}}{\overset{*}{LV}_{jit} - LV_{it-1}} \qquad \ldots(3)$$

In the above alternative models, δ_{jit} is the *DAS* to target leverages, starting from the previous year's leverage ratio (LV_{it-1}). The *DAS*, δ_{jit} represents existence of adjustment costs. If the absolute magnitude of *DAS*, i.e., $|\delta_{jit}|$ becomes less than 1, then, $LV_{it} \rightarrow \overset{*}{LV}_{it}$ as $t \rightarrow \propto$. At the minimum level of the *DAS*, i.e., $|\delta_{jit}| = 0$, it shows 'no adjustment' suggesting firms' inertia to change their current leverage. Its negative (positive) magnitudes, i.e., $\delta_{jit} < 0$ ($\delta_{jit} > 0$), infers 'backward' ('forward') adjustments towards target leverage. At the magnitude of the *DAS* at $\delta_{jit} = 1$, 'full adjustments' are made instantaneously and the debt ratio is always at the targets. At the presence of adjustment costs, firms do not adjust fully from the earlier period to current period (i.e., $t-1$ to t) and it is expected that DAS remains within the range of zero and unity, i.e., $0 < |\delta_{jit}| < 1$, which infers 'partial adjustments' towards the target leverage. Firms' adjustment is 'beyond the target' debt level if $|\delta_{jit}| > 1$.

Now, if the dynamic optimal leverage could be determined endogenously, the *DASs* become proportion of the observed deviations in leverage variable to the expected deviation in the same. Here, both the deviations are calculated from firms' earlier leverages in the Equation (3). Firms' dynamic optimal leverage could be determined with the observed statistics in Tables 1 to 4. The final regression model is mentioned in Equation (4a). The operational

Table 1: Determinants of the Speed of Adjustment in the Presence of Term Spread (*TERMSPD*)

	Coefficients	SE	*t*-Value	Adj. R^2	*F*-Value
Constant ($\alpha_{0j}\beta_{0TS}$)	0.606153	0.12865	4.712***		
Lag-leverage ($1 - \beta_{0TS}$)	0.51332	0.03456	14.853***		
TERMSPD * Lag-leverage ($-\beta_{TS}$)	–0.02537	0.01463	–1.734*		
TERMSPD ($\alpha_{0j}\beta_{TS}$)	0.05056	0.04576	1.105		
Liquidity ($\alpha_l\beta_{0TS}$)	–0.00931	0.09672	–0.096		
Size ($\alpha_s\beta_{0TS}$)	–0.13565	0.04195	–3.234***		
Growth ($\alpha_g\beta_{0TS}$)	0.06725	0.01958	3.435***		
Profitability ($\alpha_p\beta_{0TS}$)	–0.02847	0.04101	–0.694	**0.33779**	**65.4428**
Tangibility ($\alpha_t\beta_{0TS}$)	0.01655	0.01023	1.618*		
Liquidity * *TERMSPD* ($\alpha_l\beta_{TS}$)	–0.06723	0.03318	–2.026**		
Size * *TERMSPD* ($\alpha_s\beta_{TS}$)	0.020546	0.01132	1.815*		
Growth * *TERMSPD* ($\alpha_g\beta_{TS}$)	–0.01678	0.00567	–2.959***		
Profitability * *TERMSPD* ($\alpha_p\beta_{TS}$)	–0.01148	0.01902	–0.604		
Tangibility * *TERMSPD* ($\alpha_t\beta_{TS}$)	–0.00503	0.00821	–0.613		
Wald Test (χ^2 – distribution)	15.38*** (14)	SARG statistic (χ^2)		1.93 (14 – 6 = 8)	
Hausman Test (*t*-statistic)	1.314 (14)	Durbin *h*-statistic (Z)		1.07	

Note: All '***', '**', and '*' marked *t* values are significant at 1%, 5%, and 10% levels, respectively; *F*-value is significant at 1% level of significance; and for Wald Test, Hausman Test, and SARG Test, the value within parentheses refers to the degree of freedom.

Table 2: Determinants of the Speed of Adjustment in the Presence of Short-Term Interest Rate (*ISHORT*)

	Coefficients	SE	*t*-Value	Adj. R^2	*F*-Value
Constant ($\alpha_{0j}\beta_{0IS}$)	1.07398	0.361023	2.975***		
Lag-leverage ($1 - \beta_{0IS}$)	–0.20225	0.12056	–1.678*		

Table 2 (Cont.)

	Coefficients	SE	t-Value	Adj. R^2	F-Value
ISHORT * Lag-leverage ($-\beta_{IS}$)	–0.11625	0.016174	–7.187***	**0.37459**	**87.66915**
ISHORT ($\alpha_{0j}\beta_{IS}$)	–0.06543	0.045531	–1.437		
Liquidity ($\alpha_l\beta_{0IS}$)	0.061448	0.12274	0.501		
Size ($\alpha_s\beta_{0IS}$)	–0.35321	0.13977	–2.527**		
Growth ($\alpha_g\beta_{0IS}$)	0.334617	0.06602	5.068***		
Profitability ($\alpha_p\beta_{0IS}$)	0.13654	0.10074	1.355		
Tangibility ($\alpha_t\beta_{0IS}$)	–0.04451	0.07952	–0.560		
Liquidity * *ISHORT* ($\alpha_l\beta_{IS}$)	–0.02773	0.01707	–1.624*		
Size * *ISHORT* ($\alpha_s\beta_{IS}$)	0.035138	0.01405	2.501**		
Growth * *ISHORT* ($\alpha_g\beta_{IS}$)	–0.03765	0.00514	–7.325***		
Profitability * *ISHORT* ($\alpha_p\beta_{IS}$)	–0.02554	0.014334	–1.782*		
Tangibility * *ISHORT* ($\alpha_t\beta_{IS}$)	0.00775	0.01108	0.699		
Wald Test (χ^2)	24.27*** (14)	SARG statistic (χ^2)		2.05 (14 – 6 = 8)	
Hausman Test (t-statistic)	1.326 (14)	Durbin h-statistic (Z)		0.872	

Note: All '***', '**', and '*' marked t-values are significant at 1%, 5%, and 10% levels, respectively; F-value is significant at 1% level of significance; and for Wald Test, Hausman Test, and SARG Test, the value within parentheses refers to the degree of freedom.

Table 3: Determinants of the Speed of Adjustment in the Presence of Default Spread (*DFLINT*)

	Coefficients	SE	t-Value	Adj. R^2	F-Value
Constant ($\alpha_{0j}\beta_{0D}$)	0.73662	0.083177	8.856***		
Lag-leverage ($1 - \beta_{0D}$)	0.51148	0.022435	22.798***		
DFLINT * Lag-leverage ($-\beta_D$)	0.00521	0.000763	6.828***		
DFLINT ($\alpha_{0j}\beta_D$)	0.008144	0.003743	2.176**		
Liquidity ($\alpha_l\beta_{0D}$)	–0.19722	0.07727	–2.552**		

Table 3 (Cont.)

	Coefficients	SE	t-Value	Adj. R^2	F-Value
Size ($\alpha_s\beta_{0D}$)	–0.07754	0.02205	–3.517***	0.361147	75.5518
Growth ($\alpha_g\beta_{0D}$)	0.041705	0.00771	5.409***		
Profitability ($\alpha_p\beta_{0D}$)	–0.03170	0.01453	–2.182**		
Tangibility ($\alpha_t\beta_{0D}$)	0.034456	0.01573	2.190**		
Liquidity * *DFLINT* ($\alpha_l\beta_D$)	–0.0046	0.00258	–1.783*		
Size * *DFLINT* ($\alpha_s\beta_D$)	0.000765	0.00115	0.665		
Growth * *DFLINT* ($\alpha_g\beta_D$)	–0.00177	0.000256	–6.914***		
Profitability * *DFLINT* ($\alpha_p\beta_D$)	0.001328	0.000430	3.088**		
Tangibility * *DFLINT* ($\alpha_t\beta_D$)	0.000752	0.0007	1.074		
Wald Test (χ^2)	19.93*** (14)	SARG statistic (χ^2)		1.77 (14 – 6 = 8)	
Hausman's Test (t-statistic)	1.274 (14)	Durbin h-statistic (Z)		1.138	

Note: All '***', '**', and '*' marked t values are significant at 1%, 5%, and 10% levels, respectively; F-value is significant at 1% level of significance; and for Wald Test, Hausman Test, and SARG Test, the value within parentheses refers to the degree of freedom.

Table 4: Determinants of the Speed of Adjustment in the Presence of Inflation Rate (*INFLART*)

	Coefficients	SE	t-Value	Adj. R^2	F-Value
Constant ($\alpha_{0j}\beta_{0I}$)	0.40557	0.14166	2.863***	0.34614	70.7527
Lag-leverage ($1 - \beta_{0I}$)	0.49771	0.04403	11.304***		
INFLART * Lag-leverage ($-\beta_I$)	–0.00875	0.00762	–1.148		
INFLART ($\alpha_{0j}\beta_I$)	0.03755	0.02437	1.541		
Liquidity ($\alpha_l\beta_{0I}$)	0.05981	0.13355	0.448		
Size ($\alpha_s\beta_{0I}$)	–0.16425	0.05311	–3.093***		
Growth ($\alpha_g\beta_{0I}$)	0.14665	0.02281	6.429***		
Profitability ($\alpha_p\beta_{0I}$)	0.04855	0.05007	0.970		

Table 4 (Cont.)

	Coefficients	SE	*t*-Value	Adj. R^2	F-Value
Tangibility ($\alpha_t\beta_{01}$)	–0.00043	0.02739	–0.016		
Liquidity * *INFLART* ($\alpha_l\beta_1$)	–0.03618	0.01582	–2.287**		
Size * *INFLART* ($\alpha_s\beta_1$)	0.00752	0.005584	1.347		
Growth * *INFLART* ($\alpha_g\beta_1$)	–0.01283	0.001561	–8.219***		
Profitability * *INFLART* ($\alpha_p\beta_1$)	–0.02169	0.009156	–2.369**		
Tangibility * *INFLART* ($\alpha_t\beta_1$)	0.003357	0.005512	0.609		
Wald Test (χ^2)	12.39*** (14)	SARG statistic (χ^2)		1.49 (14 – 6 = 8)	
Hausman Test (*t*-statistic)	1.245*** (14)	Durbin *h*-statistic (Z)		0.993	

Note: All '***', '**', and '*' marked *t* values are significant at 1%, 5%, and 10% levels, respectively; *F*-value is significant at 1% level of significance; and for Wald Test, Hausman Test, and SARG Test, the value within parentheses refers to the degree of freedom.

regression model is Equation (4b), where C_0 is the intercept term, C_1 is the coefficient of lag-leverage, C_2 is the coefficient of macroeconomic variable (z_{jt}) once adjusted for lag-leverage variable, C_3 is the coefficient of macroeconomic variable z_{jt}, C_{4j-s} are coefficients for the firm-specific variable *j*, C_{5j-s} are coefficients of macroeconomic variable (z_{jt}) as adjusted for the firm-specific variables, and the error term $u_{it} \sim N$ (0, 1). The regression model Equation (4b) explains the observed leverage, where firms' dynamic optimal leverages are endogenously addressed. The present study determines the behaviors of dynamic optimal leverages mathematically once the values of α_{0j} and α_j are available from the coefficients in the said model Equation (4a). The estimated dynamic optimal leverages are defined by the model given in Equation (5).

$$LV_{it} = \alpha_{0j}\beta_{0j} + (1-\beta_{0j})LV_{it-1} - \beta_j z_{jt} LV_{it-1} + \alpha_{0j}\beta_j z_{jt} + \beta_{0j}\sum_{j=1}^{L}\alpha_j x_{jit} + \beta_j \sum_{j=1}^{L}\alpha_j z_{jt} x_{jit} + u_{it} \quad \text{...(4a)}$$

$$LV_{it} = C_0 + C_1 LV_{it-1} + C_2 z_{jt} LV_{it-1} + C_3 z_{jt} + \sum_{j=1}^{L} C_{4j} x_{jit} + \sum_{j=1}^{L} C_{5j} z_{jt} x_{jit} + u_{it} \quad \text{...(4b)}$$

$$\hat{LV}^{*}_{jit} = \hat{\alpha}_{0j} + \hat{\alpha}_j \sum_{j=1}^{L} x_{jit} \quad \text{...(5)}$$

Once the data for the dynamic optimal leverages through Equation (5) is obtained, the magnitudes of the *DASs* could be derived with the help of the model equation – Equation (3). These magnitudes of adjustment speeds, i.e., the *DASs,* could be used for examining the effects of the expected intervening forces, viz., expected costs for dynamic recapitalization (i.e., σ_{it}^2 or ρ_{it}), expected costs for the information asymmetry (K_{ait}), and expected costs for unsuccessful market timing efforts ($DMTM_{it}$), firms' expected size (π_{it}), the expected growth rate (μ_{it}) and their expected market power (λ_{it}). Firms' decision function for the magnitudes of the *DASs*, i.e., δ_{jit}, becomes as follows in the identity Functions (1) and (2) alternatively.

$$\delta_{jit} = f(\sigma_{it}^2, K_{ait}, DMTM_{it}, \pi_{it}, \mu_{it}, \lambda_{it}) \qquad \text{...(Fn. 1)}$$

$$\delta_{jit} = f(\rho_{it}, K_{ait}, DMTM_{it}, \pi_{it}, \mu_{it}, \lambda_{it}) \qquad \text{...(Fn. 2)}$$

Sinha and Ghosh (2009) showed that costs of asymmetric information (K_{ait}) could be explained by the variable of the $DMTM_{it}$. The present empirical derivation utilizes these two variables alternatively in the above two identities. Further, in doing proxy for the expected costs of dynamic recapitalization, the variable assets' variance σ_{it}^2 is replaced with the *size of* recapitalization costs, ρ_{it}, and that of K_{ait} with $DMTM_{it}$. This reduces possible multicollinearity in the regression models. In order to corroborate with the dynamic behaviors of the *DASs*, the models Equations (6 to 9), in the following, finally involve a linear specification of the expected cost elements and a cubic specification of the firm-specific non-financing expectations. The models Equation (6) and Equation (8) represent functional form of Function (2) while those of Equation (7) and Equation (9) represent functional form of Function (1) where the intercept α_0 stands for the base-speed in their *DASs*, a forward ($\alpha_0 > 0$) or backward ($\alpha_0 < 0$) *DAS*, and the coefficients of α_j with the values of $j = 1, 2, ..., 10$ in the models refer to partial adjustment speeds for the explanatory variables.

$$\delta_{jit} = \alpha_0 + \alpha_1\rho_{it} + \alpha_2 K_{ait} + \alpha_3\pi_{it} + \alpha_4\pi_{it}^2 + \alpha_5\pi_{it}^3 + \alpha_6\mu_{it} + \alpha_7\mu_{it}^2 + \alpha_8\mu_{it}^3 + \alpha_9\lambda_{it} + \alpha_{10}\lambda_{it}^2 + \alpha_{11}\lambda_{it}^3 + \varepsilon_{1t} \qquad \text{...(6)}$$

$$\delta_{jit} = \alpha_0 + \alpha_1\sigma_{it}^2 + \alpha_2 K_{ait} + \alpha_3\pi_{it} + \alpha_4\pi_{it}^2 + \alpha_5\pi_{it}^3 + \alpha_6\mu_{it} + \alpha_7\mu_{it}^2 + \alpha_8\mu_{it}^3 + \alpha_9\lambda_{it} + \alpha_{10}\lambda_{it}^2 + \alpha_{11}\lambda_{it}^3 + \varepsilon_{2t} \qquad \text{...(7)}$$

$$\delta_{jit} = \alpha_0 + \alpha_1\rho_{it} + \alpha_2 DMTM_{it} + \alpha_3\pi_{it} + \alpha_4\pi_{it}^2 + \alpha_5\pi_{it}^3 + \alpha_6\mu_{it} + \alpha_7\mu_{it}^2 + \alpha_8\mu_{it}^3 + \alpha_9\lambda_{it} + \alpha_{10}\lambda_{it}^2 + \alpha_{11}\lambda_{it}^3 + \varepsilon_{3t} \qquad \text{...(8)}$$

$$\delta_{jit} = \alpha_0 + \alpha_1\sigma_{it}^2 + \alpha_2 DMTM_{it} + \alpha_3\pi_{it} + \alpha_4\pi_{it}^2 + \alpha_5\pi_{it}^3 + \alpha_6\mu_{it} + \alpha_7\mu_{it}^2 + \alpha_8\mu_{it}^3 + \alpha_9\lambda_{it} + \alpha_{10}\lambda_{it}^2 + \alpha_{11}\lambda_{it}^3 + \varepsilon_{4t} \qquad \text{...(9)}$$

The preliminary tests of the above regression models show that the R^2 values are low, they lack persistency at their relevant coefficient values even if the respective intercepts are significant. The method of principal component analysis in cubic specification explores interesting evidences. The Adj. R^2 values are of 0.1514% and 10.22% once MB-lag variable (a proxy for expected market-power) and the ratio of variance of sales turnover ratio divided by absolute value of mean difference of sales turnover ratio (a proxy for size of recapitalization cost) are respectively regressed on the values of *DASs* at presence of the macroeconomic variable—the inflation rate. The effects of the proxy variables for firms' expected size, expected growth rate, expected market power, expected cost of asymmetric information, expected recapitalization cost and expected cost of unsuccessful MT efforts are insignificant in explaining the *DASs* for the other three macroeconomic variables, viz., the term-spread, short-term interest rate and default rate of interest. These evidences hint for the presence of noises in dynamic adjustments since the *DAS*, i.e., δ_{jit}, does not separate the sample firms at the levels of forward and backward adjustments. Firms' dynamic adjustments exist at the separating or semi-separating equilibrium rather than at the pooling equilibrium. That is, firms should show dynamic responses to specific expectation variables at hand rather than to the expectations as whole once the explanatory variables induce noises in effect.

The empirical models, hence, discriminate firms' dynamic behaviors for: the high-value firms versus low-value firms, backward adjustments (δ^b_{jit}) versus forward adjustments (δ^f_{jit}) and responses to the individual expectation variable. The final models Equations 10-12 are given in a general cubic specification, where the notation x_{it} is an individual expectation variable in the explanatory variable set X in the identity Function 3. Besides, we apply linear and quadratic specifications of the models.

$$X = f\left(\sigma^2_{it}, \rho_{it}, K_{ait}, DMTM_{it}, \pi_{it}, \mu_{it}, \lambda_{it}\right) \quad \text{...(Fn. 3)}$$

$$\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t \quad \text{...(10)}$$

$$\delta^f_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t \quad \text{...(11)}$$

$$\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t \quad \text{...(12)}$$

Hypotheses

On the general proposition that firms' capital structure dynamics spin at the changes in the intervening forces, we have the above set of regression models. We now develop the specific empirical testable alternative hypotheses. In all the empirical test cases, the general null hypothesis is that there is non-existence of the intervening forces in firms' endogenous *DASs*.

Expected Adjustment Costs

The empirical testable alternative hypotheses are as follows:

Expected Costs for Dynamic Recapitalization: Firms' expected cost for dynamic recapitalization is surrogated by their assets' variance (σ^2_{it}) and alternatively, by their size of recapitalization cost (ρ_{it}), i.e., the ratio of sales turnovers' variance to the absolute value of the mean difference of sales turnover ratio. Now, the higher is the assets' variance (σ^2_{it}) the higher is the underlying risk, and accordingly, the higher it should be the adjustment costs. The values of firms' forward (δ^f_{jit}) or backward (δ^b_{jit}) adjustment speeds are expected to be negatively with the assets' variance (σ^2_{it}). Higher is the variance of sales turnover ratio higher is the size of recapitalization cost (ρ_{it}). The observed values of the assets' variance (ρ_{it}) should be negatively related to the values of firms' forward (δ^f_{jit}) and backward (δ^b_{jit}) adjustments.

Expected Cost of Information Asymmetry (K_{ait}): Firms' expected cost of information asymmetry is surrogated by the difference of the expected overall cost of capital less observed overall cost of capital (K_{ait}), while it is assumed to have influence on the forwards and backward adjustment speeds (i.e., δ^f_{jit} and δ^b_{jit}). The higher the firms' expected information asymmetry, the higher is the magnitudes of K_{ait}, the higher is the adjustment costs, and the lower is the expected adjustment speeds. With the observed magnitudes of K_{ait}, the values of firms' observed δ^f_{jit} and δ^b_{jit} would become negatively related.

Expected Costs for Unsuccessful MT Efforts: With the new issue of equity (debt), firms' unsuccessful MT attempts should result in negative (positive) values for the market timing variable, the $DMTM_{it}$. Once the adjustment cost becomes higher (lower), a reverse effect is likely to be in the adjustment speed and a higher (lower) extent of the value of $DMTM_{it}$ for the equity or debts is to be expected to be observed. The absolute values of the negative (positive) values of $DMTM_{it}$ for the equity (debts), hence, are expected to have a negative effect on the values of the *DASs* of δ^f_{jit} and δ^b_{jit}.

In the above empirical test cases, the expected values of the respective elements of adjustment costs are derived at one year lag for the respective adjusted lag-variables in a cubic specification, where the adjustment lag-variables being the explanatory variables are firstly (i) enhanced by +5% and the dependent expected values are derived at, (ii) reduced by –5% and the dependent expected values are derived at, and (iii) finally, the average of the two expected values at (i) and at (ii) are regressed for the average of +5% and –5% of the lag-variable.

Firm-Specific Non-Financing Expectations

For firms' firm-specific non-financing expectations and their relevant roles as intervening forces in determining the dynamics of the capital structure choices, the empirical testable alternative hypothesis are as follows:

Firms' Expected Size: Firms' expansion (exit) business strategy is positioned to penetrate the firm-value with an instantaneous or lagged increase (decrease) in firm-size while their retention business strategy requires maintaining of existing size. The expansion (exit) strategy is most likely to be fruitful at presence of low (high) adjustment costs, and thus, at high (low) adjustment speeds. The proxy variable for expected size (π_{it}) is likely to show positive effect on firms' forward or backward *DASs*, δ^f_{jit} or δ^b_{jit}. An expectation on the firm-size is generated jointly with the cubic specification of log-arithmetic net sales, the quadratic specification of log-arithmetic firm-value (book-debt plus equity market capitalization) and the linear specification of log-arithmetic of Free Cash Flows (*FCF*) [*FCF* is the net profit plus depreciation and interest charges minus changes in working capital minus new investment] (Velez-Pareja, 2001).

Firms' Expected Growth Rate: Since firms' low (high) growth projects face their equityholders' adverse selection (under-investment) and the debtholders' debt-overhang (asset-substitution) problems, a semi-separating equilibrium which may exist in their financing dynamics would now influence at a less (high) extent of their dynamic adjustments forward, δ^f_{jit} or backward, δ^b_{jit} with their low (high)-growth projects. The proxy variable for the expected growth rate, μ_{it} is likely to produce positive coefficients in the final models. The expected growth-rate is generated in a mechanism of weighted average with 20% weight for firms' growth rate of gross blocks, 30% weight for the growth rate of net sales and 50% weight for the growth rate of market capitalization of the equity.

Firms' Expected Market Power: Firms' expected market power (λ_{it}) influence forward adjustments (δ^f_{jit}) and backward adjustments (δ^b_{jit}) since high (low) values of λ_{it} exist with high (low) strategic benefit at their positioning with new issues. As stated earlier, in pooling equilibrium, the high and low-value firms exist together in the market while the former (latter) firms enjoy high (low) market-power and exploit it in a separating equilibrium. In the models, the variable λ_{it} for expected market power is likely to produce positive coefficients in the final models. The variable is surrogated by firms' MB ratio and lag MB ratio alternatively where expectation of current status-quo and back to one lag year are respectively assumed.

In the above, a similar (opposite) sign at second and third orders in the expectation models suggest of the presence of robust (weak) effects on firms' dynamic behaviors about their *DASs* for forward adjustments (δ^f_{jit}) and backward adjustments (δ^b_{jit}).

Null and Alternative Hypotheses

On the said a priori relationships, the alternative hypothesis in the models (Equations 10 to 12) for the explanatory variables are tested at presence of term-spread of interest rate (*TERMSPD*), short-term interest rate (*ISHORT*), default spread rate of return (*DFLINT*) and inflation rate (*INFLART*). The general null hypothesis is that the explanatory variables have no effect on the different measures of the *DAS* (viz., δ_{jit}, δ^f_{jit} or δ^b_{jit}), while the intercept component in the respective model is insignificant. The relevant alternative hypothesis is: the intercept and coefficients are significantly different from zero and these have signs as expected under the said a priori relationships.

Results and Discussion

Firstly, we interpret the results about the pooling equilibrium of firms' capital structure dynamics at presence of the four macroeconomic variables. With reference to the regression model (Equation 5), the sample firms are not separated and their capital structure dynamics are explored with the Partial Adjustment Model (PAM) for the firm-specific determinants and macroeconomic factors. These results show significant *DASs* across the macroeconomic factors.

In Table 1, the specific coefficients in model (Equation 5) are derived at presence of the *TERMSPD*. These are liquidity (–0.00931), size (–0.13565), growth rate (0.06725), profitability (–0.02847), tangibility (0.01655) and intercept (0.606153). In Table 2, the specific coefficients at presence of the *ISHORT* in the model are as of liquidity (0.061448), size (–0.35321), growth rate (0.334617), profitability (0.13654), tangibility (–0.04451) and intercept (1.07398). Further, at presence of *DFLINT*, in Table 3, the firm-specific coefficients in the said regression model are liquidity (–0.19722), size (–0.07754), growth rate (0.041705), profitability (–0.03170), tangibility (0.034456) and intercept (0.73662). At presence of the *INFLART*, in Table 4, the firm-specific coefficients are liquidity (0.05981), size (–0.16425), growth rate (0.14665), profitability (0.04855), tangibility (–0.00043) and intercept (0.40557). These results suggest that firms' optimality within the pooling equilibrium frameworks in capital structure dynamics is divergent at the interactions of macroeconomic factors and firms' firm-specific determinants. Interested readers can find the correlation matrix of the firm-specific characteristics and macroeconomic variables in Appendix (Table A1).

Now, in moving forth with the research methodology, we firstly utilize the above values of coefficients and intercept in the model (Equation 5) and derive the magnitudes of the dynamic optimal leverages at presence of *TERMSPD*, *ISHORT*, *DFLINT* and *INFLART,* respectively, and then, we derive the magnitudes of the *DASs*, δ_{jit} in the general cubic regression in the model (Equation 10). Here, $\delta_{jit} > 0$ suggests for forward *DASs* (δ^{f}_{jit}) and $\delta_{jit} < 0$ refers backward adjustment (δ^{b}_{jit}).

Observations on Dynamic Adjustment Speeds

The pooling equilibriums show the impacts of the firm-specific and macroeconomic factors in determining firms' optimal capital structures with their observed leverage data. Given the said dynamic optimality, an individual firm cannot position its specific financing choices at stake. The said pooling equilibrium is less helpful in firms' dynamic interventions at times of financing needs. Hence, with firms' specific data for their *DASs*, we separate the whole pooling data into two semi-separating boundaries—the set of high-value firm and that of the low-value firms, and thereby, we explore the impacts of the intervening variables.

Now, in explaining the high-value firms' *DASs* at presence of the macroeconomic variable, *TERMSPD*, it is observed that these firms' expected size has significant impact where the Adj. R^2 value of the model is 2.9279% with the significant *F*-value of 6.61012 at 0.02% level, in Table 1(i), and their expected market power (with a proxy of MB ratio in quadratic specification) has significant impact with the Adj. R^2 value of 0.074% and a stable model that has the significant *F*-value of 1.20592 at 30% level in Table 1(ii), while the other explanatory expectation variables have least effects. In explaining the low-value firms', adjustment speed at presence of *TERMSPD*, none of the variables has any significant effect at 30% level or any levels below that level of significance. These insignificant results are not reported in the tables to save space. These results show that firms' semi-separating equilibrium at presence of *TERMSPD* has decision values at dynamic strategic financing choices.

Table 1(i): High-Value Firms' Optimal Dynamic Adjustments and Expected Size at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Size, π_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \alpha_3 x_{it}^3 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.05443 (0.625858)		–0.08696	0.95	0.029279 (12.228)	6.61012 (0.0002)
π_{it} – 1st Order	–0.09612 (0.04708)	–0.32042	–2.04161	0.05		
π_{it} – 2nd Order	0.001384 (0.000463)	1.096919	2.992602	0.003		
π_{it} – 3rd Order	–0.00000282 (0.000001018)	–0.69872	–2.77081	0.006		

Table 1(ii): High-Value Firms' Optimal Dynamic Adjustments and Expected Market Power at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–2.90977 (1.96147)		–1.48347	0.14	0.00074 (12.4065)	1.20592 (0.30)
λ_{it} – 1st Order	2.13068 (1.51327)	0.21146	1.40799	0.16		
λ_{it} – 2nd Order	–0.24066 (0.20635)	–0.17516	–1.16630	0.25		

At presence of *ISHORT*, the semi-separating equilibrium for both the high-value and low-value firms also exists and the same contribute to firms' strategic financing choices. In explaining the high-value firms' *DASs* at presence of *ISHORT*, in Table 2(i), it is observed

Table 2(i): High-Value Firms' Optimal Dynamic Adjustments and Expected Lag Market Power at *ISHORT*						
Model for Test	With x_{it} for Firms' Expected Lag Market Power, λ_{it-1}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.06514 (0.55345)		–1.9245	0.06	0.00355 (7.751)	1.8182 (0.17)
λ_{it-1} – 1st Order	0.77582 (0.40725)	0.19381	1.90504	0.06		
λ_{it-1} – 2nd Order	0.02137 (0.01234)	0.17623	1.73227	0.09		

that the expected lag market power has significant impact with the Adj. R^2 value of 0.355% and significant F-value of 1.8182 at 17% level. The other explanatory expectation variables have least effects. In explaining the low-value firms', DASs at presence of *ISHORT*, in Table 2(ii), the expectation of market power has significant influences at 11% level of significance with the F-value of 2.03 and Adj. R^2 value of 0.301%. In Table 2(iii), firms' cost of unsuccessful

Table 2(ii): Low-Value Firms' Optimal Dynamic Adjustments and Expected Market Power at *ISHORT*

Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta_{jit} = \alpha_0+\alpha_1x_{it}+\alpha_2x^2_{it}+\alpha_3x^3_{it}+\varepsilon_t$					
Coeff. of Variables	**Unstandardized Coeff. and (SE)**	**Stand. Coeff.**	***t*-Value**	**Sig. Level**	**Adj. R^2 (SE)**	***F*-Value (Sig. Level)**
Intercept (α_0)	–2.38854 (3.34072)		–0.7149	0.50	0.00301 (12.0403)	2.03 (0.11)
λ_{it} – 1st Order	33.01289 (21.31840)	0.55387	1.5486	0.13		
λ_{it} – 2nd Order	–72.79265 (42.66199)	–1.47636	–1.7063	0.09		
λ_{it} – 3rd Order	42.67431 (25.86672)	0.88916	1.64978	0.10		

Table 2(iii): Low-Value Firms' Dynamic Adjustments and Unsuccessful MT Efforts with Secured Debts at *ISHORT*

Model for Test	With x_{it} for Cost of Unsuccessful Secured Debt's MT Efforts, *DMTMSD*; $\delta_{jit} = \alpha_0+\alpha_1x_{it}+\alpha_2x^2_{it}+\varepsilon_t$					
Coeff. of Variables	**Unstandardized Coeff. and (SE)**	**Stand. Coeff.**	***t*-Value**	**Sig. Level**	**Adj. R^2 (SE)**	***F*-Value (Sig. Level)**
Intercept (α_0)	0.02334 (0.28543)		0.08176	0.94	0.0097 (5.91)	3.6847 (0.03)
DMTMSD – 1st Order	6.40149 (2.39932)	0.24416	2.66805	0.008		
DMTMSD – 2nd Order	–1.58859 (0.74582)	–0.19492	–2.1299	0.04		

MT efforts with secured debts has significant impact at 3% level of significance with the F-value of 3.6847 and Adj. R^2 value of 0.97% while the others have least impacts.

Further, the semi-separating equilibrium also exists at presence of *DFLINT*. In explaining the high-value firms' adjustment speeds at presence of *DFLINT*, it is found that none of the explanatory variables has significant impacts at a greater (than 70%) degree of confidence. In contrast, in explaining the low-value firms' *DASs* at presence of *DFLINT*, in Table 3(i), firms'

Table 3(i): Low-Value Firms' Optimal Dynamic Adjustments and Expected Size at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Size, π_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \alpha_3 x_{it}^3 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.03307 (0.33657)		–0.0982	0.95	0.00593 (9.15)	3.03022 (0.03)
π_{it} – 1st Order	0.24481 (0.08938)	0.36958	2.7392	0.007		
π_{it} – 2nd Order	–0.00557 (0.00263)	–0.69079	–2.1209	0.04		
π_{it} – 3rd Order	0.00003 (0.00002)	0.38364	1.71806	0.09		

expected size has significant impact at 3% level of significance with the *F*-value of 3.03022 and Adj. R^2 value of 0.593% and their expected growth has significant impacts at 9% level with the *F*-value of 2.1781 and Adj. R^2 value of 0.345% in Table 3(ii) while the other explanatory expectation variables have insignificant impacts. Reporting of insignificant results is avoided in order to save space.

Table 3(ii): Low-Value Firms' Optimal Dynamic Adjustments and Expected Growth Rate at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Growth Rate, μ_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \alpha_3 x_{it}^3 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.55356 (0.28927)		1.91365	0.06	0.00345 (9.164)	2.1781 (0.09)
μ_{it} – 1st Order	–0.05018 (0.01967)	–0.24469	–2.5504	0.015		
μ_{it} – 2nd Order	0.00017 (0.00008)	0.62612	2.06196	0.04		
μ_{it} – 3rd Order	–0.000000128 (0.000000076)	–0.41137	–1.6889	0.10		

In explaining the high-value firms' DASs at presence of *INFLART*, in Table 4(i), it is observed that firms' expected size of recapitalization costs only has significant impact at 0.1% level of significance with the Adj. R^2 value of 33.75% with the *F*-value of 97.444, while the other explanatory variables show least effects. Besides, in explaining the low-value firms' adjustment speeds at presence of *INFLART*, in Table 4(ii), the expected costs of unsuccessful MT efforts with secured debts have significant influence at 10% level of significance with the *F*-value of 2.1732 and Adj. R^2 value of 0.64%. In Table 4(iii), the expected market power has significant impact at 20% level of significance with the *F*-value of 1.62217 and Adj. R^2 value of 0.122%, while in Table 4(iv), the expected lag market power has significant effect at 18% level of significance with *F*-value of 1.72513 and Adj. R^2 value of 0.163% and the other

Table 4(i): High-Value Firms' Optimal Dynamic Adjustments and Expected Size of Recapitalization Cost at *INFLART*

Model for Test	With x_{it} for Expected Size of Recapitalization Cost, ρ_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \alpha_3 x_{it}^3 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.55552 (0.85212)		–0.65192	0.55	0.3375 (17.46)	97.444 (0.001)
ρ_{it} – 1st Order	0.58927 (0.15591)	0.60918	3.77958	0.001		
ρ_{it} – 2nd Order	–0.01374 (0.00136)	–4.38876	–10.0807	0.001		
ρ_{it} – 3rd Order	0.0000319 (0.0000027)	3.62201	11.7296	0.001		

Table 4(ii): Low-Value Firms' Dynamic Adjustment and Unsuccessful MT Efforts with Secured Debts at *INFLART*

Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, *DMTMSD*; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \alpha_3 x_{it}^3 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F-Value* (Sig. Level)
Intercept (α_0)	0.30843 (0.17069)		1.80693	0.08	0.0064 (3.243)	2.1732 (0.10)
DMTMSD – 1st Order	–5.68972 (2.25250)	–0.39574	–2.52596	0.015		
DMTMSD – 2nd Order	5.92418 (2.45636)	1.32532	2.41177	0.02		
DMTMSD – 3rd Order	–1.12619 (0.49696)	–0.98667	–2.26615	0.03		

Table 4(iii): Low-Value Firms' Optimal Dynamic Adjustments and Expected Market Power at *INFLART*

Model for Test	With x_{it} for Expected Market Power, λ_{it}; $\delta_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x_{it}^2 + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	1.80395 (2.47125)		0.72997	0.50	0.00122 (12.21)	1.62217 (0.20)
λ_{it} – 1st Order	–11.23623 (8.43622)	–0.18614	–1.3319	0.20		
λ_{it} – 2nd Order	10.95293 (6.97863)	0.21934	1.5695	0.12		

Table 4(iv): Low-Value Firms' Optimal Dynamic Adjustments and Expected Lag Market Power at *INFLART*						
Model for Test	With x_{it} for Expected Lag Market Power, λ_{it-1}; $\delta_{jit}=\alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.99050 (0.60105)		–1.64795	0.10	0.00163 (7.844)	1.72513 (0.18)
λ_{it-1} – 1st Order	0.98522 (0.66366)	0.13049	1.48452	0.14		
λ_{it-1} – 2nd Order	–0.09929 (0.10495)	–0.08315	–0.94601	0.35		

variables have insignificant impacts. Hence, semi-separating equilibrium also exists at presence of *INFLART*.

We have showed that the high-value and low-value firms differ at the semi-separating equilibriums in firms' financing and non-financing expectations. In Table 1(i-ii), Table 2 (i-iii), Table 3(i-ii) and Table 4(i-iv), the standard errors hint that the stated semi-separating equilibriums could have reduced the explanatory powers as observed in the pooling equilibrium. The existence of the separating equilibriums and robustness tests are explained below.

Forward and Backward Adjustments at Presence of TERMSPD

The separating equilibriums and robustness tests, on the dynamic behaviors at presence of *TERMSPD*, now require explaining firms' forward adjustments (δ^f_{jit}) and backward adjustments (δ^b_{jit}) with their respective expectation variables. In Table 1a(i), the results have showed that the expectation variable of firms' size influences their forward adjustments. The high-value firms' expectation about the firm-size has significant dynamic effects with the *F*-value of 14.004 and Adj. R^2 value of 11.61% in cubic specification of firms' size in explaining their forward adjustments. In determining the forward adjustments, in Table 1a(ii), firms' market

Table 1a(i): High-Value Firms' Forward Adjustments and Expected Firm Size at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Size, π_{it}; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\alpha_3 x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	2.05106 (0.67201)		3.05213	0.003	0.1161 (9.624)	14.004 (0.001)
π_{it} – 1st Order	–0.15628 (0.04928)	–0.71459	–3.17124	0.002		
π_{it} – 2nd Order	0.00218 (0.00046)	2.61398	4.70417	0.001		
π_{it} – 3rd Order	–0.00000455 (0.00000098)	–1.79651	–4.65890	0.001		

Table 1a(ii): High-Value Firms' Forward Adjustments and Expected Market Power at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^{f}_{jit}=\alpha_0+\alpha_1x_{it}+\alpha_2x^2_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.72035 (2.37636)		–0.724	0.50	0.0021 (10.23)	1.30884 (0.30)
λ_{it} – 1st Order	2.98151 (1.87638)	0.35616	1.58897	0.12		
λ_{it} – 2nd Order	–0.39260 (0.26962)	–0.32638	–1.4561	0.15		

power in the quadratic model of MB Ratio shows weak effect with the *F*-value of 1.30884 and Adj. R^2 value of 0.21%. Table 1a(iii) shows that the high-value firms' expected unsuccessful MT efforts explain their forward adjustments at the secured debts have significant dynamic impacts with the *F*-value of 1.3915 and Adj. R^2 value of 0.244%. The other expectations variables have no effect on the high-value firms' forward adjustments. The low-value firms' expectation variables have no effects as well.

Table 1a(iii): High-Value Firms' Forward Adjustments and Unsuccessful MT Efforts with Secured Debts at *TERMSPD*						
Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, *DMTMSD*; $\delta^{f}_{jit}=\alpha_0+\alpha_1x_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	1.18511 (0.16943)		6.9946	0.001	0.00244 (1.992)	1.3915 (0.24)
DMTMSD – 1st Order	–1.06760 (0.90504)	–0.09314	–1.1796	0.24		

Besides, in Table 1b(i), at presence of *TERMSPD* the high-value firms' retort towards backward adjustments with the expectations of the lag market power has the *F*-value of

Table 1b(i): High-Value Firms' Backward Adjustments and Expected Lag Market Power at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Lag Market Power, λ_{it-1}; $\delta^{b}_{jit} = \alpha_0+\alpha_1x_{it}+\alpha_2x^2_{it}+\alpha_3x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–3.49786 (2.61950)		–1.3353	0.20	0.0082 (15.497)	1.5898 (0.20)
λ_{it-1} – 1st Order	2.38594 (3.34074)	0.41146	0.71419	0.50		
λ_{it-1} – 2nd Order	–1.00060 (0.63105)	–6.01537	–1.5856	0.12		
λ_{it-1} – 3rd Order	–0.02880 (0.01927)	–6.41635	–1.4946	0.14		

1.5898 and Adj. R^2 value of 0.82% while the same, in Table 1b(ii), with the expectation of the cost of recapitalization being surrogated by firms' assets' variance (σ^2_{it}) has the F-value of 1.254 and Adj. R^2 value of 0.195%. The other expectation variables have no impact on high-value firms' backward adjustments.

Table 1b(ii): High-Value Firms' Backward Adjustments and Expected Cost of Recapitalization at *TERMSPD*

Model for Test	With x_{it} for Firms' Expected Assets' Variance, σ^2_{it}; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–1.46331 (1.13752)		–1.2864	0.20	0.00195 (14.135)	1.254 (0.30)
σ^2_{it} – 1st Order	–0.00844 (0.00540)	–0.26301	–1.5637	0.12		
σ^2_{it} – 2nd Order	0.00000 (0.00000)	0.26003	1.54598	0.13		

The low-value firms' expectations on the cost of recapitalization as surrogated by assets' variance, in Table 1b (iii), can explain firms' backward adjustments with the F-value of 1.9417 and Adj. R^2 of 0.419%. The observations, in Table 1b (iv), suggest that the expectations of cost of asymmetric information of these firms could explain their backward adjustments with the F-value of 1.06993 and Adj. R^2 of 0.053%. Further, in Table 1b(v), their expectation on firm-size could explain the same with the F-value of 2.113 and Adj. R^2 of 0.248%. Table 1b(vi) shows the effect of firms' expectations on the market power could explain firms' backward adjustments with the F-value of 3.14781 and Adj. R^2-value of 0.477%. Again, in Table 1b(vii), the study shows that firms' expectation of the cost of unsuccessful MT efforts at new equity issues has significant influences on their backward adjustments with the F-value of 3.0325 and Adj. R^2 value of 4.01%. The other expectation variables have insignificant impacts.

Table 1b(iii): Low-Value Firms' Backward Adjustments and Expected Cost of Recapitalization at *TERMSPD*

Model for Test	With x_{it} for Firms' Expected Cost of Recapitalization, Assets' Variance, Alternative Proxy, σ^2_{it}; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–1.01244 (0.17925)		–5.6481	0.001	0.00419 (2.8978)	1.9417 (0.15)
σ^2_{it} – 1st Order	–0.00174 (0.00089)	–0.22434	–1.95298	0.06		
σ^2_{it} – 2nd Order	0.00000 (0.00000)	0.21698	1.88893	0.06		

Table 1b(iv): Low-Value Firms' Backward Adjustments and Expected Cost of Asymmetric Information at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Cost of Asymmetric Information, K_{ait}; $\delta^{b}_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.47857 (0.23382)		–6.3236	0.001	0.00053 (2.55)	1.06993 (0.37)
K_{ait} – 1st Order	2.18499 (1.28336)	2.01564	1.70256	0.09		
K_{ait} – 2nd Order	–0.18354 (0.11322)	–7.24638	–1.6211	0.11		
K_{ait} – 3rd Order	0.00302 (0.00190)	5.31211	1.59054	0.12		

Table 1b(v): Low-Value Firms' Backward Adjustments and Expected Firms' Size at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Firms' Size, π_{it}; $\delta^{b}_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.29964 (0.14740)		–8.8173	0.001	0.00248 (2.9003)	2.113 (0.15)
π_{it} – 1st Order	0.01196 (0.00823)	0.06859	1.45350	0.15		

Table 1b(vi): Low-Value Firms' Backward Adjustments and Expected Market Power at *TERMSPD*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^{b}_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.43418 (0.46361)		–0.93653	0.35	0.00477 (2.897)	3.14781 (0.08)
λ_{it} – 1st Order	–1.19583 (0.67401)	–0.08362	–1.77421	0.08		

Table 1b(vii): Low-Value Firms' Backward Adjustments and Unsuccessful MT Efforts with New Equity at *TERMSPD*						
Model for Test	With x_{it} for Cost of Unsuccessful Equity MT Efforts, *DMTMEQ*; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.349 (0.32076)		–4.20574	0.0001	0.0401 (2.585)	3.0325 (0.0314)
DMTMEQ – 1st Order	47.69 (25.50241)	0.83081	1.87018	0.07		
DMTMEQ – 2nd Order	–740.28 (299.94915)	–2.54407	–2.46801	0.015		
DMTMEQ – 3rd Order	2,192.72 (862.26804)	1.69931	2.54297	0.013		

In the above-mentioned tables, a positive (negative) coefficient of the explanatory variables refers to upward (downward) dynamic swings. The readers are referred to the tables for the coefficient values. These confirm that in presence *TERMSPD*, the expected intervening forces—the expected adjustment costs and the non-financing expectations induce dynamic swings on firms' adjustment speeds.

Forward and Backward Adjustments at Presence of ISHORT

On firms' dynamic behaviors at presence of *ISHORT*, the separating equilibriums and the robustness tests in explaining the forward and backward adjustments with the expectation variables have found the following evidences. The empirical results, in Table 2a(i), show that in determining the forward adjustments at presence of *ISHORT*, the high-value firms' expectation on lag market power in the cubic model has significant dynamic influences with the *F*-value of 14.624 and Adj. R^2 value of 5.615%. However, the other expectation variables do not have any effect on firms' forward adjustments. In Table 2a(ii), in the context of the

Table 2a(i): High-Value Firms' Forward Adjustments and Expected Lag Market Power at *ISHORT*						
Model for Test	With x_{it} for Firms' Expected Lag Market Power, λ_{it-1}; $\delta^f_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.36570 (0.27445)		1.33252	0.19	0.05615 (2.771)	14.624 (0.001)
λ_{it-1} – 1st Order	0.74462 (0.19472)	0.24551	3.8242	0.001		

Table 2a(ii): Low-value Firms' Forward Adjustments and Expected Market Power at *ISHORT*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\alpha_3 x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–2.81486 (5.36287)		–0.5249	0.60	0.00132 (14.35)	1.2394 (0.30)
λ_{it} – 1st Order	50.99737 (34.19158)	0.71109	1.49152	0.14		
λ_{it} – 2nd Order	–110.79401 (69.41767)	–1.87827	–1.5961	0.12		
λ_{it} – 3rd Order	65.82926 (42.60767)	1.14834	1.545	0.13		

low-value firms' expectation variables, the expected market power only is found to depict some significant impact on the forward adjustment speeds with the *F*-value of 1.2394 and Adj. R^2 value of 0.132%. The separating behaviors are robust even at low degree of explanatory power.

Besides the above, the tests show that at presence of *ISHORT*, the high-value firms' backward adjustments with expectations on their market power, in Table 2b(i), have the *F*-value of 1.14863 and Adj. R^2 value of 0.054% while the other expectation variables have no significant impacts on their backward adjustments. In Table 2b(ii), the low-value firms'

Table 2b(i): High-Value Firms' Backward Adjustments and Expected Market Power at *ISHORT*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^b_{jit} = \alpha_0+\alpha_1 x_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–2.61777 (1.05924)		–2.4714	0.015	0.00054 (9.651)	1.14863 (0.30)
λ_{it} – 1st Order	0.51212 (0.47784)	0.06461	1.07174	0.30		

Table 2b(ii): Low-Value Firms' Backward Adjustments and Expected Market Power at *ISHORT*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^b_{jit} = \alpha_0+\alpha_1 x_{it}+\varepsilon_t$					
Coeff. of Explanatory Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.09142 (1.26724)		0.07214	0.95	0.00303 (8.2390)	2.44224 (0.12)
λ_{it} – 1st Order	–2.88512 (1.84616)	–0.07160	–1.5628	0.12		

expectation on market power has significant influences on their backward adjustments with the F-value of 2.44224 and Adj. R^2 value of 0.303%, while firms' expected costs for unsuccessful MT efforts with issuance of secured debts have significant effects, in Table 2b(iii), with the F-value of 2.107 and Adj. R^2 value of 0.92% on their backward adjustments. The other expectation variables of the low-value firms have insignificant effects.

Table 2b(iii): Low-Value Firms' Backward Adjustments and Unsuccessful MT Efforts with Secured Debts at *ISHORT*

Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, DMTMSD; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Explanatory Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–1.14105 (0.24252)		–4.70494	0.001		
DMTMSD – 1st Order	–4.66216 (2.28670)	–0.40382	–2.03882	0.05	0.0092 (3.1835)	2.107 (0.124)
DMTMSD – 2nd Order	1.19984 (0.59839)	0.39714	2.00511	0.05		

The above observations, on the forward and backward adjustments for both the high and low-value firms, confirm upward (downward) swings with the positive (negative) values of the coefficients. Again, the coefficients are not reported here to save the space. These are laid down in their respective tables. At presence of *ISHORT*, dynamic swings on adjustment speeds are induced by the non-financing expectations variables and the expected adjustment costs, viz., the market power and the cost of failed MT efforts.

Forward and Backward Adjustments at Presence of DFLINT

On firms' dynamic behaviors at presence of *DFLINT*, the separating equilibriums and robustness tests in explaining firms' forward and backward adjustments with the two sets of expectation variables show that the high-value firms' specific expectations have no significant influence on their forward adjustments while the low-value firms' expectation about their firm-size [with the F-value of 3.8034 and the Adj. R^2 value of 1.422% in Table 3a(i)] and the expectation about the growth rate [with the F-value of 5.4264 and the Adj. R^2 value of 2.23% in Table 3a(ii)] as well have significant dynamic effects. The other expectations of the low-value firms do not influence their forward adjustments at presence of *DFLINT*.

The robustness tests show that at presence of *DFLINT*, the high-value firms' backward adjustments are influenced by their firm-specific expectations. In Table 3b(i), the high-value firms' expectations of firm size explain the backward adjustments with the F-value of 2.1785 and Adj. R^2 value of 0.464%. These firms' expectation about the recapitalization cost or that

Table 3a(i): Low-Value Firms' Forward Adjustments and Expected Firm Size at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Firm Size, π_{it}; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\alpha_3 x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.97353 (0.56208)		1.73203	0.09	0.01422 (11.33)	3.8034 (0.015)
π_{it} – 1st Order	0.57624 (0.19096)	0.59160	3.01761	0.003		
π_{it} – 2nd Order	–0.01652 (0.00690)	–1.03560	–2.3947	0.02		
π_{it} – 3rd Order	0.00011 (0.00006)	0.54655	1.94648	0.06		

Table 3a(ii): Low-Value Firms' Forward Adjustments and Expected Growth Rate at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Growth Rate, μ_{it}; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\alpha_3 x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	2.05619 (0.47294)		4.34771	0.001	0.0223 (11.286)	5.4264 (0.002)
μ_{it} – 1st Order	–0.15733 (0.03901)	–0.49792	–4.0333	0.001		
μ_{it} – 2nd Order	0.00105 (0.00033)	1.98375	3.21979	0.002		
μ_{it} – 3rd Order	0.00000 (0.00000)	–1.55751	–2.907	0.005		

Table 3b(i): High-Value Firms' Backward Adjustments and Expected Firm Size at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Firm Size, π_{it}; $\delta^b_{jit} = \alpha_0+\alpha_1 x_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.40557 (0.30060)		–4.6759	0.001	0.00464 (4.348)	2.1785 (0.15)
π_{it} – 1st Order	–0.01109 (0.00751)	–0.09258	–1.476	0.15		

about the size of this cost, in Table 3b(ii), explains with the F-value of 2.79324 and Adj. R^2 value of 2.082%. The rest expectation variables of the high-value firms are insignificant in impacts. The low-value firms' expectations of firm size, in Table 3b(iii), explain their backward adjustments with the F-value of 1.2601 and Adj. R^2 value of 0.059%. These low-value firms' expectations of the costs of failed MT efforts with equity explain, in Table 3b(iv), their effects with the F-value of 1.9043 and Adj. R^2 value of 1.788%. Table 3b(v) shows that the expectation of costs of failed MT efforts at secured debts explains backward adjustments with the F-value of 1.727 and Adj. R^2 value of 0.623%. The low-value firms' growth rate expectation, in Table 3b(vi), explains their backward adjustments with the F-value of 1.12377 and Adj. R^2 value of 0.057%. The low-value firms' expectations about market power, in Table 3b(vii), explain their backward adjustments with the F-value of 4.656 and Adj. R^2 of 0.83%. Apart from the said significant effects on backward adjustments, the other variables have no important impacts.

Table 3b(ii): High-Value Firms' Backward Adjustments and Expected Recapitalization Costs at *DFLINT*

Model for Test	With x_{it} for Expected Size of Recapitalization Cost, ρ_{it}; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–0.88911 (0.36831)		–2.414	0.02	0.02082 (4.3122)	2.79324 (0.05)
ρ_{it} – 1st Order	–0.32298 (0.12124)	–0.74215	–2.6639	0.01		
ρ_{it} – 2nd Order	0.00721 (0.00377)	1.81843	1.912	0.06		
ρ_{it} – 3rd Order	–0.00004 (0.00002)	–1.15334	–1.569	0.12		

Table 3b(iii): Low-Value Firms' Backward Adjustments and Expected Firm Size at *DFLINT*

Model for Test	With x_{it} for Firms' Expected Firm Size, π_{it}; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–1.59980 (0.20378)		–7.85081	0.001	0.00059 (3.999)	1.2601 (0.30)
π_{it} – 1st Order	0.01320 (0.01176)	0.05368	1.12253	0.30		

Table 3b(iv): Low-Value Firms' Backward Adjustments and Unsuccessful MT Efforts with New Equity at *DFLINT*						
Model for Test	With x_{it} for Cost of Unsuccessful Equity MT Efforts, *DMTMEQ*; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.24999 (0.40580)		–3.08033	0.003	0.01788 (3.212)	1.9043 (0.1316)
DMTMEQ – 1st Order	18.81916 (30.82880)	0.28269	0.61044	0.55		
DMTMEQ – 2nd Order	–475.76001 (364.76730)	–1.50202	–1.30428	0.20		
DMTMEQ – 3rd Order	1582.08613 (1041.87679)	1.16909	1.51850	0.14		

Table 3b(v): Low-Value Firms' Backward Adjustments and Unsuccessful MT Efforts with Secured Debts at *DFLINT*						
Model for Test	With x_{it} for Cost of Unsuccessful Secured Debt's MT Efforts, *DMTMSD*; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.17118 (0.29138)		–4.0195	0.001	0.00623 (3.685)	1.727 (0.18)
DMTMSD – 1st Order	–5.51582 (2.96918)	–0.41249	–1.8577	0.07		
DMTMSD – 2nd Order	1.36904 (0.76452)	0.39762	1.79071	0.08		

Table 3b(vi): Low-Value Firms' Backward Adjustments and Expected Growth Rate at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Growth Rate, μ_{it}; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.55634 (0.19275)		–8.0743	0.001	0.00057 (3.9993)	1.12377 (0.33)
μ_{it} – 1st Order	0.01489 (0.01015)	0.20181	1.4672	0.15		
μ_{it} – 2nd Order	–0.00002 (0.00001)	–0.17449	–1.2685	0.25		

Table 3b(vii): Low-Value Firms' Backward Adjustments and Expected Market Power at *DFLINT*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^b_{jit} = \alpha_0+\alpha_1 x_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.22573 (0.62949)		–0.3586	0.75	0.0083 (3.984)	4.656 (0.04)
λ_{it} – 1st Order	–1.98793 (0.92134)	–0.10279	–2.1577	0.04		

Again, the results in the above tables refer to their dynamic adjustments speed to swing to the upward or downward direction and for the coefficients, we again refer the readers to follow the respective tables in this study. The given observations confirm that at presence *DFLINT* firms' expected intervening forces, viz., the expected adjustment costs and firms' non-financing expectations induce dynamic swings on firms' adjustment speeds in the upward or downward directions.

Forward and Backward Adjustments at Presence of INFLART

At presence of *INFLART*, the separating equilibriums and robustness tests in explaining the forward and backward adjustments with the expectation variables are now explained. The results show that the high-value firms' expectations on (a) firm-size [with the *F*-value of 2.0357 and Adj. R^2 value of 1.042%, Table 4a(i)]; (b) lag market power [*F*-value of 16.465; Adj. R^2 value of 6.249%, in Table 4a(ii)]; and (c) the costs of failed MT efforts with the secured debts [*F*-value of 2.3573; Adj. R^2 value of 2.49%, in Table 4a(iii)] have significant influences on their forward adjustments. The other expectation variables have little impact. The low-value firms' expectations on (a) the market power [*F*-value of 2.012; Adj. R^2 value at 0.188%, Table 4a(iv)]; (b) the lag market power [*F*-value of 2.811; Adj. R^2 value of 0.76%, in Table 4a(v)]; and (c) the costs of failed MT efforts with secured debts [*F*-value of 1.3396; Adj. R^2 value of 0.112%, in Table 4a(vi)] have dynamic effects on the forward adjustments. The other

Table 4a(i): High-Value Firms' Forward Adjustments and Expected Firm Size at *INFLART*						
Model for Test	With x_{it} for Firms' Expected Firm Size, π_{it}; $\delta^f_{jit} = \alpha_0+\alpha_1x_{it}+\alpha_2x^2_{it}+\alpha_3x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.76418 (0.95572)		0.79959	0.45	0.01042 (13.609)	2.0357 (0.11)
π_{it} – 1st Order	0.16675 (0.07095)	0.57430	2.35040	0.02		
π_{it} – 2nd Order	–0.00124 (0.00066)	–1.12633	–1.8931	0.06		
π_{it} – 3rd Order	0.00000214 (0.00000138)	0.63532	1.55203	0.13		

Table 4a(ii): High-Value Firms' Forward Adjustments and Expected Lag Market Power at *INFLART*						
Model for Test	With x_{it} for Firms' Expected Lag Market Power, λ_{it-1}; $\delta^{f}_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	0.27982 (0.31715)		0.88229	0.38	0.06249 (3.2177)	16.465 (0.001)
λ_{it-1} – 1st Order	0.91694 (0.22598)	0.25794	4.05765	0.001		

Table 4a(iii): High-Value Firms' Forward Adjustments and Unsuccessful MT Efforts with Secured Debts at *INFLART*						
Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, *DMTMSD*; $\delta^{f}_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \alpha_3 x^3_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–1.25339 (2.06065)		–0.6083	0.55	0.0249 (18.08)	2.3573 (0.08)
DMTMSD – 1st Order	102.11061 (39.94741)	0.98482	2.55613	0.012		
DMTMSD – 2nd Order	–197.31529 (99.43905)	–2.20725	–1.9843	0.05		
DMTMSD – 3rd Order	91.27125 (57.32512)	1.28849	1.59217	0.12		

Table 4a(iv): Low-Value Firms' Forward Adjustments and Expected Market Power at *INFLART*						
Model for Test	With x_{it} for Firms' Expected Market Power, λ_{it}; $\delta^{f}_{jit} = \alpha_0 + \alpha_1 x_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.19543 (1.16335)		–0.168	0.90	0.00188 (8.0155)	2.012 (0.16)
λ_{it} – 1st Order	2.43033 (1.71337)	0.06110	1.4185	0.16		

Table 4a(v): Low-Value Firms' Forward Adjustments and Expected Lag Market Power at *INFLART*						
Model for Test	With x_{it} for Firms' Expected Lag Market Power, λ_{it-1}; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.32116 (0.89370)		–0.3594	0.75	0.0076 (8.51)	2.811 (0.07)
λ_{it-1} – 1st Order	2.05105 (0.98652)	0.25426	2.0791	0.04		
λ_{it-1} – 2nd Order	–0.21944 (0.14622)	–0.18354	–1.5008	0.15		

Table 4a(vi): Low-Value Firms' Forward Adjustments and Unsuccessful MT Efforts with Secured Debts at *INFLART*						
Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, *DMTMSD*; $\delta^f_{jit} = \alpha_0+\alpha_1 x_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	1.10926 (0.17865)		6.20918	0.001	0.00112 (2.93)	1.3396 (0.25)
DMTMSD – 1st Order	1.11783 (0.96580)	0.06635	1.15741	0.25		

relevant variables, however, have insignificant effects and their reporting is avoided to save space.

Besides, the robustness tests show that at presence of *INFLART* the high-value firms' backward adjustments are influenced by their expectations about the size of recapitalization cost [with the *F*-value of 7085.58 and Adj. R^2 value of 98.736%, in Table 4b(i)], while their

Table 4b(i): High-Value Firms' Backward Adjustments and Expected Size of Recapitalization Cost at *INFLART*						
Model for Test	With x_{it} for Expected Size of Recapitalization Cost, ρ_{it}; $\delta^b_{jit} = \alpha_0+\alpha_1 x_{it}+\alpha_2 x^2_{it}+\alpha_3 x^3_{it}+\varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	*t*-Value	Sig. Level	Adj. R^2 (SE)	*F*-Value (Sig. Level)
Intercept (α_0)	–0.11925 (0.22929)		–0.5201	0.65	0.98736 (3.0708)	7085.58 (0.0001)
ρ_{it} – 1st Order	–0.48589 (0.05567)	–0.29787	–8.728	0.0001		
ρ_{it} – 2nd Order	0.01730 (0.00091)	1.99584	18.9131	0.0001		
ρ_{it} – 3rd Order	–0.00010963 (0.00000320)	–2.68586	–34.308	0.0001		

other expectation variables have no significant influence on these firms' backward adjustment speeds. Further, the low-value firms' cost of unsuccessful MT efforts at their secured debt issues, in Table 4b(ii), are found to influence their dynamic backward adjustments with the F-value of 5.349 and Adj. R^2 value of 3.44%.

Table 4b(ii): Low-Value Firms' Backward Adjustments and Unsuccessful MT Efforts with Secured Debts at *INFLART*

Model for Test	With x_{it} for Cost of Unsuccessful Secured Debts' MT Efforts, *DMTMSD*; $\delta^b_{jit} = \alpha_0 + \alpha_1 x_{it} + \alpha_2 x^2_{it} + \varepsilon_t$					
Coeff. of Variables	Unstandardized Coeff. and (SE)	Stand. Coeff.	t-Value	Sig. Level	Adj. R^2 (SE)	F-Value (Sig. Level)
Intercept (α_0)	–0.93004 (0.22848)		–4.07055	0.001	0.0344 (3.054)	5.349 (0.006)
DMTMSD – 1st Order	–6.57888 (2.01273)	–0.58896	–3.26863	0.002		
DMTMSD – 2nd Order	1.65803 (0.53419)	0.55927	3.10384	0.003		

In the above tables, the positively (negatively) significant coefficients refer to firms' dynamic swings in the upward (downward) direction as usual. Again, the coefficients are not reported here to save space. The observations confirm that at presence of *INFLART*, the expected intervening forces, viz., the expected adjustment costs and their non-financing expectations of the high-value or the low-value firms, therefore, induce dynamic swings on the dynamic adjustment speeds.

Conclusion

On the dynamics of corporate capital structure choices, the present study has ingeniously explored the proposition whether the factors of dynamic adjustment costs and firms' expectations about their non-financing firm-specific variables have dynamic effects or not. The study has also attempted to examine whether the sample firms' dynamic swings at upward or downward direction from their optimal leverages are feasible or not. The evidences in the study have put forward that the dynamic forward and backward adjustments differ for the high-value and low-value firms, for their firm-specific adjustment costs and for the firm-specific non-financing expectations as well. These explorations lead us towards examining the existence of pooling equilibrium vis-à-vis separating or semi-separating equilibrium of firms during firms' discourses in dynamic adjustments.

On the journey for firms' time-varying target capital structure choice, LV^*_{jit}, which is unobservable practically, the empirical findings with its methodological advancement in the study show that once firms' dynamic adjustment speed, *DAS* (δ_{jit}) is treated as singleton endogenous variable, then empirical results become noisy. The pooling equilibrium is not decisive in firms' capital structure choices. In a semi-separating setting, the *DASs* of the high-value firms are different from those of the low-value firms. The error terms in the models follow standard normal distributions while those of the explanatory variables are in the normal distributions. The standard errors, in the regression models for the high-value firms, range within 17.46 [in Table 4(i)] and 7.751 [in Table 2(i)] with their respective Adj. R^2s of 0.3375 and 0.00355. The respective magnitudes of the standard errors for the low-value firms are 12.21 [in Table 4(iii)] and 3.243 [in Table 4(ii)] with their Adj. R^2 values of 0.00122 and 0.0064.

In their separating equilibrium, the high-value and low-value firms' dynamic behaviors at forward adjustments are different from those at the backward adjustments. The standard error term at their forward adjustments ranges between 18.08 [in Table 4a(iii)] and 1.992 [in Table 1a(iii)] for the high-value firms with their respective Adj. R^2 of 0.0249 and 0.00244, while at their backward adjustments, the same ranges within 15.497 [Table 1b(i)] and 3.0708 [Table 4b(i)] with the Adj. R^2 of 0.0082 and 0.98736. For the low-value firms, however, the standard errors at forward adjustment range within 14.35 [Table 2a(ii)] and 2.93 [Table 4a(vi)] with the Adj. R^2 of 0.00132 and 0.00112, while at their backward adjustment, the same ranges within 8.239 [Table 2b(ii)] and 2.55 [Table 1b(iv)] with the Adj. R^2 of 0.00303 and 0.00053.

The above form of divergent dynamic adjustment behaviors at firms' forward adjustments (δ^f_{jit}) and backward adjustments (δ^b_{jit}) of both the high and low-value firms further contribute to the said noises once observed for firms' singleton adjustment variable (δ_{jit}) as regressed with the explanatory expectation variables. Besides the stated observations, an abstract of the findings [in Appendix (Table A2)] confirms that the high-value and low-value firms' dynamic behaviors about *DASs* are of divergent nature. These are subject to firms' dynamic specification about the relevant macroeconomic variables, their relevant specification about the adjustment speeds and their points of interest about their expectations of financing adjustment costs and firm-specific non-financing expectations.

It is interesting to put importance on the observations that the low-value firms are more exposed to optimal dynamic adjustments with the singleton variable, the *DASs* (δ_{jit}), than those for the high-value firms. This empirical study finds as many as four (seven) instances in the semi-separating equilibriums where the high (low)-value firms respond to the magnitudes of *DASs*, the optimal dynamic adjustment speeds, δ_{jit} for the different variables. Including the cases of separating equilibriums, the low-value firms are more exposed to the *DASs* and amongst the 43 cases of dynamic adjustments, 17 (26) cases are related to the high (low)-value firms. Amongst the cases of separating equilibriums, the high-value firms are mostly equally sensitive to forward and backward adjustments—as much as seven (six) cases at forward (backward) adjustments. Amongst the low-value firms' separating equilibriums, there are (six) 13 cases at forward (backward) adjustments. The above dynamic adjustment behaviors in separating and semi-separating equilibrium are observed in the reported 56 cases out of the possible 240 cases. Amongst separating equilibrium, we find good fit of the models at linear specification in 12 cases, at quadratic specification in 13 cases and at cubic specification in 18 cases. In identifying the scope for future research, the researchers may explore the nature of stability of the model specification and firms' dynamic adjustment speeds. ⅄

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Appendix

Table A1: Matrix of Pearson Correlation Coefficient (Two-Tailed) of Firm-Specific Characteristics and Macroeconomic Variables

	LVDR	*LQDTR*	*SIZER*	*GROWR*	*PROFTR*	*TANGR*	*MBR*	*TERMSPED*	*ISHORT*	*DEFLINT*	*INFLRATE*
LVDR	1										
LQDTR	–0.1201 (0.001)	1									
SIZER	–0.12587 (0.001)	0.037183 (0.1124)	1								
GROWR	–0.03594 (0.1281)	–0.01692 (0.4703)	0.127153 (0.001)	1							
PROFTR	–0.11739 (0.001)	0.058327 (0.0127)	0.016036 (0.4937)	0.083337 (0.0004)	1						
TANGR	0.01737 (0.4622)	0.056674 (0.0155)	–0.03551 (0.1295)	–0.13668 (0.001)	0.008931 (0.7031)	1					
MBR	–0.04014 (0.0892)	–0.03904 (0.0955)	0.340858 (0.001)	0.608514 (0.001)	–0.13295 (0.001)	–0.10544 (0.001)	1				
TERMSPED	–0.00184 (0.9378)	–0.0177 (0.4500)	0.035648 (0.1280)	0.08369 (0.0003)	–0.00133 (0.9548)	–0.03953 (0.0914)	0.087817 (0.0002)	1			
ISHORT	0.000894 (0.9698)	0.000602 (0.9795)	0.005058 (0.8291)	0.001239 (0.9578)	–0.00201 (0.9316)	–0.02597 (0.2676)	0.015754 (0.5013)	0.22745 (0.001)	1		
DEFLINT	–0.00173 (0.9415)	–0.00636 (0.7860)	0.032143 (0.1700)	0.046162 (0.0487)	–0.00106 (0.9639)	–0.01412 (0.5468)	0.039563 (0.0912)	0.434259 (0.001)	–0.10071 (0.001)	1	
INFLRATE	–0.0025 (0.9156)	–0.0074 (0.7521)	0.021777 (0.3526)	0.044035 (0.0601)	–0.00097 (0.9670)	–0.03592 (0.1252)	0.049386 (0.0349)	0.578413 (0.001)	0.481442 (0.001)	0.427839 (0.001)	1

Note: Figures in the parentheses represent the level of significance. The notation *LVDR* is the leverage variable, measures as the total debt to equity ratio. *LQDTR* is the liquidity ratio. *SIZER* is the ratio referring firms' size. *GROWR* is the ratio of firms' growth rate. *PROFTR* is the operating profitability ratio. *TANGR* is the tangibility ratio. *MBR* is the market to book ratio. *TERMSPD*, *ISHORT*, *DEFLINT*, and *INFLRATE* are respectively the term-spread rate of interest, the short-term rate of interest, the default interest rate, and the inflation rate. The variables are however defined as used earlier in the study.

Appendix (Cont.)

Table A2: Abstract of the Results with the Adjusted R^2 Values

(in %)

Macroeconomic Variables, Firms' Expectations Variables, and Different Adjustments Variables		Dynamic Adjustments for the High-Value Firms				Dynamic Adjustments for the Low-Value Firms			
		TERMSPD	*ISHORT*	*DFLINT*	*INFLART*	*TERMSPD*	*ISHORT*	*DFLINT*	*INFLART*
Optimal Dynamic Adjustments (α_{jit})	Assets' Variance	–	–	–	–	–	–	–	–
	Size of Recapitalization Costs	–	–	–	Yes (33.75)	–	–	–	–
	Cost of Asymmetric Information	–	–	–	–	–	–	–	–
	Costs of Unsuccessful Equity MT Efforts	–	–	–	–	–	–	–	–
	Costs of Unsuccessful SD MT Efforts	–	–	–	–	–	Yes (0.97)	–	Yes (0.64)
	Costs of Unsuccessful USD MT Efforts	–	–	–	–	–	–	–	–
	Firms' Size	Yes (2.9278)	–	–	–	–	–	Yes (0.593)	–
	Expected Growth	–	–	–	–	–	–	Yes (0.345)	–
	Market Power	Yes (0.074)	–	–	–	–	Yes (0.301)	–	Yes (0.122)
	Lag Market Power	–	Yes (0.355)	–	–	–	–	–	Yes (0.163)
No. of cases of dynamic adjustment out of ten cases		Two	One	Nil	One	Nil	Two	Two	Three

Appendix (Cont.)

Table A2 (Cont.)

(in %)

Macroeconomic Variables, Firms' Expectations Variables, and Different Adjustments Variables		Dynamic Adjustments for the High-Value Firms				Dynamic Adjustments for the Low-Value Firms			
		TERMSPD	***ISHORT***	***DFLINT***	***INFLART***	***TERMSPD***	***ISHORT***	***DFLINT***	***INFLART***
Forward Adjustments (δ^f_{jit})	Assets' Variance	–	–	–	–	–	–	–	–
	Size of Recapitalization Costs	–	–	–	–	–	–	–	–
	Cost of Asymmetric information	–	–	–	–	–	–	–	–
	Costs of Unsuccessful Equity MT Efforts	–	–	–	–	–	–	–	–
	Costs of Unsuccessful SD MT Efforts	Yes (0.244)	–	–	Yes (2.49)	–	–	–	Yes (0.112)
	Costs of Unsuccessful USD MT Efforts	–	–	–	–	–	–	–	–
	Firms' Size	Yes (11.61)	–	–	Yes (1.042)	–	–	Yes (1.422)	–
	Expected Growth	–	–	–	–	–	–	Yes (2.23)	–
	Market Power	Yes (0.21)	–	–	–	–	Yes (0.132)	–	Yes (0.188)
	Lag Market Power	–	Yes (5.615)	–	Yes (6.249)	–	–	–	Yes (0.76)
No. of cases of dynamic adjustment out of ten cases		Three	One	Nil	Three	Nil	One	Two	Three

Appendix (Cont.)

Table A2 (Cont.)

(in %)

	Macroeconomic Variables, Firms' Expectations Variables, and Different Adjustments Variables	Dynamic Adjustments for the High-Value Firms				Dynamic Adjustments for the Low-Value Firms			
		TERMSPD	*ISHORT*	*DFLINT*	*INFLART*	*TERMSPD*	*ISHORT*	*DFLINT*	*INFLART*
Backward Adjustments (δ^b_{jit})	Assets' Variance	Yes (0.195)	–	–	–	Yes (0.419)	–	–	–
	Size of Recapitalization Costs	–	–	Yes (2.082)	Yes (98.74)	–	–	–	–
	Cost of Asymmetric Information	–	–	–	–	Yes (0.053)	–	–	–
	Costs of Unsuccessful Equity MT Efforts	–	–	–	–	Yes (4.01)	–	Yes (1.788)	–
	Costs of Unsuccessful SD MT Efforts	–	–	–	–	–	Yes (0.92)	Yes (0.623)	Yes (3.44)
	Costs of Unsuccessful USD MT Efforts	–	–	–	–	–	–	–	–
	Firms' Size	–	–	Yes (0.464)	–	Yes (0.248)	–	Yes (0.059)	–
	Expected Growth	–	–	–	–	–	–	Yes (0.057)	–
	Market Power	–	Yes (0.054)	–	–	Yes (0.477)	Yes (0.303)	Yes (0.83)	–
	Lag Market Power	Yes (0.82)	–	–	–	–	–	–	–
No. of cases of dynamic adjustment out of ten cases		Two	One	Two	One	Five	Two	Five	One

Note: 1. A mark 'Yes' refers the observation of firms' dynamic adjustments while the mark '–' refers to an absence of the 'Yes'. There are ten explanatory variables – two proxy variables for dynamic recapitalization costs, three alternative proxy variables for unsuccessful MT efforts, two alternative proxy variables for market power, one proxy variable for firms' size, growth rate, and cost of asymmetric information. In the parentheses, the Adjusted R^2-value (in percentage) of the model is given.; 2. The proxy variable size of recapitalization costs is surrogated by the ratio of variance of sales turnover to absolute value of mean difference. Assets' variance here serves as an alternative proxy. Cost of asymmetric information is the difference of expected overall return to equity less observed overall return. Cost of unsuccessful MT Efforts is surrogated by the absolute values of DMTM of equity and DMTM of debts separately. For the said variables, a no-change expectation to observed data is made. Firms' size is expectation generated variable where net sales, firm-value, and free cash flow is included. Firms' expected growth rate is also an expectation generated variable where firms' growth rate of gross block, net sales, and market capitalization of equity is used. Market power is surrogated by MB ratio and here a no-change expectation is made. The lag market power is one-year lag variable of MB ratio and here firms' expectation is to retaining their earlier year's MB ratio.

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