Unifying Views on Corporate Capital Structure Dynamics: A Research Letter[1]

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Abstract:

The present paper considers the issue of corporate strategic financing choices from the dynamic views, and it puts forwards a unifying view, where the view logically argues that the issue of financing decision is a combined choice of the firms' decision set of "time-state-focus". The view theoretically argues that firms' capital structure decisions are particularly of some short of reconciliations on the part of the firms between the propositions of the static trade-off (STO) theory, the pecking order (PO) theory, the dynamic trade-off (DTO) theory, and the market timing (MT) theory. The empirical observations also support the said theoretical views and thereby confirm the firms' dynamic behaviors and provide robust supports in favor of the dynamic unifying view of firms' financing choices.

Keywords: Corporate Financing, Dynamic Unifying View, and Reconciliation of Theories.

1. Introduction

After the path breaking irrelevance argument by Modigliani & Miller (1958), the literature of Corporate Finance has received phenomenal researches on the issue of corporate capital structure decisions. On its relevance, the researchers have contributed huge developments with the arguments of the debts' interest tax-shield benefits, bankruptcy costs, agency control benefits, agency control costs, asymmetric information costs, transaction costs, and presence of under or overvaluation of stocks' prices at the market place. Here, the premier theories are the static trade-off theory, the pecking order theory, the dynamic trade-off theory, and the market timing theory. These theories explain one or more issues out of the above different issues. The irrelevance argument has not found persistent supports from its proponents also (Modigliani & Miller, 1963; Miller, 1977; Miller, 1988; Miller & Modigliani, 1966).

But, on which one issue/s and theory / theories should the firms "focus" at their financing choices? Apart from the choice of "focus", at which "time-state" is the firms' capital structure decision becoming relevant? A time-state refers to a situation (*state*) that firms face at a decision point (*time*) that they consider. Given that the firms' objective function is maximization of firm-values over time horizon, then their financing choices involve two or more time-states.

In the static trade-off theory, at the financing choices (*times*) the firm-value maximization happens at a debt level which maximizes (i) the firms' interest tax-shield benefits net of their bankruptcy costs (*states*) and / or (ii) their agency control benefits net of the agency control costs (*sates*). In the pecking order theory, rather than considering any maximization objective/s, the firms' "time-state" considerations involve an environment of information asymmetry between the managers and external investors about the firm-values or firm-risks (*states*) at their present or future investment projects (*times*). In the dynamic trade-off theory, the firms' financing choices depend on the swings in their different firm-specific characteristics (*states*) at different decision frames (*times*). In the market timing theory, however,

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[1] The paper is a partial attempt of the corresponding author in fulfillment of his doctoral thesis under the supervision of the co-author as submitted in September, 2012 for Ph. D. Degree. The contents of the tables in relation to the results are not given here in order to save space.

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the same depend on the stocks' valuations at the market places (*states*) at the firms' financing decisions (*times*). In a nutshell, firms' capital structure decisions involve a choice of "focus" and "time-state" preference as well.

The firms' *time-state-focus* choice, in the static trade-off theory, concentrates more on the objective of short-run firm-value maximization than that on its long-run persistency since exact prediction either of expected bankruptcy costs or agency control cost is not possible. The *time-state-focus* choice, in the pecking order theory, stresses on maintenance of reserve debt-capacity since the firms here favour sub-optimal investment situations. In the dynamic trade-off theory, a *time-state-focus* considers dynamic changes in firm-specific and macro-economy-specific factors while the same in the market timing theory depends on the markets' pricing dynamics. However, if the firms' financing choices are subject to their *time-state-focus* choices over time, then the same would involve dynamic decision frameworks rather than any static framework.

2. Problem Statement

The above theories are "*conditional*" theories and these mostly overlap each other. For example, the static trade-off "*time-state*" argument for the debts' benefits is not strange at all in Myers (1984) and it contributes to the firms' debt-capacity ("*focus*") to become a valuable source of financing. On the firms' *time-state-focus* choices on their capital structure decisions over time, hence, a "comprehensive" theory is lacking in the literature. It might explain the firms' focuses on financing choices along with the *time-state* dynamics on the firm-specific and macro-economic factors. On this search for "complete" theory, "...at the end of the day some blend of all of the theories may be needed to explain capital structure" (Myers, 2002, p. 3- 4). Here, the "blending" of the existing theories towards a comprehensive theory inevitably calls to ensure identifying the development of the unifying dynamic views, which reconcile the existing theories. Toward this theoretical end on a unifying dynamic view/s, a specifc research query is to examine - whether some *blendings* of the existing theories are possible or not.

3. Relevance of The Study

The process of "*blending*" of the existing theories into "complete" theory advances us for development of unifying dynamic views, which require reconcilations of the theories. This research objective has got a little attention of the researchers even if only a few reconciliatory attempts are made in the literature (Bontempi, 2002; Lemmon & Zender, 2004). The reconcilations between the pecking order theory and the static trade-off theory are made in Bontempi (2002), Lemmon & Zender (2004), and the others. On the critical issue of the firms' sub-optimal vs. optimal investment choices with the costs of capitals at their financing decisions, these researches[1] have remained silent mostly. The literature puts in a little on the reconcilations between the pecking order theory and the market timing theory. Reconcilations of the dynamic trade-off theory with the pecking order theory, the static trade-off theory, and the market timing theory as well are also lacking in the literature. The present attempt on reconcilations of existing theories prompts this researcher to offer a unifying dynamic view along with a few theoretical propositions and related corollaries to the propositions.

4. Theoretical Proposal

A review of the standard literature would bring out that none of the theories has lost its own merits while a "standalone" theory could be explained by its modified versions (see, Frank & Goyal, 2008). The debts' benefits (viz., interest

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1 Bontempi (2002) suggests that the sample firms are divided into pecking order (PO) types and static trade-off (STO) types where they rarely maintain their types over time. In the short run, PO-type firms start financing their deficits with internal equity, and once the agency and signaling effects thrust into issuing long term debts they behave as STO-type. Firms maintain reserve debt-capacity and show heavy (least) reliance on debt (equity) issues if they are unconstrained (constrained) by debt-capacity, where marginal issue of debts reduces debts' market value (Lemmon & Zender, 2004). Halov & Heider (2005) show that Myers' (1984) PO-design would happen if and only if outside investors are informed about their expected risk of new and existing investment projects but not about their expected values. In external issues, firms thus follow PO (reverse PO)-track if information asymmetry is about the expected value (risk). Gomes & Phillips (2005) have forwarded how PO and reverse PO choices in external issues simultaneously could exist in an economy.
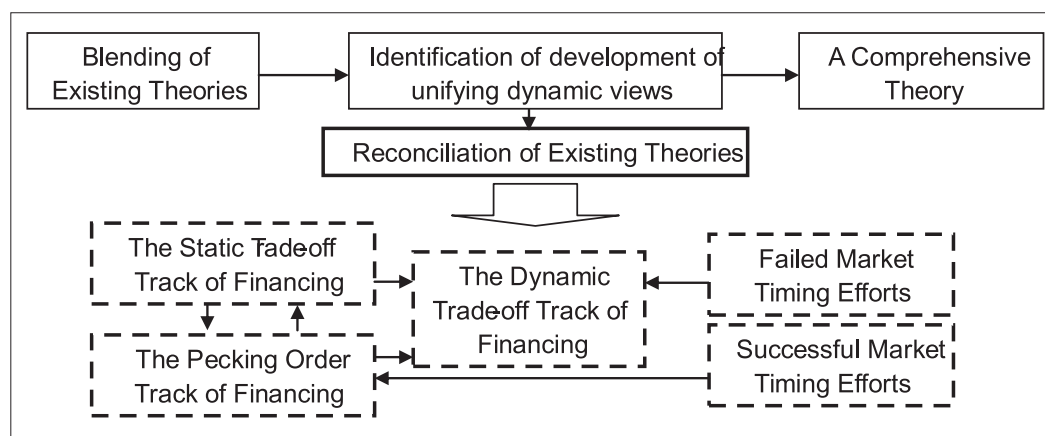
Figure 1: A Framework for Development of Comprehensive Theory

tax-shield benefits as well as the agency cost benefits), and costs (viz., bankruptcy costs as well as the agency costs) in the static trade-off theory could be included within the pecking order theory while both the theories could be clubbed into the dynamic trade-off theory. That is, the static trade-off (STO) and the pecking order (PO) views on the firms' financing decisions could be explained within a near "unifying" framework of the dynamic trade-off (DTO) views. On the other way, the firms' exposures to the asymmetric information aspects in the PO theory could also be explained by the market timing (MT) theory along with the interactions between the managers and investors at the times of the firms' successful MT efforts. The DTO-track can provide space for firms' dynamic adjustments with the unsuccessful MT efforts as well.

The proposed unifying view seeks to delineate three propositions, proposition-1, 2, and 3. Proposition-1 deals with firms' STO and PO tracks of financings while proposition-2 deals with their STO, PO, and DTO-tracks of financings. Proposition-3 deals with the MT-track and the adjustment costs in DTO-track of financing. Besides the theoretical propositions, the proposed unifying view also seeks to put forward six corollaries, corollary-1.1, 1.2, 2.1, 2.2, 2.3, and 3.1. Corollary-1.1 and 1.2 are derived from proposition-1; corollary-2.1, 2.2, and 2.3 are derived from proposition-2; and corollary-3.1 is derived from proposition-3.

5. Theoretical Framework and Proposition Formulation

Figure 1 depicts a general view of the proposed unifying view. The propositions and the relevant corollaries are discussed under the next sub-heading, which is organized as follows: proposition-1 and corollary-1.1 and 1.2 are explained respectively in the 1st and 2nd sub-headings; proposition-2 and corollary-2.1, 2.2, and 2.3 are explained respectively in the 3rd and 4th sub-headings; and finally, proposition-3 and corollary-3.1 are explained respectively in the 5th and 6th sub-headin.

5.1. Firms' Approach from STO-Track to PO-Track of Financing

Neither the STO nor PO theory spells out persistent picture of firms' financing choices (Fama & French, 2002; 2005; and Frank & Goyal, 2003). The former theory is biased to firms' instantaneous adjustments since the firms need to reach at static optimality while the adjustments in the latter theory is subject to firms' adjustment costs since there is information asymmetry. A testing of the STO theory may further result in Type-II error when firms are strictly in the PO-track (Shyam-Sunder & Myers, 1999). The theories do not offer explicit models but a set of principles towards the models and tests (Frank & Goyal, 2008). Given the matching between these theories, some short of reconciliations are required towards a unifying view.

The theoretical justifications of the interest tax-shield theory and the agency cost theory can be explained within the PO theory since the later theory that puts forward firms' preference for debts to equity never proposes for leverage indifferences. The both STO theories hypothesize that firms maintain an "optimal" debt to equity ratio or a range of the same. In the interest tax-shield theory, this optimal debt-to-equity ratio results in firms' equilibrium and maximizes their firm-values. Here, the criteria for "firm-

value" maximization are of much importance. The "firm-value" includes claims of the debt-holders and equity-holders. The extents of firms' bankruptcy costs depend on the debts' costs of capital (i.e., exogenous coupon rates), the endogenous interest tax-subsidy from the government (i.e., the corporate tax-rate and taxable income), and profitable operating stability as well. The extent of optimal debt-equity ratio or its range would forward an underlying debt-capacity to be utilized in maximizing firm-value, and beyond that the firm-value diminishes. If firms under (over)-utilize their debt-capacity from (to) optimal debt-equity ratio or range, then their debt-ratios would not always stay at their static optimal points.

In the agency cost theory, in contrast, firms' free cash-flows are managed by managers, who may have some personal objectives different from the criterion of maximization of equity-holders' value. The equity-holders need some arrangements in monitoring firms' free cash-flows. Debt covenants restricting the utilization of the free-cash flows by the managers may perform as a monitoring device. Such covenants may restrict firms' further debt issues at higher coupon rate. The covenants may include restrictive provisions on issuance of superior debts and may limit issuance of subordinate debts. These may also restrict firms' sale of fixed-assts in payment of dividends. The covenants even may include provisions to restrict dividend distribution at extra-ordinary situations. All these monitoring benefits out of the debts' use originate debt-monitoring costs which are borne by the equity finally. Excessive controls in the hands of bondholders in controlling the managerial activities reduce the firm-value while debt-covenants can not restrict all managerial actions. The managers also know the consequences of too much debt-dependence. They may therefore pass up debts' issues at "too much" protective debt-covenants. The criterion of firm-value maximization in the agency cost theory thus leads managers to utilize debts upto an optimal level of debt capacity that sets off the agency costs against its benefits.

Now, whether firms' current debt levels represent optimal utilization or under-utilization or over-utilization of debt-capacity or not - on this query, the investors are not properly informed by the managers. Such information asymmetry between the managers and investors is related to the quality about the values of firms' assets-in-place and their future investments as well. This information asymmetry reduces the firm-values and stocks' prices discount this

information gap accordingly. Here, brining in symmetry between the managers and investors is subject to costly direct or indirect exercises on information releases by the firms. This information asymmetry is a new input in the PO theory, and the same is not included in the STO theories.

This new input forwards a concept of capital structure that comprises internal capitals and external capitals. Internal capitals include the retained earnings and undistributed profits while external capitals come in the form of debt /equity issue. The firms' current balances of internal equity are always available in the annual reports even if there is information asymmetry between the investors and managers about its possible utilizations for dividend payment or to fund new or existing projects. If firms follow a 'sticky' dividend policy and the capitals are maintained intact, then utilization of internal equity for existing or new projects of equivalent risk exposures to the existing ones will convey no additional information and no agency conflict to the claimants of firm-value. If firms utilize internal equity reserves for new projects of higher risk exposures than those of existing ones, then there will be information asymmetry and assets' substitution problem (Myers, 1977) from the utilization side. Internal equity thus attracts lesser costs for information asymmetry and agency conflicts between the managers and investors at large.

Again, if the debts' interest is already paid out of business profits or retained earnings (and the firms do not face technical bankruptcy), then their funding of investments with retained earnings and undistributed profits rather than utilizing the same on dividend distribution attracts lower tax-rates for the long-term capital gains than that for current dividends in the hands of the investors. Internal equity here provides an alternative financing opportunity that to be utilized instead of debt issues. This creates some short of reserve debt capacity to the firms which may be utilized latter to fund investments with debt issues (Myers & Majluf, 1984). The "reserve debt-capacity" for unleveled or lowly levered firms represents their intake of low-risk debt capital, which is below the static optimal debt level and it is free from bankruptcy costs. At the upper debt levels over the static optimality, use of internal equity surrogates for further debt-capacity to issue high-risk debts. In minimizing information asymmetry, generating investors' personal tax-benefits, staying at the target debt levels, and maximizing the firm-values, the

firms thus find no conflict between a STO-track and a PO-track in financing with internal equity.

The firms' debt issues upto the target debt level can attract positive net interest tax-shield benefits after discounting the expected costs of bankruptcy and distress. Above the target debts, more dependence on the debts attracts higher costs in the form of either increase in coupon rates or imposition of restrictive covenants on uses of free cash flows. Firms' financing of investment projects with debt capital, once firms have finished up their internal equity reserves, thus invites debt-holders' monitoring and restrictive controls about assets' uses and attracts less information asymmetry about the quality of investments. Debt-covenants mitigate the information asymmetry and alleviate debt-holders' assets-substitution problem about firms' uses of free cash flows once the project is financed with the debt issues. These debt issues perform as a financing mechanism in deriving the trade-off benefits in STO-track and in reducing the information asymmetry in PO-track as well. Debt issues in utilizing interest tax-shield benefits along with monitoring benefits within the limits of firms' reserve debt capacity could thus minimize their overall cost of capital and maximize the firm-values. Firms' financing with debt issues in the STO-track approximates to the PO-track. The thesis hence forwards proposition-1 as follows.

Proposition-1: *The firms' debt financing following the pecking order theory over time approaches to follow the static trade-off theory (the interest tax-shield theory and the agency cost theory as well) at the lower debt levels and vice-versa.*

5.2. Firms' Utilization and Creation of Reserve Debt Capacity

Let us assume that the firms in an economy can be identified by the investors as the high-value or low-value firms. There is information asymmetry between managers and passive equity-holders. In such a situation, the low-value firms issue equity at prices above "true" price while the high-value firms just postpone new equity issues and reject positive NPV projects (Cadsby *et al*, 1990). The firms also try to be identified separately by the investors in the markets such that there is either *separating* or *semi-separating* equilibrium. In the separating equilibrium, the high (low)-value firms behave unlikely of those of the low (high)-value ones. In a semi-separating equilibrium, the

firms within a group remain indifferent. It is also assumed that there are market imperfections characterized by presences of debts' interest tax-shield benefits, financial distress and agency conflict costs and agency control benefits. The benefits have upper limits upto which the debt-holders of high (low)-value firms allow issues of low (high)-risk debts. This limit of low (high)-risk debt is assumed to be at the left (right) of static optimality (D_2 in Figure-2).

In Figure-2, the curve AFG at the top shows the firm-value (FV_1) at presence of information asymmetry only. At the point F, debt limit D_0D_3 represents debt-capacity beyond which firms face sub-optimal investments as offered in Miller & Rock (1985). The curve ADE in the middle refers to firm-value (FV_2) at presence of trade-off costs and benefits but at absence of asymmetric information costs where at point D, D_0D_2 infers STO optimality at a lower debt limit than D_0D_3. The curve ABC at below shows firm-value (FV_3) at presence of STO costs and benefits and information asymmetry costs. Here, at point B, the debt limit D_0D_1 represents the "in-built" debt capacity once adjusted for the latter costs within the firms' operating and non-operating structures (Scott, 1976; Stiglitz, 1974). The debts above (below) point D_2 in the debt-axis represent the high (low)-risk *reserve debt capacity* (hereinafter, referred as RDC), where the reserve i.e., idle /spare debt capacity is defined as D_t, the observed debt less D_0D_2. *RDC* thus becomes an effective tool in firms' financing activity. The figure depicts that firms' STO benefits are more exposed at the lower debt levels than those at the upper debt levels while the asymmetric information costs along with the STO costs are more exposed at the upper debt levels than those costs at their lower debt levels (also see, Ghosh & Sinha, 2009)[2].

The dynamics of *RDC* is now derived. The firms exploit the reserve debt-capacities, *RDC* if the same are available or otherwise they re-create the same before utilization. The debt limit of D_1D_2 infers firms' low-risk *RDC* and that of D_2D_3 infers firms' high-risk *RDC*. If the low-value firms' current debt ratios are above the target D_0D_3, then in order to adjust their debt levels down to their targets, they would now reduce prospective the costs of bankruptcy and financial distress on the one hand and

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2   The paper work, Ghosh & Sinha (2009) is a part publication of the thesis. It forwards an empirical extension of proposition-1. The empirical formulation has been incorporated in the first section under the next heading.
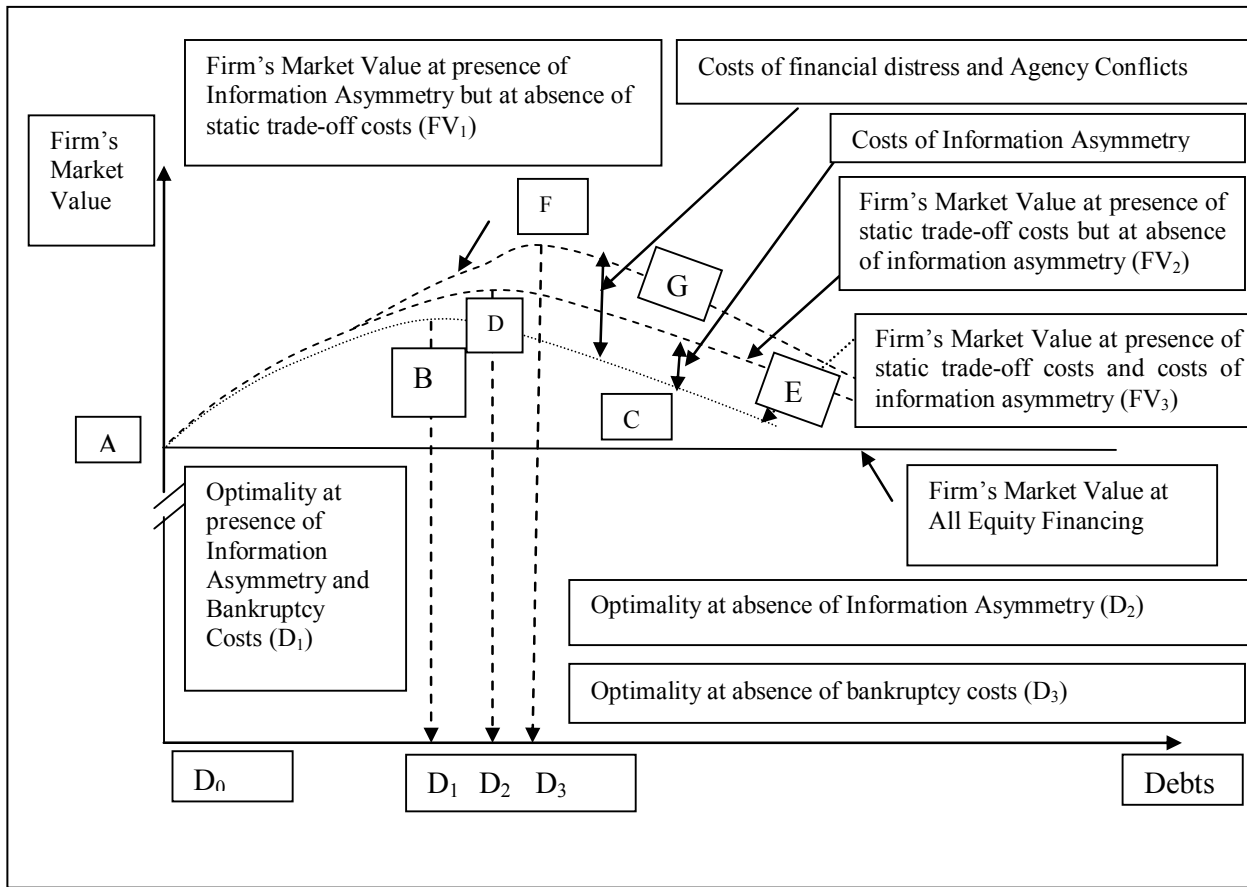
Figure 2: Firms' dynamic optimality at different imperfections of the Market

debts' assets' substitution problem and agency conflict on the other. How do firms revert? They do the same with uses of internal or external equity in recreating *RDC*.

Now, the high-value firms issue low-risk debts at lower asymmetric information cost and tend to maximize firm-values since these firms rarely face the debts' assets-substitution problem and equities' adverse selection problem. At debt levels above D_0D_2, because of high trade-off costs, the high-value firms which are in the STO-track are perceived as the low-value ones by the passive equity investors. These firms yet have opportunities to issue high-risk debts but of course at the costs of capital lower than those of new equity issues. Issues of such risky-debt by these "currently" low-value firms are also subject to their low costs of asymmetric information. Hence the "high-value" firms, which are presently perceived as low-value ones by the equity investors in the market, enjoy opportunity to issue risky debts beyond the limit of low-risk debts (D_0D_2) in exploiting their *RDC*s till these firms reach the upper debt limit of D_0D_3.

The firms now may re-create their RDC. The high-value firms' internal equity involves lower costs for asymmetric information than those of the low-value firms. This provides a push in recapitalizing firms' capital structures and this depends on current reserves, operating earning capacity and dividend policy. It is subject to high adjustment speed that refers to the pace to revert to the debt levels in recreating debt-capacity and trade-off benefit. The low-value firms mostly lack in terms of their internal reserves in regenerating their debt capacities. These firms might issue new equities at their upper debt boundary of D_0D_3 but the same is subject to debts' assets' substitution problem. Such adjustments are subject to high adjustment costs due to the presence of equity transaction costs. The effects of trade-off cost elements become reduced on these issues of new equity, and these enhance their firm-values. The low-value "*trade-off*" firms are thus reverting to the static optimality (D_0D_2), where they are re-creating *RDC* and also reducing their bankruptcy costs, and thereby, these firms are apprehending to be the high-value firms. This prompts the low-value firms

in considering their information asymmetry besides the trade-off elements in their decision frames. Beyond D_0D_3, any debt issue instead of equity is not possible since it attracts high adjustment costs of expected bankruptcy (debt-overhang) problem in STO (PO)-track. The thesis hence forwards two corollaries, which are theoretically derived from proposition-1 and the observations in Miller & Rock (1985).

Corollary-1.1: *In utilizing the reserve debt capacity, RDC, the high (low)-value firms, which stay within their RDC, have an opportunity to issue low (high)-risk debts upto (above) their static optimal leverage ratios.*

Corollary-1.2: *In recreating the reserve debt capacity, RDC under the PO-track, the high (low)-value firms exploit their internal (external) equity financing at below (above) their STO optimal leverage ratios.*

5.3. Firms' Approach from STO or PO-Track to DTO-Track of Financing:-

Now, if proposition-1 along with corollary-1.1 and 1.2 holds at the presence of information asymmetry between the manager and investors, then firms' issue of new equity brings in adverse selection problem. The investors perceive new equity as "lemon" and value it at an average price in the equity market. If there is no information asymmetry, then the "true" prices of the stocks of the high (low)-value firms are expected to be at above (below) their average prices (Cadsby *et al*, 1990). At information asymmetry, however, the low-value firms issue equity at prices above their "true" prices while the high-value firms just escape the market for new equity and reject their new investments projects. Such an equity issue in funding the positive NPV projects by the high-value firms serves the debt-holders' benefits, and hence, only the low-value firms follow the PO-track. The low-value firms here address the equity-holders' adverse selection problem and the firms issue new equity. Ex-post market efficiency would reveal that the high-value firms which have stayed away either has utilized their internal equity or has passed by the PO track of financing. During the future time periods, the market corrects the stocks' prices of the low-value and high-value firms even if a few 'lemons' are always there in the market.

As stated earlier, if the PO-track is the only route and if the high-value firms have already utilized their debt-

capacities, then firms which are still following the PO-track should maintain "inertia" in issuing new equity - the firms here avoid equity holders' adverse selection problem. But, an equity issue is still available for the high-value firms in the trade-off tracks of financing. The high-value firms here consider the trade-off aspects and the asymmetric information aspects as well while their relative importance determines whether the firms would follow the STO-track or would keep inertia in the PO-track. The firms thus follow time-varying financing decisions, where dynamic changes in their views and their shifts from one track of financing to the other are considered. Besides the dynamic changes in firms' views, exogenous determining forces in financing choices which surrogate for capital market imperfections (viz., the firm-specific and macro-economic factors) are also time-varying. The firms' decision frames thus should include a dynamic time-frame property, where the determining forces and firms' tracks of financing (STO or PO) under consideration are time-varying. But, neither the STO-track nor the PO-track could explain both the issues simultaneously (read with proposition-1 and corollary-1.1 & 1.2). This necessitates the DTO-track to be considered in the capital structure dynamics.

The above change in firms' decision frame along with shifts in financing stands within a dynamic framework can be explained by a near unifying dynamic optimal recapitalization policy as proposed in the DTO theory. The high-value firms issue new equity in the STO-track; they deviate from their optimal debt levels and revise their capital structures at *lower* debt boundaries. The high-value firms may otherwise issue risky debts in pursuing the PO-track till their upper debt levels of recapitalization. In contrast, once the low-value firms have utilized their reserve debt capacities under the PO-track at *upper* debt-boundaries, they revise their capital structures with new equity issues and create their reserve debt capacities. Here, in both the cases, the firms' objective is to minimize their adjustment costs at the recapitalization boundaries. With the equity issues, the high-value firms skim up their tax-shield benefits while the low-value firms wave up the bankruptcy and asymmetric information costs. The high (low)-value firms therefore seek for recapitalization with new equity issues at the lower (higher) levels of their upper debt boundaries (Fischer *et al*, 1989). That is, the firms' issue of new equity in the STO (PO)-track would follow a dynamic recapitalization policy under the DTO theory.

A near unifying dynamic recapitalization policy, thus, should address firms' adjustment costs, which include the static trade-off elements and asymmetric information elements as well. In the DTO theory the net effects of the driving forces (which include the "costs" and "benefits" in their dynamic recapitalization) surrogate for the dynamic adjustment costs of the firms and the theory proposes that small (large) swing in the benefits (costs) could contribute to wide (narrow) adjustment/s in the debt-equity ratios. The magnitudes and the directions of the benefits or costs may change over the time periods in a dynamic time-frame recapitalization policy, and therefore, the thesis puts forward proposition-2.

Proposition-2: *The high (low)-value firms' equity issues under the static trade-off (pecking order) track of financing over the time periods approach to follow the dynamic trade-off theory under a dynamic recapitalization policy.*

5.4. STO or PO-Tracks, Recapitalization Boundary and Adjustment Costs

Given that proposition-2 holds in the firms' dynamic recapitalizations, for maximization of their firm-values and minimization of their adjustment costs, the firms should follow different financing tracks at their different upper and lower debt levels. The firms recapitalize their capital structures with new debt (equity) issue at higher (lower) "firm-value to debt" ratios (Fischer *et al*, 1989). Debt levels are reciprocally (proportionally) synonyms to firm-value to debt (firm-value to equity) ratio. Therefore, the firms' dynamic recapitalization policy as proposed in the DTO theory may explain their adjustment costs at their respective upper (lower) debt levels. These are as addressed in the following three corollaries, corollary-2.1, 2.2, and 2.3.

Corollary-2.1: *The firms in their approach to follow the dynamic trade-off theory are exposed to follow the static trade-off (pecking order) track at lower (upper) recapitalization boundaries of the debts or at upper (lower) recapitalization boundaries of the equity.*

Corollary-2.2: *The firms in their approach to follow the dynamic trade-off theory are exposed to face smaller (higher) adjustment costs when they are supposed to finance through external capitals under the static trade-off (pecking order) track of financing.*

Corollary-2.3: *The firms in their approach to follow the dynamic trade-off theory are exposed to face smaller (higher) adjustment costs at lower (upper) recapitalization boundaries of the debts or at upper (lower) recapitalization boundaries of the equity.*

Corollary-2.1 is directly derived from proposition-2 given that the firms' adjustment costs include their asymmetric information costs and the trade-off costs and benefits. The asymmetric information cost for the firms' external (debt or equity) financing at any debt ratio bellow their respective optimal leverage levels is comparatively less than that at the optimal leverage level while the firms' trade-off benefits are higher than those of (or just set off) the related costs (see, Figure: 3.3.2.1). Corollary-2.2 is synthesized from corollary-2.1 read with proposition-2. In the STO theory, the firms would revise their leverage ratios with changes in the trade-off benefits and trade-off costs, and such adjustments are expected to be instantaneous with presence of least costs for adjustments. In the PO theory, in contrast, the low-value firms face higher adjustment costs due to the asymmetric information problem. The corollary-2.3 is the joint synthesis from corollary-2.1 and corollary-2.2. It suggests that irrespective of the financing stands, which the firms would follow in their dynamic recapitalizations, the extents of firms' adjustment costs play the decisive role in determining their recapitalization boundaries.

5.5. Adjustment Costs and Firms' Approach to MT-Track of Financing

Firms' exposures to the adjustment costs can now be explained with the MT theory along with stocks' valuation-based market interactions between the managers and investors. In the MT theory, firms' debt /equity issuing activity is a cumulative outcome of previous capital structure changes which are made in responses to their equity-overvaluations or under-valuations at the market place (Baker & Wugler, 2002). Such proactive behaviors, on the part of the firms, initiate dynamic revisions in firms' capital structures, which depend on their market-specific dynamism. The equity market's exposure refers that the investors' and managers' perceptions at large are related to the proactive financing behaviors. If the investors' perceptions about the stocks' prices match perfectly with that of the managers', then a situation of symmetric information distribution between the two persists. In such

a condition, firms' proactive MT initiatives with the new issues of capital would be successful and their adverse selection would disappear.

But, would the perceptions of the both investors and managers always match perfectly? At any *time-state* reference to firms' financing decisions, an information asymmetry between the managers and investors generally prevails and financial 'lemons' exist in the market (Akerlof, 1970). At the times of rising stock prices the perceptions of the investors about the firm may approach to that of the managers (Dittmar & Thakor, 2007). The MT initiative thus becomes as a special case where a few good-quality firms issue good-quality financial instruments to the potential investors in the market (Akerlof, 1970; p. 495). Furthermore, in the market for new equity or debt issues there are separating equilibrium, semi-separating equilibrium, and pooling equilibrium[3] for the firms (Cadsby *et al*, 1990). If firms' MT efforts with the equity issues come to happen at least cost of asymmetric information (Choe *et al*, 1993), then separating (pooling) equilibrium may stand for firms' successful equity positioning by the low (high)-value firms. The firms' proactive MT financing behaviors tend towards their reactive PO behaviors once their cost of asymmetric information is included as an element in their adjustment costs.

Now, in dynamic optimal recapitalization policy if the firms are exposed to firm-specific dynamics and market-specific dynamics, then their MT efforts may be either successful or failed ones. The firms' MT dynamics here suggest for successful timing of new debt or equity issues while firm-specific dynamics suggest for their capital structure dynamics under the DTO track of financing. If the MT efforts are not successful, i.e., if the firms have chosen a failed MT attempt in order to reduce their information asymmetry, then a few good firms in the semi-separating equilibrium either (i) may respond to

keep inertia and postpone their investment opportunities by escaping the new issue market (Cadsby *et al*, 1990) or (ii) may revert back to follow a dynamic optimal recapitalization policy under the DTO track of financing. In explaining firm-behaviors under the assumption of firm-value maximization, the second option is more rational rather than that of forgoing all positive NPV investment projects. Hence, on reconciliation between the MT theory and the DTO theory the thesis puts forward the following proposition.

Proposition-3: *The firms' financing initiatives with external debt or equity issues, in the dynamic optimal recapitalization policy, at small (high) adjustment costs approach to follow successful (failed) market timing initiatives under the market timing theory.*

5.6. Firms' Approach from MT-Track to PO-Track of Financing

Under the MT theory, the stocks of the high (low)-value firms are generally expected to be over (under)-valued at the market place. If proposition-3 is satisfied, then the adjustment costs with the equity issues by the high-value firms are expected to be low. These firms' MT efforts with the equity issues are expected to be successful. Similarly, the adjustment costs with the debt issues by the low-value firms are expected to be low since their MT efforts with the debt issues are also expected to be successful. That is, firms' successful MT efforts either with the (secured or unsecured) debts or equity issues would lead towards lesser extents of the adjustment costs. Further if firms' adjustment costs include the information asymmetry costs, then with successful MT efforts with equity or debt issues the firms would tend to follow the PO-track of financing. Hence, the following corollary-3.1 can be derived from the stated proposition-3.

Corollary-3.1: *The firms in their successful financing initiatives under the market timing theory approach to follow the pecking order track of financing if these firms are exposed to low cots of asymmetric information.*

6. Empirical Methodology and Observations

In order to save space, the detailed empirical methodology and the respective observations are not reported in this

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3 In a game-theoretic approach, where the managers and investors both send information to the market at the times of new issues of debt or equity capital, the equilibrium mechanism may happen in a separating or semi-separating or pooling framework. In a separating equilibrium, the senders (of information) with different types always choose different messages while in the pooling equilibrium, the senders with different types all choose the same message. A semi-separating equilibrium (which is also termed as semi-pooling equilibrium) is an equilibrium where the same types of senders choose the same message and the other types choose the different messages.

paper. An overview of their overall methodological approaches and the observations are reported. The empirical observations of a few of the propositions are also published earlier. For example, the empirical observations of proposition-1 may be observed in Ghosh & Sinha (2009), those of proposition-2 may be found in Sinha & Ghosh (2012), and those of corollary-3.1 could be viewed in Sinha & Ghosh (2009). The same on corollary-1 is communicated for possible publication in the IUP Journal of *Applied Finance*. Therefore, the present study limits itself within briefing the empirical observations and reconciling the same with the respective theoretical propositions or corollaries.

6. 1. Proposition-1

The proposition seeks to reconcile between the STO theory and the PO theory. A STO-track at the debt levels as followed by firms is recognized with the presence of optimality while in the PO-track, the sub-optimality may exist. At the event of maximization of equity rate of return (K_e), the optimality condition is $K_e > K_o > K_d$, given that K_o is the overall cost of capital, and K_d is the cost of debt capital. A sub-optimality is an absence of the said optimality condition. The empirical findings here show that an optimality condition is a general observation over the sample industries in the study but at the lower levels of the leverage ratio (i.e., long-term debt to equity ratio) while at the upper debt levels, the optimality condition is not satisfied. In the study, the further investigations show that leverage ratios across industry sub-samples have significant negative co-relationship either with the projects' operating rate of return (B_r), or with the overall cost of capital (K_o), or with the equity rate of return (K_e).

A focused scrutiny shows that if the firms' project selection (B_r) has significantly positive effects on the overall rate of return (K_o), then the former has significantly positive impact on the equity rate of return (K_e); but an insignificant negative shock on K_e is followed if the former has positively insignificant impact on K_o. That is, a positive change in B_r can amplify K_e at higher exposure to underlying assets' risks while a negative change in B_r at sub-optimal investments satisfies the equity-holders without any severe negative effect. This phenomenon is commonly known as asset-substitution problem. But, who has borne the negative effects? Perhaps, it is the debts. The results show that the cost of debt (K_d) has insignificant

negative effect on B_r once the debt has significant negative effects on B_r but at its insignificant negative effects, the former (K_d) has significant negative effect on B_r. That is, once new debts' issues control firms' project selection K_d plays no significant impact on project selections (and consequently, on K_e and K_o). The debt-holders discount underlying risk with inclusion of restrictive covenants in indentures regarding firms' future uses of capital. There is also consistency amongst K_o, K_e, and B_r; and such uniformity is observed at negative relationship between the debts and B_r.

Further, with increase in debt levels, the firms' "command" on project selection $(B_r - K_o)$ reduces in parallel with reduction of equity-holders "command" over bond-holders $(K_e - K_d)$. At possible reorganization, bond-holders' extreme "command" over that equity-holders' at the high debt levels, and the firms' B_r, its variability, and business risk premium advance the firms toward stabilization and enhancement of business risk premium $(B_r - K_o)$ over financial risk premium $(K_e - K_d)$. Hence, the sample firms follow the STO-track at their lower debt levels and over the time periods approach towards sub-optimality at the PO-tracks at their higher debt levels, where (i) debts perform as monitoring device and reduces K_o and its variability, (ii) increase in debt-levels is subject to reduction in B_r and its variability as well, (iii) as the consequence of reduction in B_r and its variability, K_e and its variability reduces, and (iv) the variability in K_d remains unchanged while the additional risk in new projects is accommodated by increase in K_d and / or decrease in B_r but of course restricting or reducing the variability of B_r at certain level.

But, how would the dynamics be resolved at the higher debt levels over the time periods? The sample firms' objectives either in creating or utilizing the pull of their reserve debt capacity (*RDC*) might answer the specific query of dynamics at this juncture. Corollary - 1.1 and 1.2 are of importance in examining the dynamics empirically.

6. 2. Corollary - 1.1 & 1.2

The corollaries address the firms' dynamics of reserve debt capacity. Here in defining the variable of *financing deficit*, we follow Shyam-Sunder & Myers (1999, p.224) firstly, and then, we define the low-risk and high-risk debt capacities (as per Figure: 2), and specify the utilization and creation of low-risk as well as high-risk debt capacity.
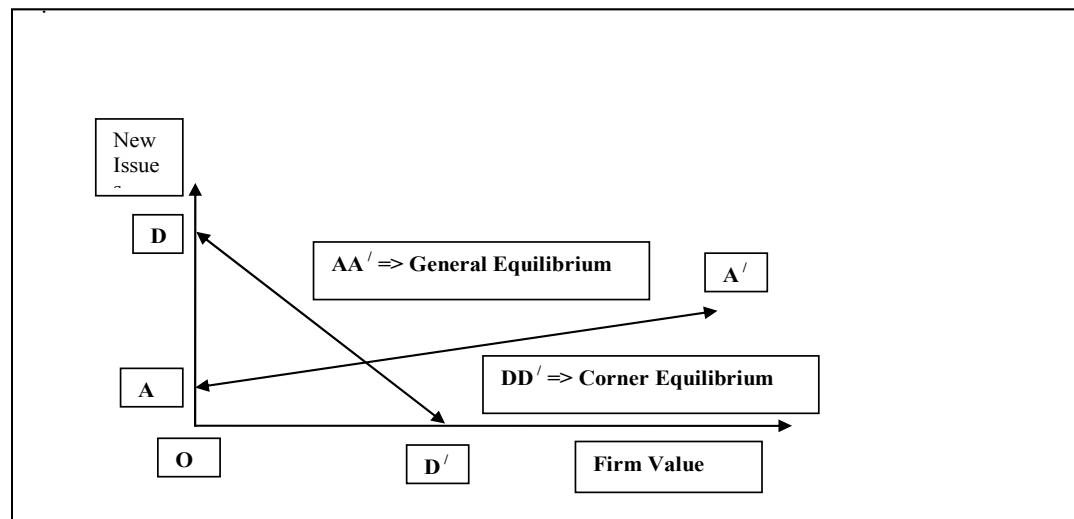
Figure: 3: High-value and Low-value firms' Identity with New Issues of Capital

The secured debts are assumed to be low-risk debts and the unsecured debts are assumed to be the high-risk debts. In specifying the separating or semi-separating equilibrium in the economy (here, in the sub-sample firms), a firm-value proxy (the market to book ratio, *MB Ratio*) is used to separate the high-value sub-sample firms (of whose $MB \geq 1$) from those of the low-value sub-sample firms (of whose $MB < 1$). The sub-sample firms' new issues of secured debts, unsecured debts, and external equity, and uses of internal equity are regressed respectively with utilization of low-risk reserve debt capacity, utilization of high-risk reserve debt capacity, creation of high-risk reserve debt capacity, and creation of low-risk reserve debt capacity along with the firm-value proxy.

The results show that in explaining the respective issues of secured debts and unsecured debts by the high-value and low-value firms with the explanatory variable of their utilization of low-risk reserve debt capacity ($^{L}RDC_{it}^{U}$) and high-risk reserve debt capacity ($^{H}RDC_{it}^{U}$), there are significantly positive influences while the influence of the latter is higher than the former. The high (low)-value firms however attain the separating equilibrium of corner (general) in nature. A corner (general) situation in the firms' separating equilibrium is confirmed with a significantly negative (positive) coefficient of the specific firm-value proxy. On the contrary, in explaining the high-value and low-value firms' respective uses of internal equity and external equity with the explanatory variable of the high-value firms' creation of low-risk reserve debt capacity ($^{L}RDC_{it}^{C}$) and the low-value firms' creation of high-risk reserve debt capacity ($^{H}RDC_{it}^{C}$), the

effects are positively significant while the influence on external equity issues are more than that on utilization of internal equity. The firm-value proxy shows that there are separating equilibrium in the nature of general (corner) situation with the high (low)-value firms.

The findings confirm that at times of utilizations and creations of *RDC*, the *RDC* induces dynamics over time. The corner situation forces the high-value firms either to be at higher debt levels or to be at lower debt levels - the lesser is the magnitude of firm-value ratio the higher is the extent of issues of secured debts, and the high-value firms approach towards sub-optimality with utilization of more and more secured debts. In contrast, the general situation confirms that the more do the low-value firms improve their firm-value ratios the more they are exposed to the utilization of high-risk debts, and thereby, these firms attain STO optimality with the presence of the debt-holders' robust control on the firm's project selection. In creation of *RDC*, high-value firms' general equilibrium shows that higher is extents of firm-values higher is their intensity of uses of internal equity, and lesser is the debt levels. The high-value firms thus approach towards STO-optimality with more and more uses of internal equity. The corner equilibrium of the low-value firms at creation of *RDC* with uses of external equity substantiates the dynamics also since the higher the extents of the firm-value ratio of these firms lower is these firms' dependence on external equity issues in creation of high-risk *RDC*. That is, the low-value firms improve the firm-value and approach towards STO-optimality from PO sub-optimality.

But, are the firms' financing dynamics limited to their creation and utilization of reserve debt capacity only? To put the issue in the other way, do the firms' dynamic financing choices show some other shorts of dynamic behaviors except of their gradual shifts from a STO-track to a PO track and vice-versa? The query as theoretically addressed proposed in proposition-2 is now empirically examined.

6. 3. Proposition - 2

The proposition reconciles the STO and PO-tracks with DTO-track of financings. Firms' debt-revisions under STO-track, PO-track, and DTO-track are defined and the proxy variable for asymmetric information costs (K_{ait}), and firm-specific characteristics viz., the risk-less interest rate ($R_{f,it}$), the debts' tax-shield benefits (τ_{it}), the debts' bankruptcy risks (φ_{it}), underlying assets' variance (σ^2_{it}), the size of the cost of recapitalization (ρ_{it}).

Now, in explaining firms' DTO behaviors (debt revisions, and equity issues) with PO-debt revisions and STO-debt revisions, the sample firms are segmented into two sub-samples - high-value firms and low-value firms. The empirical objective is to explore firms' DTO track with STO or PO debt-revisions. For robustness check, the joint effect of DTO-debt revisions and equity issues is explained by STO and PO-debt revisions along with firm-specific characteristics and firm-value proxy. The empirical objective is to explain firms' shifts from STO or PO track towards dynamics of joint revisions of debt and equity. Further robustness check is performed in explaining K_{ait} with the explanatory firm-specific characteristics and firm-value proxy. Here, the objective is to explain K_{ait} with firm-specific variables and firm-value proxy.

The results show that the high-value firms' DTO-debt revisions can be explained with the PO as well as STO-debt revisions. STO-debt revisions can explain about 3.28 % of their DTO-debt revisions while PO-debt revisions can explain 32.01%. Both the STO and PO-debt revisions contribute in explaining the high-value firms' equity issues but the dynamic effects of PO-debt revisions (12.039%?) are more than those of STO-debt revisions (11.07%). In both the cases, the firms attain separating equilibrium of general in nature. In contrast, the low-value firms' DTO-debt revisions could be explained only by their PO debt revisions and this can explain 21.99% of these firms' dynamic financings. The low-value firms' equity

issues could be explained only by their PO-debt revisions (18.77%). Interestingly, these firms attain semi-separating equilibrium in explaining DTO-debt revisions while the same is separating and corner in nature in explaining their equity issues.

Finally, the high-value firms' joint effect with regard to DTO-debt revisions and equity issues could be explained by firm-specific characteristics and STO as well as PO-debt revisions (62.66%) while low-value firms' joint effects could be explained by firm-specific characteristics and PO-debt revisions only (41.35%). Here, the high-value firms show their inclination to the size of dynamic recapitalization costs at firms' separating equilibriums of general in nature while the low-value firms show their concerns to bankruptcy cost at their semi-separating equilibriums. The robustness tests show that the high-value firms' K_{ait} includes the effects of bankruptcy risk while that for the low-value firms includes the effects of bankruptcy risks, and assets' variability as well but in both the cases firms' attain separating equilibrium in corner in nature. The results, therefore, confirm that firms in both sub-samples behave differently in their approach towards DTO-track of financing form their PO or STO-tracks of financings.

But, do firms' transitions from STO or PO-track to DTO-track happen spontaneously? Perhaps, at presence of various market imperfections which normally result in adjustment costs in firms' financing choices, a spontaneous choice on their financing decisions is not theoretically possible on the part of the managers. There might be influence of the debt-holders or the equity-holders and these are observed with the effects of market imperfections on firms' values. That is, the firms are likely to behave differently at the different limits of various elements of adjustment costs, and those of their upper or lower recapitalization boundaries.

6. 4. Corollary - 2.1, 2.2 & 2.3

The corollaries are derived from proposition-2. Corrolary-2.1 explains the firms' DTO behaviors with STO (PO)-track at their lower (upper) recapitalization boundaries of the debts or equity while corollary-2.2 explains the same at smaller (higher) adjustment costs. Corollary -2.3, in contrast, explains the firms' behaviors in terms of their different adjustment costs at different recapitalization boundaries. Hence, for empirical

explorations of the corollaries, the work defines the upper or lower recapitalization boundaries of the debts (Fischer *et al.*, 1989), the elements of adjustment costs viz., risk-less interest rate ($R_{f,it}$), tax-shield benefits ($\Delta\tau_{it}$), bankruptcy risks (φ_{it}), underlying assets' variance (σ^2_{it}), size of the cost of recapitalization (ρ_{it}). The firms' STO-debt revisions, PO-debt revisions, and DTO-debt revisions are also defined.

The empirical objective thus follows that at different limits of upper or lower boundaries of the debt or equity, and at the different limits of adjustment costs, high (low)-value firms' STO (PO) debt-revisions would show different swings in DTO debt-revisions. Corollary-2.1 is tested with a regression specification where at different upper (lower) debt recapitalization boundaries, the DTO-debt revision of the high (low)-value firms is explained with STO (PO) debt-revisions. Corollary-2.2 is tested with the regression specification where at different limits of adjustment costs, the DTO-debt revision of the high (low)-value firms is explained with their STO (PO) debt-revisions. On testing corollary-2.3, the lower (upper) recapitalization boundary of the high (low)-value firms is regressed with the different elements of adjustment costs.

The results show that in explaining the high-value firms' DTO-debt revisions with their STO-debt revisions at different levels of lower recapitalization boundary, the firms show robust inclinations to the low limits of the lower recapitalization boundary of the debts. The firms attain the separating equilibrium of general in nature. In contrast, in explaining the low-value firms' DTO-debt revisions with their PO-debt revisions, the firms follow dynamic behaviors at different limits of their upper debt recapitalization boundary while they attain at separating equilibrium of corner in nature only at the high limits of the upper recapitalization boundary of debts. The high (low)-value firms' financing in STO (PO)-tracks is attuned to their approaches towards the DTO-track at low (high) limits of the lower (upper) recapitalization boundaries of the debts. These observations explore the firms' behaviors as given by stated corollary-2.1.

Now, in explaining the high (low)-value firms' DTO-debt revisions with their STO (PO)-debt revisions at the different levels of the elements of adjustment costs, the results show that the high or low-value firms behave differently in their approach towards DTO-track form STO (PO)-track. The high-value firms here are exposed to

separating equilibriums of general in nature at their "low" and "moderate" limits of R_f, "low" limits of $\Delta\tau_i$, "low" limits of φ, "high" limits of σ^2, and "low", "moderate", and "high" limits of ρ. The low-value firms here are exposed to semi-separating equilibriums at the different limits of R_f, $\Delta\tau_i$, φ, and ρ while at the "high" limits of σ^2, the firms reach at separating equilibrium of corner in nature. These results confirm corollary-2.2 that the high (low)-value firms' STO (PO)-debt revisions are absorbed within DTO behaviors at the different levels of adjustment costs.

In explaining the high or low-value firms' dynamic behaviors relating to corollary-2.3, the high-value firms' firm-specific characteristics $\Delta\tau$ and φ are found to explain their "lower" debt recapitalization boundaries while the low-value firms' firm-specific characteristics viz., φ and σ^2 are found to explain their "upper" debt recapitalization boundaries.

Therefore, corollary-2.1, 2.2 and 2.3 are persistent phenomenon empirically. Apart from firms' dynamic transitions from the STO or PO-track of financing to the DTO-track, the firms' financing managers may show their spontaneous inclinations towards the stocks' over-pricing or under-pricing at the market places. However, this short of decision choices, that is, firms' market timing efforts may be successful or failed ones. But, do firms' market timing efforts empirically explain their DTO behaviors as proposed in proposition-3 earlier?

6. 5. Proposition - 3

The proposition tries to reconcile the successful or failed market timing (MT) initiatives with the firms' DTO debt-revisions in relation to the presence of their lower or higher adjustment costs. Now, following the methodology of Sinha & Ghosh (2009), and Kayhan & Titman (2007), the study firstly defines the dynamic market timing measure (DMTM) of external equity, secured debts, and unsecured debts both for the high and low-value firms. According to proposition-3, the empirical objective here is to explore that at their lower (higher) adjustment costs, the firms' successful (failed) MT initiatives approximate to DTO-track of financing.

Now, the high (low)-value firms are expected to be biased to the over (under)-valuation of their equities by the investors at the market place. In order to explore the empirical objective, the study hence examines the high (low)-value

firms' DTO-debt revisions with their MT efforts at equity (secured as well as unsecured debt) issues at their different limits of the firm-specific characteristics variables for the adjustment costs viz., $R_{f,it}$, $\Delta\tau_{it}$, φ_{it}, σ^2_{it}, and ρ_{it}.

The results show that the high-value firms *DMTMs* with equity issues explain their DTO-debt revisions at their (i) "low" and "moderate" limits of R_f (with successful and failed MT efforts respectively) and φ_{it} (with failed MT efforts for the both), (ii) "moderate" and "high" limits of $\Delta\tau_{it}$ (with failed MT efforts for the both), and σ^2_{it} (with failed MT efforts for the both), and (iii) "low" and "high" limits of ρ_{it} (with failed MT efforts for the both).

In contrast, the low-value firms' *DMTMs* with secured debt issues are observed to explain their DTO-track of financing at their (i) "low" and "high" limits of R_f (with successful and failed MT efforts respectively) and $\Delta\tau_{it}$ (with successful MT efforts for the both), (ii) "moderate" and "high" limits of σ^2_{it} (with successful MT efforts for the both), and (iii) "moderate" limits of φ_{it} (with successful MT efforts) and ρ_{it} (with successful MT efforts). The low-value firms' *DMTMs* with unsecured debt issues are observed to explain their DTO-track at the (i) "low" limits of R_f (with successful MT efforts), (ii) "low" and "high" limits of $\Delta\tau_{it}$ (with successful MT efforts for the both), and (iii) "high" limits of φ_{it} (with successful MT efforts), and (iv) "low" and "moderate" limits of ρ_{it} (with successful and failed MT efforts respectively) while there is no significant role at the different limits of σ^2_{it}.

Hence, proposition-3 is satisfied empirically mostly in two-third cases with regard to the limits of the different elements of adjustment costs even if the high (low)-value firms are biased to successful MT with equity (secured or unsecured debt) issues. It infers that the high and low-value firms' dynamic MT efforts (whether successful or failed ones) have the explanatory power in addressing firms' dynamic recapitalization. But, if these firms' managers react to stocks' over (under)-pricings with the new issues of the equity (debt) and proposition-1 & 2 are satisfied, then would their successful MT efforts approach to follow PO-track of financing?

6. 6. Corollary - 3.1

The corollary-3.1 is derived from proposition-3, and it tries to reconcile the MT theory with the PO theory. Given that the firms follow the PO–track in financing their

new investment projects, then according proposition-3, the firms' successful MT efforts during their approach towards DTO-track of financing are exposed to low magnitudes for the costs of asymmetric information. Here the theoretical argument is that once the firms' cost of asymmetric information between the managers and investors reduces (increases) at times of over (under)-valuation of the stocks at the market places, the both theories approach to align together. That is, the firms' capital structure decisions are expected to follow the MT-track when the cost of asymmetric information is time varying and negatively related with the stock prices.

However, for empirical exploration of corollary-3.1, the firms' dynamic market timing measure (DMTM) for different sources of financing (viz., the internal equity, external equity, secured debts, and unsecured debts) and the proxy for cost of asymmetric information (K_{ait}) are used (see, Sinha & Ghosh, 2009, a part publication on corollary-3). The study uses time-varying study periods by slicing the whole periods under four stages: in the first stage, there are four sub-periods each of two years; in the second stage, there are three sub-periods out of them two consider 3 years' data each and the other 4 years' data; in the third stage, there are two sub-periods, and each considers five years' data; and finally, in the forth stage, the whole ten years' data is considered. Over these sub-periods at different stages, the firms' K_{ait} is explained with their DMTM proxy variable.

The results show that the cost of asymmetric information of the firms either reduces or remains insignificant for uses of internal equity. With regard to their MT efforts at issuance of the unsecured debts in reducing cost of asymmetric information, the firms' MT strategy is consistent over the long run (five to six years) while the strategy involves significant dynamic revisions in the short run. On secured debts' issues at time of MT efforts, there is dynamic revision in the short run but the same disappears over the long-run and the firms are observed to follow the MT efforts consistently. Finally, in explaining the cost of asymmetric information, firms' MT efforts with equity issues show that such effort is not a persistent phenomenon.

7. Conclusions

On the dynamics of corporate capital structure decisions, the present paper has sought to put forward its arguments

with a theoretical framework firstly, and then, has examined the same empirically with the National Stock Exchange (NSE) listed Indian firms' financing data. In the theoretical framework, the firms' financing choices are logically viewed to be subject to their *time-state-focus* choices of financing decisions over the time periods. A *time-state-focus* refers to consideration of a combined decisions' choice on the part of the firms. The connotation "time" here stands for the firms' decision point (whether for the current period or the future periods), "state" stands for the existing financing environments (whether internal or external), and "focus" refers to their choice of an issue/s (whether a STO issue or PO issue or DTO issue or MT issue) out of may issues of market imperfection to be emphasized for satisfying their overall objective of firm-value maximization.

The theoretical framework along with the *time-state-focus* choices of financing decisions over the time periods hence is sought to explore whether a unifying view in order to incorporate many decision references rather than a sticky policy for financing is possible o not. The unifying view theoretically involves reconciliations between two or more existing theories of corporate financing choices (viz., the STO theory, the PO theory, the DTO theory, and the MT theory) rather than being biased to any one theory. Keeping this specific objective in focus, the study has offered three theoretical propositions along with six corollaries of the propositions.

Proposition-1 theoretically reconciles between the STO theory and the PO theory, and its empirical observations suggest that the firms which are following STO-track of financing tend to follow PO-track of financing over time and vice-versa. The driving forces in the firms' dynamic financing choices here are the presence of STO optimality at the firms' lower-levels of the long-term debt-equity ratios, and that of sub-optimality at their higher debt levels. The firms' dynamic behaviors are further resolved with their strategic choices on the matter of utilization of reserve debt capacities (corollary-1.1) and on the matter creation of the same (corollary-1.2) as well. The empirical observations on these two corollaries of proposition-1 however confirm that the high-value firms (MB ratio ≥ 1) and the low-value (MB ratio $\square$ 1) sample firms behave differently and thereby, retain the dynamics in their financing choices.

Proposition-2 theoretically reconciles the firms' DTO-track of financing with their PO-track of financing and

their STO-track of financing as well. Here the proposition theoretically argues that the high (low)-value firms' STO (PO)-track of financing over time tend to follow the DTO-track of financing. The empirical observations substantiate the proposition also. The study further confirms the sample firms' dynamic behaviors across their lower (upper) recapitalization boundaries of debts (corollary-2.1), across their different limits of the elements of the adjustment costs (corollary-2.1), and across both the elements of adjustment costs and debts' recapitalization boundaries (corollary-2.3).

Finally, proposition-3 tries to reconcile between the DTO theory of financing and the MT theory. The proposition suggests that in dynamic recapitalization with external debt or equity issues, the firms tend to follow successful (failed) MT initiatives under the MT theory at small (high) adjustment costs. The empirical observations are generally supportive with the different elements of the adjustment costs. The dynamic behaviors are confirmed in testing corollary-3.1 (as derived from proposition-3) also. The corollary puts forward possible reconciliations between the PO theory of financing and the MT theory. The empirical observations show that the sample firms' MT efforts tend to follow the PO-track; but such dynamic behaviors lack persistency after fist five to six years of time periods under the study.

The present paper however can be further extended in order to develop a unified theory on the corporate financing choices. Such works may review the theoretical propositions and the corollaries as offered in the present study in order to formulate firms' specific strategic financing targets keeping their overall objective of firm-value maximization unaltered.

References

Akerlof, G. A. (1970). The Market for 'Lemons': Quality Uncertainty and the Market Mechanism. *The Quarterly Journal of Economics*, 84(3), pp. 488-500.

Baker, M. & Wurgler, J. (2002). Market Timing and Capital Structure. *Journal of Finance*, 57(1), pp. 1-32.

Bontempi, M. E. (2002). The Dynamic Specification of the Modified Pecking Order Theory: Its Relevance to Italy. *Empirical Economics*, 27(1), 1-22. DOI: 1007/ s 181- 002- 8356- 9.

Cadsby, C. B., Frank, M. Z. & Maksimovic, V. (1990). Pooling, Separating, and Semi-Separating Equilibria

in Financial Markets: Some Experimental Evidence. *Review of Financial Studies*, 3(3), pp. 315-342.

Choe, H., Masulis, R. W. & Nanda, V. K. (1993). Common Stock Offerings across the Business Cycle: Theory and Evidence. *Journal of Empirical Finance,* 1(1), pp. 3-31.

Dittmar, A. & Thakor, A. (2007). Why Do Firms Issue Equity? *Journal of Finance,* 62(1), pp. 1- 54.

Fama, E. & French, K. R. (2002). Testing Trade-Off and Pecking Order Predictions about Dividends and Debt. *Review of Financial Studies,* 15(1), pp. 1-33.

Fama, E. & French, K. R. (2005). Financing Decisions: Who Issues Stock? *Journal of Financial Economics,* 76(3), pp. 549-582.

Fischer, E., Heinkel, R. & Zechner, J. (1989). Dynamic Capital Structure Choice: Theory and Tests. *Journal of Finance*, 44(1), pp. 19-40.

Frank, M. Z. & Goyal, V. K. (2008). Trade-Off and Pecking Order Theories of Debt, In Eckbo, B. E., (ed.). *Handbook of Corporate Finance: Empirical Corporate Finance*(2). In: *Handbook of Finance Series*, Chapter 12. Amsterdam: Elsevier/North-Holland.

Frank, M. Z. & Goyal, V. K. (2003). Testing the Pecking Order Theory of Capital Structure. *Journal of Financial Economics,* 67(2), pp. 217-248.

Ghosh, S. K. & Sinha, P. C. (2009). Is There Optimality in Firm's Capital Structure? An Empirical Study. *Finance India*, 23(3), pp. 867-888.

Gomes, A. R. & Phillips, G. M. (2005). Why Do Public Firms Issue Private and Public Securities? NBER Working Paper, No. W11294. Retrieved from http://www.nber.org/papers/w11294.

Halov, N. & Heider, F. (2005). Capital Structure, Risk and Asymmetric Information. NYU and ECB Working Paper. Retrieved from *http://ssrn.com/abstract=566443* http://leads-faculty.colorado.edu/zender/papers/LZ2_Feb-25-2004.pdf

Lemmon, M. L. & Zender, J. F. (2004). Debt Capacity and Tests of Capital Structure Theories. Working Paper. University of Utah and University of Colorado at Boulder.

Miller, M. H. & Modigliani, F. (1966). Some Estimates of the Cost of Capital to the Electric Utility Industry, 1954-1957. *American Economic Review,* 56(3), pp. 333-391.

Miller, M. H. (1977). Debt and Taxes. *The Journal of Finance.* 32(2), pp. 261-275.

Miller, M. H. (1988). The Modigliani-Miller Propositions after Thirty Years. *Journal of Economic Perspectives.* 2(4), pp. 99-120.

Miller, M. H. & Rock, K. (1985). Dividend Policy under Asymmetric information. *Journal of Finance*. 40(4), pp. 1031-1051.

Modigliani, F. & Miller, M. H. (1958). The Cost of Capital, Corporate Finance and the Theory of Investment. *American Economic Review.* 48(3), pp. 261-297.

Modigliani, F. & Miller, M. H. (1963). Corporate Income Taxes and the Cost of Capital: A Correction. *American Economic Review,* 53(3), pp. 433-443.

Myers, S. C. (1977). Determinants of Corporate Borrowing. *Journal of Financial Economics*, 5(2), pp. 147-176.

Myers, S. C. (2002). *Financing Of Corporations,* Handbook of the Economics of Finance.

Myers, S. C. (1984). The Capital Structure Puzzle. *Journal of Finance.* 39(3), pp. 575-592.

Myers, S. C. & Majluf, N. S. (1984). Corporate Financing and Investment Decisions When Firms Have Information that Investors Do Not Have. *Journal of Financial Economics,* 13(2), pp. 187-221.

Scott, J. H. (1976). A Theory of Optimal Capital Structure. *The Bell Journal of Economics*, 7(1), pp. 33-54.

Shyam-Sunder, L. & Myers, S. C. (1999). Testing Static Tradeoff against Pecking Order Models of Capital Structure. *Journal of Financial Economics,* 51(2), pp. 219-244.

Sinha, P. C. & Ghosh, S. K. (2012). Dynamics of Corporate Capital Structure Choices: A Reconciliatory View and Tests. *Indore Journal of Management*, Special Issue, Refereed Proceedings of 4th Conference on Excellence in Research & Education. Edited by Omkar D. Palsule-Desai. India: IIM Indore.

Sinha, P. C. & Ghosh, S. K. (2009). Theory of Market Timing and Asymmetric Information: Empirical Evidence with Dynamic Views. *ICFAI Journal of .Applied Finance*, 15(4), pp. 5-28.

Stiglitz, J. E. (1974). On the Irrelevance of Corporate Financial Policy. *The American Economic Review.* 64(6), pp. 851-866.