

Determinants of Capital Structure over Corporate Life Stages of Firms: A Study of Indian Firms

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E-mail : effulgence@rdias.ac.in, Website : www.rdias.ac.in<http://effulgence.rdias.ac.in/user/default.aspx><https://dx.doi.org/10.33601/effulgence.rdias/v23/i1/2025/80-94>**Mr. Surendra Kumar**¹ ✉**Dr. Varun Dawar**²**Prof. Chandra Prakash Gupta**³

Abstract

Capital structure decisions of firms have been a subject of enquiry since many decades. In literature it has been observed that capital structure is different at different stages of corporate life. Therefore, different determinants exist at different stages of corporate life. Our endeavour in this study is to identify the determinants of capital structure at all the corporate life stages of firms, along with the impact of Covid'19 with data on Indian firms. Capital structure or financial leverage in our study has been defined as the ratio of book value of debt to total liabilities - book value of debt and equity, plus short term liabilities. The study uses Dickinson (2011) methodology to determine life stages of firms based on the pattern of cash flows from operations, investing and financing activities. Firms at their different life stages faces peculiar circumstances leading to their capital structure at each of the stages significantly different. A firm in growth stage has tremendous profitable opportunities and therefore, the motivation for nature of capital structure is different. A firm in maturity stage with a dent in profit rate and a slowdown in the rate of increase in revenue, the capital structure further tilts toward equity capital and with reduction in investment opportunities, part of the resources generated as cashflows from operations are returned as dividend or through buyback of shares. Likewise, a firm in decline stage has the risk of slipping into bankruptcy and liquidation, therefore having the possibility of loss of enterprise value and capital. As firms move into life stage beyond maturity, these encounter varied situations in terms of financial flows. The study is India-specific and uses PROWESSIQ database of CMIE. The panel data has been taken from Financial Year (FY) (April 1 - Marh 31) 2001 to FY 2023 from BSE500 companies in the non-financial and non-governmental sector. There is 7620 firm-year data for 371 non-financial business firms. Our data had firms from the following stages: growth, maturity and shakeout. The paper has the following sections: Introduction, Theoretical Perspective, Relevant Literature, Research Design, Results and Discussion and Limitations of the Study.

Keywords: Capital Structure. Cashflow pattern. Corporate life stages. Financial Leverage.

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INTRODUCTION

Capital structure decisions of firms have been a subject of enquiry since many decades. In literature it has been observed that capital structure is different at different stages of corporate life. Our endeavour is to study capital structure and its determinants over corporate life stages. Whether corporate life stages significantly affect the degree and direction of long-term financing or capital structure. Also, it explores whether Covid'19 has affected the financing decisions of firms.

A major approach in identifying significant changes in firms has been to study its impact on 'shareholders value'. According to Aglietta (2000), 'shareholders value' has become the rule for the transformation of capitalism, which in turn has provided the justification for the spread of new policies and practices favouring 'shareholders value' over other objectives of the firm². Financing has been a major contributor to the fulfilment of those objectives in substantially large numbers of cases. A trend on wealth accumulation in which profit making has mainly been described in terms of financial mechanisms rather than through trade and real production, is a phenomenon described in economic literature as financialisation. Schumpeter has earlier, in his main treatise³, described the phenomena as changes in profit of the firm and economic/ business cycle in terms of trade and real production⁴. The pursuit of 'shareholders' value' by corporations and the rise of household debt are the

major features of financialisation⁵.

Finance has been a subject of enquiry in business ever since the idea of business firms evolved. Firms taking financial decisions have been concerned with investment, and financing and dividend and these became more relevant with the emergence of corporate firm and its functional teams. However, there have been paradigm shifts in thinking in the corporate world about the way decisions in the corporate finance are arrived at.

Our endeavour in this study is to identify the determinants of capital structure at decline stage of firms, along with the impact of Covid'19. The paper has the following sections: Introduction, Theoretical Perspective, Relevant Literature, Research Design, Results and Discussion, and Limitations of the study and further scope for research.

Theoretical Perspective

Firms are entities with profit motive and a business mission. It is the mission in which corporates are invested in and the profit is what they reap, and a share of this profit and increase in the wealth at times they get as dividend, buyback and increase in market valuation of their wealth. However, corporates are not like a single specie which is static and getting extinct fast, but a whole group of different sorts of species evolving over time and enshrined in the evolving economic and social structure of the society.

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 2. Aglietta, Michel (2000), Shareholders Value and Corporate Governance: Some Tricky Questions, *Economy and Society*, Vol 29 (1), pp. 146-159.
 3. Schumpeter, Joseph A, *Theory of Economic Development*, 1935.
 4. Krippner, G.(2005), *The financialisation of the US economy*, *Socio-Economic Review*, Vol 3(2), pp 173-208.
 5. Sawyer M (2015) *Financialisation, Financial Structures, Economic Performance and Employment*, FESSUD Working Papers, no 93, Available at www.fessud.eu. These features have shaped the practices of the financial system, which in turn have constrained the rise in real investment, consequently output growth. See Hein, E (2012), *The Macroeconomics of Finance-dominated Capitalism – and its Crisis*, Cheltenham: Edward, Elgar.

We focus on Indian firms in early 21st Century. Since our focus is firm behaviour, and that too, with a focus on corporate finance, we will confine our exposition around that theme. Corporate finance has some well-defined contours around what we describe as finance decisions. That is, investment, financing, dividend and working capital management decision. The present study is about what determines the capital structure or financial leverage of the firm of the firm. Studies on determinants of capital structure are many and varied – relevance of the decision to valuation of the firm, irrelevance of the decision to valuation of the firm, trade off, agency, pecking order, over corporate life stages, and dynamic relationship.

Since our focus is micro-behaviour, that is firm behaviour, and that too, with a focus on corporate finance, we will confine our exposition around that theme. Corporate finance has some well-defined contours around what we describe as finance decisions. That is, investment, financing, dividend and working capital management decision. The present study is about what determines the leverage or financial leverage of the firm, or capital structure of the firm. Studies on determinants of capital structure are many and varied – relevance of the decision to valuation of the firm, irrelevance of the decision to valuation of the firm, trade off, agency, pecking order, over corporate life stages, and dynamic relationship. The next chapter would do a survey of the literature to defined more precisely what this study is attempting to research.

Economic relationship

The dependent variable Y is a function of explanatory variables X_i

$$Y = f(X)$$

Initially, let's say. we take the explanatory variable X_1 , but economic theory is not certain about the other variables which may be explanatory variables, say X_2, \dots, X_k . We start by assuming the simplest possible relationship in mathematical form

$$Y = b_0 + b_1X_1$$

We compute b_0, b_1 , called estimates using a sample. Graphically, it is never a perfect line fit.

Suppose we have 100 pairs of observations on X and Y , the scatter diagram of these observations never aligns exactly on a line, in a meaningful economic relationship. The deviations of the observations from the line may be attributed to several factors.

- (1) Omission of variables from the function. In economic reality each variable is influenced by a very large number of factors. For instance, the consumption pattern of a family is determined by family income, prices, the composition by age and sex of the family, the levels of the family income, tastes religion, social and educational status, wealth, and so on. One could compile an almost non-ending list of such factors. However, not all the factors influencing a certain variable can be included in the function for various reasons.
 - a) Some of the factors may not be known even to the person most acquainted with the relationship being studied. This lack of knowledge is to a greater extent due to incomplete theory about the variation of economic variables in general.
 - b) Even when known to be relevant, some factors cannot be measured statistically. These are mainly psychological factors, or, in general, qualitative factors (tastes, expectations, religion). For example, there are companies which have a history of not leveraging and keeping themselves as zero-debt companies. These could be due to the mindset of the promoters/top management. But post-Covid'19, some of these have turned to debt markets for financing, due to facing difficulties of availability of internal resources of finances, lack of opportunity to tap capital markets directly, or may by govt was willing to lend helping hand in such times of global crisis.
 - c) Some factors are random, appearing in an unpredictable way and time, so that their influence cannot be taken satisfactorily into

- account (e.g., epidemics, earthquakes, wars).
- d) Some factors may have, each individually, a very small influence on the dependent variable. Thus their parameter is so small that it cannot be measured in a reliable way (due to rounding errors of the computations). All these factors together, however, may account for a considerable part of the variation of the dependent variable.
 - e) Even if all factors are known, the available data most often are not adequate for the measurement of all factors influencing a relationship between dependent variable and independent variables. This is particularly so when we use time series, which are usually short.

Thus, in most cases only the most important three or four variables are explicitly included in the function.

- (2) Random behaviour of human beings. The scatter of points around the line may be attributed to an erratic element which is inherent in human cause deviations from the 'normal' behavioural pattern depicted by the line. For example, in a moment's whim a consumer changes his/her expenditure pattern, although income and prices did not change. To complete the argument, on this aspect, it could also be due to some factor, not yet known, and not necessarily due to a moment's whim.
- (3) Imperfect specification of the mathematical form of the model. We may have linearised the model and may be that there are relationships between variables which is more non-linear than linear.

The first four sources of error render the form of the equation wrong, and they are usually referred to as error in the equation or error of omission. The fifth source of error is called error of measurement or error of observation. It is usual of course to have both these types of error simultaneously in the function.

In order to take into account the above sources of

error we introduce in econometric functions a random variable which is usually denoted by the letter u and is called error term or random disturbance or stochastic term of the function, so called because u is supposed to 'disturb' the exact linear relationship which is assumed to exist between X and Y . By introducing this random variable in the function the model is rendered stochastic of the form

$$Y = b_0 + b_1X + u$$

The true relationship which connects the variables involved is split into two parts: a part represented by a line and a part represented by the random term u , that is, systematic variation and random variation, respectively. Or, Variation in dependent variable, as represented by explained variation and unexplained variation, respectively.

Factors Determining the Capital Structure

We may draw up a list of factors which are thought to affect financing decisions of firms: the goal of the firm, the 'typical' leverage of similar firms in the industry, availability of internal funds: the rate of growth of earnings, availability of internal funds: the retention policy of managers, degree of concentration of ownership and voting control and credit limits (of debt capacity) of the firm depending on the size of the firms, the growth of the assets (size) of the firm, stability of earnings, asset structure, the cost of debt, the cost of equity financing, the corporate tax rate, expectations regarding the rate of inflation, availability of loanable funds, and general customs in capital markets

There are so many theories/theoretical explanations which are based on the objective of stockholder-wealth maximization, that deserve consideration:

- classical or traditional, developed systematically by Ezra Solomon, postulates that there is range of optimal capital structures, that is, a range of

debt/equity ratios over which the discount rate (or the average cost of capital) attains its minimum value, resulting in the maximization of the market value of the firm (over that range). All these examine the question as to whether there is a capital structure that maximizes the value of the firm to the existing (current) stock (share) holders.

- The theory developed by Modigliani and Miller (MM), under the assumption of perfect capital markets and no corporate (or other) taxes, postulates that value of the firm, and consequently, the wealth positions of stockholders is not affected by the capital structure (type of financing).
 - o As a modification, it takes into account corporate taxes and postulates that a firm should use as much debt as possible to maximize its value and the wealth position of its stockholders
- Managerial theory: How managers in practice decide the proportion of debt and equity in the capital structure of the firm.
- Trade-off theory (TOT)
- Pecking order theory (POT)
- Corporate life stages (CLS): Financial life stages of the corporates bring in the dimensions of trade-off, pecking order, managerial aspects,

There are theories, but no law of financing. No more a decision, just a law with may be some exceptions. Law could be there in the long run. But we have a long way to go. It is generally not feasible to incorporate all the factors that have a bearing on the decision, in this case, financing decision, in the study that examines the phenomenon and, therefore, we land up with various theories: MM, TOT POT, CLS. So, there are studies which propose theory, or there are studies that which replicate and extend those studies with new data – country, industry, other explanatory variables. At times, these studies come

up with something that could be totally new theory, like tradeoff or pecking order. Interwoven with others like information asymmetry, or corporate life stages and trade off / pecking order.

For a law of financing, it is still quite early. The phenomenon is still too complex to be amenable to state as a law or may be it is just possible, because the context of decision is very dynamic. There are so many dimensions, and the data is still scanty.

There could be pure-equity firms which are born that way and go through all the stages of their life in terms of patterns of cash flows and may also become extinct. We are yet to break into their DNA. A recent study⁶ looks at some of these aspects afresh.

In the sections that follow each of these theories are briefly described so as to shape the direction of research that this study intends to undertake:

The capital structure of firms under the assumption that the goal of manager is stockholder-wealth maximization. a. Durand's Valuation Hypothesis: The net operating income (NOI) theory of capital structure was proposed by David Durand (1952), is a financial theory that argues that a firm's optimal capital structure is the one that maximizes its net operating income; b. The traditionalist approach: i) The MM summary of the traditionalist view; ii) Solomon's revised traditionalist approach to valuation; c. The MM approach without taxes d. The MM hypothesis with corporate taxes; e. A managerial theory of capital structure; f. The leverage decision in practice

There are two methods that are widely used in the real business world as sources of relevant information about the alternative sources of funds:

6. Hartzmark, Samuel M and Solomon, David H (2019), *Dividend Disconnect*, *The Journal of Finance*, October 2019, Vol 74 (4), 2153-2199.

i. EPS-EBIT analysis

The basic assumption of this method is that investors are interested only in the size of the earnings per share (EPS), that is, the yield of their investments. However, investors' decisions are taken on the basis of both - the expected return and risk of the securities.

EPS-EBIT analysis involves the determination of the level of the earnings per share (EPS) at various levels of total earnings before interest and taxes ($EBIT \equiv \bar{X}$) under different methods of financing the operations of the firm.

ii. Cash flow analysis

This method involves the estimation of total earnings before interest and taxes (EBIT). This in turn requires a forecast of the stream of cash receipts (inflows) and cash payments for the production of the output (cash outflows). The difference is the total earnings (EBIT) from which fixed charges must be met. Forecasts of this sort are called 'cash budgets' and can extend over any numbers of periods. Predictions are usually made under a single set of assumptions with respect to general (external) business conditions and particular circumstances expected to prevail in the markets in which the firms operated. However, a cash flow analysis should include forecast of cash inflows and cash outflows under different sets of assumptions. For example, a firm might examine the EBIT under the following 'states of business': Severe recession; Mild recession; Normal growth; Very rapid growth; and Inflation.

Such forecasts, combined with subjective probabilities for each 'state of business', give probability distributions of earnings for each

period. It is these distributions that provide information about probable deviations in actual earnings from their expected values, and hence all the managers to be prepared for possible downward deviations which may lead to insolvency.

Given the probability distributions of the stream of cash flows, management can determine the amount of fixed charges and debt that the firm can undertake without running a great danger of insolvency. In many cases management defines a 'tolerance limit' for insolvency, that is, a maximum value for the probability of the firm's earnings falling below its fixed charges⁷.

It should be noted that cash-flow analysis is most useful for internal purposes. It 'hedges' management against the risk of insolvency. However, insolvency is only one aspect of the financial risk of shareholders. The other aspect of this risk, namely the danger of having nothing left over for dividends after the fixed charges are met, is not taken into account by cash-flow analysis. Investors are most interested in the latter risk, assuming that the firm will always have enough earnings to cover its fixed charges.

II. Pecking order theory (POT) states that companies prioritize their sources of financing (from internal financing to equity) and consider equity financing as a last resort. Internal funds are used first, and when they are depleted, debt is issued. When it is not prudent to issue more debt, equity is issued.

III. Trade off theory: Trade-off theory is a theory in economics and finance that explains how companies determine their corporate capital structure. It states that companies should balance the costs and benefits of debt and equity to

7. For a detailed discussion of cash-flow analysis, see G Donaldson, *Corporate Debt Capacity*, Harvard Business School, 1961. Also G Donaldson, *Strategy for Financial Emergencies*, Harvard Business Review, 1969, pp. 67-79.

maximize their value and minimize their weighted average cost of capital (WACC). The theory was developed in the early 1970s and is still the dominant theory in its field.

The theory predicts that companies will increase their debt when: Interest rates are risk-free, Tax codes allow for more generous interest rate deductions, and Bankruptcy deadweight losses decrease.

The theory is based on the idea that companies should optimize their debt-to-equity mix to balance the marginal benefits of interest tax shields against the risk of financial distress. For example, a company might set a target debt-to-value ratio and then gradually work towards it.

IV. Corporate Life Stages (CLS): a. Anthony and Ramesh (1990); and b. Dickinson (2011)

The above two are elaborated and discussed in the pages that follow.

V. Target capital structure theory

The target capital structure of a company refers to the capital which a company is striving to obtain. In other words, target capital structure describes the mix of debt, preferred stock and common equity which is expected to optimize the stock price of a company.

VI. Dynamic capital structure theory

Dynamic capital structure theory in financial management states that a company's capital structure will adjust to debt targets over time. The theory also suggests that the optimal

dynamic recapitalization policy is a function of firm-specific characteristics. For example, the theory might account for the adjustment behaviour of the leverage ratio, which occurs when the cost of deviating from the target is greater than the cost of adjusting towards it.

The next section provides a survey of the relevant literature to define more precisely what this study is attempting to delineate.

RELEVANT LITERATURE

Some of the earliest empirical evidence regarding capital structure comes Weston⁸ (1963), and Barges⁹ (1963). Many of these articles appeared after the famous proposition by Modigliani and Miller¹⁰ (1958), popularly known as MM, and their results were in a way contrary to what MM were propounding and later comments by Durand (1959) and Rose (1959) and reply by MM (1959). The study by Weston is of particular interest and significance because it shows that leverage is a negative linear function of earnings growth¹¹.

Studies that have examined corporate life cycle in different aspects of corporate finance, included dividend payout policy (DeAngelo et al. 2006; Coulton and Ruddock 2011), seasoned equity offerings (SEOs) (DeAngelo et al. 2010), share repurchases (Liang et al. 2013) and mergers and acquisitions (M&As) (Owen and Yawson 2010; Arikan and Stulz 2016; Chuang 2017). Prior studies have used different indicators, such as firm age (Liang et al. 2013, Anthony and Ramesh, 1992) and firm age from IPO (Arikan and Stulz 2016) to classify

8. Weston, J Fred, 1963, *A Test of Cost of Capital Propositions*, *Southern Economic Journal*, pp. 105-12.

9. Barges, A, 1963, *The Effect of Capital Structure on the Cost of Capital* (Prentice Hall, 1963).

10. Modigliani, Franco and Miller, Merton H (1958, 1959), *The Cost of Capital, the Corporation Finance and Theory of Investment*, *The American Economic Review*, Vol 48 (3), June 1958, 261-297. The sample included a group of 42 oil companies. Also see, "Reply", *The American Economic Review*, Vol 49 (5), Sept 1959. A very critical part of their formulation is the concept of a risk class. Their identification of a risk class with an industry suffers from all the problems of the non-homogeneity of "an industry". Weston, J Fred, *Op. Cit.*, p. 4.

11. Weston, J Fred, *Op. Cit.*, p. 9.

corporate life cycle stages of firms. This study follows Dickinson's (2011) procedure to determine firm's corporate life cycle stages. As firms within different industries may have a variety of corporate life cycle stages, it would be useful to consider financial variables in determining corporate life cycle stages of firms. When controlling for other variables such as profit, size of assets, rate of interest, Covid'19, and Insolvency and Bankruptcy law promulgated in 2016, this study consider corporate life stages in determining capital structure of firms.

Anthony and Ramesh (1992), though its classification is on different parameters, argue that firms in early corporate life cycle stages generally have higher sales growth. Growth firms, because of profitable investment opportunities, have lower dividend payout ratios. In addition, growth firms are more likely to invest more funds in fixed assets, such as plant and equipment. Hence, Anthony and Ramesh (1992) use four variables to identify corporate life cycle: annual dividend as a percentage of income (DP), percent sales growth (SG), capital expenditure as a percentage of total value to the firm (CEV), and firm age (AGE).

Capital structure or financial leverage in our study is defined as the ratio of book value of debt to book value of debt and equity (LEVERAGE). "One of the principal problems in empirical investigations of leverage effects is that of defining an unbiased measure of leverage. Leverage has been defined in previous studies as either the ratio of debt to equity at book values or this same ratio at market values". Both of these measures contain important conceptual biases. We have used the first measure in our studies. Modigliani and Miller (1958)¹² referred to the bias which resulted from the division of both the dependent and independent variables by the market value of equity in the correlations they reported. This manner of using market value does introduce a

statistical bias into the correlation. An even more important conceptual bias is introduced by measuring leverage as the ratio of debt to the market value of equity. It is generally recognized that the market value of the equity of a firm is a function of a number of variables in addition to financial structure.

Mature firms have exhausted their positive net present value projects, meaning they have fewer investment opportunities in the future (unless they propel themselves back to the growth stage). This lack of opportunity minimizes the need for additional borrowing, even though these firms may have offers from lenders (Barclay and Smith 2005). However, Jensen (1986) suggests the opposite; that mature firms generate positive cash flows and consequently overinvest in their core business (or an unrelated acquisition), albeit at lower returns. One reason could be higher quantum, though at a lower rate. Mature firms then, either begin to service debt and distribute dividend because they have exhausted their positive net present value investment opportunities, or they overinvest in suboptimal projects that diminish their overall profitability. The signalling literature indicates that firms distribute free cash flows to investors to prove that they are not investing in value-destroying endeavours (Jensen 1986; Barclay and Smith 2005; Oler and Picconi 2010).

Formulation of the Life Cycle Proxy

As Dickinson (2011) spells out, the combination of a firm's net operating, investing, and financing cash flows provide a firm life cycle mapping at each financial statement date. Varying the sign (positive or negative) of the three types of net cash flows, results in eight possible cash flow pattern combinations¹³. Dickinson collapse the eight classifications into five theoretical life cycle stages

12. Modigliani, Franco and Miller, Merton H (1958), *The Cost of Capital, Corporation Finance and the Theory of Investment*, *The American Economic Review*, Vol. 48, No. 3 (Jun., 1958), pp. 261-297 (37 pages) Published By: American Economic Association.

(mentioned at the beginning of the section): introduction, growth, mature, shake-out, and decline, based on expected cash flow behaviours from Table 3.1.

Table 3.1: Corporate Life Stages based on expected cash flow behaviours

	1	2	3	4	5	6	7	8
	Introductio n	Shakeout	Growth	Maturity	Shake- Out	Shake-Out	Decline	Decline
Cash flows from operating activities			+	+	+	+		
Cash flows from investing activities					+	+	+	+
Cash flows from financing activities	+		+		+		+	

Note: There are three net cash flow activities (operating, investing, and financing) and each type can take a positive or negative sign, resulting in $2^3 = 8$ possible combinations. The eight patterns are collapsed into five stages. Source: Dickinson (2011).

A benefit of this proxy (i.e., cash flow pattern) is that it uses the entire financial information set contained in operating, investing, and financing cash flows rather than a single metric to determine firm life cycle. Cash flow pattern classification is the result of firms’ operations and achieves better congruence with economic theory (i.e., a normal distribution), at least for most of the stages. Also, we may notice that some of the startups face drying up of financing sources, and it results into a shakeout for some firms in different industries. Different industries face different kinds of crunch, partly because of the market conditions in which the firms are operating.

RESEARCH DESIGN

The study takes data from PROWESSIQ of the Centre for Monitoring of Indian Economy (CMIE) from the Annual financial Statements of S&P BSE 500 non-financial, non-governmental firms. There are 7620 firm-year data from 371 firms. We have excluded financial firms and firms from the government sector for objectivity of analysis and comparison.

Research Objectives

The research questions that we are trying to address are:

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- 13. *Incorporating sign and magnitude of cash flows would likely improve performance of the proxy. However, if positive (negative) cash flows were separated into low- and high-positive (negative) cash flows, then the number of patterns would increase to 64, which is less straightforward when connecting to economic theory. Only the sign is considered in this s*

- What are corporate life stages are determinants of capital structure of firms?
- Whether Covid'19 has adversely affected the performance of firms?
- Whether GFC (Global Financial Crisis 2008) is an important determinant?
- Whether IBC (Insolvency and Bankruptcy Code 2016) is affecting capital structure of firms in India?

ANALYSIS

a. Preliminary thoughts

While doing an initial analysis, we find the following pattern in our data, which comprises of non-financial private sector firms from S&P BSE 500 data as taken from their annual reports of these companies, as compiled by CMIE PROWESSIQ.

Table IV.1: Profile of Corporate Life Stages, 2001-2023 (Based on Cash Flow Patterns)

Corporate Life Stages	Frequency	Percent	Cumulative Frequency
1 (Startup CLS1)	499	6.55	6.55
2 (Shakeout CLS2)	27	0.35	6.90
3 (Growth CLS3)	1776	23.31	30.21
4 (Maturity CLS4)	3952	51.86	82.07
5 (Shakeout CLS5)	401	3.95	86.02
6 (Shakeout CLS6)	799	10.49	96.51
7 (Decline CLS7)	124	1.63	98.14
8 (Decay CLS8)	142	1.86	100.00
Total	7,620	100.00	

Capital Structure is significantly different at various stages of the firms for which data was available. (See Table A.1 in the annexure).

b. Determinants of Capital Structure at Growth Stage (CLS2)

When cash flows from operating activities are plentiful, and so the profits are good and shareholder wish to reap more of profits in distributed form as dividend and such other ways, like buyback of shares or appreciation in value of shares and so the wealth of the shareholders, incentive to borrow is less and so is the need to share

the bounty with the lenders. That is, how the theoretical argument goes. (see results in Table A.1 in the Annexure)

Being among the top 500 firms of the corporate sector in India, majority of the firms are either in growth stage (30 % of the firms or 2275 firm-year data out of 7620 firm-year data) or maturity stage (52 % of the firms or 3979 firm-year data out of 7620 firm-year data), we could draw lessors only for the stages for which we has data and results.

Higher profits were used to invest in growth opportunities or to liquidate the existing debt.

Higher were the profits, as was expected, the lower the debt was, not only by reduction, but also because it had an impact in the change of ratio of debt over equity, as the retained profits were added to the reserves and in that sense to equity.

c. Determinants of capital structure at maturity stage of the firm

As the firms were in the maturity stage, their perspective has been different as we see from literature and reasoning. Profit is no more that high and attractive, revenue growth is slowing and the firms see a further decline in the debt equity ratio.

As one may observe from the table of results (see Table A.2), during the maturity stage, profit and promoters' share in equity are two major drivers of financial leverage, besides the fact that financial leverage is sticky in nature. Profits and promoters' share is driving the financial leverage in opposite directions. Higher the profits, lower the financial leverage, and higher the promoters' share, higher the financial leverage.

RESULTS AND DISCUSSION

Financial leverage is significantly different in each of corporate life stages as measured in terms of the cash flow pattern formed based on cash flows from operating activities, financing and investment. Some of these patterns are supported by economic theory of life cycle of economic activity of business firms, such as introduction, growth and maturity stages. (CLS1, CLS3 and CLS4). But there are others when the firm is in a state of some kind of disarray and need to recover from these. (CLS2, CLS5 and CLS6). Also, there are the ones, like initial decline stage and

deep decline stage (CLS7 and CLS8), where partly some theoretical explanations are available, while these are the stages from where business firms and their leadership or the entrepreneurs in such challenging time could fail or emerge victorious, depending on how they synthesize the new scenario, and their grasp of the emerging environmental scenario. Many challenging aspects could relate to technological upgradation, diversification, turnaround or human resource and organisational development, as well as exploiting the marketing opportunities through various ways and means.

This paper looks at all the corporate life stage(s) of a firm but there were stages where data was in good number of occurrences (CLS1, i.e., introduction or startup, CLS3, i.e., growth stage, CLS4, i.e., maturity stage, and CLS5 and CLS6, i.e., shake-out stages). The firms at decline stage have higher risk of bankruptcy and liquidation, and due to that, possibility of loss of enterprise value and business capital¹⁴.

During the maturity stage, profitability (PROF) and promoters' share (pmShare) in equity are two major drivers of financial leverage. Financial leverage is sticky in nature as one may observe from the coefficient of lag of financial leverage (L.leverage as a variable). Profits and promoters' share is driving the financial leverage in the same directions. Higher the profits, lower the financial leverage, and higher the promoters' share, lower the financial leverage, but impact of profitability is more significant.

LIMITATIONS OF THE STUDY

Only broad results relating to variation in capital structure over corporate life stages. Since we have

14. "Keep Dream11 as Going Concern: NCLAT to RP", *The Economic Times*, April 4, 2024, Delhi Edition, p. 10, col. 1-3. The National Company Law Appellate Tribunal (NCLAT) directed the resolution professional (RP) of Sports Technologies, the partner company Dream11, to keep it as a going concern. The RP's counsel argued that the management of Sports Technologies continued to be with the suspended board of directors, and that they had been scuttling the CIRP. However, the appellate tribunal directed the RP to refrain from taking any steps in the CIRP.

included data from S&P BSE 500 non-financial firms, from 2001-23, which was 7620 firm-year data, some of the important stages¹⁵ of corporate life we were not able to observe with larger number of observations, because such stages were not there in so much number in our data, i.e., a shake-out pattern (CLS2), initial decline (CLS7) and deep decline or decay (CLS8). (See Table IV.1)

Cash flow patterns only capture the direction of flows, not the quantum of flows. Cash flow from operating, financing and investment activities change may change very quickly and very frequently, however we are deducing our results from data base on Annual Financial Statements. To that extent, our leverage to interpret the data is limited.

India-specific study and focused on large corporates in India. The study may be expanded to multi-country. So, when one extends the data, we may do inter-country, inter-continental comparison as well as on certain other criterion, like countries/economies of similar size or some such parameter.

India-based: Longitudinal and cross section study using panel data analysis, the data used is from Annual Reports for 23 years, from 2001 to 2023, using PROWESSIQ database of Centre for Monitoring of Indian Economy (CMIE). One could extend and expand the study to include more number of periods as well as data from other countries/markets.

Security or collateral consists of assets that are typically not subject to asymmetric valuations in markets, and that the borrower cannot alter easily. And it may be an important aspect for a declining business firm¹⁶, which due to lack of relevant data available with us, we could not explore.

The study looked at the behaviour of firms post-Covid'19 as well. However, we were not able to study the firms which were in decline stage and got further into decline and/or were not in decline stage, but went in decline stage post-Covid, because our data did not have such measure of transition of firms as measured in terms of direction of cash flows from operating, financing and investment activities.

There could be firms which emerged stronger after Covid'19 and may be the source of attraction for private equity, lenders in general and the government for policy initiative to promote enterprise capital. This could be another area of enquiry¹⁷.

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15. *In future, as we extend and expand our data set, not only we will be able to study for more than 23 years of data, but also the number of firms for which new version of PROWESS, i.e., PROWESSWEB would be making the dataset available. Since it recently been launched and we were at an advance stage of analysing the data, we did not venture out on that expanded and extended database.*

16. *Efraim Benmelech, Nitish Kumar and Raghuram Rajan, The Decline of Secured Debt, Journal of Finance, Vol 79 (1), February 2024, pp. 36-59. However, since we have taken data from S&P BSE 500 non-financial firms, of course with exclusion bias as different firms have different evolution trajectories, this may not be immediately relevant.*

17. *"Thaw in Funding Winter? Deal Junction on Startup St Springs to Life: Big-ticket investments on horizon for cos that have emerged stronger after Covid", The Economic Times, New Delhi Edition, April 4, 2023, p. 1. Col. 2-3. However, since we have taken data from S&P BSE 500 non-financial firms, of course with exclusion bias as different firms have different evolution trajectories, this may not be immediately relevant.*

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Annexure Table A.1

Corporate Life Stages and the determinants of capital structure

VARIABLES	leverage	D.leverage	D.leverage	D.leverage	leverage
L.leverage	0.781*** (0.0748)	-0.219*** (0.0748)	-0.219*** (0.0748)		0.761*** (0.0525)
2.CLS	-5.118*** (1.699)	-5.118*** (1.699)	-5.118*** (1.699)	-3.085* (1.817)	-5.338*** (1.717)
3.CLS	-1.012 (2.187)	-1.012 (2.187)	-1.012 (2.187)	-2.176 (4.956)	-0.933** (0.468)
4.CLS	-5.718** (2.265)	-5.718** (2.265)	-5.718** (2.265)	-6.110 (4.053)	-5.761*** (0.636)
5.CLS	-4.142*** (1.402)	-4.142*** (1.402)	-4.142*** (1.402)	-5.765*** (2.214)	-4.076*** (0.784)
6.CLS	-6.375*** (0.891)	-6.375*** (0.891)	-6.375*** (0.891)	-5.314*** (0.674)	-6.524*** (0.725)
7.CLS	-1.082 (1.178)	-1.082 (1.178)	-1.082 (1.178)	0.505 (2.529)	-1.404 (0.998)
8.CLS	-5.488*** (1.084)	-5.488*** (1.084)	-5.488*** (1.084)	-3.698 (3.048)	-5.737*** (0.878)
prof	-31.53*** (5.610)	-31.53*** (5.610)	-31.53*** (5.610)	-15.54*** (5.023)	-32.02*** (5.600)
size	-2.04e-05*** (5.03e-06)	-2.04e-05*** (5.03e-06)	-2.04e-05*** (5.03e-06)	8.92e-06 (2.13e-05)	-2.26e-05** (9.14e-06)
tang	0.575 (17.06)	0.575 (17.06)	0.575 (17.06)	9.331 (39.49)	
dvnd	0.00312*** (0.000955)	0.00312*** (0.000955)	0.00312*** (0.000955)	0.00465*** (0.00152)	0.00304*** (0.00101)
taxShield	0.00393*** (0.000914)	0.00393*** (0.000914)	0.00393*** (0.000914)	-0.00296 (0.00549)	0.00447** (0.00194)
pmShare	-0.0907*** (0.0292)	-0.0907*** (0.0292)	-0.0907*** (0.0292)	-0.114*** (0.0336)	-0.0895*** (0.0284)
1.ibc2016	1.887** (0.851)	1.887** (0.851)	1.887** (0.851)	2.378** (0.956)	
1.GFC	-0.232 (1.123)	-0.232 (1.123)	-0.232 (1.123)	1.068 (2.958)	
1.dccovid20less	-2.954*** (1.057)	-2.954*** (1.057)	-2.954*** (1.057)	-1.965 (1.612)	-1.467 (1.065)
intRate	-0.0339 (0.0323)	-0.0339 (0.0323)	-0.0339 (0.0323)	-0.205*** (0.0656)	
returnIndexClosing	-0.00408 (0.0233)	-0.00408 (0.0233)	-0.00408 (0.0233)	-0.0187 (0.0254)	
LD.leverage				-0.0177** (0.00846)	
Constant	18.42*** (2.455)	18.42*** (2.455)	18.42*** (2.455)	10.02 (10.04)	18.95*** (2.718)
Observations	6,565	6,565	6,565	6,233	6,566
Number of ccode	369	369	369	369	369
Standard errors in parentheses					
*** p<0.01, ** p<0.05, * p<0.1					

Annexure Table A.2

Corporate Life Stages and the determinants of capital structure (Growth v/s Maturity)

	CLS3	CLS4
	Growth	Maturity
VARIABLES	leverage	leverage
L.leverage	0.595*** (0.0883)	0.743*** (0.0625)
prof	-30.55 (29.71)	-27.81*** (4.943)
size	-3.15e-05** (1.45e-05)	-2.33e-05*** (8.47e-06)
tang	15.47*** (4.432)	6.074** (2.804)
dvnd	0.00167 (0.00333)	0.00226** (0.000942)
taxShield	0.00517** (0.00239)	0.00502** (0.00229)
pmShare	-0.161 (0.100)	-0.105* (0.0631)
Constant	21.12** (9.381)	11.45*** (3.563)
Observations	1,556	3,632
Number of ccode	320	361
Standard errors in parentheses		
*** p<0.01, ** p<0.05, * p<0.1		