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## Effect of Firm Characteristics on Capital Structure Decisions of Indian SMEs

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**Abstract:** We examine whether predictions of capital structure theories hold true for Indian SMEs. In order to do so we conduct a panel data regression to test how the firm characteristics affect their capital structure decisions. Results suggest predictions of pecking order theory to be useful in explaining the capital structure decisions of Indian SMEs for short-term debt only and support the applicability of trade-off theory implying that greater the operating risk faced by a firm, more inclined it is in reducing its leverage. We do not find any evidence for the applicability of agency theory.

**Keywords:** SMEs, Capital structure, Long-term debt, Short-term debt, Panel data regression, pecking order theory, trade-off theory, agency theory, profitability, operating risk, size, growth opportunities, asset structure.

**JEL Classification:** G32

### 1. INTRODUCTION

The growth of a firm depends largely to the extent it is able to make profitable investments. A firm may use borrowed funds or owners' funds to make such investments. These investments which have long-term benefits determine the value of the firm today. But this value depends not only on the investments' expected future cash flows but also on the cost of these funds. Existing theories postulate that neither the borrowing nor the owners' funds is costless. This makes the capital structure an important, challenging and central issue in corporate finance. The seminal work of Modigliani and Miller (1958; 1963) postulating the irrelevance of capital structure in the valuation of a firm without tax effect and with tax advantage marks the beginning of the capital structure theories namely, trade-off theory, pecking order theory and agency theory. Trade-off theory postulates that the existence of taxes and bankruptcy or financial distress costs makes debt relevant (Miller 1977; Myers 2001; Greene *et al.*, 2002). Pecking order theory highlights that the cost of

financing increases due to possession of more information by managers of firms compared to investors thus leading to the existence of information asymmetry between them (Myers, 1984; Myers and Majluf, 1984) and finally, the Agency theory which posits that there is a conflict of interest between the managers, shareholders and debt holders of a firm (Jensen and Meckling, 1976; Barnea *et al.*, 1980; Harris and Raviv, 1990).

A great deal of empirical research has examined the determinants of capital structure of a firm based on these theories in both developed as well as in developing countries (Rajan and Zingales, 1995; Ariff, 1998; Wald, 1999; and Pandey, 2001). These theories help us to understand the factors which are more likely to have a dominant role in deciding the leverage decisions. Despite substantial research in this area, there is still no single theory or model which can be said to fully explain how the capital structure is decided and why some firms prefer equity and others debt under different circumstances.

It is well established that Small and Medium Enterprises (SMEs) have contributed significantly towards employment generation, innovation, growth and economic development of countries throughout the world. This is despite the fact that their own growth and prosperity have been hindered by many restrictions and constraints (Raymond *et al.*, 2005). Various studies have listed some common challenges faced by SMEs throughout the world such as lack of access to bank lending, lack of working capital support, high administrative costs, high collateral requirements and many more. Amongst so many constraints faced by them, a major constraint is the availability of capital. Given their comparatively small size and unavailability of substantial assets to set aside as collaterals, they find it difficult to raise funds from banks and financial institutions or from public in the form of equity or debt. The problem also gets acute if they are not profitable or do not have a long history of operations. Hence, capital structure decisions are one of the major issues faced by SMEs (OECD, 2009; Kushnir *et al.*, 2010; Dalberg Report, 2011).

SMEs have played an important role in the economic development of an emerging market like India. Around 1.3 million SMEs employ 40 per cent of the country's workforce, contributing towards 45 per cent of manufacturing output and accounting for 40 per cent of the country's total exports (Goyal, 2013). Thus, SMEs' not only help to generate employment but also contribute significantly towards the manufacturing output and exports of the country. Like the SMEs throughout the world, the Indian SMEs too face numerous challenges when it comes to assessing various sources of finance. Banks and Financial Institutions are considered as traditional sources of obtaining finance. Whereas factoring services, securitization of trade credit, leasing, supply chain finance, angel/venture capital finance, private equity funding, capital markets (through SME exchanges) are recent modes of financing. It is also not easy for Indian SMEs to approach the debt market for raising funds because they have distinct disparities in their characteristics from that of large companies. SMEs usually belong to the unorganised sector; have high labour to capital ratio and high information asymmetry that restricts them from accessing debt markets (Sarkar 2005; Prasad 2006; Government of India, 2010). Hence, private funds from friends and family have formed the single largest source of finance to them. They also rely heavily on private money lenders and the unorganised financial sector for their requirements, where the terms of financing are unclear and the rates of interest are high and have limited access to equity capital.

Given this scenario, it becomes important to study the capital structure decisions of Indian SMEs. The objective of the present study is to examine whether the predictions of traditional theories of capital structure such as pecking order theory, trade-off theory and agency theory hold true for Indian SMEs. We

use five firm characteristics such as profitability, growth opportunities, size, asset structure and operating risk to determine their effect on SMEs' capital structure. Despite huge contribution made by SMEs towards the development of the national economy, little research has been directed to study their capital structure decisions in India in spite of immense attention being given to them by the Indian policy makers in recent years.

Many studies have examined the major determinants that influence financing decisions of SMEs and discuss the usefulness and applicability of the predictions of capital structure theories in explaining their leverage decisions (Sogorb-Mira, 2005; Akdal, 2010; Mateev and Anastasov 2010; Mateev and Ivanov, 2011; Forte *et al.*, 2013; Mateev *et al.*, 2013 and Saarani and Shahadan, 2013). These studies conclude that by and large a few firm characteristics are useful in explaining the predictions of theories of capital structure. Hitherto, research in this area, in India, has focused on large companies and capital structure decisions of SMEs have not received any attention. We make an attempt to fill this void. This study helps us establish whether the determinants of capital structure decisions valid elsewhere are also applicable to Indian SMEs. We, thus contribute by providing empirical evidence on leverage decisions of Indian SMEs. India has adopted an open-door approach for the development of entrepreneurial activities by setting up separate SME listing platforms on its two premier Indian stock exchanges: BSE and National Stock Exchange of India (NSE) for raising equity. This is the first Indian study to look at capital structure decisions of SMEs after setting up of these exchanges.<sup>1</sup>

Our results show a significant positive relationship between long-term debt and growth opportunities and the size of an SME. However, we observe a negative relationship between long term debt and operating risk. We also find an inverse relationship between short-term debt and profitability and operating risk of an SME. However, we observe a direct relationship between short-term debt and size of an SME. This suggests that those Indian SMEs that are bigger in size with generous growth opportunities face less operational risk and rely more on long-term debt while SMEs with high profits and high operating risk do not even resort to short-term financing. We also find size and operating risk of a company to be the two most important firm characteristics effecting the capital structure decisions of Indian SMEs.

The remaining paper is organised as follows: Section 2 reviews the literature and develops the hypotheses of the study. Section 3 describes the data and the research methodology. Section 4 discusses the results while Section 5 concludes and provides implications and suggestions for further research.

## **2. REVIEW OF LITERATURE AND HYPOTHESES CONSTRUCTION**

The existing literature on capital structure provides that there are a few prominent firm-specific characteristics that affect the capital structure decisions of companies. These are discussed below:

### **2.1. Profitability**

Pecking order theory (Myers, 1984, Myers and Majluf, 1984) postulates that a pecking order or a hierarchy in financing of firms exists and due to informational asymmetries between managers and investors, firms first prefer to use retained earnings, followed by new issues of debt and lastly issue equity. Issuance of new equity is the last resort when firms can no longer issue debt without adding costs of financial distress. It also predicts that firms with more internal funds will use less external funding. Thus, one would expect a significant relationship between cash flow and leverage. Pecking order theory predicts the relationship between profitability

and capital structure of a company. It explains the reason for profitable firms to have low level of debt as compared to less profitable firms. Firms do not change their level of debt not because they want to achieve a target debt ratio but rather by their need for external financing (Mateev and Ivanov, 2011).

Profitable firms thus first prioritise funds from internal sources and maintain comparatively low debt-equity ratios before going for external financing (De Jong *et al.*, 2008; Najjar, 2011). The predictions of pecking order theory can be useful for SMEs due to the following reasons: First, these firms may find it difficult to raise funds externally through debt or equity due to existence of information asymmetries (Ang, 1991; Holmes and Kent, 1991; Booth *et al.*, 2001; Sogorb-Mira, 2005). Second, in case of SMEs, usually the owners are the managers themselves and hence would not like to lose their control over their firms. They are thus hesitant in accepting new shareholders for their firms (Holmes and Kent, 1991). As far as inclusion of debt holders is concerned, these firms borrow for their short-term working capital requirement and avoid large debt which usually carries many restrictions (Abor, 2008; Daskalakis and Psillaki, 2009; Ramlall, 2009; Saarani and Shahadan, 2013).

Jindrichovska and Koerner (2008) surveyed the financial managers of Czech firms to find out their perception about particular instruments of internal and external financing. They find that firms follow pecking order for their working capital needs but not so for their investment financing. They prefer retained earnings amongst internal sources of financing and bank loans and leasing amongst external sources of financing. Small businesses cannot raise long-term capital on reasonable terms and their owners may also lack the resources to invest, leaving these firms with no option but to depend on short-term debt for permanent working-capital requirements leading them to a low degree of flexibility. Current liabilities form a bigger part of the capital structure of SMEs compared to larger firms and thus these firms most often need short-term financing instead of long term debt financing. Relatively underdeveloped corporate bond market in India also does not provide SMEs, a viable option to access the private placement debt market for long-term funding. Since lenders of short term debt generally do not include any negative and restrictive covenants as is normally the case with long term debt, SMEs prefer to choose short-term debt.

The use of short-term debt also does not reduce the flexibility of managers in case of funding from external sources (Mateev and Ivanov, 2011). It has also been observed in OECD countries and also in emerging economies that for their working capital needs, SMEs are increasingly becoming more dependent on asset-based finance as a source to support their domestic and international trade and also partially for investment purposes (OECD, 2015). Voulgaris *et al.*, (2004) find profitability to be a major determinant of financing decision for a sample of 143 Greek SMEs. Nakumara and Juca (2005) used a questionnaire for a sample of 80 Brazilian SMEs to document profitability to be negatively related to leverage in line with the predictions of pecking order theory. Similar results are also reported by Dakalakis and Psillaki (2008) for a large sample of 1,252 SMEs from Greece and France. If pecking order theory holds true than profitable firms would have a lower debt equity ratio.

The trade-off theory predicts that more a firm is profitable, more is its capacity to borrow and higher are the benefits to be derived by shielding higher levels of taxable income by taking advantage of interest tax shields. Less profitable firms do not have this incentive to shield their income from taxes. Thus, it appears logical that highly profitable firms should have higher debt ratios implying that profitability has a positive impact on leverage. Moreover, highly profitable firms have excess earnings over profitable investments resulting in higher free cash flows.

Therefore, considering these theoretical viewpoints, we postulate:

H1a Profitability is related to total debt ratio of SMEs.

H1b Profitability is negatively related to long-term debt ratio of SMEs.

H1c Profitability is negatively related to short-term debt ratio of SMEs.

We follow Rajan and Zingales, (1995); Ooi, (1999); Gaud *et al.*, (2005) and measure profitability as Earnings before Interest and Taxes (EBIT) divided by Total Assets.

## **2.2. Growth opportunities**

The Trade-off theory argues that firms choose their level of debt by trading off the benefits obtained from interest tax shields and the costs of financial distress or bankruptcy. As interest paid on debt being a legitimate expense is tax deductible, inclusion of debt in the capital structure maximizes shareholders' wealth as more earnings are available to them compared to shareholders of firms with no debt. It also reduces the agency costs of equity derived from excess free cash flows. But the benefits do not come without costs in the form of higher interest rates and direct or indirect bankruptcy costs when excessive debt is used. This theory propounds that there is an optimal level of debt which occurs when the marginal benefit equals the marginal cost of an additional unit of debt (Bradley *et al.*, 1984). The trade-off theory also explains the reasons for the differences in capital structure of firms in different industries. It predicts that firms with more tangible assets and more taxable income to shield would have high debt ratios. While risky firms which have less tangible assets and more of intangible assets should rely more on financing through equity rather than debt. Since growth opportunities represent intangible assets owing to larger investments in research and development and marketing expenses, financial distress costs or bankruptcy costs are more for firms with bigger growth opportunities. Thus, under Trade-off theory perspective, firms having higher growth opportunities should borrow less since they would lose more in case of bankruptcy. Therefore, high growth companies whose assets are risky and mostly intangible use relatively little debt (Brealey *et al.*, 2010) and firms with higher liquidation value, e.g. those with tangible assets, will have more debt (Harris and Raviv 1991). Thus, trade off theory predicts a negative relationship between growth opportunities and leverage (Myers, 1984; Frank and Goyal, 2004).

In case of SMEs, many studies have found growth opportunities to be negatively related to leverage (Gaud *et al.*, 2005; Mateev and Ivanov, 2011; Mateev *et al.*, 2013). Considering these theoretical viewpoints, we postulate:

H2a Growth opportunities are related to total debt ratio of SMEs.

H2b Growth opportunities are negatively related to long-term debt ratio of SMEs.

H2c Growth opportunities are positively related to short-term debt ratio of SMEs.

We follow Titman and Wessels, (1988); Ooi, (1999); and Chen, (2003) and determine growth opportunities by calculating the percentage change in Total Assets.

## **2.3. Asset structure**

Asset structure depicts the tangibility of the assets of a firm. Existing empirical evidence demonstrates that tangibility of assets is positively related to leverage (Esperanca *et al.*, 2003; Abor, 2008; and Ramlall,



2009). Higher the level of tangible assets of a firm higher would be its leverage as its ability to borrow increases. Tangible assets can be easily used as collaterals to secure loans from a bank or a financial institution at competitive interest rates. This helps in reducing the agency cost of debt as the risk of the lender reduces drastically due to these collateralised assets. Converse is true for firms with large amounts of intangible assets with no or little tangible assets as intangible assets are of insignificant value at the time of liquidation.

Therefore from the point of view of trade-off theory, tangibility of assets is an essential factor in determining the bankruptcy costs and tangibility also makes it difficult for shareholders to substitute high-risk assets for lower ones. Thus, firms with tangible assets have lower agency costs (Booth *et al.*, 2001; Frank and Goyal, 2004).

Agency theory propounds that agency costs in a firm arise due to conflict of interest between the stakeholders, i.e. conflict between owners and managers and conflict within owners and debt holders. As far as conflict between owners and managers is concerned, problems arise because of imbalance of decision rights among owners and managers and inclination towards fulfillment of personal objectives (Jensen and Meckling, 1976; Rajan and Zingales, 1995). On the other hand, conflict between owners and debt holders is due to the outcome of the return generated by investments. If an investment bears positive returns, the gain is passed on to the owners but if it bears negative returns, then it is passed on as a loss to the debt holders. This shifting of risk from the owners to debt holders requires a guarantee in the form of collateral against tangible assets owned by the firm (Barnea *et al.*, 1980; Harris and Raviv, 2001).

In case of SMEs, owners themselves are the managers of their businesses. Since the owners and managers are the same, conflict between the two is irrelevant (Mackie-Mason, 1990; Rajan and Zingales, 1995). Though principal-principal agency cost does exist in case of SMEs, we only focus on the agency cost between debt providers and business owners and not on principal-principal agency cost per se.

It is also well known that emerging economies have a comparatively weak legal structure than developed economies, thus making it rather easier for promoter-managers to expropriate wealth for themselves rather than maximize wealth for all the shareholders. Barnea *et al.* (1981) also argue that higher level of asymmetric information increases the agency costs. Since the manager is also the partial-owner of the firm, he has an incentive to transfer wealth in his favour. They also point out that moral hazard and adverse selection problems would be greater for such firms since they are closely held. Their monitoring would also be rather difficult and expensive as their disclosure requirements would be far less compared to large firms. Owners of these firms would thus invest in those avenues that provide short-term gains and would try to shift the risk of large investments involving long-term gains to debt holders. Lenders would not provide funds for such investments without sufficient collateral in order to reduce agency costs. Thus, both the trade-off and agency theory predict a positive relationship between leverage and tangibility of assets.

The pecking order theory posits that there is low information asymmetry associated with tangible assets which makes equity less costly. This would suggest a negative relation between leverage and tangibility (Harris and Raviv, 1991). Information asymmetry can affect interest rates, can increase the agency costs of the firm and can thus affect a firm's capital structure. A higher level of information asymmetry means that banks and equity investors would be more reluctant to lend/invest money into the business, thus lowering the debt/equity amount. Booth *et al.*, (2001); Cassar and Homes, (2003); and Hall *et al.*, (2004) find a negative relationship between asset structure and short-term debt. Hashemi (2013); Frank and Goyal,

(2004) and Esperanca *et al.*, (2003) find a positive relationship between asset structure and both long term and short-term debt. On the other hand, Akdal (2010) finds a positive relationship between tangible assets and total leverage and long-term leverage. However, he does not find any relationship between tangible assets and short term debt. Chittenden *et al.*, (1996) also find a positive relationship between tangibility and long-term debt, but a negative relationship between tangibility and short-term debt.

Hence, in light of these arguments, we expect Indian SMEs with large amount of tangible assets to have more debt. Therefore, we postulate:

H3a Asset structure is related to total debt ratio of SMEs.

H3b Asset structure is positively related to long-term debt ratio of SMEs.

H3c Asset structure is negatively related to short-term debt ratio of SMEs.

We follow Harris and Raviv (1991); Rajan and Zingales (1995); and Pandey (2001) to proxy asset structure by Tangible Asset Ratio measured by Net Fixed Assets to Total Assets.

## **2.4. Size**

The extent of riskiness of a firm is reflected by its size. Large firms have easy access to capital markets (Titman and Wessels, 1988) but small sized firms find it difficult to borrow long-term debt as their growth opportunities are far more than their tangible assets which can serve as collaterals (Whited, 1992). As per trade-off theory risky firms borrow less. It is generally agreed that size is positively associated with leverage and size may be an inverse proxy for the probability of bankruptcy. Larger firms are usually more diversified and have more stable cash flows. So the probability of bankruptcy is smaller for large firms compared to smaller ones. Existing research also suggests that bigger firms prefer to issue long-term debt compared to smaller firms which rely more on short-term debt for their financing needs. Another argument set forth is that bigger firms have phenomenal bargaining power with their creditors due to their sheer size and being market leaders. They use this dominant position to obtain cheaper funds (Michaelas *et al.*, 1999). Rajan and Zingales (1995) find a positive relationship between size and leverage for a sample of SMEs in G-7 countries but for Germany. They could not explain this exception from the point of view of institutional differences as liquidation is a common phenomenon in Germany compared to other countries. Bigger and listed firms are widely researched and research analysts have more access to information pertaining to them as compared to smaller firms. These firms are also required to provide various kinds of information regarding their operations on a regular basis to the stock exchanges where they are listed. Thus, information asymmetry in big firms is less compared to small firms which help them to raise debt from the capital markets and from banks at lower cost.

From the trade-off theory perspective, Titman and Wessels (1988) argue that small enterprises resort more to short-term debt rather than long-term debt and equity due to higher transaction costs which are enhanced in the event of financial distress or bankruptcy. Large firms face low financial distress costs as they are more diversified (Mason, 1990; Barclay and Smith, 1996; and Fama and French, 2002). In case of SMEs, it is not only the fear of bankruptcy but also the debt maturity restrictions posed by the lenders (Mateev and Ivanov, 2011). Small firms use short-term debt whereas large firms use more of long-term debt (Hall *et al.*, 2004; Najjar, 2011). Studies by Cassar and Homes, (2003); Esperança *et al.*, (2003); Hall *et*

*al.*, (2004); Niu, (2008); Daskalakis and Psillaki, (2009); Mateev and Ivanov, (2011); Forte *et al.*, (2013); and Mateev *et al.*, (2013) find a positive relationship between firm size and long-term debt and a negative relationship between size and short-term debt. Hashemi (2013) finds a negative relationship between firm size and both short and long term debt for Iranian SMEs. In contrast to these findings Akdal (2010) finds a positive relationship between firm size for both short term and long term debt. However, Mateev and Ivanov (2011) do not find any evidence that small firms tend to use more short term debt if external funds are needed.

In line with the existing theoretical viewpoints, we postulate:

H4a Size is related to total debt ratio of SMEs.

H4b Size is positively related to long-term debt ratio of SMEs.

H4c Size is negatively related to short-term debt ratio of SMEs.

We use the natural logarithm of Total Assets as a measure for the size of a firm as in Sogorb-Mira, (2005) and Padron *et al.* (2005).

## 2.5. Operating risk

The fear of bankruptcy or financial distress costs refrain a company from financing itself fully through debt, consistent with the trade-off theory arguments. A firm fully financed through equity on the other hand is not exposed to such risks. Similar is the case with firms with stable and multiple sources of incomes. On the contrary, firms operating in cyclical industries with high variability in earnings are exposed to substantial operating risks. They would thus always like to reduce their debt in their capital structure in order to reduce their financial distress or bankruptcy costs. Increased variability in the return on assets implies an increase in the short-term operational component of operating risk (Booth *et al.*, 1999). Therefore, greater is the earnings volatility of a firm, greater is its chances of defaulting on fixed payments and hence, lower will be its debt ratio. Various studies conducted using a sample of large firms indicate an inverse relationship between operating risk and debt ratio (Bradley *et al.*, 1984; Titman and Wessels 1988; Mackie-Mason, 1990). A firm's optimal level of leverage is a decreasing function of variability in its earnings due to agency and bankruptcy costs (Michaelas *et al.*, 1999). If a firm has to regularly pay fixed interest charges on its borrowings then it may find it difficult to meet such obligations in times of decrease in its earnings due to cyclical business changes there by substantially increasing its bankruptcy and distress costs. This would suggest that operating risk is negatively related to leverage.

Forte *et al.*, (2013) for Brazilian SMEs find evidence albeit weak that riskier firms tend to be less financially leveraged thus confirming the bankruptcy arguments given under trade-off theory. Booth *et al.*, (2001); Akdal (2010); Najjar, (2011); and Hashemi (2013) also find a similar negative relationship between a firm's risk and its debt ratio. On the other hand, Jordan *et al.*, (1998) and Esperanca *et al.*, (2003) find a positive relationship between risk and both long as well as short-term debt ratios in the case of small firms.

Therefore, taking the above into consideration, we postulate:

H5a Operating risk is related to total debt ratio of SMEs.

H5b Operating risk is negatively related to long-term debt ratio of SMEs.



H5c Operating risk is negatively related to short-term debt ratio of SMEs.

Following Booth *et al.*, (2001) and Pandey (2001), we measure operating risk by taking standard deviation of Earnings before Interest and Taxes (EBIT) divided by Total Assets.

Table 1 presents the selected empirical studies that have been performed on various determinants of capital structure for large manufacturing companies using secondary data.

**Table 1**  
**Determinants of capital structure of large manufacturing companies**

	<i>Determinants</i>					
	<i>Profitability</i>	<i>Size</i>	<i>Growth opportunities</i>	<i>Volatility/Risk</i>	<i>Asset tangibility</i>	<i>Non-debt tax shield</i>
Kester (1986)	✓	✓	-	-	-	-
Titman and Wessels (1988)	✓	✓	✓	✓	✓	✓
Harris and Raviv (1991)	✓	✓	✓	✓	✓	✓
Rajan and Zingales (1995)	✓	✓	✓	-	✓	-
Shyam-Sunder and Myers (1999)	✓	-	✓	-	✓	-
Fama and French (2002)	✓	✓	✓	✓	✓	✓
Baker and Wurgler (2002)	✓	✓	✓	-	✓	-
Frank and Goyal (2004)	✓	✓	✓	-	✓	-
Gaud <i>et al.</i> , (2005)	✓	✓	✓	-	✓	-
Flannery and Rangan (2006)	✓	✓	-	-	✓	✓
De Jong <i>et al.</i> , (2008)	✓	-	✓	✓	✓	-
Lemmon <i>et al.</i> , (2008)	✓	✓	✓	✓	✓	-

*Source:* Own contribution

### 3. DATA AND RESEARCH METHODOLOGY

We examine the capital structure decisions of only manufacturing SMEs in India. We exclude financial SMEs because their financial characteristics and balance sheet structure is different from manufacturing SMEs. The initial sample is drawn from CRISIL SME Rating List 1 and 2 (as on December 2012) out of 123 non-financial companies. However, we consider only those SMEs whose financial information is readily available during the six-year period from 2007 to 2012.<sup>2</sup> Therefore we do not consider companies with missing data and thus our final data-set consist of 64 SMEs. Data related to various variables used in the study are drawn from the Capitaline database which is a widely used data base for conducting research in India.

SMEs are defined differently in different countries using numerous criteria. These criteria are number of employees, sales, investment level, total net assets, and so on. In the Indian context, SMEs are defined as entities that have an investment of above Rupees 10 mn (approx. \$15,037) and below Rupees 100 mn (approx. \$ 1,503,759) in plant and machinery (The Micro, Small and Medium Enterprises Development Act, 2006).<sup>3</sup>

The data-set is constructed as a balanced panel containing observations across companies and over time. We use pooled and panel data regression to examine firm characteristics affecting the capital structure

decisions of Indian SMEs. Panel data is useful as degrees of freedom are increased, problem of collinearity is reduced, individual heterogeneity is controlled, the efficiency of estimates is improved (Baltagi, 1995). The general form of pooled OLS, fixed effects and random effects model is described below:

$$y_{it} = \alpha + \beta' X_{it} + \epsilon_{it} \quad \dots\dots\dots \text{(Pooled OLS Model)} \quad (1)$$

$$y_{it} = \alpha + \beta' X_{it} + \mu_i + \epsilon_{it} \quad \dots\dots\dots \text{(Fixed Effects Model)} \quad (2)$$

$$y_{it} = \alpha + \beta' X_{it} + (\mu_i + \epsilon_{it}) \quad \dots\dots\dots \text{(Random Effects Model)} \quad (3)$$

Where  $i$  denotes the cross-section dimension and  $t$  denotes the time dimension,  $X_{it}$  denotes the explanatory variables for the  $i$ th company in the  $t$ th period,  $\beta'$  is  $k \times 1$  parameters and  $\epsilon_{it}$  is the disturbance term. In case of fixed effects and random effects model,  $\mu_i$  denotes the unobservable individual effect (cross-section effect) and  $\epsilon_{it}$  denotes the time-specific component.

Keeping in view the research objectives and availability of data, the variables used and their measurement have been drawn from the existing literature. These variables have been selected because the extant literature discussed above finds them to be important variables.

Following Sogorb-Mira, (2005) and Mateev and Ivanov, (2011), we measure the leverage decision of the firm using Total Debt Ratio (TDR), i.e. Total Debt/ Total Assets. The total debt ratio cannot be used to analyze the differences between the use of short term debt or long term debt in a firm. Thus, we follow Hutchison (2003); Sogorb-Mira (2005); and Abor (2008) and use Long-term Debt Ratio (LDR) and Short-term Debt Ratio (SDR). Long-term Debt Ratio is defined as Long-term Debt/Total Assets and Short-term Debt Ratio is defined as Short-term Debt/Total Assets. Long-term debt includes bonds and debentures, fixed deposits, structured debt and long-term loans whereas short-term debt includes trade credit, short-term loans, accounts payables and bills discounted. Usually, long-term debt is used to finance non-current assets whereas short-term debt is used to finance current assets as per the maturity-matching principle explained by Sogorb-Mira (2005). Therefore, the dependent variables used in the present study are total debt ratio (TDR), long-term debt ratio (LDR) and short-term debt ratio (SDR) as a proxy for capital structure decisions and the explanatory variables are profitability, growth opportunities, size, asset structure and operating risk.

Profitability is measured as Earnings before Interest and Taxes (EBIT) divided by Total Assets, following Rajan and Zingales, (1995); Ooi, (1999); Gaud *et al.*, (2005). This is an important variable to check for the presence of information asymmetry and is also useful in testing the applicability of pecking order theory for Indian SMEs. Next variable used in the study is Growth Opportunities. Following Titman and Wessels (1988); Ooi (1999) and Chen (2003), it is measured as a percentage change in Total Assets. This is an important variable to test the applicability of Trade-off theory emphasizing on the financial distress costs.

Another explanatory variable used is Size of the firm, measured as natural logarithm of Total Assets, following Sogorb-Mira, (2005) and Padron *et al.*, (2005). This variable is of paramount importance to the study as it tests the applicability of Trade-off theory emphasizing on the financial distress/bankruptcy costs for Indian SMEs. Next variable is Asset Structure representing the tangible assets of the firm. Following Harris and Raviv, 1991; Rajan and Zingales, 1995; and Esperanca *et al.*, 2003, we measure it by using Tangible Asset Ratio (Net Fixed Assets to Total Assets). This variable checks for the applicability of Agency theory in terms of conflict of interest between owners and debt holders. The lenders provide finances for large investments only as collateralised debt.

The last explanatory variable is operating risk, measured by the standard deviation of Earnings before Interest and Taxes (EBIT) divided by Total Assets, following Booth *et al.*, (2001); and Pandey, (2001). This variable checks for the increase in risk or earnings volatility due to excessive debt borrowed by the firm ultimately resulting in bankruptcy costs.

We construct three models using total debt ratio (TDR), long-term debt ratio (LDR) and short-term debt ratio (SDR) as dependent variables. These three dependent variables are used as a proxy for leverage constituting the capital structure decision whereas the remaining five variables are used as independent variables. It has been observed that developed countries use long-term debt ratio as a proxy for capital structure whereas developing countries may use either long-term or short-term debt as the proxy (Pandey, 2001). Hall *et al.*, (2004) for non-soviet bloc and soviet bloc countries; Abor (2008) for Ghana; Ramlall (2009) for Mauritius; Bhaired and Lucey (2010) for Ireland; and Saarani and Shahadan (2013) for Malaysia have used both long-term debt and short-term debt ratios as proxies for capital structure.

#### 4. RESULTS

Table 2 provides the summary statistics of the dependent and explanatory variables used in the study. The total debt ratio ranges from one per cent to 82 per cent with an average of 57 per cent implying that the present sample of SMEs is financed largely through debt.

**Table 2**  
**Summary statistics**

<i>Variables</i>	<i>Observations</i>	<i>Minimum</i>	<i>Maximum</i>	<i>Mean</i>	<i>Std. Deviation</i>
TDR	384	0.01	0.82	0.57	1.01
LDR	384	0.00	0.53	0.45	0.65
SDR	384	0.00	0.43	0.32	0.49
Profitability	384	-0.45	1.75	0.38	1.47
Growth opportunities	384	-0.99	0.75	0.35	1.83
Size	384	-0.03	0.09	0.05	1.78
Asset Structure	384	0.15	0.93	0.34	4.48
Operating risk	384	0.38	3.74	1.27	2.85

*Source:* Own contribution

Table 3 provides the correlation matrix. It can be seen that the correlation among the independent variables is quite small and therefore, there is no problem of multicollinearity among variables.

The pooled and panel regression estimation results are shown in Table 4 using TDR, LDR and SDR as dependent variables respectively. We use Breusch-Pagan Lagrange's Multiplier test to check for individual heterogeneity. This test checks whether the pooled OLS model is appropriate or not. Our results show a statistically significant Lagrange's Multiplier statistic of 51.461, 71.366 and 44.866 in case of dependent variables viz; TDR, LDR and SDR respectively. This indicates that panel models are more suitable than the pooled OLS models. We also conduct the Hausman test to examine the correlation between  $\alpha_i$  and the set

**Table 3**  
**Correlation matrix**

	<i>TDR</i>	<i>LDR</i>	<i>SDR</i>	<i>Growth</i>	<i>Asset Structure</i>	<i>Profitability</i>	<i>Size</i>	<i>Operating risk</i>
TDR	1.000							
LDR	0.908	1.000						
SDR	0.835	0.528	1.000					
Growth opportunities	-0.031	-0.029	-0.024	1.000				
Asset Structure	-0.044	-0.039	-0.037	0.015	1.000			
Profitability	-0.057	-0.043	-0.060	0.633	-0.009	1.000		
Size	0.279	0.310	0.158	-0.165	-0.298	-0.317	1.000	
Operating risk	-0.019	0.033	-0.084	-0.026	-0.029	-0.018	0.262	1.000

*Source:* Eviews 6 Package, own contribution

of explanatory variables. This test examines as to whether the fixed effects model or the random effects model should be used. If there is no correlation between the unobserved variable and the explanatory variables, then the random effects model is appropriate. Our results show a significant statistic of 13.091 ( $p=0.0108$ ) and 8.312 ( $p=0.0808$ ) with dependent variables TDR and SDR respectively indicating that fixed effects model is more appropriate than the random effects model. Whereas, the Hausman test shows an insignificant statistic of 1.359 ( $p=0.8511$ ) with the dependent variable LDR, suggesting that random effects model is more appropriate than the fixed effects model. According to the Hausman test, the results have been analyzed using fixed effects model in case of TDR and SDR as dependent variables and random effects model in case of LDR as dependent variable.

#### 4.1. Profitability

We find a significant negative relationship between profitability and short-term debt ratio ( $p=0.0777$ ) indicating that greater the profitability of an SME, more will it rely on internal sources of funds. Thus, for Indian SMEs, pecking order theory holds true for short-term debt ratio only implying that profitable SMEs utilise their internal funds for working capital requirements. However, our results do not support the predictions of trade-off theory, meaning that profitable SMEs do not employ debt in order to take the benefit of interest tax shield and avoid the risk of bankruptcy. Thus, we find a negative relationship between profitability and short-term debt ratio of a firm (H1c). We also find an insignificant relationship between profitability and total debt ratio ( $p=0.6571$ ) and long-term debt ratio ( $p=0.7912$ ). Hence, we reject the hypothesis that profitability is related to total debt ratio (H1a) and negatively related to long-term debt ratio (H1b) of a firm. Cassar and Holmes (2003), Esperanca *et al.*, (2003) and Hall *et al.*, (2004) find a negative relationship of profitability with both long-term and short-term debt ratios. Kebewar (2013) finds a negative influence of debt on profitability of French SMEs while Forte *et al.*, (2013) find profitability to be negatively related to leverage for Brazilian SMEs. Similar evidence is also provided by Akdal (2010) for UK SMEs who finds profitability to be negatively related to leverage for total debt and long-term debt ratios and by Hashemi (2013) for Iranian SMEs. Our results however confirm the relevance of pecking order theory only for short term debt.

**Table 4**  
**Results of pooled and panel regression using TDR, LDR and SDR as dependent variables**

Independent variables	Dependent variable: TDR			Dependent variable: LDR			Dependent variable: SDR		
	Fixed effects	Random effects	Pooled OLS	Fixed effects	Random effects	Pooled OLS	Fixed effects	Random effects	Pooled OLS
Constant	3.782* (0.0002)	1.883*** (0.0604)	0.397 (0.6914)	1.745*** (0.0820)	2.426** (0.0157)	-3.0056* (0.0029)	4.852* (0.0000)	2.457** (0.0144)	1.312 (0.1900)
Growth opportunities	1.898 (0.585)	2.607* (0.0095)	0.649 (0.5163)	2.285** (0.0230)	2.950* (0.0034)	1.314 (0.1896)	0.1809 (0.8565)	0.082 (0.9340)	0.289 (0.7721)
Asset structure	-0.740 (0.4594)	-0.437 (0.6621)	3.876 * (0.0001)	-0.901 (0.3679)	-0.683 (0.4947)	3.475* (0.0006)	0.8704 (0.3847)	0.501 (0.6164)	3.124* (0.0019)
Profitability	0.444 (0.6571)	-0.364 (0.7156)	3.434 * (0.0007)	0.043 (0.9655)	0.265 (0.7912)	11.814* (0.0000)	-1.769*** (0.0777)	-1.088 (0.2772)	-0.141 (0.8876)
Size	2.941* (0.0035)	2.352** (0.0192)	8.276 * (0.0000)	5.865* (0.0000)	3.306* (0.0010)	5.681* (0.0000)	6.846* (0.0000)	-0.529 (0.5970)	0.347 (0.7285)
Operating risk	-1.837*** (0.0671)	-2.364** (0.0186)	-3.097 * (0.0021)	-2.206** (0.0281)	-2.362** (0.0187)	-2.427** (0.0157)	-2.952* (0.0034)	-0.731 (0.4650)	-0.696 (0.4868)
Number of observations	384	384	384	384	384	384	384	384	384
Adjusted R-squared	0.7959	0.4553	0.7943	0.7971	0.5903	0.8590	0.6807	0.6115	0.6956
F-Statistic (Both period and cross-section effect)	20.522 (0.0000)	-	-	20.220 (0.0000)	-	-	12.336 (0.0000)	-	-
Lagrange multiplier test	-	51.461 (0.0000)	-	-	71.366 (0.0000)	-	-	44.866 (0.0063)	-
Hausman test	13.091 (0.0108)	-	-	1.359 (0.8511)	-	-	8.312 (0.0808)	-	-

Source: Own Contribution. \*\*\*, \*\*, \* indicate significance at 1%, 5% and 10% respectively. Figures in parentheses indicate p-values. The above models are corrected for heteroscedasticity using White's method.

## 4.2. Growth opportunities

Our results show a significantly positive relationship between long-term debt and growth opportunities ( $p=0.0034$ ). These results are in contrast to the trade-off theory and suggest that Indian SMEs rely on long-term debt for making large investments without the fear of incurring bankruptcy costs. These firms with high growth opportunities are inclined towards employing more long-term debt that would help them in saving higher taxes and utilise the benefit of interest tax shield. Hence, our study does not support the predictions of trade-off theory. Our results are similar to Aryeetey (1998) and Michaelas *et al.*, (1999) but contrary to Mateev *et al.*, (2013), Mateev and Ivanov, (2011); and Gaud *et al.*, (2005). Thus, we do not find evidence that growth opportunities are negatively related to long-term debt of a firm (H2b). We also do not find any significant relationship between total debt ( $p=0.585$ ) and short-term debt ( $p=0.8565$ ) with growth opportunities for SMEs in India. This suggests that Indian SMEs do not prefer to borrow short-term funds to finance their small investment opportunities instead they may prefer to use internal funds for



making such investments, thus confirming the predictions of pecking order theory. We reject our hypotheses that growth opportunities are related to total debt ratio (H2a). We also did not find a positive relationship between growth opportunities with short-term debt ratio (H2c) of Indian SMEs.

### 4.3. Asset structure

In case of taking Total debt ratio (TDR), long-term debt ratio (LDR) and short-term debt ratio (SDR) as dependent variables, we find no significant relationship between asset structure and debt ratio ( $p=0.4594$ ,  $0.4947$  and  $0.3847$  respectively). This indicates that these SMEs find it difficult to collateralise their fixed assets in order to obtain debt (Sarkar, 2005). This may also be due to the fact that since the tangible fixed assets of an enterprise are an important indicator of its liquidation value therefore the Indian SMEs do not want to reveal such information to the public (Raghavan, 2005). Hence, they do not opt for debt financing by way of pledging their fixed assets. Thus, the present study finds no evidence for applicability of agency theory in terms of conflict of interest between owners of SMEs and debt holders. Our results are different to Michaelas *et al.*, (1999), Cassar and Holmes (2003), Esperanca *et al.*, (2003) and Hall *et al.*, (2004) for SMEs outside India. This may be because the structure of the Indian debt market is different from that of other countries. Indian debt market is characterised by a lack of strong institutional and regulatory framework. It has inadequate infrastructure; it is highly illiquid and lacks a variety in products with a limited investor and issuer base. There is also an absence of benchmark yield curve across maturities (Chaudhari *et al.*, 2014). Issuance of bonds is generally done privately and lacks retail participation. There is also a phenomenal concentration in government securities, comprising around 79 per cent of the total amount of outstanding bonds. Listed corporate debt forms only 2 per cent of GDP, significantly lower compared to other emerging economies like Malaysia, Korea and China. Moreover, public sector banks, government owned companies and financial institutions are the prominent issuers of bonds in the corporate bond market (Chaudhari *et al.*, 2014).

The existence of information asymmetry in the market restricts SMEs to borrow debt and invest in their business, thus leading to agency costs. This is one of the reasons that Indian SMEs rely more on funds collected from friends and family than bank finance and equity markets even though various reforms and schemes have been launched for funding these enterprises. Banks provide loans to these enterprises only against tangible assets. SMEs also have weak bargaining power with the creditors due to which they are unable to appraise the correct value of their tangibles (Sarkar, 2005; and Prasad, 2006). The existing literature for large manufacturing companies also suggests collateralization of debt for tangible assets as a common practice (Bradley *et al.*, 1984; Wedig *et al.*, 1988; Rajan and Zingales, 1995; and Nazzar, 2011). However, we do not find such evidence for Indian SMEs. Therefore, we reject our hypotheses that asset structure is related to total debt (H3a); asset structure is positively related to long-term debt (H3b) and asset structure is negatively related to short-term debt (H3c) of a firm.

### 4.4. Size

For all the three models, we find a significantly positive relationship between the size of an SME and its debt ratio ( $p=0.0035$  for TDR,  $p=0.0010$  for LDR and  $p=0.0000$  for SDR). This implies that firm size appears to be an important variable in explaining the capital structure of Indian SMEs. Bigger is the size of an SME, greater is its use of borrowed funds for both long term as well as short-term debt suggesting that

Indian SMEs not only borrow funds for their long-term needs but also for their short-term requirements. As a firm grows from a micro-to-small-to-medium-to-large enterprise, it shifts from internal sources of finance to external sources for its long-term debt (Aryeetey, 1998). Thus, our findings suggest that as Indian SMEs become bigger in size, they prefer to borrow more as their bargaining power with lenders increases and the probability of bankruptcy risk reduces. This also reduces the information asymmetry between the creditors and the firms. Thus, we find that there is a relationship between size and total debt ratio (H4a). We also find a positive relationship between size and long term debt (H4b) confirming the predictions of trade-off theory. It also seems logical since relatively bigger SMEs tend to be more diversified and hence would tend to have lower volatility in earnings and are less likely to face financial distress. Bigger firms also have an advantage over their smaller counterparts as they can obtain better credit ratings and borrow at cheaper rates of interest. However, we reject our hypothesis (H4c) that size is negatively related to short-term debt. Our findings are similar to Cassar and Holmes (2003); Esperanca *et al.*, (2003); Hall *et al.*, (2004); Mateev and Isanov (2011) and Mateev *et al.*, (2013) for long-term debt.

#### **4.5. Operating risk**

Financial risk is expected to be negatively related to operating risk since bankruptcy costs would be higher in small firms. Firms with volatile profits tend to be less geared either due to their less appetite for debt or maybe they do not have the capacity to take on debt (McConnell and Pettit, 1984; Pettit and Singer, 1985; Forte *et al.*, 2013). In contrast others have found a positive relationship between operating risk and capital structure (Jordan *et al.*, 1998; Michaelas *et al.*, 1999; Esperanca *et al.*, 2003). Jordan *et al.*, (1998) argue that the positive relationship between risk and leverage may be because of distress borrowing during a hostile economic environment. Whereas, Michaelas *et al.*, (1999) suggest that bankruptcy costs are not significant enough to ensure a negative relationship between risk and leverage. Esperanca *et al.*, (2003) argue that the positive relationship between risk and short term debt may be because of a positive association between the economic impact of even small changes in activities and the gearing of the firm.

We observe a significantly negative relationship between operating risk of a company and its financial leverage ( $p=0.0671$  for TDR,  $p=0.0187$  for LDR and  $p=0.0034$  for SDR). We find a relationship between operating risk and total debt ratio (H5a). Our results show a negative relationship between operating risk and long-term debt ratio of a firm (H5b). We also find a negative relationship between operating risk and short-term debt ratio too (H5c). This implies that greater the exposure of Indian SMEs to operating risks and high costs, more are they inclined towards reducing their financial risk or use of debt. In other words, Indian SMEs are exposed to greater earnings volatility making them risky firms. Thus, they borrow less in order to reduce their distress or bankruptcy costs. It could also imply that banks which are the major providers of finance to Indian SMEs are skeptical to lend to SMEs having high operating risks. This is reasonably expected, keeping in view the fact that Indian banks have low amounts of funds available with them for extending credit as a large percentage of their deposits is compulsorily retained in cash and also invested in government securities to meet the statutory reserve and liquidity requirements of the central bank. Our results are in line with the predictions of trade-off theory and are similar to Akdal (2010) for UK SMEs and Hashemi (2013) for Iranian SMEs. Thus, it would appear that bankruptcy costs are significant for Indian SMEs which makes them very sensitive to financial leverage.

## **5. CONCLUSION**

The objective of the present study was to examine whether predictions of traditional theories of capital structure such as pecking order theory, trade-off theory and agency theory hold true for Indian SMEs. We used five firm characteristics such as profitability, growth opportunities, size, asset structure and operating risk to determine their effect on capital structure of Indian SMEs using data for 64 SMEs during 2007 to 2012. We employed panel regression using total debt ratio, long-term debt ratio and short-term debt ratio as the dependent variables and profitability, growth opportunities, asset structure, size and operating risk as explanatory variables.

We found a significant negative relationship between profitability and short-term debt ratio indicating that an Indian SME relies more on internal funds than borrowed funds for their short-term needs. This provides evidence for the usefulness of pecking order theory in explaining the behavior of Indian SMEs. The results show a significantly positive relationship between long-term debt ratio and growth opportunities indicating no support for the trade-off theory. This suggests that Indian SMEs rely on long-term debt for large investments without the fear of incurring bankruptcy costs. We also find a significantly positive relationship between the size of a firm and its debt ratios indicating that SMEs not only borrow funds for their long-term needs but also for their short-term requirements. However, we do not find any evidence to support the trade-off theory. We observe a significantly negative relationship between operating risk of a company and financial leverage. This supports the applicability of trade-off theory whereby greater the operating risk or earnings volatility faced by a firm, more inclined it is in reducing its leverage. We also do not find any significant relationship between asset structure and capital structure decisions of an Indian SME suggesting that these SMEs find it difficult to collateralise their fixed assets in order to obtain debt. Thus, the study finds no evidence of applicability of agency theory.

Our results are useful for policymakers, regulators, researchers and academics. From the researcher's and academics perspective, the present study provides an objective opinion on how SMEs are financed and the usefulness of theories such as pecking order theory, trade-off theory and agency theory in understanding the capital structure behavior of these firms. We also show why it is important to differentiate between short-term and long term debt when making leverage decisions. The period of our study from 2007 to 2012 and thereafter has been a period of economic downturn not only for the Indian economy but also for the world economy (Bourletidis and Triantafyllopoulos, 2014). Therefore, this restricted SMEs from borrowing externally due to high interest rates and resorting mainly to use their internally-generated funds. Moreover, since most SMEs are hesitant in providing business information to banks and financial institutions, this may restrict them from borrowing from the organised sector, thus, creating information asymmetry. This is quite evident from our results relating to the asset structure of Indian SMEs. Therefore, this study should help the government and the policy-makers to understand the need to make regulations to address the information asymmetry that exists between SMEs and providers of finance so that SMEs may have better financial access from the organised sector. Since the SMEs are the growth engines of the Indian economy, therefore, regulators and policymakers should consider their unique financial requirements in order to build up economic growth momentum. The government should create an environment which is conducive for their healthy growth.

Our findings are also important from a strategic point of view to the management, allowing managers of SMEs to predict what their competitors will do and challenge their own existing business strategies. An

area of future corporate research could be to study the association between capital structure and corporate governance mechanism of Indian SMEs.

### NOTES

1. NSE Emerge and BSE SME Exchange are the two listing platforms for SMEs set up by The National Stock Exchange of India (NSE) and BSE (formerly known as The Bombay Stock Exchange) respectively. These two are also the two leading stock exchanges in India.
2. CRISIL, a Standard & Poor Company, is a global analytical company providing ratings, research, and risk and policy advisory services. It introduced the concept of SME credit ratings in India, designed exclusively for small enterprises, in 2005. Today it provides the widest coverage of SME Ratings in India. CRISIL SME Rating ranges from 1 to 8 indicating highest worth to default-making SMEs of India.
3. \$1 =Rs. 66.50 as on May 3, 2016.

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