Factors determining capital structure and corporate performance in India: Studying the business cycle effects

Arindam Bandyopadhyay*, Nandita Malini Barua
National Institute of Bank Management (NIBM), Finance Department, Kondhwa Khurd, Pune 411048, Maharashtra, India

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ABSTRACT
This paper empirically investigates the linkage of corporate sector performance with the capital structure and macroeconomic environment. Using a balanced panel data of 1594 Indian corporate firms over 14 years (1998 to 2011), we find empirical evidence to support the hypotheses relating to the relevance of asymmetric information, agency cost, trade off theory, signaling and liquidity aspects in determining firm’s capital structure decisions in emerging market economy. It is found that macroeconomic cycle significantly influences corporate financing decisions and hence performance. The endogeneity between capital structure and corporate performance has also been resolved through a two step dynamic panel generalized method of moments (GMM). The study suggests that the performance of any company hinges around its ability to operate on a capital structure. With the widening of scope of sourcing of capital, the right blend of instruments needs to be meticulously worked out to optimize cost of capital.

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1. Introduction

In the post liberalization period, the corporate sector, especially the manufacturing firms have played an important role as the driver of growth and development in the Indian economy, particularly in the industrialization effort. Indian manufacturing firms are also increasing their market access by participating in international competition in the new era of globalization and are thus exposed to global economic shocks like East Asian Crisis, Sub-prime Crisis, etc. Even if India was much less vulnerable to both these crisis due to better financial regulation, these crises have revealed that the corporate sector could play an important role in transmitting financial shocks and putting the financial sector at risk.

The financial sector reform in India has provided more options to corporate firms in choosing their capital structure. Corporate firms in India raise capital from both (a). Internal sources, especially retained profits and (b). External sources comprise of sources outside the firm viz. issue of equity capital, debt instruments, corporate bond markets, external commercial borrowings and foreign direct investment. Bank finance is still the most important source of finance for the corporate sector in a developing country like India. The economic reform aimed to strengthen market discipline and enhance corporate sector’s competitiveness. The ability of the firms to shift their respective growth-profit frontier will, however, depend on firm specific characteristics like group affiliation, corporate governance pattern, size of the firm, its capital structure (hence financing pattern) and business strategies. In the backdrop of the economic reforms in India, the interaction between capital structure, corporate performance and changes in macroeconomic conditions will be interesting to observe.

The capital structure choice of firms has been a good research topic for researchers in developed as well as in emerging markets. If the financial leverage is higher, it indicates that the firm has taken on a higher amount of financial risk. A review of literature shows that there are several firm specific factors that influence financial risk and debt-equity choice. The financing decision-mix of debt and equity-represents a fundamental issue faced by financial managers of a firm. Modigliani and Miller (1958) were the first to raise the question of the relevance of capital structure of a firm. Financial theorists have since provided several possible explanations for the financing decision. Major hypotheses include tax effects, signaling effects, bankruptcy effects, agency issues, and industry effects. The focus of most of the capital structure explanations is on the factors that lead to the determination of the financing mix for a firm, given a certain expected stream of

* Corresponding author. Tel.: +912026716451; fax: +912026834478.
E-mail addresses: arindam@nibmindia.org, arindb@rediffmail.com
(A. Bandyopadhyay).

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cash flows. The strategic debt theorem postulates that strategic considerations in the product market induce higher debt to gain strategic advantage and thus establishes linkage between debt and product market competition (Brander & Lewis, 1986; Maksimovic, 1988; Glazer, 1994; Showalter, 1999; Dasgupta & Titman, 1998).

Several factors determine the optimal mix of long-term and short-term debt. These include the firm's credit standing, its growth opportunities, the profitability of the project, the ability to fund the project from retained earnings or internal funds, the liquidation value of assets (tangibility), the firm size or age, managerial quality etc. Papers by Barclay and Smith (1995), Rajan and Zingales (1995), Wald (1999), Frank and Goyal (2009) in developed market and Booth, Aivazian, Demirgüç-Kunt, and Maksimovic (2001), Erol (2004), Bandopadhyay and Das (2005), Bhabra, Liu, and Tirtiroglu (2008), Singh (2010) and Stephan, Talavera, and Tsapin (2011) in emerging markets provide empirical evidence of these facts. Frank and Goyal (2009) have done a dynamic panel study on publicly traded American firms from 1950 to 2003 and found median industry leverage, market to book assets ratio, tangibility, profits, firm size and expected inflation as the most reliable factors that determine corporate capital structure decisions. Stephan et al. (2011) obtained strong evidence about the importance of agency cost, liquidity, signalling, financial constraints, and tax incentive in determining capital structure of firms even in emerging financial markets.

Macro-economic conditions also determine the capital structure choice of firms. Studies by Korajczyk and Levy (2003) and Levy and Hennessy (2007) have looked into the influence of macroeconomic conditions on capital structure of firms based on their degree of accessibility to debt. Levy and Hennessy (2007) made attempts to explain the heterogeneity in firm financing pattern over the business cycle. Using a general equilibrium theoretical modeling framework on popular agency problems (managers vs. shareholders) they tried to explain why firms behave differently due to varying degree of financing constraints to macroeconomic shocks. They have empirically observed that leverage ratio for firms with less rigid financing constraints are counter-cyclical. During economic expansion, risk sharing in the economy improves as the firm manager is able to substitute internal and external equity for debt. During contractions, these firms go for more debt (hence higher leverage ratio) in order to maintain the manager's equity share.

Macro-policy changes can influence firms' capital structure choice via the interest rate channel as well as implied by the works of Prasad and Ghosh (2005) and Mohan (2007). These studies suggest that monetary policy stance vis-à-vis business cycle can influence firms' financing choice. Thus, in studying the determinants of firms' borrowing behaviour, this study also attempts to provide insightful information on the role of macro-economic conditions in affecting firms' capital structure choice via the interest rate channel.

The main purpose of this study is to investigate the determinants of capital structure and corporate performance and their inter-linkage in the context of macroeconomic cycle in India and draw conclusion based on the exercise. Various econometric models have been developed to explain growth, profits, efficiency and capital structure decisions of firms. Using a balanced panel data of 1594 Indian manufacturing firms (standalone and group firms, both private Indian and foreign firms) over 14 years (1998–2011), we first investigate the major determinants of firms' capital structure choice and thereby extend the existing capital structure studies.

Using a set of fixed effect Tobit regression framework, we find firm size, age, firm quality, tangibility of its assets, growth option, interest expenses, liquidity and ownership structure matter in determining its choice of debt. Our empirical results provide sufficient evidence to support the hypotheses relating to the relevance of asymmetric information, agency cost theory, trade-off theory, signaling and liquidity risk in influencing debt maturity choice of firms. In studying the determinants of firm capital structure, we also examine the relationship between corporate financing structure and monetary policy in India. Our results reveal that macroeconomic cycle significantly influences corporate financing decisions and hence performance.

The extant literature on capital structure and corporate performance investigates the two in the absence of change in the macroeconomic environment and changing macroeconomic policies set by the regulator. Moreover, most of the empirical research in this area has been largely confined to developed economies. Research studies (Opler & Titman, 1994; Campello, 2003) on the inter-linkage between corporate performance, capital structure and macroeconomic cycle suggest that capital structure of firms becomes a crucial parameter in influencing the competitive performance of firms in the product market during downturns in the macroeconomic cycle. Opler and Titman (1994) found that during industry downturns, highly leveraged firms become most vulnerable as firms with higher levels of debt lose more sales and market share than their more conservatively financed competitors. Campello (2003) empirically examined the impact of debt financing on industry markups and sales growth and found that during recessions, higher debt financing has a negative impact on firm sales growth in industries where rival firms are comparatively less levered. His empirical tests also showed that when demand falls during recession, as a counter cycle measure, the financially constrained high levered firms increase their price markup to boost short term profit at the cost of future sales. In this study, we attempt to investigate the interaction between capital structure and corporate performance in India by incorporating the business cycle effects.

In examining the interaction between the corporate financing decisions and product market behaviour, we have also empirically studied the effect of different types of corporate borrowing pattern on firm performance. One major concern addressed in this work is the causality issue, i.e. is corporate performance affected by capital structure or does having good product market performance affect firms borrowing capacity. Because of such a possibility of endogeneity between corporate performance and capital structure, we apply Arellano and Bond (1991) dynamic panel data model two step GMM estimation method. We find that borrowings have significant influence on firm performance. In assessing corporate performance, we have examined determinants of firm performance in terms of profitability. We find strong empirical evidence that advertising intensity and capital structure of firms significantly influence its real market performance.

The purpose of this study is also to explore the linkage between firms' balance sheets and the macroeconomic performance in India. Study by Mohan (2007) reveals that economic cycle is a factor of corporate sales growth, profitability (PAT growth) and borrowings. Studies by Nickell, Perraudin, and Varotto (2000) and Bangia, Diebold, Kronimus, Schagen, and Schuermann (2002) have found that the prevailing macroeconomic conditions have an impact on the corporate risk behavior. Accordingly, a comparison between corporate behaviour of group vs. un-affiliated firms in terms of capital structure and product market performance has been assessed across macroeconomic cycle. Moreover, we have also examined the firm performance over different macroeconomic scenario to capture the business cycle effect in a set of multivariate regressions as well. It is observed that banks in India facilitate standalone firms in accessing finance even in downturn economic conditions. Group affiliated firms have higher profitability, retained earnings and lower interest expenses as compared to standalone firms in downturn. Large firms borrow less and are less dependent on bank finance even under down time due to scale advantage & better reputation in comparison to their smaller counterparts. On the contrary, smaller-sized firms go
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