



Corporate debt maturity choice in emerging financial markets[☆]

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ABSTRACT

This paper investigates the determinants of liability maturity choice in emerging markets using a unique panel of 4500 Ukrainian firms during the period 2000–2006. Our estimates confirm the importance of agency costs, liquidity, signaling, and taxes for the liability term structure of firms operating in a transition economy. Firm creditworthiness and access to long-term financing at bond markets are the key drivers of corporate debt structure. This study provides strong evidence that constrained and unconstrained companies react differently on liquidity risk and, hence, pursue different debt maturity strategies.

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1. Introduction

The optimal term structure of corporate debt has attracted considerable attention among financiers and economists. Along with leverage, liquidity, and dividend policies, managers also choose the debt maturity structure to maximize the value of their firm. Importantly, sound and developed financial systems substantially facilitate this “tuning” of capital structure, while emerging markets are imputed to have some restrictions that thwart firms to set up the optimal debt maturity. Specifically, due to lower profitability and limited access to markets companies in developing countries use considerably less long-term debt in comparison with their counterparts in developed countries (Caprio & Demirgüç-Kunt, 1998; Schmukler & Vesperoni, 2006). In this article we extend this literature by shedding light onto the key hypotheses of the debt

maturity choice in an undeveloped financial environment, a topic thus far neglected in the literature.

Generally, three non-mutually exclusive theories on the choice of liability maturity structure have been developed in financial literature: the contracting-cost hypothesis, the asymmetric information hypothesis, and tax hypothesis (Barclay & Smith, 1995).¹

The contracting-cost hypothesis argues that agency costs lead to an under-investment problem, if projects with positive net present value are not undertaken. As a partial solution of the conflict between equityholders and bondholders, companies decrease the maturity of their debt liabilities (Myers, 1977). Considering investment as real options, the firms employ shorter-maturity debt to have more growth options in their investment opportunities. Debt that matures before execution of investment options cannot lead to suboptimal investment decisions.

The asymmetric information setup leads to the signalling and liquidity hypotheses. The signalling explanation states that issuance of short-term debt is a positive signal of the firm's low credit risk (Kale & Noe, 1990). Flannery (1986) argues that

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¹ Some authors (e.g. Guedes & Opler, 1996) distinguish the asymmetric information hypothesis with respect to the liquidity-screening hypothesis and asymmetric information hypothesis. However, both are based on asymmetric information framework and we consider these two arguments together.

undervalued companies prefer high priority claims (e.g. secured short-term debt) to indicate their creditworthiness, while their low-quality counterparts favor long-term debt because they cannot afford to roll over short-term debt in case of positive transaction costs. As an improved credit rating leads to a lower risk premium, debt maturity is negatively related to firm quality. Supporting the liquidity argument, [Diamond \(1991b\)](#) finds that firms with the highest credit rankings prefer to issue short-term debt because of small refinancing risks. This conjecture again implies a negative relationship as better performing firms are more likely to avoid a “crisis at maturity”.

Finally, the tax hypothesis analyzes the tax implications of the debt maturity choice. For example, [Brick & Ravid \(1985\)](#) find that the firms employ more long-term debt when the term structure has a positive slope. Higher-priced long-term debt enables the firm to avoid more taxes: an effect that is the more attractive the higher the firm's profitability.

However, a number of the assumptions made in the literature regarding the determinants of debt maturity are not plausible or require modification for firms operating in transition markets ([Demirgüç-Kunt & Maksimovic, 1998](#)). For example, in underdeveloped financial markets, companies are forced to use relatively expensive external funds. The volatility of the macroeconomic environment and the absence of a credit history increase the likelihood of both loan denial and default premium. Additionally, a smaller variety of products is available on the market and the borrowers are not able to send proper signals about their qualities. Therefore, the insights from the developed countries have to be revisited and confirmed in an emerging markets framework.²

The propositions are tested using a unique panel of 4500 Ukrainian firms during years 2000–2006. This turbulent environment with changing macro-economic conditions and capital market restrictions during transition is particularly well-suited for studying the capital structure decisions of firms. In this changing environment one can observe financial behaviour of firms that is not observable in more developed economies with less financial constraints, and thereby provides us with a better understanding of the hypothesized causes of corporate debt maturity choice.

Our results show that debt maturity choices are significantly affected by firm quality and its access to long-term capital markets. Our study provides support for maturity matching, agency cost, liquidity, signaling and tax as being key to choosing debt maturity. Furthermore, financial constraints play an important role for explaining debt maturity choice. Firms with restricted access to external financing exhibit a higher sensitivity to earnings volatility and tax charges when choosing optimal liabilities structure, while their unconstrained peers are more susceptible to underinvestment and asset substitution issues and are also more prone to follow maturity matching.

The rest of the paper is organized as follows. Section 2 provides a review of the relevant literature. The peculiarities of debt maturity choice during the transition period in Ukraine are described in Section 3. Section 4 presents the data, while empirical results are discussed in Section 5. Section 6 concludes.

2. Literature review and hypotheses

Researchers have expended considerable effort in trying to understand the optimal capital structure.³ Notably, they advance beyond traditional debt-equity trade-off by investigating the liabilities structure itself.⁴ Considering the fact that debt maturity is one of the key characteristics of the right side of the balance sheet, it is only natural to do so.

The financial literature suggests three main explanations for using short- and/or long-term debt ([Barclay & Smith, 1995](#); [Emery, 2001](#)). One group of underlying theories is based on agency (contracting) costs. Early theoretical papers ([Bolton & Scharfstein, 1990](#); [Jensen, 1986](#)) emphasize the role of debt in reducing agency costs between shareholders and managers. In a seminal paper, [Myers \(1977\)](#) investigates possible debt externalities of firms' optimal investment policy. Importantly, he finds that short-term debt alleviates the “under-investment” problem when firms are reluctant to pursue relatively riskier projects because creditors get more benefits from these investments.⁵ The under-investment problem is argued to be more severe if a firm has more growth opportunities. Moreover, firms that grow very quickly may be severely constrained because their financing needs exceed their internal resources ([Demirgüç-Kunt & Maksimovic, 1998](#)). [Binks & Ennew \(1996\)](#) point out that the faster the company's growth, the more restricted is their access to credit. Additionally, firms have an incentive to switch low-risk to high-risk assets if they employ risky debt that is known as asset substitution issue.

Short-term debt is less sensitive to shifts in the risk and decreases the agency costs by imposing more frequent monitoring by investors. In line with these results, [Barnea, Haugen, & Senbet \(1980\)](#) argue that shortening the maturity structure of liabilities to match the structure of assets (maturity matching) can help to reduce the agency costs of under-investment and risk-shifting. This theoretical analysis has resulted in a number of empirical investigations. The majority of studies are consistent with the contracting costs explanation of liabilities maturity ([Guedes & Opler, 1996](#); [Heyman, Deloof, & Ooghe, 2008](#); [Ortiz-Molina & Penas, 2008](#)). [Demirgüç-Kunt & Maksimovic \(1999\)](#), for instance, show that firms employ short-term funds to finance current assets, which vary with sales.

Higher agency-related costs also are ascribed to smaller companies because their managers on average own a larger proportion of the equity. This aligns the interests of the managers with those of the shareholders but makes these managers to be less risk averse. An additional reason to reinforce agency conflicts is that the investment opportunity of small firms usually are large relative to collateralizable assets ([Whited, 1992](#)). In contrast, large companies are more transparent and thus creditors can obtain more accurate information on them at relatively low cost. Moreover, larger firms are considered to have a lower risk of bankruptcy and, thus, they face fewer constraints on obtaining external financing ([Chittenden, Hall, & Hutchison, 1996](#)). Large firms take advantage of scale economies and tend to employ more long-term debt because of lower fixed (and overall) costs and easier access, while their smaller counterparts are prone to rely on shorter maturity financing with lower transaction costs ([Titman & Wessels, 1988](#)). Our hypotheses regarding agency costs and our operationalization in

² In a previous working paper version of this article ([Stephan, Talavera, & Tsapin, 2008](#)), we model the behavior of a firm that chooses its optimal structure of liabilities. The theoretical model incorporates the tax, liquidity risk, and maturity matching hypotheses. The setup involves managers who make financial and investment decisions so as to maximize the value of the second period undertaking. In the first period, the company is engaged in designing a process for creating its products. To launch the enterprise, short- and long-term debt are used to finance the fixed and working capital, respectively.

³ See [Harris & Raviv \(1991\)](#) for a comprehensive literature review on determinants of capital structure.

⁴ Throughout the paper, we use terms *liabilities* and *debt* interchangeably.

⁵ [Myers \(1977\)](#) suggests three ways to cope with under-investment problem: decrease debt in a capital structure, include restrictive covenants in an agreement, or shorten the effective mature of debt.

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