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Analysis of the debt burden in Russian economy sectors ☆

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Abstract

This paper provides an analysis of the debt burden of Russian companies and raises the issue of debt-level heterogeneity across economic sectors. To identify the causes of this heterogeneity, it estimates a regression model that includes both fundamental explanatory variables of companies and industry fixed effects. The results of the analysis demonstrate that standard variables, such as profitability, company size, asset turnover, and fixed-asset turnover ratio have a strong statistical significance. However, these do not fully explain the variation in the debt levels of companies in different sectors. According to model estimation, there are other industry specific factors that produce an imbalance between fundamental factors and companies' debt levels. An understanding of the formation process and structure of debt burden in individual industries is extremely important for the financial stability of companies and for an effective monetary policy.

JEL classification: C23, D24, E44, G32.
Keywords: debt burden, capital structure, sector analysis, microdata of Russian companies, emerging markets.

1. Introduction

The development and implementation of an effective monetary policy calls for a profound understanding of lending processes and the debt burden at the company level. High debt increases risks to financial stability and can act as a constraint

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on the sustainable development of companies and economic sectors. A large debt burden objectively constrains lending on both supply and demand sides.

The debt burden is also important for the entire financial system. Credit accumulation creates additional risks to the resilience of the banking system and limits the effectiveness of monetary and fiscal policies (Schäuble, 2015). Thus, high levels of debt undermine the ability of the central bank to have an impact on the economy.

Additionally, the influence of the debt burden on firms' investment activity should be noted. A number of studies have proven the negative relationship between the level of debt and investment, that is, the so-called "debt overhang" (Sholomitskaya, 2016). The effect observed has a varying impact according to the phase of the economic cycle. In crisis and post-crisis periods, the correlation between these factors becomes stronger. This effect must be taken into account in monetary policy making, because the central bank has a direct influence on real debt through inflation and interest rates. Therefore, an analysis of the factors that influence the debt burden remains a critical issue for a study of the financial system.

Aggregate data on the debt liabilities of firms show that the median company's debt level varies strongly according to type of economic activity (Donets and Ponomarenko, 2015). It is important to understand if the heterogeneity observed is a reflection of reality, or if it shows that sectors vary widely with respect to debt accumulation because credit supply and demand shocks have a strong impact on economic activity. The debt overhang in some sectors or lack of debt in others can have a significant impact on economic growth.

This study presents the results of an analysis of fundamental and industry specific factors and their influence on company debt levels. Using a regression analysis method based on the data of Russian companies, we determined that fundamental factors are significant in explaining the variation of the debt burden; however, they do not account for all of the debt heterogeneity. The results showed the existence of certain industry fixed factors that determine different values of the debt burden in individual sectors.

The rest of the paper is organized as follows: in Section 2 we provide a literature review on theoretical approaches to the identification of factors determining capital structure and debt level. Section 3 outlines brief data descriptions and the research hypothesis. Section 4 presents the main results and their economic interpretation. The paper concludes with Section 5. The Appendix contains additional details of the model estimation.

2. Literature review

Debt burden is directly related to the concept of capital structure. The capital structure of a company is the ratio between its equity and borrowed funds. A large number of research papers have been dedicated to determining an optimal capital structure that maximizes the company's value, and in particular, to determining the optimal capital structure and factors affecting decisions regarding this structure.

The majority of theories are based on the Modigliani-Miller theorem on the independence of a company's value from its capital structure; that is, for companies, debt and equity finance are interchangeable. This theorem only works in perfect capital markets without transaction or agency costs. Under weakened