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Firm, country and macroeconomic determinants of capital structure: Evidence from transition economies

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ABSTRACT

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This study explores the significance of firm-specific, institutional, and macroeconomic factors in explaining variation in leverage using a sample of firms from nine Eastern European countries. Country-specific factors are the main determinants of variation in leverage for small unlisted companies, while firm-specific factors explain most of the variation in leverage for listed and large unlisted companies. Around half of the variation in leverage related to country factors is explained by known macroeconomic and institutional factors, while the remainder is explained by unmeasurable institutional differences. *Journal of Comparative Economics* **41** (1) (2013) 294–308. Management School, Queen's University Belfast, BT9 5EE, United Kingdom.
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1. Introduction

Firm capital structure is irrelevant in efficient financial markets as shown by Modigliani and Miller (1958).[1] Subsequent theoretical work has taken into account the imperfections of financial markets and has shown that firm capital structure emerges from firm-specific and macroeconomic factors.[2]

In their pioneering exploration of capital structure around the world Rajan and Zingales (1995) observe similar levels of leverage for firms from G-7 countries. They conclude that it is difficult to explain the leverage differences by country institutional differences and stress that "a better understanding of the influence of institutions can provide us enough intercountry variation so as to enable us to identify the fundamental determinants of capital structure". In this paper we pursue this agenda by first documenting that country of incorporation in itself accounts for much of the variation in leverage unexplained by firm-specific or macroeconomic factors. We use a large sample of firms from several Eastern European countries covering the time period encompassing the transition from socialist planning to a market-based capitalistic system. We then identify institutional variables which in turn account for some of this country effect. Finally, by examining capital structure early and late in the transition process we see to what extent institutional factors account for changes in capital structure.

The importance of the country of incorporation for firm leverage has been analysed in several earlier cross-country studies. Booth et al. (2001) show on a sample of firms from ten developing countries that country fixed effects explain a large

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[1] Rubinstein (2003) notes that Williams (1938) already expressed the same idea.

[2] For a recent empirical capital structure study and for references to the literature see Frank and Goyal (2009).

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share of leverage variation, but they do not decompose the country effects to show what country characteristics matter. On a sample of firms from developing Asian and South American countries, Schmukler and Vesperoni (2001) explore the relation between leverage and financial liberalization. Using data on Western European firms Giannetti (2003) shows that financial development and creditor protection are significant determinants of leverage. Jõeveer (2005), also using Western European firm data, shows that half of the country explanatory power is determined by measurable country macroeconomic and institutional factors while another half is explained by an unmeasurable institutional differences. De Jong et al. (2008) argue by using firms from both developing and developed countries that country factors matter to the firm capital structure and the effect can be either direct or indirect through the firm-specific determinants. Based on small and medium-sized enterprises (SME)[3] from four Western European countries Psillaki and Daskalakis (2009) acknowledge the different relations between capital structure determinants and leverage across countries but they conclude that firm factors rather than country factors explain the differences in capital structure choices among the firms. In addition Bancel and Mittoo (2004) surveyed the managers from 16 European countries firms and found support for the importance of institutional factors on capital structure choices.

In this paper we employ firm-level data from nine Eastern European countries over the period 1995–2002. With the collapse of the Soviet block in the late 1980's the firms in those countries had to readjust their working principles for being competitive in the open market. Also it brought along a wave of newborn enterprises. Those countries were going through severe economic reforms during 1990's producing a change in the institutional settings as well as a change in macroeconomic indicators. Berglof and Bolton (2002) record that the methods and speed with which the missing institutions were introduced differed across countries, providing additional time-variation in country factors. All these major changes were expected to have an impact on the capital structure of the firm and make firms from Eastern Europe particularly interesting to study for understanding the institutional underpinnings of firm capital structure.

The importance of studying the capital structure of firms in transition economies was first pointed out by Cornelli et al. (1998). In addition there are several cross-country studies based on Eastern European firms (Nivorozhkin, 2005; De Haas and Peeters, 2006; Decoure, 2007). The current study complements these existing studies in using a larger, more complete data set and by investigating in detail a variety of institutional characteristics that may account for country of incorporation effects.

We start with an analysis of variance which is helpful in documenting the importance of country effects as opposed to industry and time effects in understanding capital structure differences in transition countries. Next we incorporate firm-specific factors into the analysis and observe that country effects continue to be highly significant. We then ask whether there are observable proxies that account for these country-based institutional differences and find that some but not all of the country effect can be explained in this way. Finally, we study the evolution of capital structure during the transition process and ask whether institutional factors account for observed changes in leverage.

The paper is organized as follows: In the next section we provide an overview of the related research. In Section 3 we introduce the data and the estimation strategy. Section 4 contains the results, followed by a concluding section.

2. What do we know about capital structure in transition economies?

The two most influential theories of capital structure—trade-off theory (TOT) and pecking order theory (POT)—offer several predictions regarding to firm-specific and country-specific factors affecting firm leverage.

Trade-off theory argues that firms balance the tax benefits of debt with potential bankruptcy costs to achieve an optimal leverage level (see Miller (1977) for a discussion). Given this the TOT predicts that larger firms, firms with more tangible assets and with higher profitability could enjoy larger tax benefits of debt and hence should have higher leverage. In addition, local tax levels as well as bankruptcy codes matter in principle. Higher tax rates imply greater interest tax shields benefits and therefore induce higher leverage. The expected inflation is predicted to be positively related to leverage due to higher real value of tax deductions on debt. The interest rates, as a proxy for the cost of debt, should be negatively related to leverage. All this predictions should be applicable also in the case of Eastern European firms.

The pecking order theory of capital structure argues that, firms prefer internal funds to outside sources since the latter are mispriced due to the asymmetric information between owners and investors (see Myers, 1984). Based on this, the POT predicts that more profitable firms can rely on internal funds and hence have lower leverage. POT stresses the importance of the transparency of the firm activities. Given the newness of stock markets and general opacity of business connections in transition countries, problems of asymmetric information are expected to be especially large, meaning that firms are less likely to turn to outside sources of finance even if the investment opportunities exceed the internal funds. Many institutional changes during the transition process were designed to enhance transparency in Eastern Europe. The different economic policies employed by those countries might explain the large differences in the levels and changes in the capital structure of firms experienced across those countries (see Table 1 Panels A and B).

In additional to TOT and POT theoretical literature of capital structure has proposed the possibility that some capital structure decisions may be motivated by firms' attempts to "time the market", i.e., to issue debt or equity when times are particularly propitious (see Baker and Wurgler, 2002). Since firms are relatively young and small in Eastern Europe the use of external financing directly from the market is very limited and hence we would predict that business cycle should

[3] European Commission defines SME as a firm with less than 250 employees and 27 million Euro in total assets.

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