



## Can the presence of foreign investment affect the capital structure of domestic firms?



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### ABSTRACT

Using a simple theoretical model, this paper argues that an increase in foreign presence, which refers to the level of foreign investment in a given domestic firm, can affect the leverage of domestic firms. We apply the model to explore the link between foreign presence and leverage with firm level panel data from China. The empirical estimation, using instrumental variable Tobit regression, reveals that, in overall terms, the impact of foreign presence on the leverage of domestic firms in China's manufacturing sector is negative. We find that the negative impact on the leverage of privately owned firms is large relative to state-owned firms. Furthermore, we find that the impact of foreign presence on leverage varies from industry to industry, which is consistent with the presence of heterogeneity in the productivity spillover effect.

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## 1. Introduction

International business researchers, such as Dunning (1988), argue that foreign firms possess significant advantages over domestic firms and hence foreign direct investment (FDI) in a country can affect the output of domestic firms. FDI affects the output of domestic firms directly as well as indirectly through FDI-linked spillover effects. The entry of foreign firms increases competition in the domestic market which can affect the profitability of domestic firms. Increased competition can also restrict the growth opportunities of domestic firms.<sup>3</sup> Profitability and growth opportunities are important determinants of firm capital structure (Céspedes et al., 2010; Kayo and Kimura, 2011 and Margaritis and Psillaki, 2010).<sup>4</sup> Brander and Lewis (1986) made an important contribution to the related literature by demonstrating that the output and financial structure decisions of firms are interconnected. Recent studies, such as Campello (2006), have empirically evaluated the link between firm product market performance and financing decisions. Campello

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<sup>3</sup> A large number of studies including Görg and Greenaway (2004), Branstetter (2006), Buckley et al. (2007), Haskel et al. (2007), Liu (2008) and Meyer and Sinani (2009) support this view.

<sup>4</sup> Chung et al. (2013) argue that attractive growth opportunities can contribute to an increase in leverage.

argues that debt financing does not always hurt a firm's product market performance; moderate debt can contribute to an increase in market share.

Given that (i) the output and financial structure decisions of firms are interconnected and (ii) firm output is affected by FDI, it can be argued that foreign presence in a country, through the related spillovers, can also affect firm capital structure. For example, due to an increase in foreign presence (arising from an increase in FDI), domestic firms may shift to debt financing because raising equity is too difficult. In other words, based on the finance and international business/economics literature, there seems to be a clear link between foreign presence and the capital structure of domestic firms. However, none of the existing studies has formally explored this link.

This paper makes two distinct contributions to the existing literature. First, using a simple theoretical model, where foreign presence gives rise to productivity spillovers to domestic firms, we show that an increase in foreign presence increases both the optimal debt and investment of domestic firms. We argue that foreign presence can decrease the leverage of domestic firms if its impact on optimal debt is smaller than its impact on investment (which equals debt plus equity). Second, using firm level panel data from China's manufacturing sector over the period 2000–2007, the relationship between foreign presence and leverage of domestic firms is empirically evaluated. As noted by Chen (2004), compared to most western firms, Chinese firms make greater use of retained earnings for business finance. However, recent figures suggest a shift away from this in favor of equity finance.<sup>5</sup>

Chen (2004), Chen and Strange (2005), Huang and Song (2006), Qian et al. (2009), and Li et al. (2009), among others, have considered the determinants of capital structure in China.<sup>6</sup> However, none of these studies has considered the impact of foreign presence on the capital structure of domestic firms. The empirical analysis presented in this study is based on a comprehensive dataset that covers over 85% of the total industrial output of China. Such an extensive dataset allows one to appropriately measure foreign presence. One of the reasons why the earlier studies have not empirically examined the impact of foreign presence on firm capital structure may be that the dataset available was not sufficiently large. Earlier studies on China have suggested that the financing decisions of private and state-owned firms can be very different. Accordingly, we also separately examine the impact of foreign presence on the capital structure of (a) privately owned and (b) state and collectively owned firms. As financing decisions may vary across Chinese industry sectors, this paper also separately considers the case of the (i) textile industry, (ii) transportation equipment manufacturing industry, (iii) electrical machinery and equipment manufacturing industry and (iv) communication equipment, computer and other electronic equipment manufacturing industry. The choice of these industries is mainly dictated by data availability. The empirical results are based on Tobit and instrumental variable Tobit estimations. Our empirical analysis suggests that foreign presence decreases the leverage of domestic firms in China's manufacturing sector. We find that the negative impact on the leverage of privately owned firms is relatively large. Furthermore, the impact of foreign presence on the leverage of domestic firms varies from industry to industry.

The rest of the paper is organized as follows. A theoretical model that shows the link between foreign presence and capital structure of domestic firms is presented in Section 2. Based on the theoretical model, an empirical model is specified in Section 3. This section also includes a discussion of the data. The empirical results are presented in Section 4 and Section 5 contains some concluding remarks.

## 2. Firm leverage and foreign presence: A theoretical model

By making use of a simple theoretical model that combines elements of finance theory and international business, the aim of this section is to establish a link between foreign presence and firm capital structure.

Consider an industry where  $\gamma$  is the proportion of foreign firms. A representative domestic firm with wealth  $W$  raises debt ( $D$ ) to finance an investment  $I$  at time 0, which is used in production at time 1. As everything is measured in real values and the magnitude of investment depends on the size of debt, debt indirectly enters as an input into the production process.  $f(I) = Ae^{\gamma I}$  is the firm production function, where  $e^{\gamma}$  captures the impact of foreign presence on domestic firms. Foreign presence is a source of positive externality in this model.  $\gamma = 0$  means that there are no foreign firms in the industry and hence there is no productivity spillover effect, whereas  $\gamma = 1$  implies that all firms are foreign. As this paper focuses on the impact of foreign investment on the leverage of domestic firms and the dataset used in our empirical analysis contains a large number of foreign firms, we assume that  $0 < \gamma < 1$ .

Within the context of this paper, an increase in foreign presence represents an increase in FDI. As the proportion of foreign firms increases, the domestic firms experience a higher level of positive externality.<sup>7</sup> The positive externality arises from spillovers that result from, among other things, the introduction of new technology and superior management skills. Parameter  $A$  captures the impact of other factors that enter into (and affect) the production process, such as the level of domestic technology, etc.

<sup>5</sup> Keister (2004) suggests that economic transition in China forced a large number of Chinese firms to reduce their reliance on loans from state-owned banks. An (2012) argues that taxation can also affect firm capital structure. Private equity is emerging as an important source of funds for China's small and medium-sized companies (Perkowski, 2012). China's economic landscape is rapidly changing.

<sup>6</sup> Li et al. (2009) show that state ownership has a positive effect on leverage and firm access to long term debt, whereas the impact of foreign ownership on leverage is negative.

<sup>7</sup> FDI-related spillovers can also potentially be negative as shown by various studies, but in the case of Chinese manufacturing sector, the spillovers are positive (for example see Liu, 2008). The theoretical results presented in this paper are not affected by including the possibility of negative spillovers. Using the framework of Acemoglu et al. (2006) and Aghion et al. (2009), among others, we have also worked out the more general model, which is available to interested readers upon request.

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