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Financial structure, productivity, and risk of foreign direct investment

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ABSTRACT

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This study investigates how heterogeneous firms choose their lenders when they raise external finance for Foreign Direct Investment (FDI) and how the choice of financing structure affects FDI activities. We establish an asymmetric information model to analyze why certain firms use private bank loans while others use public bonds to finance foreign production. The hidden information is the productivity shock to FDI. Banks are willing to monitor the risk of FDI, while bondholders are not; hence, banks act as a costly middleman that enables firms to avoid excessive risk. We show that firms' productivity levels, the riskiness of FDI, and the relative costs of bank finance and bond finance are three key determinants of the firm's financing choice. Countries with higher productivity, higher bank costs, or investment in less risky destinations, use more bond finance than bank finance. These results are supported by evidence from OECD countries. *Journal of Comparative Economics* **xxx** (xx) (2013) xxx–xxx. University of Munich, Germany; China Europe International Business School, China; Capital University of Economics and Business, China.

1. Introduction

Risk is an important element in the theory of capital structure. In particular, firms have incentives to reduce the costs associated with various risks by adjusting their capital structure (Desai et al., 2008). At the same time, risk is a key driving force in the volatility of investment and returns, particularly in the case of FDI compared to domestic investment. When comparing the performance of FDI in countries with different financial systems, we find that outward FDI flows from countries with market-based financial systems, such as the US and the UK, are more volatile than those from countries with bank-based financial systems, like Germany and Japan (see Fig. 1).

In this paper, we investigate the question of how multinational firms, facing the risks of foreign direct investment, choose their sources of financing and whether the choice of financing influences their FDI behavior. Answering these questions will illuminate the possible link between a country's financial system and its FDI activities. In addition, it will have policy implications regarding how to structure the financial system to stabilize FDI and assist in firms' internationalization efforts. Such a

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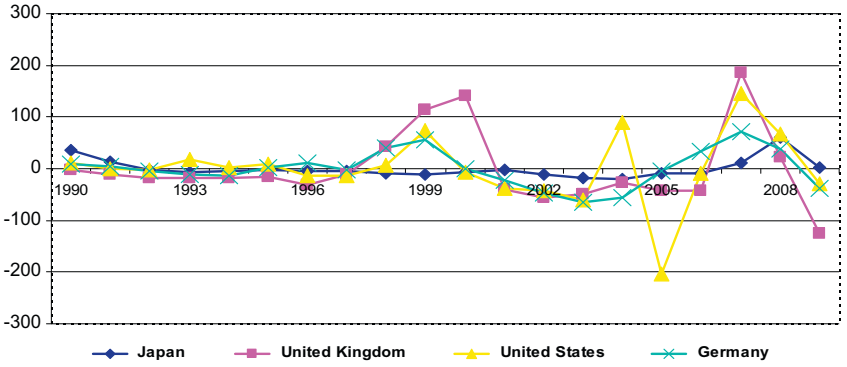

Fig. 1. Financial structure and volatility of outward FDI. *Note*: This graph shows the annual outward FDI flows (deviations from trend) of Japan, the United Kingdom, the United States and Germany over the 1990–2009 period. Standard deviations: Japan, 18.7; United Kingdom, 72.1; United States, 68.6; and Germany, 35.8. The data are in billions of US dollars at current prices and current exchange rates. Data source: UNCTAD.

topic is particularly relevant against the background of the financial crisis and especially keened on by the developing and transitional countries as the emerging FDI sourcing countries in the world economy.

We develop a partial equilibrium model, based on information asymmetry, to analyze firms' choices of lenders and the corresponding effects on their FDI activities. The hidden information is a productivity shock, which occurs when firms engage in FDI.[1] A firm enters the model with a given insufficient amount of internal funding and randomly draws its initial productivity level. Then, the firm makes two decisions: whether to invest abroad, and how to finance investment abroad, should it decide to invest.

There are two types of external financing: borrowing from banks and issuing corporate bonds to bondholders. The main difference between banks and bondholders concerns their incentives to monitor firms. Banks, which generally establish long-term relationships with firms, are willing to monitor firms' investment projects. Bondholders, in contrast, have no incentive to monitor firms' investment projects, as the investment risk is widely shared among multiple bondholders (Diamond, 1984; Holmström and Tirole, 1997). Thus, banks have an informational advantage over bondholders and accordingly charge lower marginal lending rates. However, in contrast to bond finance, bank finance has an additional monitoring cost.

FDI risk enters the model as a productivity shock. If a firm undertaking FDI decides to borrow from banks, it is asked to spend some resources to reduce uncertainty. For simplicity, we assume that the firm, by paying a fixed information acquisition fee with a portion of its internal funds, gains full knowledge of the coming FDI productivity shock, completely eliminating uncertainty. In particular, if the firm learns that a positive shock is imminent and that its FDI will be profitable, it borrows and invests abroad. On the other hand, if a negative shock is in store, and its FDI project will not be profitable, the firm will choose to abstain from FDI. In contrast, if a firm undertaking FDI chooses bond financing, it saves the information acquisition fee but exposes itself to the risk of an unforeseen productivity shock. If the productivity shock turns out to be favorable, the firm obtains positive profits after subtracting a fixed repayment to bondholders. However, if a negative shock occurs, such that the firm cannot repay its debt, it defaults and is fully liquidated by the bondholders.

The first result of our model concerns the relationship between firm productivity and choice of financing. Firms with low initial productivity use bank finance, whereas firms with high productivity choose bond finance. In particular, less productive firms are charged a reasonable marginal borrowing rate if they reveal information regarding their productivity shock to banks ex ante, albeit they must pay an information acquisition fee. In contrast, they will be charged a higher risk premium if they borrow from bondholders, due to their high probability of default. By comparison, more productive firms can withstand negative productivity shocks and therefore pay smaller risk premia to bondholders. Thus, they prefer to skip the costly middleman and issue bonds directly.

Our second result is that FDI risk, measured by the variance of productivity shocks, also impacts firms' financing choices. Firms investing in relatively risky environments are more likely to use bank finance, whereas firms investing in low-risk locations prefer bond finance.

Our third result is that the relative cost of bank finance and bond finance matters for firms' financing decisions. Intuitively, all other things equal, firms are inclined to use relatively less expensive finance. Firms from countries with relatively low bond financing costs as a result of greater availability of public information and less efficient banks, as in the US (Fiore and Uhlig, 2005), tend to rely more on bond finance.

This study is related to two strands in the literature: the FDI literature and the capital structure literature.

First, in the FDI research domain, this study contributes to the rather small literature on the effects of financial development on FDI. What distinguishes our approach is that we investigate the structural effects, in addition to the scale effects, of financial development. Apart from reproducing the result that reductions in financing costs facilitate FDI (e.g., Manova, 2007,

[1] In addition to a firm's intrinsic productivity, many other factors on the host country side affect the realized productive efficiency of an FDI project. For example, the political and institutional environment of the host country, the local culture and the nature of the local labor union all affect the firm's productivity. Without loss of generality, we refer to these factors as host country risk and model them as productivity shocks.

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