



Exchange rates and FDI strategies of multinational enterprises

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ABSTRACT

We examine the role of both the volatility and levels of exchange rates in the determination of multinational enterprises' (MNEs) investments using a unique Korean dataset. These data provide a natural laboratory due to the Korean experience of a severe financial crisis in the late nineties. We find, first, that the behavior of foreign investors in Korea has changed following the 1997 crisis. The change in foreign direct investment (FDI) in response to exchange rate volatility is robust, while that to exchange rate level is quite mixed, which is consistent with recently developed real option-based FDI theory. Second, the effect of exchange rate volatility on FDI is persistent, whereas that of misalignment of level is only temporary, suggesting that MNEs regard volatility as a more generic determinant of foreign investment than misalignment of the exchange rate level. Third, we find strong evidence of nonlinearity between uncertainty and FDI, which may shed some light on why existing literature shows mixed results on the relation between exchange rate variables and FDI.

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1. Introduction

Prior studies have found that investments by multinational enterprises (MNEs) across international borders are affected by movements and volatility in exchange rates. However, the respective role of exchange rate levels and volatility in the determinations of foreign direct investment (FDI) has been debated in the literature. In this paper, we re-examine the role of exchange rate levels and volatility in the determination of FDI, using the data on FDI in South Korea (hereafter, Korea).

Korea experienced a severe financial crisis around 1997 as part of the Asian financial crisis which resulted in a substantial devaluation of its currency against major foreign currencies and a significant increase in its exchange rate volatility. Following recommendations of the IMF, Korea has switched to a floating exchange rate regime and eliminated most of foreign investment restrictions. After the crisis, the

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importance of FDI has increased remarkably. FDI inflows have increased from 997.7 million U.S. dollars (439.4 cases) per annum before the crisis (1981–1996) to 10.9 billion U.S. dollars (2,687 cases) per annum after the crisis (1997–2006). Namely, the share of FDI inflows in the GDP valued at 1998 prices increased from 0.3 percent before the crisis to 3.4 percent following the crisis. Given all these developments, the Korean experience provides a natural laboratory for the reexamination of the respective role of exchange rate volatility and levels in changes in FDI by comparing the relations before and after the financial crisis.

The existing studies on exchange rates and FDI mainly focus on investments by Japanese and U.S. MNEs in the U.S. and EU, using either level or volatility of exchange rates. However, theories and empirical studies on FDI have generated mixed support for a link between exchange rate movements and FDI (Blonigen 1997). Three seminal papers by Froot and Stein (1991), Kogut and Chang (1996) and Blonigen (1997) analyze Japanese FDI in the U.S. during the 1980s. Both Froot and Stein (1991) and Blonigen (1997) analyze the role of real exchange rates, the former using aggregate data, while the latter uses sectoral data. Kogut and Chang (1996) analyze Japanese electronic firms' investments in the U.S.

The estimation results by Caves (1989), Swenson (1994) and Klein et al. (1994) support the proposition that FDI inflows are facilitated by depreciation of the currency of the host economy, whereas studies by Ray (1989) and Healy and Palepu (1993) fail to support this proposal. Cushman (1985, 1988), Goldberg and Kolstad (1995) and Zhang (2004) support the theory that exchange rate volatility stimulates U.S. FDI abroad. By contrast, Galgou and Sekkat (2004) find that the volatility in EU exchange rates has a deterrent effect on FDI.

Existing studies on FDI in Korea focus on traditional determinants such as trade (Min, 2006; Lee, 1994) and wage-related labor strikes (Tcha, 1998). Aguiar and Gopinath (2005) and Pulvino (1998) analyze FDI inflows in selected Asian countries following the crisis but focus primarily on the effect of liquidity-induced sales on the number of acquisitions, without considering the exchange rate variables.

In contrast to prior studies, we focus on the effect of both exchange rate movements and volatility on FDI inflows from developed economies to a small open economy, paying special attention to the impact of the 1997 financial crisis and using extensive panel data analyses. Given mixed evidence in prior studies, we make efforts to find robust empirical evidence on the relation between FDI and exchange rate variables.

While the effect of exchange rate volatility on multinational enterprise's (MNEs) investment decision has been explored, this paper differs from existing studies in the following three perspectives. First, the exchange rate volatility we investigate in this paper is caused neither directly by policy shocks nor by de facto trade barriers.¹ Most existing studies assume exchange rates are endogenous as a function of relative money supply between source and host countries (Aizenman, 1992; Devereux and Engel, 2001; Goldberg and Kolstad, 1995; Russ, 2007). This assumption allows researchers to take into account secondary effects including demand shocks caused by the change in money supply. In contrast, the shocks in this paper are largely from international investors' confidence around the regional financial crisis in Asia. Kawai (2000), among others, attributes the cause of the Asian financial crisis to rapid in- and out-flows of capital in the region.² Consequently, our paper focuses on the first-order impacts rather than the secondary effect (i.e., consumer demand) and thus is relatively free from estimation bias associated with an endogenous variable.

Second, existing studies on the association between exchange rate and FDI are largely about the case of the U.S. Our paper examines the issue for a small open economy. Literature about FDI in emerging economies tends to focus on vertical integration based on the traditional ownership-location-internalization framework or the impact of FDI on the host economies (e.g., Braconier et al., 2005; Enright, 2009; Aybar and Aysun, 2009).

Third, we investigate the effect of exchange rate volatility on MNEs' investment decision comparing between two sub-samples: before (or under fixed exchange rate system) and after the financial crisis (or under floating system). Given strong evidence of structural change around 1997, we employ two empirical models to address the structural change: a two-group model and a crisis dummy variable model. We use

¹ Refer to Mundell (1957), Goldberg and Kolstad (1995), and Cushman (1985) for the exchange rate volatility associated with de facto trade barriers.

² The V-shaped recovery of the economy's GDP growth also supports the argument that the 1997 crisis was largely exogenous to Korea.

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