International reserves management and capital mobility in a volatile world: Policy considerations and a case study of Korea

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This paper characterizes the precautionary demand for international reserves driven by the attempt to reduce the incidence of costly output decline induced by sudden reversal of short-term capital flows. It validates the main predictions of the precautionary approach by investigating changes in the patterns of international reserves in Korea in the aftermath of the 1997–1998 crisis. This crisis provides an interesting case study, especially because of the rapid rise in Korea’s financial integration in the aftermath of the East Asian crisis, where foreigners’ shareholding has increased to 40% of total Korean market capitalization. We show that the crisis led to structural change in the hoarding of international reserves, and that the Korean monetary authority gives much greater attention to a broader notion of ‘hot money,’ inclusive of short-term debt and foreigners’ shareholding. J. Japanese Int. Economies 21 (1) (2007) 1–15. UCSC and the NBER Economics, 1156 High Street, Santa Cruz, CA 95064, USA; Economics Department, Chungbuk National University, Republic of Korea; Economics Department, Sookmyung Women’s University, Republic of Korea.
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1. Introduction

The 1997–1998 East Asian crisis has led to a rethinking of policy design in developing countries. Several countries in East Asia have reacted by more active management of international reserves and external debt positions, and a large build up of international liquidity. These changes were triggered by the recognition that even the “Asian Tigers” were not immune to sudden stops of short-term capital flows. Countries averse to the costs of sudden stops of capital flows would tend to manage precautionary savings, in the form of international reserves. These reserves may provide a line of defense against sudden stops of capital flows. Another intriguing adjustment of several countries (including Korea) has been growing financial openness coupled with greater flexibility of the exchange rate. Figure 1 provides a vivid illustration of the remarkable opening of the Korean equity market in the aftermath of the 1997 crisis, increasing foreigners’ equity position as a percentage of Korean GDP from close to 2% prior to the crisis to about 23% within six years! The greater flexibility of the exchange rate may provide a line of defense against sudden stops of capital flows. However, the large share of foreign ownership of Korean stocks implies now that a sudden capital flow reversal exposes Korea to the risk of sharp real exchange depreciation coupled with the collapse of the Korean stock market. In these circumstances, precautionary management of international reserves may mitigate these risks. Such observations are consistent with Figs. 1–2: in the aftermath of the crisis, the international reserves/GDP ratio increased sizably, reaching the ratio of the total external debt/GDP. Indeed, the increase in the international reserves/GDP ratio is positively correlated with the foreigners’ equity position in Korea as a share of Korean GDP.

In this paper we provide theoretical and empirical interpretations for the build up and active management of international reserves. In Section 2 we outline models that may explain the patterns observed in Figs. 1–2. Specifically, we discuss cases where sudden stops may trigger large output costs, due to higher cost of credit or banking crises. In these circumstances, international reserves may reduce the probability of a full-blown liquidity crisis, thereby increasing welfare. Exposure to sovereign risk and downside output risk associated with a costly debt crisis provides the rationale for precautionary savings and management of international reserves. The hoarding of reserves associated with mitigating the expected output costs connected with sudden stops tends to depend positively on the expected output cost associated with the liquidity squeeze. The demand for reserves also increases with the effectiveness of international reserves in mitigating the probability of the crisis, and decreases with the opportunity costs of reserves.

In Section 3 we present an overview of key developments associated with the patterns of international reserves in Korea in recent years, and evaluate empirically the management of international reserves by the Korean Central Bank. The evaluation is consistent with a structural break in the patterns of hoarding and managing international reserves. The timing of the break is the 1997–1998 Korean sudden stop crisis, which was associated with a sharp drop in output, and major policy adjustments in Korea. The aftermath of the crisis has also been associated with rapid financial opening of Korea. As the Lucas Critique would suggest, we should expect that these

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