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for money that was met by partial sterilization of the induced capital inflow and an increase in the domestic interest rate?

From the point of view of the East Asian economies faced with the potential of a speculative boom, is it desirable to let the domestic interest rate fall farther to the world level? Is capital control an appropriate response? The authors did not set out to answer these questions, but the theory of distortions may be able to shed some light on them.

The authors point out that a central bank "typically exchanges high-yielding domestic assets for low-yielding foreign assets" in the open-market operations. Given the financial costs involved, central banks often turn to other policy tools to control the growth of monetary aggregates, the most common of which was raising the commercial banks' reserve requirements. While both of these measures make domestic bank lending more costly, they do not make direct foreign borrowing more expensive, thus causing a diversion to foreign borrowing and additional capital inflow.

If excessive capital inflow is considered undesirable, then the optimal policy suggested by the theory of distortions is one that acts directly on the inflow (such as a capital inflow tax as levied by some Latin American countries). Measures such as open market operations and reserve requirements are necessarily suboptimal because they deal with the symptoms rather than tackling the root problem directly. In this sense, perhaps one can even say that the capital inflow problem empirically ascertained in this paper was the result of inappropriate policy responses.

Comment Mahani Zainal-Abidin

This paper provided a succinct and perceptive summary of the pattern of capital inflow into East Asia during the 1986–97 period and of the policy responses undertaken to minimize its adverse effects, such as an excessive rise in aggregate demand, a rapid monetary expansion, and rising inflationary pressures. The measures employed to manage large capital inflows include capital controls, trade liberalization, greater monetary flexibility, fiscal contraction, and monetary instruments. The frequently used monetary measures comprise open market sales of domestic securities (a conventional form of sterilized intervention), increase in reserve requirements, shifting of government deposits from commercial banks to central banks, increase in discount rates, moral suasion, and credit controls.

The paper set out the hypothesis that effective sterilization not only limits the growth of monetary aggregates but also raises the level of domestic

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interest rates. The resulting higher interest rate from sterilization measures will in fact encourage more capital inflow, and in the end it will become unsustainable, due to its high cost and the expansionary effects of an even larger inflow. Therefore, the measures to stem the huge short-term capital inflow into East Asian countries will, paradoxically, further aggravate the problem. In other words, could this large inflow, which was one of the causes of the 1997–98 East Asian economic and financial crisis, have been policy induced through higher interest rates as a result of the sterilization efforts?

The paper's regression estimates showed that sterilization was effective in limiting the growth of monetary aggregates, but it did not produce a higher level of interest rate. The regression also estimated the effects on monetary aggregates when sterilization was intense and showed that although the sterilization result was stronger during the period of unusually large inflow, the general restraining effects from sterilization were present throughout the entire period of capital inflow. In contrast, the relationship between sterilization and interest rate was found to be insignificant, and this was attributed to the lack of a systematic relationship between the two variables. For better results, the paper suggested that a more appropriate relationship should be between the level of foreign assets and interest rate differentials. The paper also acknowledged that if the adjustment process is completed quickly (which is unlikely because it has to be worked through the banking system), the quarterly data used would not pick up this sterilization effect.

In analyzing the effectiveness of sterilization measures in controlling monetary aggregate and its influence on the movement of interest rate, it is vital to consider other policy objectives that may have prevented interest rates from rising further in line with the larger capital inflow, as well as other measures that were employed to manage capital inflow.

That sterilization measures have not increased the level of interest rate more can be partly explained by the stated policy of many East Asian governments; they target interest rate stability and thus have taken steps to cap large interest rate increases. There are three reasons why East Asian countries resisted high interest rates. Firstly, the East Asian economic growth was predicated on high investment and high leverage, which was made possible only with the availability of relatively cheap credit. In particular, the push for privatized infrastructure projects has significantly increased the level of domestic debt, especially when financing from external sources is restricted: for example, during the period of high investment in Malaysia, domestic private sector loans reached a high of 148.8 percent of the gross domestic product. It is vital that the cost of funding remains low for these projects to be viable. Therefore, it is unlikely that the banking system would fully realize the consequence of sterilization (i.e., raising the level of interest rate) in view of its role as a key supporter of the high-investment, high-leverage growth strategy.

Secondly, many East Asian countries aim for a regime of low inflation as part of their growth strategy, particularly in maintaining export competitiveness. Moreover, it is feared that rising interest rates will heighten consumers' expectation of the future rate of inflation. In the Malaysian case, during the period covered by the paper (1987–1997), the volatility of interest rate was much lower than that of the exchange rate (Malaysia Central Bank 1997). Even in the wake of the East Asian crisis, volatility of the Malaysian interest rate was not unusually high relative to the rest of the 1990s. The Malaysian case of interest rate stability (during the precrisis period) reflects the East Asian policy of ensuring interest rate stability to avoid destabilizing the domestic economy. This interest rate "targeting" may explain the paper's conclusion that although sterilization was effective, it did not increase the level of interest rate; rather, the sterilization measures kept domestic interest rate from falling below the world level.

The importance of the nonbanking route of capital flow can be underestimated in explaining the link between sterilization and the level of interest rate. As is explained in the paper, one possible interpretation of the weak evidence on the lack of causality between sterilization and the level of interest rate is that sterilization is only effective in limiting the growth of monetary aggregates supervised by the banking system. Although the paper focuses on the effect of sterilization on monetary aggregates and interest rate through the banking system, it is useful to consider the impact of capital inflow channeled through the nonbanking sector. A significant part of capital inflow goes into the nonbanking sector—namely, the equity market—with the objective of capturing high returns. These flows are not monitored by the banking system. However, the flow can influence total demand and may affect the price level through increases in asset prices. The effectiveness of the sterilization instruments, including those in the banking sector, will depend on the nonbanking sector's ability to play a substitution role for intermediation. The greater the degree to which these nonbank instruments influence the level of aggregate demand is, the lesser is the ability of the recipient country's government to mitigate the impact of capital flows through the banking system. Hence, even though the total capital inflow is large, the portion that is channeled through the banking system is smaller than that of the nonbank system.

The weak relationship between sterilization measures and movement of interest rate could also be attributed to the shift in the choice of policy instruments. Due to the high costs of sterilization, such as open market operation and increase in statutory requirements, countries have also resorted to other measures, such as indirect capital controls, fiscal adjustment, and trade liberalization. Table 6C.1 summaries the various measures adopted by developing countries and indicates that many Southeast Asian countries had switched their fiscal policy stance from budget deficit to budget surplus in order to counteract the inflationary impact of increased monetary supply from the purchase of foreign assets. As was mentioned

Table 6C.1 Major Economic Measures Employed

	Moves Toward a More Flexible Exchange Rate	Fiscal Restraint	Sterilization by Open Market Operations	Sterilization by Other Means	Restriction on Capital Inflows	Liberalization of the Current Account	Selective Liberalization of the Capital Account	Strengthening the Domestic Financial System
Argentina		x				x		x
Chile	x		x		x	x	x	
Colombia	x		x	x	x	x	x	x
Indonesia	x	x	x	x	x	x		x
Korea	x	x	x			x	x	
Malaysia	x	x	x	x	x	x		
Mexico	x	x	x		x	x		
The Philippines		x	x	x	x	x	x	
Thailand	x	x	x	x	x	x	x	

Source: Corbo and Hernández 1996.

earlier, the twin targets of low inflation and reasonable cost of funds have made it necessary for governments to employ fiscal measures to mitigate the pressures on interest rates. In Thailand, for example, capital outflow was encouraged instead of reduction in money supply, through the early servicing of external debt and the easing of restrictions on capital outflow. Other examples include Malaysia's limitations on domestic banks' foreign liabilities as well as restrictions on residents from selling securities to non-residents for a few months in 1994. The paper has taken into account this intense period of management of capital inflow, but it also shows that the sterilization effects are still evidenced even when the intensive sterilization was lifted.

In conclusion, although it is likely that the capital inflow problem is policy induced, other macroeconomic factors also contributed to the large inflow experienced by the East Asian economies. The findings of this paper clearly show that by preventing interest rates from falling, sterilization measures might attract more inflow. Nevertheless, there were other policy instruments that could equally contribute to this problem. The de facto peg exchange rate regime practiced by many East Asian countries—which provided exchange rate stability—may also encourage capital inflow, because in such a system the risk associated with exchange rate volatility was minimized. Stable nominal exchange rates, coupled with high returns, particularly from equity and property markets, have proven to be an attractive combination. Corbo and Hernández (1996) found that the experiences of Chile and Colombia in the 1990s clearly showed that when restrictive monetary policy accompanied an exchange rate target, then sterilized intervention tended to exacerbate, rather than ameliorate, capital flows.

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