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A simple model of monetary policy and currency crises

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Abstract

This paper analyzes the optimal interest rate policy in currency crises. Firms are credit constrained and have debt in domestic and foreign currency, a situation that may easily lead to a currency crisis. An interest rate increase has an ambiguous effect on firms since it makes more difficult to borrow and may decrease the foreign currency debt burden. In some cases it is actually best to *decrease* the interest rate. We also show how these issues are related to the development of the financial system.

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1. Introduction

The recent currency crises have underlined the trade-offs that central banks face when designing appropriate monetary policies for dealing with such crises.

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In particular, central banks in some Asian and Latin American countries have run into strong criticisms for having raised nominal interest rates to an excessive extent. More generally, emerging market economies have differed with regard to both the tightness of their monetary policies in response to the financial crisis[1] and the results in terms of subsequent aggregate output recovery from such policies.

The main debate regarding the optimal conduct of monetary policy in the aftermath of a financial crisis could be broadly summarized as follows: while higher domestic nominal interest rates should generally lead to a stronger exchange rate and therefore improve the finances of domestic firms which have debts denominated in foreign currencies, higher domestic interest rates will also tend to increase the current debt burden of domestic firms, thereby reducing their ability to make further investments (or simply avoid bankruptcy) whenever firms are credit constrained; this, in turn, may feed back negatively on the exchange rate.

Our main purpose in this note is to develop a simple analytical framework to formally assess the relevance and relative importance of these counteracting effects, and thereby to contribute to the ongoing debate on the design of monetary policies in an emerging market economy. The unified model we propose in this paper shows that it might not be desirable to implement a tight monetary policy after a currency crisis either when the proportion of foreign currency debt is not too large or when the economy displays financial fragility in the sense that credit provision and thereby domestic investment and production are highly sensitive to changes in nominal interest rates. We interpret these two features as reflecting the level of financial development of the economy.

2. The model

2.1. General framework

We develop a two-period small open economy monetary model.[2] Goods prices are determined at the beginning of each period and we consider the impact of an unanticipated shock (for example on current sales or productivity) in period one. Hence, during period one, some variables, such as the nominal exchange rate and the nominal interest rate, will adjust while prices are preset

[1] In particular, Korea and Thailand have raised their interest rates more drastically than Malaysia, but perhaps at the cost of triggering deeper recessions.

[2] Strictly speaking, the model has infinite horizon, but we focus here on the first two periods only, with the implicit assumption that the government will adjust its monetary policy from period three onward to maintain a given interest rate.