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Invoicing currency and the optimal basket peg for East Asia: Analysis using a new open economy macroeconomic model ☆

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An important characteristic of trade in Asia is that the US dollar is the dominant invoicing currency. This fact might have a consequence on the region's choice of the currency regime. To investigate this possibility, I develop a three country "new open economy macroeconomics" model that consists of East Asia, Japan, and the US. Assuming that East Asia pegs its currency to a basket of the other two's currencies, the optimal basket weights are derived numerically. It is shown that the weights under a realistic invoicing pattern are drastically different from those in the textbook case of "producer currency pricing." *J. Japanese Int. Economies* **20** (4) (2006) 569–589. Hitotsubashi University, Japan.

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1. Introduction

In recent years, some economists have proposed that East Asian countries should adopt basket peg regimes with more weights attached to currencies other than US dollars (see Williamson, 1996, for example). Behind this argument is the empirical finding that those countries have been adopting de facto dollar pegs (see Fukuda and Cong, 2001, for example) and, at the same time, they are trading heavily with countries other than the US, such as Japan. For example, according to Fukuda and Cong (2001), in 1999, the US share in Thailand's trade was 32.12 percent, while that of Japan was 34.54 percent. Based on this kind of facts, it is argued that, through stabilizing their currencies to a basket of currencies weighted by trade shares, East Asian countries could hope to stabilize their trade balances against changes in macroeconomic policies of their trade partners. Ito et al. (1998) provide extensive theoretical and empirical studies on this matter.[1] Trade shares, however, may not be the only important factor that determines the optimal weights, even if the sole objective of adopting basket pegs is to stabilize trade balance. It is worth noting that, although Japan takes up a sizable share in East Asia's trade volumes, when it comes to the currencies used for transaction, the US dollar still dominates the Japanese yen, even in trade between East Asia and Japan. It seems likely that this fact would change the way we calculate the true optimal basket weights between the US dollar and the Japanese yen for East Asia. Thus, we need a framework that enables us to compute the optimal basket weights, taking into account explicitly the fact that the US dollar is the dominant currency used for invoicing in international trade.

In this paper, optimality of an exchange rate regime is defined mainly in terms of trade balance stabilization. But the paper also takes into consideration the possibility that trade balance stabilization may not be the only concern for the central banks.[2] Some of them may be more concerned with dampening short run fluctuations in GDP. Others may genuinely be concerned with welfare of the people. This paper will also study how East Asia's GDP and welfare respond to foreign shocks under different exchange rate regimes and discuss a better choice of exchange rate regime from those viewpoints.

This paper achieves this objective by building a new open economy macroeconomic model[3] in which invoicing currencies play important roles. The model consists of three countries, East Asia, Japan and the US. Each of the three countries produces three types of goods: one type of nontradable goods and two types of tradable goods.

One type of the tradable goods is characterized by a high elasticity of substitution between different brands within the same type (and thus a more fierce price competition), and the other is characterized by a low elasticity. Compared to the three-country model of Corsetti et al. (2000), in which the three countries are assumed to produce different types of goods, this model can incorporate much more realistic features of international trade.

This model is used to investigate the role of invoicing currency in the determination of the optimal basket weights. This is done by comparing four alternative cases that correspond to dif-

[1] Ogawa and Ito (2002) characterize the situation in which governments, which take currency regimes of each other as given, fall into a Pareto-inferior Nash equilibrium in which all currencies are pegged to a single currency.

[2] Yoshino et al. (2004) consider various alternative objectives for the exchange rate policy and show that, depending on the objective, the optimal basket weights can be different. Sasaki (2001) studies the relationship between the basket weights and capital flows. This paper focuses mainly on trade balance stabilization because, as a practical matter, many developing countries have limited foreign reserves, and thus have to worry about taming fluctuations in trade balance.

[3] Otani (2001, in Japanese) offers a good survey on this literature, with a special emphasis on the issue of pricing.