Economic Modelling 52 (2016) 452–466

Contents lists available at ScienceDirect

Economic Modelling

journal homepage: www.elsevier.com/locate/ecmod

Yen internationalization and Japan's international reserves

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ARTICLE INFO

Article history:
Accepted 16 September 2015
Available online 18 October 2015

Keywords:
International reserves
Yen internationalization
Foreign exchange
Gold
SDR

ABSTRACT

The relationship between major East Asian economies' international reserves and internationalization of their currencies presents a seeming paradox in international finance. While large international reserves may be expected to foster more widespread global use of a currency, strong growth of international reserves has been associated with very low Asian currency internationalization. Using the generalized method of moments (GMM) estimator we show the overall size of the Bank of Japan's international reserves, as well as the ratio of its foreign exchange reserves to international reserves, are negatively related to yen internationalization, while gold reserves and special drawing rights are positively related.

1. Introduction

A large international finance literature examines the asset and transactions use of currencies beyond their country of issue. One stream addresses what factors determine the choice of particular currencies used as foreign exchange reserves, while another explores factors contributing to the internationalization of major economies' currencies. Most studies have focused on the US dollar, which has been the predominant reserve currency, having played the pivotal role in the Bretton Woods fixed exchange rate system that prevailed post-war until 1971. It is also by far the most internationalized currency, despite the creation of the euro and the post-Bretton Woods emergence of first Japan, and then China, as economic superpowers.

A country's international reserves comprised mainly of foreign exchange reserves, gold reserves, and special drawing rights (SDR) are the external assets held by its monetary authority to maintain exchange rate stability and provide a buffer against future currency crises. Currency internationalization on the other hand refers to the international extension of a national currency's basic functions of unit of account, medium of exchange and store of value. Successful currency internationalization results in widespread use of a national currency in international trade, international financial transactions and reserve assets held by foreign central banks and monetary authorities (see Chinn and Frankel, 2005, 2008; Cohen, 1971; Hartman and Issing, 2002; Krugman, 1984; Prasad, 2014).

Whether a national currency becomes widely used internationally depends largely on the confidence that international market participants have in the currency-issuing country and since international reserves are intended to improve market confidence, large international reserve holdings may be expected to foster currency internationalization.

Hence a question of particular relevance to international policy makers in this context is why the euro, renminbi and yen have not become more internationalized relative to the US dollar in light of their economies' increased prominence in the world economy and, especially in the cases of China and Japan, why increased currency internationalization has not increased along with very strong growth in their central banks' foreign exchange assets. Given the large foreign exchange reserves held by the People's Bank of China and Bank of Japan, which grew very rapidly from the turn of the century onwards, it may seem paradoxical that internationalization of the renminbi and yen has been so minimal. The paradox arises because the very existence of East Asia's huge foreign exchange asset holdings implies economies in the region have been heavily engaged in international monetary and trade transactions.

What then is the nexus between the internationalization of an economy's currency and the quantum and composition of its international reserves? Addressing that question is the main aim of this paper, focusing specifically on the case of internationalization of the yen and Japan's international reserves as renminbi internationalization was only officially promoted from 2009. A key feature of Japan's total international reserves is the dominance of foreign exchange reserves in total reserves. During the first decade of the century Japanese foreign exchange reserves averaged 97% of total international reserves, while

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http://dx.doi.org/10.1016/j.econmod.2015.09.026
0264-9993/

gold reserves averaged only 2% of the total. In contrast, figures for the United States were 21% and 64% respectively, while the euro area shares were 50% and 43%.[1]

Earlier studies on the determinants of the currency composition of foreign exchange reserves include Dooley et al. (1989), Eichengreen and Mathieson (2000). More recently papers by Chinn and Frankel (2005, 2008) in this vein predicted an enhanced role for the euro while Subramanian (2011) finds that economic size is the primary determinant of reserve currency status. Meanwhile, Huang et al. (2014) examine the case of the renminbi as a possible reserve currency predicting it will be increasingly used internationally in the future.

The literature on yen internationalization has two focal points. The first examines the potential international use of the yen (Ito et al., 2012; Sato, 1999; Taguchi, 1994; Tavlas and Ozeki, 1992). The second focuses on the successes and failures of yen internationalization, as well as possible renminbi internationalization (Chen, 2004; Frankel, 2011, 2012; Kawai and Takagi, 2011; Xu, 2005). However, within the existing empirical research on this topic, the focus is on investigating the yen as an invoicing currency in international trade (Fukuda and Ono, 2006; Ito et al., 2012; Sato, 1999, 2003), while this paper focuses on the influence of international reserves on yen internationalization.

In what follows we systematically explore theoretical and empirical relationships between international reserve holdings and local currency internationalization. In preview, we find that the *composition* and *size* of international reserves play key roles in determining how international reserves contribute to currency internationalization. Specifically, the ratio of foreign exchange reserves to international reserves is negatively related to local currency internationalization, while gold reserves and SDR holdings are positively related; the size of international reserves relative to GDP also proves to be negatively related.

The rest of the paper is organized as follows. Section 2 describes the key features of Japan's international reserves and a short history of yen internationalization. Section 3 presents the conceptual foundations and hypotheses for examining the relationship between international reserves and yen internationalization. Section 4 introduces the data sources, model specification and methodology to be used, before Section 5 presents our econometric results. Section 6 concludes the paper.

2. Evolution of Japan's international reserves and yen internationalization

In this section, we first present the evolution of Japan's international reserves focusing on the size and composition of its reserves. We then trace the process of yen internationalization. Our sample period in what follows avoids the global financial crisis of 2009–10 and its aftermath which was a period characterized by exceptionally wide swings in financial variables, including capital flows, exchange rates and changes in foreign reserves. On the contrary, there was considerably less volatility in these variables during our 1976–2009 sample period which fairly evenly spans times when Japan was growing strongly and when it subsequently experienced lower growth prior to the global financial crisis.

2.1. International reserves

Fig. 1 depicts the evolution of Japan's international reserves which changed dramatically from the early 1990s due to a strong increase in the foreign exchange reserves share and sharp decline in gold reserves with little change in SDR holdings and IMF reserve positions. On average, the foreign exchange reserves share has exceeded 96% since 1996 with gold reserves less than 3%, and SDR holdings 2%.

Fig. 2 combines the composition and size of Japan's reserves showing the size of reserves being driven by the foreign exchange component, especially from 1994 onward.

2.2. Yen internationalization

In 1964, Japan accepted the obligations of Article VIII of the IMF Articles of Agreement to allow free convertibility of the yen under its current account although there were government concerns that this could limit money supply control and add to exchange rate volatility (Frankel, 1984). As a result, Japan's monetary authorities were cautious about internationalization of the yen in the 1960s–1970s. However, this changed in the mid-1980s when new policy measures were introduced to promote yen internationalization (see Takagi, 2009).

The international use of the yen subsequently peaked then spiraled downward during the so called "lost decades" of low economic growth in the 1990s and 2000s following the collapse of the asset bubble fuelled by easy bank credit during the 1980s (See Amyx, 2004 and Koo, 2009 for related discussion). Since then, not only has economic growth been minimal, mild deflation has occurred at times, and public debt has increased dramatically to be the highest in the OECD proportionate to GDP due to successive bouts of fiscal stimulus.

Fig. 3 presents the trajectory of the yen's international use as a reserve currency. The "Mount Fuji" shape gray line intuitively displays the rise and fall of the yen's internationalization from 1976 to 2009. We could observe that, before 1991, the internationalization of the yen went upward with a gradual progress; in 1991, it reached its historic peak of 8.5%, expressed by the yen share in identified official holdings of foreign exchange. Again this de-internationalization broadly coincides with Japan's "lost decades" of the 1990s and 2000s.

In sum, Figs. 1 and 3 show that yen internationalization appears to be closely and inversely related to foreign exchange reserves, rising when foreign exchange reserve holdings were low, and falling when they were high. In addition, the size of international reserves as a share of GDP is negatively associated with yen internationalization.

3. Linkages between international reserves and currency internationalization

There are several theoretical reasons for an inverse relationship to exist between the scale of a central bank's foreign reserves and the extent to which that nation's currency is internationalized. First, the notion of currency competition suggests that when the economies of dominant reserve currencies are weak, due for instance to financial crises, the scope for internationalizing other currencies rises, and, vice versa, falls, if economic and financial conditions in the dominant reserve economy strengthen. Relatedly, the supremacy of the US dollar is explicable with reference to a currency inertia effect (Chinn and Frankel, 2005, 2008), the strength of which ultimately depends on the soundness of the reserve issuing country's macroeconomic and financial conditions.

In this context, the dominance of the US dollar over the yen, renminbi and euro may seem anomalous in light of domestic monetary shocks the United States has experienced since the 2008–10 Wall Street banking crisis with the rise in public debt to historically high levels and the flooding of money markets with US dollars via quantitative easing. However, this reflects the underlying strength of United States' public institutions, its broad and deep financial markets, appropriately regulated, and robust and transparent legal framework (Prasad, 2014).

Second, currency internationalization can be directly related to the operations of the central bank. Foreign exchange reserves accumulate in the first instance due to the central bank using domestic currency to buy other currencies in the foreign exchange market in order to prevent currency appreciation. In Japan's case, during the "lost decades" era a major reason for curbing yen appreciation in real terms against the dollar was to avoid Japan's loss of international competitiveness,

[1] Data source: International Monetary Fund, International Financial Statistics (IFS).