Foreign exchange reserve diversification and the "exorbitant privilege": Global macroeconomic effects

Pietro Cova [*], Patrizio Pagano, Massimiliano Pisani

Directorate General for Economics, Statistics and Research, Bank of Italy, Via Nazionale 91, 00184 Rome, Italy

ARTICLE INFO

ABSTRACT

We assess the macroeconomic implications for the global economy of different strategies of official reserve management by developing a large scale new-Keynesian dynamic general equilibrium model, calibrated to the euro area, the United States, China and the rest of the world. An increase in the global demand for euros would boost euro area aggregate demand because of the reduction in euro area interest rates (the main benefit associated with the "privilege" of being a global currency). If the higher demand for euros is associated with lower demand for US dollars, then US aggregate demand falls because of higher interest rates, while the external balance improves; countries accumulating reserves continue to run a trade surplus, as exports to the euro area increase. We also compute welfare gains/costs for all economies.

© 2015 Elsevier Ltd. All rights reserved.

1. Introduction

The current international monetary system is often described as a non-system of floating exchange rates in which some countries attempt to maintain fixed exchange rates – or to manage their exchange rate movements mainly against the US dollar – by accumulating exchange rate reserves in the form of internationally traded assets (Fahri et al., 2011; Palais-Royal Initiative, 2011). After a short-lived break in 2008, reserve accumulation has resumed and, as at the end of 2013,

---

* Corresponding author. Tel.: +39 06 4792 2725.
E-mail address: pietro.cova@bancaditalia.it (P. Cova).

the outstanding amount, scaled by world GDP, was nearly three times larger than that of the previous decade.[1]

The currency composition of global official holdings of exchange rate reserves has not greatly changed over time. The US dollar continues to be the key currency, a status that provides benefits to the US economy in terms of lower borrowing interest rates with respect to those of other countries (so called "exorbitant privilege"). However, on the basis of the IMF's currency composition of official reserves database (COFER), if one looks only at reported dollar holdings, the demand for dollar-denominated assets seems to be slowing down with respect to the overall increase in foreign exchange rate reserves and consequently the dollar share appears to be declining rapidly. At the same time, the role of the euro as an international currency has increased. After its debut, the euro saw a rapid increase in its use in international transactions, related to the rapid integration of euro money markets, government bond markets, equity markets, banking and the large issuance of euro-denominated corporate bonds. Given the size of international reserve holdings, any change in their allocation may potentially have large effects, by affecting global exchange rates and interest rates, on the "privilege" and, ultimately, on economic activity of the different countries.

This paper addresses these issues by quantitatively assessing the macroeconomic effects on the global economy of changes in official foreign exchange reserves in a bipolar international monetary system, one in which not only the US dollar acts as an international reserve currency, but also the euro.

The analysis is performed by simulating a multi-country dynamic general equilibrium model calibrated to the euro area (EA), the United States (US), China (CH) and the rest of the world (RW).[2] Two model-features are key to our analysis. First, US and EA government bonds are accumulated as official foreign currency reserves by all regions. Official reserves are assumed to be exogenous and, hence, under full control of governments, that change them in a discretionary way (this is the "shock" in the simulations we will focus on).[3] Second, building on a recent contribution by Canzoneri, Cumby, Diba and Lopez-Salido (2013), henceforth CCDLS, we introduce demand for international liquidity in an otherwise standard model. In all countries households optimally demand liquidity, which has domestic and international components and facilitates transaction for consumption purposes (thereby providing so called "liquidity services"). In each region liquidity is a combination, according to a transaction technology, of domestic money balances issued by the local central bank, domestic government bonds, US government bonds, and EA government bonds (Chinese and RW government bonds are not internationally traded).[4] The "exorbitant privilege" is due to the non-pecuniary externality embedded in government bond yields issued by key currency areas (US and EA in our case), i.e. the fact that investors value the liquidity of key currency bonds. For this reason, government bonds issued by reserve currency regions pay a lower rate of interest than other privately issued "illiquid" bonds (the "privilege"). This externality is compounded by the asymmetries in the composition of global portfolios.

We consider simulation scenarios in which CH and the RW simultaneously and permanently modify their aggregate holdings of official reserves by 1% of their initial level. In the first scenario considered, the authorities keep the shares of dollars and euros in their portfolios constant ("So far, so good" scenario). The second scenario features a 1% reduction in US dollar reserves, more than offset by a correspondingly larger percent increase in euro reserves (given their initial smaller size), so that

---

[1] The motives behind this reserve accumulation pointed out in policy discussions are polarized between a precautionary and a mercantilist motive. An analysis of these motivations is beyond the scope of this paper.

[2] In what follows we will interchangeably use the expressions countries or regions when referring to the US, EA, CH, and RW.

[3] We treat the EA as a single country in our model, alongside the US, CH and the RW. As such EA government bonds are meant to denote bonds denominated in euro issued by the (hypothetical) EA government.

[4] It is possible to imagine a richer model including optimizing banks managing the deposits of households, by allocating them between different asset classes (money and government bonds), which would subsume the more simplified setup assumed here, where households directly hold a composite of money balances and government bonds to satisfy their transaction needs period by period. Canzoneri et al. (2008) develop a closed economy model along these lines.