Exchange rate regimes, saving glut and the Feldstein–Horioka puzzle: The East Asian experience

Seçil Kaya-Bahçe, Erdal Özmen[*]

Middle East Technical University, Department of Economics, 06531, Ankara, Turkey

Abstract

This paper investigates whether the recent experience of the emerging East Asian countries with current account surpluses is consistent with the "saving glut" hypothesis and the Feldstein and Horioka puzzle. The evidence suggests that the saving retention coefficients declined substantially in most of the countries after an endogenous break date coinciding with a major exchange rate regime change with the 1997–1998 crisis. Exchange rate flexibility appears to be enhancing financial integration. The results are consistent with an "investment slump" explanation rather than the "saving glut" postulation.
© 2008 Elsevier B.V. All rights reserved.

1. Introduction

The development of substantial domestic saving-investment gaps has been at the centre of debate in international macroeconomics with the recent experience of large current account (CA) imbalances of a number of countries including the US. The recent CA surpluses of emerging East Asian countries have drawn special attention as they have been a major source of finance of the growing US CA deficits. According to the "saving glut" explanation of the global imbalance expounded by Bernanke [1], excess domestic saving over investment (CA surplus) especially in East Asia indeed has caused the sustainability of the US CA deficits.

The "saving glut" and the global imbalances are closely related to the Feldstein and Horioka puzzle (Feldstein and Horioka [2], hereafter FH) that the saving (S)-investment (I) relationship has been persistently strong in spite of policy regime changes towards flexible exchange rates and capital mobility. Coakley et al. [3] provides a recent survey of the FH literature. FH consider the following equation:

$$I_t = \gamma_0 + \gamma_1 S_t + u_t. \tag{1}$$

In (1), u is a disturbance term and γ_1 is the 'saving retention coefficient'. In a financial autarky, investment can only be financed by domestic saving causing $\gamma_1 = 1$. With capital mobility, investment can be financed by the worldwide pool

---

of saving and domestic saving can be a source of overseas investment, thus the value of γ_1 decreases. Consequently, γ_1 is an indicator of the extent of capital mobility in the FH sense. A γ_1 of zero (one) indicates perfect (the absence of any) capital mobility.

The growing global imbalances may be interpreted as reflecting an increase in international financial integration in the FH sense. However, such an interpretation does not make a clear distinction between CA deficits and surpluses persisting under different exchange rate (ER) regimes. Furthermore, CA imbalances, γ_1 and thus the FH puzzle may not be invariant to the prevailing ER regime (Sarno and Taylor [4], Özmen and Parmaksız [5]). Fixed ER regimes are often associated with CA deficits due to a real appreciation of domestic currency. A (credible) fixed ER regime, according to Razin and Rubinstein [6] p. 122, "provides a less risky environment for investors and the country may be able to attract more external funds to complement more domestically funded investment". Consequently, γ_1 may be expected to be higher under a fixed ER regime. ER flexibility, on the other hand, can act as a shock absorber [7] or a disciplining device on CA deficits [8] by allowing exchange rates to adjust to CA disequilibrium.

The experience of most of the East Asian countries with CA deficits under fixed ER regimes until 1997–1998 and surpluses thereafter under ER flexibility may be consistent with the argument that the FH puzzle is not invariant to ER regime changes. The following section investigates this issue empirically. To this end, we first test whether there is no endogenous break in γ_1 for the emerging East Asian countries. We then proceed with the investigation of the postulation that the shifts in γ_1 can be explained by ER regimes. The results are discussed also in the context of the "saving glut" arguments.

2. Empirical results

We start with the estimation of the conventional FH equation:

$$\text{inv}_t = \gamma_0 + \gamma_1 \text{sav}_t + u_t \tag{2}$$

where $\text{sav} = $ gross national savings (% of GDP) and $\text{inv} = $ gross capital formation (% of GDP). The annual data (1970–2005) for sav and inv are from the World Bank World Development Indicators. Table 1 reports the OLS estimates of (2) for each of the emerging East Asian countries — Hong Kong, Indonesia, S. Korea, Malaysia, Philippines, Singapore and Thailand. The results suggest that all the countries, except Thailand and Indonesia, can be interpreted as financially open in the FH sense. The statistical insignificance of γ_1 for Malaysia, Philippines and Hong Kong supports the view that they are financially integrated. However, a negative (Singapore) or an insignificant γ_1 may be consistent also for a country where domestic savings tend to finance investments abroad due to the lack of sufficient domestic financial intermediation and/or a declining equity home bias.

All these results, however, should be interpreted with a caution as γ_1 may not remain stable during the period. To test whether there is no endogenous break in γ_1, we consider Andrews–Quandt test for parameter stability [9,10]. Table 1 reports the values of the Andrews–Quandt SupF statistics which are the maximum of the individual Chow Wald-F breakpoint tests estimated sequentially between two dates $\tau_1 = \eta T + 1$ and $\tau_2 = T - \eta T - 1$, where T is the sample size and $\eta(0.10)$ is the trimming parameter. The table also reports the Hansen [11] p-values for SupF and the corresponding estimated break date (T_B) for γ_1. The results suggest that the Andrews–Quandt test is maximum and significant at 1998 for Indonesia, S. Korea, Malaysia and Thailand and at 1999 for Philippines, which are indeed the countries severely hit by the 1997–1998 financial crisis. For Singapore the Chow Wald-F test for γ_1 is maximum at 2001 albeit a break occurring at 1998 also appears to be data-acceptable with the test yielding 63.2 ($p = 0.00$). For Hong Kong, γ_1 is found to be stable during the period.

To estimate the shift in the saving retention coefficient γ_1, we consider the following equation:

$$\text{inv}_t = \gamma_0 + \gamma_1 \text{sav}_t + \alpha(D_t^* \text{sav}_t) + u_t \tag{3}$$

where $D = 1(t > T_B)$, $1(.)$ is the indicator function. The results presented by Table 1 suggest a significant downward shift in γ_1 after T_B for all the countries. According to the values of γ_1 for the pre-break sample, all the crisis-hit countries, except S. Korea to a certain extent, can be classified as financial autarky in the FH sense. However, this interpretation may not be compatible with the fact that these countries often experienced excessive capital inflows under fixed ER regimes before the crisis [12]. A high domestic S-I correlation may be consistent also with a policy of CA targeting in a financially open economy with fixed exchange rates [5]. Consequently, the high values of γ_1 may