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Is the Feldstein-Horioka puzzle still with us? National saving-investment dynamics and international capital mobility: A panel data analysis across EU member countries [☆]

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ABSTRACT

This paper investigates the degree of financial integration and international capital mobility by analysing the dynamics of national saving-investment relationships. We interpret the relationship between national saving and investment in the long run as reflecting a solvency constraint and focus on the short-term saving-investment relationship to assess the degree of capital mobility. We apply the Panel Autoregressive Distributed Lag (PARDL) model proposed by Pesaran et al. (1999) using data for 14 EU member countries from 1970 to 2013. Our empirical results suggest that there exists a close relationship between saving and investment in the long run that is consistent with the existence of a solvency constraint that is binding for each country in the long run. We also find that the parameter for the error-correction term is always highly significant, which supports the choice of an error-correction formulation. Moreover, we show that the parameter estimated for the error-correction term, i.e. the speed of adjustment to the long-run equilibrium, varies with the sample period considered. The estimated speed of adjustment becomes smaller in absolute terms as more recent data are included in the sample, which indicates that deviations from long-run equilibrium current accounts have become more persistent over time, signalling some degree of capital mobility.

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1. Introduction

In their seminal paper [Feldstein and Horioka \(1980\)](#) investigate the correlation of saving and investment across countries and they consider the non-existence of such a relationship as evidence of high degree of capital mobility.¹ Their model is based on the standard goods market equilibrium equation and measures the extent to which a higher domestic saving rate is associated with a higher rate of domestic investment. If capital is indeed very mobile, the relationship between saving and investment should be weak and conversely, if capital is rather immobile, investment rates should correspond closely to saving rates. Increasing capital mobility across countries is an important phenomenon for economic policy makers and firms. It has potential beneficial effects on the economy because it enables agents to allocate resources more efficiently and it allows for investment and hence growth beyond the premises of domestic savings. [Feldstein and Horioka \(1980\)](#) estimated a cross-country regression of average domestic investment rates on average domestic savings rates using data for 16 OECD countries for the period 1960–1974 and they found a large positive and statistically significant coefficient. The presence of a high correlation between domestic savings and investment despite the relaxation of controls has constituted the F-H puzzle which is one of the most robust empirical regularities in international finance, (see [Frankel, 1992](#); [Coakley et al., 1998](#) and [Apergis and Tsoumas, 2009](#) and references therein for a detailed presentation of the extensive literature on the F-H puzzle).

Although [Feldstein and Horioka \(1980\)](#) relates the presence of a low degree of correlation between savings and investment as evidence of high capital mobility later studies argued that simple saving-investment correlations may not be informative about international capital mobility ([Obstfeld, 1986, 1995](#); [Baxter and Crucini, 1993](#) and [Coakley et al., 1998](#) among others). Furthermore, recent studies on the saving-investment relationship have interpreted the finding of a high degree of correlation as an indication of the existence of a solvency constraint rather than low capital mobility. This approach is based on the argument that since the intertemporal budget constraint of an open economy should not allow countries to run current account deficits indefinitely ([Sinn, 1992](#)), there must be a long-run relationship that ties national saving and investment together. Therefore, this approach implies that if cointegration exists between savings and investment then this provides no evidence with respect to capital mobility and it only reflects the solvency constraint ([Coakley et al., 1996, 1998](#); [Coakley and Kulasi, 1997](#); [Corbin, 2004](#)).

We contribute to the previous literature by studying the F-H puzzle in the case of the EU14 countries over the period 1970–2013 in the context of the joint estimation and interpretation of the short- and long-run dynamics.² We consider the close long-run saving-investment relationship reflecting a solvency constraint and the short-run saving-relationship to assess the degree of capital mobility. Therefore, we make a clear distinction between long-run effects and short-run ones. We consider the case that the existence of a long-run relationship between savings and investment is likely indicative of the existence of a solvency constraint for these EU14 countries. Furthermore, in the short-run it is likely that deviations from the one-to-one relationship between savings and investment exist which may call of a “short-run financial constraint” indicative of low capital mobility.³ Within this framework the solvency constraint would already be binding in the short run, and the capital account will always be balanced. However, capital mobility allows the current account to be different from zero, which implies that in the short-run savings and investment could deviate temporarily from each other. Therefore, it is clear that the higher the degree of capital mobility is, the greater will the deviations of savings and investment be from their long-run equilibrium relationship and thus, the easiness with which a country can borrow or lend to run current account deficits for a long period of time until it returns to the steady state.

Several novel features stem from our analysis. First, it applies a battery of panel unit root and co-integration techniques to the savings-investment relationship using annual data for the period 1970–2013 to the EU14 countries. Panel data is considered to be an appropriate econometric methodology since it provides more information and gives greater power and less size distortions than the standard time series unit root and co-integration tests applied to time series analysis. Second, after establishing robust evidence for the existence of cross-dependence and panel unit roots we use the ARDL bounds testing procedure for panel data and we identify a long-run relationship between saving and investment which is consistent with the existence of a solvency constraint that is binding for each country in the long-run. Third, the error-correction term is always highly significant and it is found that its value becomes smaller in recent years, which indicates that deviations from long-run equilibrium current accounts have become more persistent over time, signalling some degree of capital mobility. Finally controlling for the size and openness of the countries in the sample we get evidence that our results are robust.

The paper is structured as follows. Section 2 provides a theoretical background to the F-H hypothesis and reviews the methodologies used to test it as well as alternative interpretations and critiques. Section 3 presents the econometric methodology, while Section 4 describes the data and discusses the empirical results from panel data analyses whereas the summary and concluding remarks are given in the final section.

¹ [Obstfeld \(1998\)](#) discusses two main methods to measure the level of international capital mobility. The first one involves comparing the movement of rates of capital on capital across countries, while the second approach focuses on the actual international capital flows.

² The choice of this group of countries is justified on the grounds of differences in size, in economic structures, in the degree of integration with global economy and growth rates implying different profit opportunities for international capital.

³ See also [Corbin \(2004\)](#) and [Pelgrin and Schich \(2008\)](#).

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