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Impact of pension system structure on international financial capital allocation

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ABSTRACT

Recent findings indicate that pension system structure affects private savings and through them the aggregate foreign asset position of a country. We present a two-country overlapping-generations model that explores the relationship between the magnitude of pension guarantees and the resulting portfolio choices of workers. The existence of a pay-as-you-go pension system lowers the wealth of the young workers, who consequently borrow from abroad to supplement their current consumption, and lowers the overall riskiness of their lifetime wealth, prompting them to invest in risky equity financed by the selling of safe bonds. In particular, we are able to replicate and explain the "venture capitalist" (positive net equity accompanied by negative net debt) portfolio profile of the United States. More broadly, we find empirical support for our results in a cross-country analysis using data from 110 economies: greater amounts of pension spending are associated with international indebtedness, long equity positions, and short debt positions.

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1. Introduction

It is a well-established fact in the field of international finance that cross-border flows of financial capital and the accompanying current account imbalances in many countries have been on the rise for at least three decades. Following the "savings glut" argument advanced by Bernanke (2005)—suggesting that high savings rates in the developing economies have been driving financial capital into the United States—and the publication of the large-scale database of foreign assets and liabilities by Lane and Milesi-Ferretti (2007), many researchers have become attracted to the detailed examination of the causes of these imbalances. A closer look shows that there are significant differences in the size and composition of international portfolio holdings among different groups of countries: while Asian and oil-exporting countries have been, on average, accumulating (net) international assets, most OECD countries have gone deeper into debt. Many developed countries, including Canada, Italy, and the USA, have debt liabilities offset by equity assets, while the pattern is reversed in, among others, China, Ireland, and Saudi Arabia. Fig. 1 demonstrates these trends in the USA, the United Kingdom, and China.

The causes of this capital reallocation can be studied in two complementary ways: by focusing on aggregate cross-border financial flows and by examining individual portfolio choices. The former approach has identified many macroeconomic

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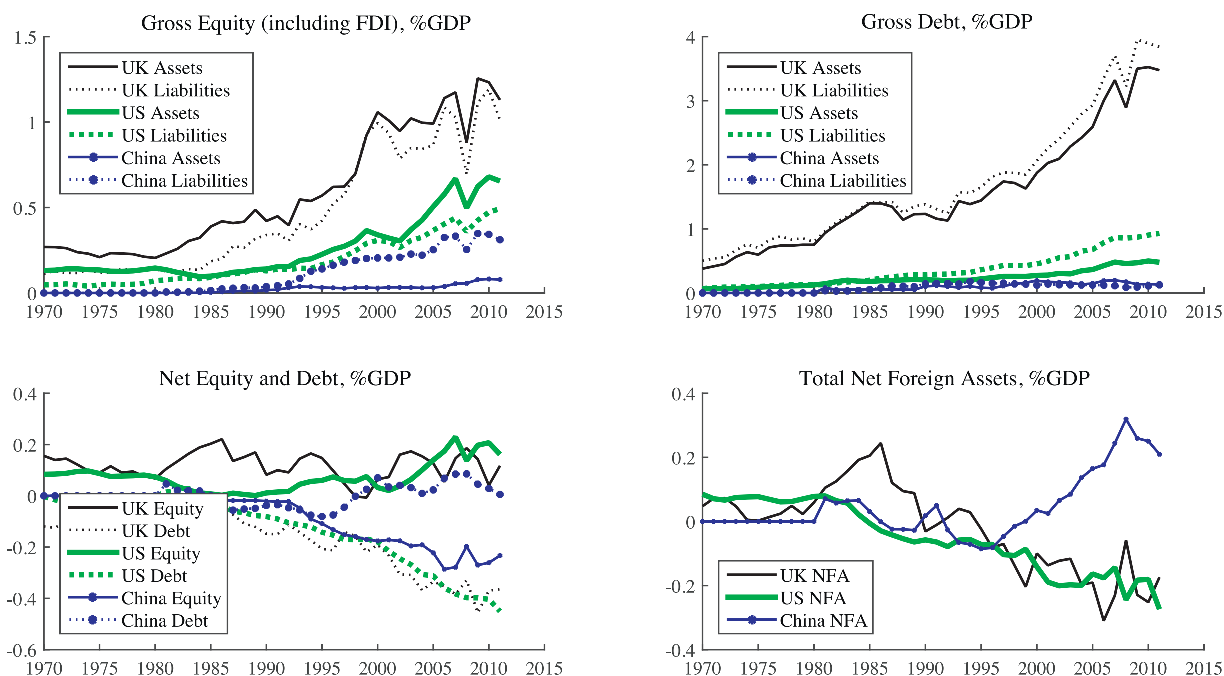

Fig. 1. Trends in the stocks of international asset holdings of the UK, the U.S., and China over the past four decades.

factors driving capital flows into or out of a country, such as exchange rate arrangements, financial liberalization, political and institutional risk, and differences in GDP growth rates.[1] The latter course suggests that lifecycle and precautionary savings motives in the face of the varying degrees of idiosyncratic and aggregate risk, as well as differences in financial instrument availability, can help to explain the growing international imbalances.[2] Our paper adds to this list by showing that the interaction between personal savings motives and the particular structure of a government-run pension system has a direct impact on the dynamics of international capital flows. This line of inquiry is particularly important in light of the forthcoming demographic changes around the world (increases in longevity and declines in fertility) and the corresponding public policy debates on the sustainability and the need for reform of the pay-as-you-go (PAYG) systems that currently exist in most developed countries. Given the multitude of international linkages among countries, national policies should no longer be examined in a closed economy setting: the international mobility of financial capital will modify the effects of such policies vis- à-vis a world composed of autarkies.

There exists a great deal of heterogeneity in the availability and structure of pension systems around the world, varying along many dimensions such as the degree of coverage (number of workers contributing to the system), replacement rates (ratio of benefits to the average wage), qualifications for receiving pension payments, and the type of funding (pay-as-you-go versus fully funded).[3] It is entirely plausible that the particular design of a pension system influences workers' consumption-savings decisions and has a direct impact on the composition of their investment portfolios. In fact, in papers closely related to ours, Börsch-Supan et al. (2006), Eugeni (2015) and Samwick (2000) demonstrate that the pension system structure has a significant impact on individual savings behavior and through it on the aggregate foreign asset position of a country. More specifically, the latter two papers show that countries with PAYG pension systems tend to be net borrowers. We pursue this line of inquiry further by considering not just the overall net asset position that may result from the pension system asymmetry, but also the particular portfolio composition (debt and equity assets and liabilities).

We build a two-country, two-cohort overlapping generations model with internationally traded debt and equity assets to understand the relationship between the magnitude of pension guarantees and the resulting portfolio choices of workers. We focus on the PAYG system that characterizes the majority of countries with state pensions, and assume that it is available in one of the two countries (which we subsequently refer to as developed), whereas the workers in the other (developing) economy have to make their own retirement savings arrangements. In their first period of life, consumers in each country earn wages and invest a portion of their earnings into an array of home and foreign equity and bond assets. In the developed country, the government levies a tax on current workers and distributes the proceeds to retirees. During the

[1] Some examples from the large and growing literature include (Bacchetta and van Wincoop, 2000; Forbes and Warnock, 2012; Fratzscher, 2012; Gourinchas and Rey, 2007; Kaminsky and Schmukler, 2008; Neumann et al., 2009), and de Araujo et al. (2015).

[2] In, for example, Caballero and Krishnamurthy (2006); Devereux (2009), and Mendoza et al. (2009).

[3] Barr and Diamond (2010); Whitehouse (2007), and Social Security Administration's "Social Security Programs Throughout the World," (http://www.ssa.gov/policy/docs/progdesc/ssptw/ , last accessed on 09/16/2014) offer a comprehensive overview of pension system features around the world.

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