

The Efficiency and Mobility of International Capital Flows: 1950-2006

Lee E. Ohanian & Mark L.J. Wright
Department of Economics
UCLA
405 Hilgard Avenue
LA, CA 90024

This paper documents the directional flows of capital across the world during the post-World War II period, with a focus on quantifying how much those capital flows have equated the rate of return to capital across countries. To this end, we develop an international database that includes measures of output, consumption, net exports, government spending, employment, hours worked and the capital stock for over one-hundred countries at various levels of development. The paper will provide the most comprehensive and up-to-date dataset of capital flows and capital returns, which will permit us to conduct the most systematic analysis to date of these issues across time and across countries.

We will compare the actual data on capital flows across countries to the predictions of different open economy models to assess where the capital should have flowed. We begin with the simplest case, the perfect foresight one-sector growth model, and then consider richer environments, including stochastic models with multiple shocks and adjustment costs to investment. A guiding feature of all of these models is that the intertemporal marginal rate of substitution (MRS) in consumption should be equated to marginal rate of transformation (MRT) from the production function. We will compare the MRS and MRT both within and across countries at a single point in time, and also across time, to shed light on the nature of the frictions that impede capital flows across countries. Then using actual data on capital stocks and capital flows, we calculate the increase in output and welfare that would have occurred had the MRS and MRT been equated across countries during the post-World War II period.

The findings will have implications for a number of questions in open economy macroeconomics, including: why doesn't capital flow from rich to poor countries? Why did Latin America, which has been a slow growing region over the last 50 years, receive more capital than the rapidly growing East Asian tigers? What are the effects of international institutions on capital flows? How has the taxation of capital impeded international flows?

Our preliminary findings show quantitatively large changes in the variance and the distribution of returns to capital across the world economy. The attached figures show the marginal product of capital, measured as the ratio of output to capital stock, scaled by capital's share of income on the vertical axis, and the implied return from a perfect foresight Euler equation based on separable log utility over consumption, and a value of household discounting of 0.95. Thus, the horizontal axis measures the intertemporal

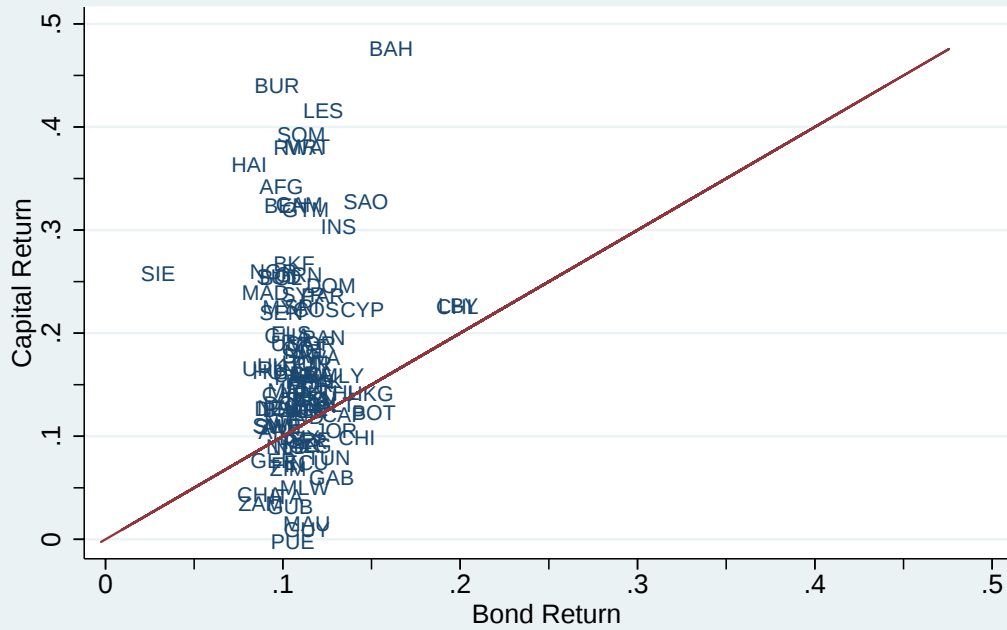
marginal rate of substitution in consumption (IMRS), which is denoted as “bond return”. The first figure shows the capital returns and the IMRS for all available years beginning in 1960 for some countries, and continuing through 2005. Each subsequent figure shows these data for each individual decade from the 1960s through the 2000s.

The decadal figures clearly show a rapidly declining variance in capital returns. In particular, the standard deviation of these returns is 11.7 percent for the 1960s, and declines to 5.2 percent for the 1990s and 2000s. Similarly the the 5th-95th percentile distribution of capital returns ranges from 3.9% to 43.1% in the 1960s, and then falls to 4.6% to 18.4% by the 2000s. In contrast, the dispersion in the IMRS has been roughly constant, ranging between 2-3 percent over the last 45 years. One interpretation of these findings is that the efficiency of capital markets has markedly increased over the last 45 years by reducing the large spread between capital rates of return, though thus far this has not significantly narrowed the dispersion in the IMRS.

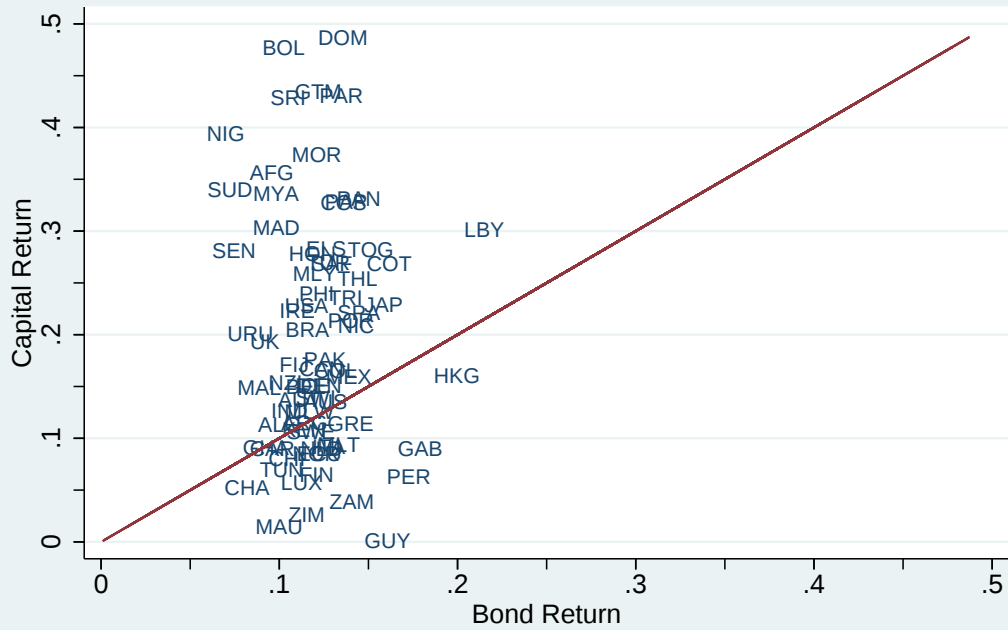
Our study complements existing studies of the degree of capital mobility based on an examination of explicit capital controls (e.g. Miniane 2004), the quantity of capital flows (Obstfeld & Taylor 2004), the relationship between investment and savings (e.g. Feldstein & Horioka 1980), cross country consumption correlations (e.g. Lewis 2000), and estimates of the marginal product of capital at a single point in time (e.g. Caselli and Feyrer 2006), who find that marginal products today are quite similar across countries.

Bond vs Capital Returns

All available years

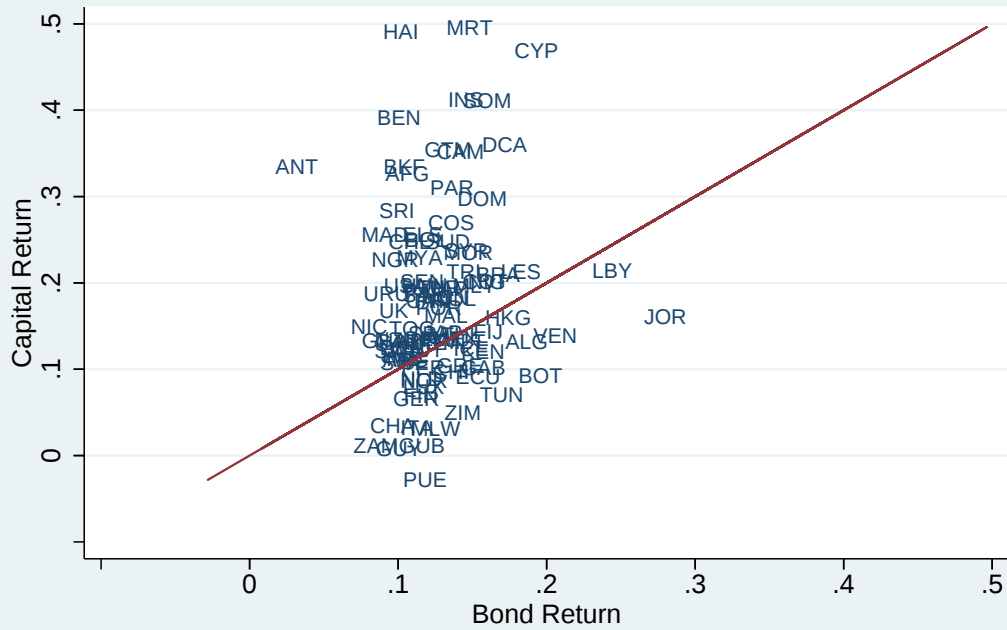


Bond vs Capital Returns 1960s

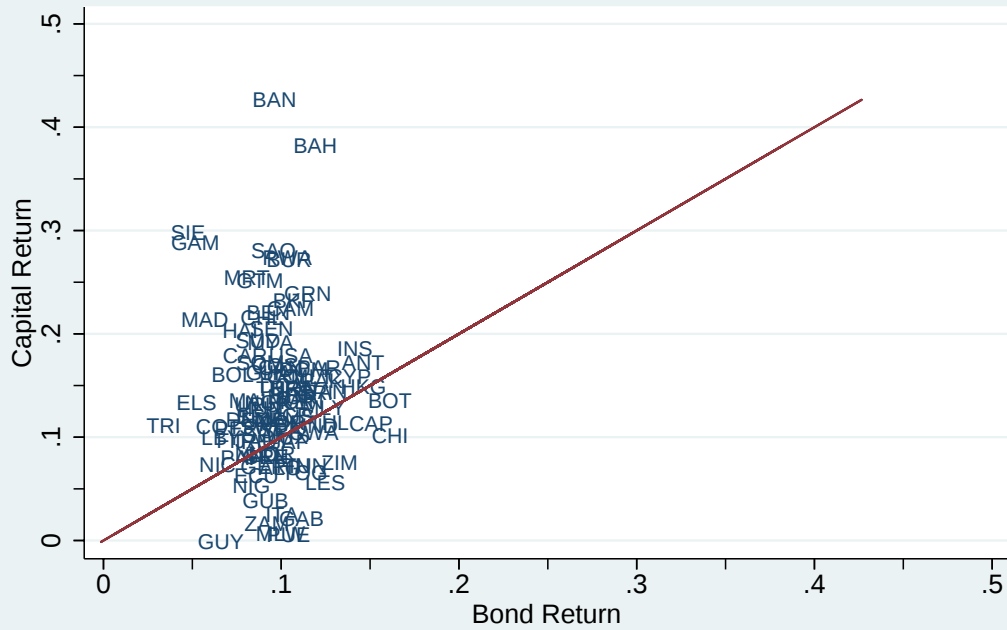


Bond vs Capital Returns

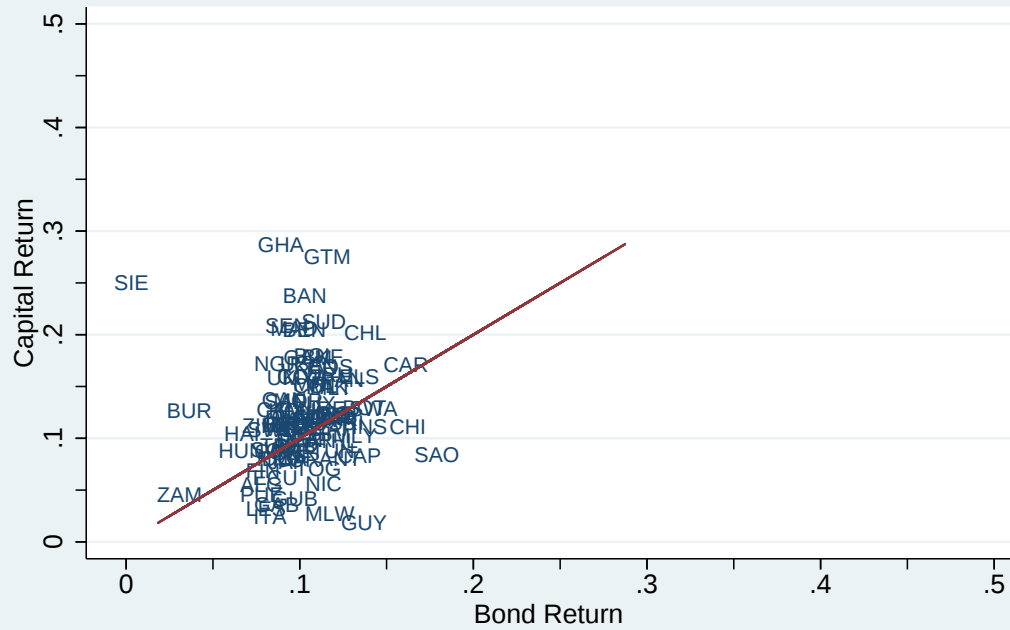
1970s



Bond vs Capital Returns 1980s



Bond vs Capital Returns 1990s



Bond vs Capital Returns 2000s

