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Terrorism, openness and the Feldstein–Horioka paradox

Javed Younas *

Department of Economics, American University of Sharjah, PO Box 26666, Sharjah, UAE

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ABSTRACT

This paper investigates how terror threats and international openness affect the savings retention coefficient in the Feldstein–Horioka equation. We find that terrorism marginally increases the size of this coefficient, which may result from an increase in the precautionary saving motives. However, even a small increase in openness offsets this effect and significantly lowers the propensity to retain domestic savings for investment. This suggests that, given more channels, capital leaves domestic boundaries to land in safe places abroad. At least partly, the results explain the paradoxical finding in the literature that capital is more mobile in developing countries, even though they are less open. We also find that all types of terrorism reduce investment.

1. Introduction

In a seminal study, Feldstein and Horioka (1980, hereafter FH) documented an enduring puzzle in economics. They noted that, in a perfectly open economy, domestic investment is determined by the pool of worldwide savings, and thus, domestic savings must flow to the country where it can earn the highest marginal returns. This implies that the correlation between domestic savings and domestic investment should be low. Indeed, for small open economies, it should approach zero. Contrarily, FH found this correlation close to one for OECD countries, implying capital immobility.[1] Subsequent research has also confirmed the existence of a substantial home bias in the allocation of domestic savings in developed, modern economies (e.g., Feldstein and Bacchetta, 1991; Ketenci, 2013; Sinha and Sinha, 2004),[2] prompting Obstfeld and Rogoff (2000) to label it "the mother of all puzzles."

Interestingly, the literature built on the FH's methodology finds that capital is substantially more mobile in developing countries than in developed ones (e.g., Bangake and Eggoh, 2011; Georgopoulos and Hejazi, 2005; Isaksson, 2001; Kasuga, 2004; Payene and Kumazawa, 2005; Younas and Chakraborty, 2011; Younas, 2011). This is puzzling because developing countries are usually less integrated with the world markets and more likely to impose legal restrictions on the movement of capital, especially on its outflow.

A related implication of the FH argument is that, other things being equal, returns on investment should be higher in countries with low capital–labor ratios (the marginal product of capital should be high when the capital–labor ratio is low). One would

* Tel.: +971 6 515 2612; fax: +971 6 515 4065.
E-mail address: jyounas@aus.edu.

[1] Using long-run data averages for 16 OECD countries, the FH ran cross-country regressions of the form, $(I/Y)_i = a_0 + \beta(S/Y)_i + \mu_i$, where I, S, and Y represent domestic investment, domestic savings, and output, respectively. According to them, β is the savings retention coefficient whose higher value indicates a lower degree of capital mobility, while its lower value implies a higher degree of capital mobility.

[2] The home bias does not pertain to the financial sector only. It has also been observed in other areas as well. For example, Blonigen and Wilson (1999) discuss the existence of the trade bias where home and foreign goods are differentiated based on their origin of production.

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therefore expect to see savings flow "north to south;" i.e., from richer economies with high capital–labor ratios to poorer countries with low capital–labor ratios.[3] However, this prediction also seems to be erroneous, inspiring Lucas (1990) to ask "Why doesn't capital flow from rich to poor countries?"[4] This paper examines how the interactions of the savings rate with terrorism and international openness influence the size of the savings retention coefficient in the FH equation. The analysis aims to resolve the paradoxical finding in the literature, which suggests that capital is more mobile in developing countries, even though they are less open.

The potential for violence and terror threats can affect incentives to save and invest. In this study, we investigate the role that the threat of terrorism plays in savings and investment choices in developing countries, with the intent of shedding light on the paradoxical findings emphasized by the FH and Lucas. Hahm and Steigerwald (1998); Carroll (1994) have previously found that greater income uncertainty leads to higher precautionary saving. Using data on Israel for 1950–2003, Eckstein and Tsiddon (2004) conclude that terrorism reduces consumption. Since terrorism can produce income uncertainty, one would expect higher terror threats to increase savings rates. Further, terrorism increases the costs of doing business, which can adversely affect investment. Higher terror threats could lead to increasing isolation, amplifying the FH correlation between domestic savings and domestic investment. This is likely if foreign investors are influenced by perceived political risks and, thus, reduce investment in a terror-ridden country. This conjecture finds support in recent literature. For example, Abadie and Gardeazabal (2008) and Bandyopadhyay et al., (2014) find that terrorism depresses the foreign direct investment (FDI) position of a country.

Higher domestic threats may also marginalize the profit motive of investors, leading capital to flow to safe, low-yield assets abroad. This, however, depends on the extent to which capital can move freely across borders. As economies become more globalized, transaction costs associated with the movement of capital decrease. In other words, globalization opens up a variety of channels through which capital moves across borders and provides opportunities to diversify capital in international financial portfolios. For example, it lowers communication and information costs, eliminates barriers to entering foreign markets, and reduces other legal impediments. In sum, it facilitates the transfer of funds via formal (i.e., banks and other financial institutions, money-exchange firms, and post and telegraph services) as well as informal (i.e., *hundi* system, ethnic networks, or simply carrying money in person) channels.[5] Since our utilized index of globalization includes information on several aspects of openness, it also, at least in part, proxies these informal channels.

In our econometric model, we interact the savings rate with two distinct types of terrorist incidents—domestic and transnational—and also with the globalization index. The empirical strategy employs alternative estimation techniques and attempts to address a host of other econometric issues such as omitted variables bias, reverse causation, and measurement problems. We find that all types of terrorism affect investment both directly and through their interaction with saving. The direct effect is strong and negative, implying that the potential for terrorism discourages investment. For the upper limit of our estimates, one incident of domestic and transnational terrorism reduces the investment position of GDP by 0.02 and 0.16 percentage points, respectively. It is known in the literature that terrorism imposes significant costs on societies including higher cost of doing business through its impact on wages, insurance premium and security measures, all of which limit output from a given set of inputs. It prompts large outflows of capital and also creates uncertainty about future income and thus affects the pattern of current consumption and production. The lowered aggregate demand and the possibility of loss to physical infrastructure and manpower from a terrorist attack, therefore, discourage investment in the economy.[6]

The terrorism-saving interaction is positive and modest in size, indicating a slight increase in the savings retention coefficient. This may arise from (i) an increase in the precautionary saving motives as terrorism can create uncertainties about future income and (ii) a decline in the FDI share in domestic investment, as investment in terror-prone countries is perceived to be more risky. A small increase in openness offsets this effect of terrorism; however, greater openness significantly lowers the size of the savings retention coefficient, implying higher capital mobility in developing countries.

The remainder of the paper is organized as follows: Section 2 describes the empirical model, the data, and the econometric methodologies. Section 3 presents estimation results with several robustness checks, and Section 4 offers concluding remarks.

2. Empirical model, data, and econometric methodology

2.1. Empirical model and data

Past studies gauging the degree of capital mobility differ both in terms of econometric techniques and methodologies [see Apergis and Tsoumas (2009) for an excellent survey of the FH literature]. On a technical level, researchers have found problems with using cross-sectional data, econometric methodology, omission of relevant variables, and non-inclusion of country-specific fixed effects

[3] This is based on the prediction of the standard neo-classical models that assume decreasing returns and frictionless markets.

[4] There have been attempts to explain these anomalies. Clearly, legal impediments to free movements of capital could be important in resolving the Feldstein–Horioka paradox. Further, the predicted flow of savings from north to south assumes that owners of capital have reliably enforceable property rights that permit them to appropriate the returns on investment, regardless of whether investment is in the north or south. This, of course, may not be the case.

[5] *Hundi* is a network of dealers or workers, who transfer funds from one location to another in return for commission.

[6] See Abadie and Gardeazabal (2008) and Bandyopadhyay et al., (2014) for the effects of terrorism on FDI. Relating its impact on international trade, Nitsch and Schumacher (2004) find that countries plagued with terrorism trade significantly less with each other. Similarly, the literature has also documented other macroeconomic consequences of terrorism (e.g., Blomberg et al., 2011, 2004; Younas, 2015).