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Journal of International Money and Finance

journal homepage: www.elsevier.com/locate/jimf



History, gravity and international finance[☆]



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A B S T R A C T

JEL classification:

F30

N20

Keywords:

Gravity model

International finance

Geography of asset holdings

Hysteresis

Endogenous learning

International role of the dollar

We analyse patterns of bilateral financial investment using data on US holdings of foreign bonds. We document a “history effect” in which holdings seven decades ago continue to influence holdings today. 10–15% of the cross-country variation in US investors’ foreign bond holdings is explained by holdings 70 years ago, plausibly reflecting fixed costs of market entry and exit and endogenous learning. This effect is twice as large for bonds denominated in currencies other than the dollar, suggesting the existence of even higher fixed costs of initiating US foreign investment in such currencies. Our findings point to history and path dependence as key sources of financial market segmentation.

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1. Introduction

Recent years have seen growing interest in the geography of international finance. In particular, a series of studies have used gravity models to analyse the direction and determinants of cross-border financial stocks and flows. In this approach, bilateral trade in assets is posited to increase with

[☆] The authors are grateful to the editor (Kees Koedijk), an anonymous referee, Sandro Andrade, Nicolas Coeurdacier, Livio Stracca, Andy Rose and Frank Warnock for comments and suggestions. They are also grateful for discussions to Michael Bordo, Jérôme Busca, Martin Evans, Roberto De Santis and Shang-Jin Wei and for comments to participants to the INFINITI conference on 10–11 June 2013, Aix-en-Provence, and to the European Economic Association meetings on 26–30 August 2013, Gothenburg. The views expressed in this paper are those of the authors.

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country size and to decline with transaction costs and information asymmetries, as captured by geographic distance and related variables.¹

This literature has focused almost entirely on recent decades.² While this usefully highlights the progress of financial globalisation since the early 1990s, it is not capable of capturing longer-term historical forces that may also influence international investment. It says nothing about the generality and applicability over time of the factors emphasised by the standard framework.

It is these shortcomings that we address in our paper. We estimate a gravity model of international investment using data on US investors' holdings of foreign bonds in 88 countries seven decades ago. We test for a "history effect" through which those past holdings influence current holdings.³

Why might past investment influence current investment? One answer is fixed costs. The theoretical and empirical literature on so-called beachhead and hysteresis effects (Baldwin, 1988; Dixit, 1989; Baldwin and Krugman, 1989) has shown that transitory shocks resulting in market penetration can permanently impact patterns of trade if firms incur fixed costs when entering new markets but cannot easily recoup them when they exit.⁴ When coupled with endogenous learning, as in Van Nieuwerburgh and Veldkamp (2009), the cumulative impact of passing shocks can be more powerful still: a shock that leads a firm to penetrate a market can then give it the incentive and ability to learn more about the market in question, amplifying the initial informational advantage.

What is true of international trade may also be true of international investment. Financial firms face fixed costs when investing in the ability to assess the creditworthiness of foreign bonds. They face set-up costs when seeking to market the bonds of a foreign country or countries to domestic investors. This is plausibly true of US banks at the middle of the 20th century, the case we analyse here. Commercial banks had been prohibited from establishing foreign branches by the National Banking Act.⁵ When the ban on foreign branching was then lifted by the Federal Reserve Act of 1913, US banks had to sink the costs of setting up foreign branches in order to gather intelligence on foreign markets and underwrite the bond issues of foreign borrowers. They had to sink the costs of setting up store-front brokerages and other marketing tools to sell those bonds to investors (Eichengreen, 1989). The foreign market penetration of US banks was uneven: they focused disproportionately on Latin America and Western Europe, leaving the British Commonwealth and Empire, along with parts of Scandinavia and Eastern Europe, to their UK rivals. That structure was then frozen in place by World War II, post-war capital controls, and new restrictions on foreign branching imposed by the destination countries during the

¹ See e.g. Portes and Rey (2005); Ahearne et al. (2004); Eichengreen and Luengnaruemitchai (2006); Aviat and Coeurdacier (2007); Daude and Fratzscher (2008); Lane and Milesi-Ferretti (2008a) and (2008b); De Santis and Gerard (2009); Coeurdacier and Martin (2009); Forbes (2010); Okawa and van Wincoop (2012). Several papers (including Martin and Rey, 2004; Coeurdacier and Martin, 2009; and Okawa and van Wincoop, 2012) also show how a simple and intuitive gravity equation can be derived from theory and taken to the data.

² See Clemens and Williamson (2004) and Esteves (2011) for broadly similar analyses of earlier historical periods, however. In work on the recent period that is closest to our own, Andrade and Chhaochharia (2010) consider an international CAPM model and show that a large US foreign direct investment position in a country in 1966 is associated with a relatively large stock portfolio position in that country in 2001–2006.

³ In this respect, our paper is related to Eichengreen and Irwin (1998), who focused on the role of history in the gravity of international trade in goods between 1949 and 1964. Similarly, Egger and Pfaffermayr (2011) use a Dixit and Stiglitz (1977)–Krugman (1979) framework to develop a gravity equation with path dependence, which is isomorphic to the classic formulation of Anderson and van Wincoop (2003). In this model, whether countries trade with each other at a given point in time depends on whether they traded with each other in the past. The fixed costs relating to export market entry depend on exporters' earlier presence in a particular market. As the authors put it, these fixed costs may capture learning or information exchange effects, which give rise to public good knowledge about market access for other exporters.

⁴ For instance, it is observed that Japanese firms that entered US markets in the early 1980s when the dollar appreciated did not abandon their sunk investments when the dollar fell in the wake of the Plaza Agreement of 1985. Once firms invested in marketing, R&D, reputation, distribution networks, etc., they found it profitable to remain in US markets even at a lower exchange rate (Dixit, 1989). *Stricto sensu*, hysteresis is when a transitory shock has permanent effects. In our case, however, what is necessary is only that a transitory shock has highly persistent effects that are still perceptible after decades. With limited data the two cases are, of course, difficult to distinguish.

⁵ Unlike federally chartered banks, trust companies could branch abroad, and those which set up foreign offices did so mainly in order to gather information on foreign bonds, which were attractive assets to add to their portfolios since these matched the maturity of their liabilities to their trustees. Some state-charters also allowed state banks to branch abroad, although few, if any, ever did. See Eichengreen and Flandreau (2010).

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