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# Stock exchange competition in a simple model of capital market equilibrium ☆

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**Abstract**

This paper uses a simple model of mean-variance capital markets equilibrium with proportional transactions costs to analyze the competition of stock markets for investors. We assume that equity trading is costly and endogenize transactions costs as variables strategically influenced by stock exchanges. Among other things, the model predicts that increasing financial market correlation leads to a decrease of transaction costs, an increase in cross-border trading activity, and to a decrease in the home bias of international equity flows. These predictions are consistent with the recent evolution of international stock markets.


*JEL classification:* G11; G15; G29

*Keywords:* Stock exchange competition; Capital markets equilibrium; Transactions costs; Home bias; Cross-border equity flows

## 1. Introduction

The objective of this paper is to analyze the competition between stock exchanges in the framework of asset pricing theory. We do this by considering a simple mean-variance

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Table 1
Value of shares traded and number of companies listed for selected stock exchanges
Note: Data for 2002, main and parallel markets. Remaining percentages are investment funds.
Source: World Federation of Exchanges.

| | Total Value of Trading | | Number of Listed Comp. | |
|---|---|---|---|---|
| | Domestic (%) | Foreign (%) | Domestic | Foreign |
| Euronext | 98 | 1 | 1114 | N.A. |
| Frankfurt | 92 | 8 | 715 | 219 |
| Hong Kong | 100 | 0 | 968 | 10 |
| Milan | 91 | 9 | 288 | 7 |
| London | 47 | 53 | 1890 | 382 |
| Nasdaq | 96 | 3 | 3268 | 381 |
| NYSE | 91 | 7 | 1894 | 472 |
| Madrid | 99 | 1 | 2986 | 29 |
| Tokyo | 99 | 0 | 2119 | 34 |
| Zurich | 97 | 2 | 258 | 140 |

capital market equilibrium model with transactions costs and by endogenizing the transactions costs as variables strategically influenced by stock exchanges. This perspective integrates insights from the asset pricing and the industrial organization literature and thus brings together two approaches to the study of stock exchanges that have evolved largely independently up to now.

We use this framework to investigate the determinants of transactions costs and trading volume for competing stock exchanges. Starting in the mid-1980s with the London Stock Exchange, European stock exchanges began a process of liberalization, which led to more profit-oriented organizations and strategies across Europe, and ultimately to serious competition between European stock markets. With the advent of cross-listings of European firms on the NYSE and Nasdaq and the continuing debate of the optimal trading structure of the American exchanges, this competition went global in the 1990s.[1]

Up to now, the literature has analyzed competition between stock exchanges as competition for the listing of firms (prominent examples of this literature are Chemmanur and Fulghieri (2006), Foucault and Parlour (2004), and Huddart, Hughes, and Brunnermeier (1999)). This type of competition has indeed become more important since the 1990s, in particular for large firms (see Pagano, Röell, and Zechner, 2002). However, at least as important is stock exchange competition for investors. Transactions fees, market liquidity, disclosure rules, and the characteristics of the firms listed on the exchange are all important determinants of the attractiveness of a stock exchange to investors. Stock exchanges are therefore in principle subject to two-sided competition in the sense of Rochet and Tirole (2004): the more attractive it is for firms to list on the exchange, the more attractive it is for investors to trade on this exchange, and vice versa.

As a first step towards a fuller analysis of such two-sided competition, the present paper analyzes stock exchange competition for investors, taking the listing decisions of firms as given. Interestingly, Table 1 shows that, at least until recently, the vast majority of listed firms around the globe has listed on a local stock exchange. In fact, in 2002 the only major

[1]See, for example, McKinsey/JP Morgan (2002).