



ELSEVIER

Contents lists available at [ScienceDirect](#)

## North American Journal of Economics and Finance



# Country and industry convergence of equity markets: International evidence from club convergence and clustering



Nicholas Apergis<sup>a,1</sup>, Christina Christou<sup>a</sup>, Stephen M. Miller<sup>b,\*</sup>

<sup>a</sup> Department of Banking and Financial Management, University of Piraeus, Karaoli & Dimitriou St. 80, Piraeus 185 34, Greece

<sup>b</sup> Department of Economics, University of Nevada, Las Vegas, Las Vegas, NV 89154-6005, United States

### ARTICLE INFO

#### Article history:

Received 11 September 2013

Received in revised form 12 May 2014

Accepted 13 May 2014

#### JEL classification:

C32

C33

#### Keywords:

International equity markets convergence

Industry effects

Panel convergence methodology

### ABSTRACT

This study employs the panel convergence methodology developed by Phillips and Sul (2007) to explore the convergence dynamics of international equity markets. The analysis considers both country and industry effects. While traditional portfolio management strategies usually follow a top-down procedure, assuming that country-level effects drive financial aggregates (e.g., stock returns) our empirical results suggest that the equity markets of 37 of the 42 countries in our sample do form a unified convergence club. The empirical findings, however, also show more numerous stock-price convergence clubs in certain industries. That is, country factors play a more important role in explaining the actual convergence in real stock prices than industry factors. Conversely, the volatility of stock prices exhibits much more evidence of convergence than stock prices. These findings should assist portfolio managers in the design and implementation of appropriate portfolio management strategies. Regulatory authorities also can benefit in the design of financial regulation.

© 2014 Elsevier Inc. All rights reserved.

\* Corresponding author. Tel.: +1 702 895 3969.

E-mail addresses: [napergis@unipi.gr](mailto:napergis@unipi.gr), [Nick.Apergis@curtin.edu.au](mailto:Nick.Apergis@curtin.edu.au) (N. Apergis), [christou@unipi.gr](mailto:christou@unipi.gr) (C. Christou), [stephen.miller@unlv.edu](mailto:stephen.miller@unlv.edu) (S.M. Miller).

<sup>1</sup> Permanent address: School of Economics and Finance, Curtin Business School, Curtin University, GPO Box U1987, Perth, WA 6845, Australia.

## 1. Introduction

In recent years, researchers pay more attention to the convergence in international equity markets. This increased interest in the convergence process accompanies the elimination of restrictions on banking and securities transactions, the reduction or the abolition of capital restrictions, the harmonization of legal frameworks and accounting systems for financial reporting, and the encouragement of foreign (direct) investment. Recent changes in international regulations encouraged dramatic increases in capital flows between countries. In frictionless international financial markets, the culmination of the freeing of capital to flow toward the highest return will lead to the convergence of financial markets, including equity markets. Impediments to the free flow of capital, tendencies of financial investors to a home bias, and so on will prevent the ultimate convergence of equity markets, however.

To the extent that convergence in equity markets occurs, the gains from international portfolio diversification will decrease. The countervailing view argues that certain economies retain their individual national economic and financial characteristics, which will prevent equity markets from full convergence (Adler & Dumas, 1983). In other words, impediments to the free flow of capital, tendencies for a home bias, and so on will maintain the possible gains from international portfolio diversification.

Conventional wisdom argues that investors can improve their risk-return efficiency through international diversification (Grubel, 1968; Levy & Sarnat, 1970; Solnik, 1974). Numerous studies (e.g., Bekaert, Harvey, Lundblad, & Siegel, 2007, 2011; Bekaert, Hodrick, & Zhang, 2009; Carrieri, Errunza, & Sarkissian, 2012; Eiling & Gerard, 2011; King, Sentana, & Wadhvani, 1994; Longin & Solnik, 1995; Pukthuanthong & Roll, 2009) examine how the correlation across countries' equity markets change over time for developed and emerging market economies, since relatively low correlation across such markets may signal diversification benefits. Mixed evidence emerges as to the movement in cross-country correlations across international equity markets. Christoffersen, Errunza, Jacobs, and Jin (2010) argue that since most studies employ a factor or multivariate volatility model, these mixed results may partly reflect differences in models rather than real differences in correlations.

Eun and Lee (2010) consider international mean-variance convergence, using a Euclidian distance measure. Their findings, which do not depend on model selection, show that the risk-return characterization for their samples of developed and emerging market economies converge significantly over their sample period (1974–2007). They also report that the convergence reflects a declining “country effect”, rather than a rising “industry effect”. This declining “country effect” implies that convergence of stock markets leads to the fall in the effect of individual country characteristics, whereas the rising “industry effect” implies convergence of industrial structures across countries as well as a more important industry effect.

This paper re-investigates whether international equity markets exhibit evidence of convergence, where the analysis also distinguishes between country and industry effects as well as returns and volatilities. The paper also departs from the standard approach in the finance literature in testing for convergence and borrows from the literature on the convergence in macroeconomic variables (e.g., convergence of real GDP per capita). While traditional portfolio management strategies usually follow a top-down procedure, assuming that the country effects drive the determination of financial aggregates. This approach, however, receives heavy criticism, since as countries become similar in their industrial structure, a higher degree of industrial stock market convergence will probably occur. Therefore, we explore whether global or local factors determine financial aggregates. Countries exhibit fundamental differences in terms of their national stock markets due to the differentiation of certain factors, such as taxation, reporting and accounting standards, legislation, and differences in the pricing of risk. The degree of convergence should differ among financial aggregates across industrial sectors, since idiosyncratic characteristics across industries result in different relative immobilities across-national production frontiers. Such differences appear as profitability differences and these, in turn, appear as stock market return differences. In addition to different production structures, differences in shock volatilities across industrial sectors could explain convergence or divergence patterns. Finally, international deregulation agreements should affect the degree of convergence across sectors, such as the tradable goods or financial sectors.

The existing literature uses several alternative approaches to identify whether and when convergence occurs. In particular, researchers adopt price-based and quantity-based methods to consider

متن کامل مقاله

دریافت فوری ←

**ISI**Articles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات