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Dynamic stock market integration driven by the European Monetary Union: An empirical analysis

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Abstract

We examine the influence of the European Monetary Union (EMU) on the dynamic process of stock market integration over the period 2 January 1989–29 May 2003 using a bivariate EGARCH framework with time-varying conditional correlations. We find that there has been a clear regime shift in European stock market integration with the introduction of the EMU. The EMU has been necessary for stock market integration as unidirectional causality was found. Linear systems regression analysis shows that the increase in both regional and global stock market integration over this period was significantly driven in part, by macroeconomic convergence associated with the introduction of the EMU and financial development levels.

JEL classification: C32; E44; F3; G14; G15
Keywords: Euro; Currency unions; Stock market linkages; Time-varying financial market integration

1. Introduction

There is no doubt that capital market integration was one motivation for the European Economic and Monetary Union (EMU). The euro was introduced as

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the single currency for the EMU on January 1st, 1999 following an economic, monetary and financial convergence process that had spanned over two decades from the initial creation of the European Monetary System (EMS). The political creation of the euro presents a learning model for understanding the financial effects of currency unions given that the euro was introduced without a single euro area financial market. The concept of financial market integration is central to the international finance literature. It is well accepted in the theoretical literature that integration of financial markets is fundamentally linked to economic growth through risk sharing benefits, improvements in allocational efficiency and reductions in macroeconomic volatility (see Pagano, 1993; Prasad et al., 2003; Baele et al., 2004). Given the significant potential benefits from financial market integration, this paper investigates the nature and the determinants of stock market integration with a view to evaluating the effectiveness of the EMU in its promotion.

First, we discuss how European stock market linkages and integration dynamics have evolved over the past fifteen years on both a regional and global scale in response to the economic convergence process associated with the formation of the EMU. Second, we address the causality issue between currency unions and financial market integration to improve our understanding on the sequencing of financial market integration. Finally, we identify the factors that determine these integration patterns in a new empirical context and assess whether they are consistent for both regional and global stock market integration. The research questions addressed in this paper have obvious implications for policy-makers in an increasingly interdependent global financial architecture and for investors' asset allocation decisions. [1] There is a clear need to better understand how and why the EMU has affected stock markets because of their important role in facilitating financing and investment decisions.

In principle, it is reasonable for investors to view a single currency zone as a single area of financial opportunity. To a large extent, financial market integration is driven by market forces but constrained by regulatory barriers and the level of integration is not uniform across market segments nor across time. Hence, financial markets and investment returns should be driven to some time varying degree of convergence. [2]

Recent studies by Hardouvelis et al. (1999), Fratzscher (2002), Morana and Beltratti (2002), Yang et al. (2003) and Baele (in press) provide empirical evidence on the impact of the introduction of the euro on European stock markets. However, these studies remain incomplete and have the following shortfalls: (i) They are confined to stock market changes up to 2001 *and* cover only selected EMU countries. Thus longer term, post-euro impacts on international stock markets from the European currency unification are not well documented nor understood. Convergence towards the weighted average of the 12 members of the EMU has never been fully

[1] The covariance/correlation matrix of international stocks is a key determinant of asset allocation in investment portfolios. Modern portfolio theory asserts that international diversification of equity portfolios improves the risk–return tradeoff if there is a low correlation between national stock markets (Solnik, 1974).

[2] The time varying nature of financial market integration is well established in the literature (see Bekaert and Harvey, 1995; Longin and Solnik, 1995).