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Journal of Banking & Finance 30 (2006) 1507–1534
Journal of BANKING & FINANCE
www.elsevier.com/locate/jbf

Evolution of international stock and bond market integration: Influence of the European Monetary Union

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Received 25 October 2004; accepted 23 March 2005
Available online 27 June 2005

Abstract

This paper examines the dynamic relationship between daily stock and government bond returns of selected countries over the past decade to infer the state and progress of inter-financial market integration. We proceed to empirically investigate the influence of the European Monetary Union (EMU) on time variations in inter-stock–bond market integration/segmentation dynamics using a two-step procedure: First, we document the downward trends in time-varying conditional correlations between stock and bond market returns in European countries, Japan and the US. Second, we investigate the causality and determinants of this interdependent relationship, in particular, whether the various macroeconomic convergence criteria associated with the EMU have played a significant role. We find that real economic integration and the reduction in currency risk have generally had the desired effect on financial integration but monetary policy integration may have created uncertain investor sentiments on the economic future of the EMU, thereby stimulating a flight to quality phenomenon.

JEL classification: C32; E44; F3; G14; G15

Keywords: Euro; Volatility; Currency unions; Stock–bond correlations; Time-varying financial market integration; Flight to quality; Optimal currency area

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0378-4266/$ - see front matter
doi:10.1016/j.jbankfin.2005.05.007

1. Introduction

Financial market integration is a central theme in international finance and the benefits of economic growth via risk sharing, improvements in allocational efficiency and reductions in macroeconomic volatility and transaction costs are all well accepted (see Prasad et al., 2003; Baele et al., 2004). Whilst financial market integration encompasses many different aspects of the complex inter-relationships across various financial markets, we focus on the nature and extent of interdependence (co-movements) across daily asset returns.[1] Whilst international integration within specific financial asset markets has received much attention, the subject of integration *across* different financial asset markets has not, despite its importance for investors' asset allocation and portfolio risk management decisions. This study investigates stock and bond market integration over time within a common market jurisdiction as we are motivated by: recent developments on stock–bond return co-movements in financial economics; and the historical European Economic and Monetary union (EMU) experience. Co-movements in asset market returns provide indirect evidence on financial markets' expectations and their reaction to common information that are priced into different asset types. To our best knowledge, co-movements in stock and bond returns have not been previously interpreted in an inter-financial market integration context and to this end, our main contribution is in merging these two strands of literature to shed new light on both. Moreover, with the implementation of a currency union and associated stabilization of macroeconomic fundamentals in Europe, we also ask whether there have been any influences on the integration process between stock and bond markets as this has not been addressed in the existing market integration literature.

The nature of stock–bond market co-movements has perplexed researchers in financial economics for years and there have been many attempts to understand their fundamental relationship. Existing stock–bond studies are generally in agreement on *how* stock and bond returns co-move over time but not *why* they co-move. Early studies to address the latter can be represented by Campbell and Ammer (1993) as they implicitly assume time invariance in the stock–bond relation, and conclude that observed levels cannot be justified by economic fundamentals. In this thread, Engsted and Tanggaard (2001) is relevant for the European markets. Most recently, researchers modeled the time-varying risk premia in their investigation and established that stock and government bond returns exhibit a modest positive correlation over a long horizon but the relationship is a dynamic one, meaning that the amount of portfolio diversification with a given asset allocation is constantly changing (see inter alia Connolly et al., forthcoming; Fleming et al., 1998). In particular, Cappiello et al. (2003) and Scruggs and Glabadanidis (2003) investigate the asymmetric nature of stock and bond market conditional variances and their co-movement. In the asset pricing vein, Ilmanen (1995) and Barr and Priestley (2004) suggest that world stock

[1] Studies sharing this focus include Bekaert and Harvey (1995), Bracker et al. (1999), Karolyi and Stulz (1996) and Longin and Solnik (1995).