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Risk and return implications from investing in emerging European stock markets

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Abstract

The dynamic linkages and the effects of time-varying volatilities are investigated for major emerging Central European (CE) and developed stock markets. Risk and return implications for portfolio diversification to these markets are assessed, causal lead–lag relationships are identified and asymmetric volatility effects are evaluated. The presence of one cointegration vector indicates market comovements towards a stationary long-run equilibrium path. Central European markets tend to display stronger linkages with their mature counterparts rather than their neighbors. An asymmetric EGARCH model indicates varying but persistent volatility effects for the CE markets. International portfolio diversification can be less effective across cointegrated markets because risk cannot be reduced substantially and return can exhibit a volatile reaction to domestic and international shocks. The possibility of arbitrage short-run profits, however is not ruled out.

JEL classification: C5; F36; G11

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1. Introduction

A number of Central European (CE) countries have joined the European Union (EU) as new members in May 2004, creating a dynamic financial landscape in Euroland. The

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efficient financial integration of these markets with the developed European markets has important implications for the smooth accession of the CE economies but also for the long-term growth prospects of the enlarged EU. Despite high growth rates seen in the emerging CE stock markets, research remains surprisingly limited and the empirical findings appear sometimes ambiguous and contradictory. As further insight would be useful, this study attempts to fill some of the gaps in the topic and contribute a range of innovative conclusions.

Major emerging CE stock markets, namely Poland, Czech Republic, Hungary and Slovakia, are examined and compared to representative mature markets, Germany and the US. Different stock market patterns are analyzed, potential dynamic linkages and interdependencies are assessed, cointegrating vectors and lead–lag relationships are identified, asymmetric time-varying volatility effects are detected and the implications of risk and return for portfolio diversification are evaluated. The presence of any cointegrating vector in the emerging CE stock markets would justify possible comovements between the region and developed markets. A six-dimensional vector error correction model (VECM) is employed to test for the temporal causal dynamics in the Granger framework and to gain insight into lead–lag relationships of the markets under study. Furthermore, an asymmetric exponential generalized autoregressive conditional heteroscedasticity (EGARCH) model explores the implications of potential asymmetric time-varying volatility effects for asset allocation to the CE markets. Past literature in stock market interrelations has concentrated mainly on developed markets neglecting emerging stock markets but the conclusions have not always been consistent (e.g. Lai et al., 1993; Fratzscher, 2001; Chen et al., 2002; Bessler and Yang, 2003; Chaudhuri and Wu, 2003; Yang et al., 2003).

The impact of stock market integration and volatility effects has considerable implications for international investors and active asset management in the CE stock markets. Although international portfolio diversification can lead to efficient asset allocation and reduce risk, assets associated with similar levels of risk are anticipated to have similar levels of return in integrated markets. If the CE stock markets share common trends, no particular gains should be anticipated from diversification because the presence of common factors limits the amount of independent variation. Cointegrated markets exhibit comovements and a stable long-run behavior, although potential short-run profits should not be ruled out. In case that the CE stock markets are not found interrelated, profitable opportunities from international portfolio diversification can be exploited, leading to superior portfolio returns for long-term investors. However, it is also important to assess the pattern of volatility dynamics, as highly volatile markets increase the equity risk premium and have an adverse impact on efficient portfolio diversification. The rest of the paper is organized as follows. Section 2 discusses briefly key characteristics of the major CE stock markets under study. Section 3 presents the empirical methodology and findings. The final section concludes.

2. The Central European stock markets

Over the last decade, the CE economies are through a transitory phase of structural adjustment towards a market oriented economic system (Nord, 2000). Nevertheless, during the last 3 years, the CE region displays robust growth rates, expanding more rapidly than the