

The Euro's Impacts on the Smooth Transition Dynamics of Stock Market Volatilities

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Abstract

This paper examines the impacts of the euro on the dynamic structure of stock market volatilities for member states. Using a GARCH model for daily stock index for the period January 1995 – May 2004, we find evidence of structure change in the volatility dynamic of the stock markets in France, Germany, Italy and Spain. Following Lundbergh and Terasvirta (2002) we further introduce a Smooth-Transition mechanism into the GARCH (ST-GARCH) model to allow for endogenous timing of transition. Our results suggest that all four indices started the adjustment process more than two or three years before the formal date of the euro's introduction. We find a U-shaped pattern in the structure change in all four countries indicating a 3-phased "normal-transition-normal" structure. The transition speeds for the four countries are remarkably different. The switch of volatility regimes in Germany is abrupt indicating a fast market adjustment process. Other three countries, however, exhibit a pattern that is much smoother than Germany. A common feature of the dynamic structure among the four countries is that during the transition period, the persistence of volatility is lower than in normal period.

Keywords: euro, smooth transition GARCH, volatility, information transmission