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A bivariate Markov regime switching GARCH approach to estimate time varying minimum variance hedge ratios

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Abstract

This arti…lized Autoregr…model. The model is …of Gray's univariat…To solve the path-dep…GARCH model, v…nditional varia…minimum variance…mple point estimate…dependent BEKK-GA…dging effective…a-snooping reality c…enchmark model and find that the difference in variance reduction between BEKK-GARCH and RS-

BEKK-GARCH is not statistically significant for either data set at conventional confidence levels.

Notes

[1]Alizadeh and Nomikos (2004) also propose a Markov regime switching approach (Hamilton, 1989) for hedging stock indices. Instead of estimating the hedge ratio by estimating the conditional second moments as all GARCH methods do (including RS-BEKK-GARCH), they treat the hedge ratio as a time-varying regression coefficient, which conditions on the state of market volatility with transition probabilities a function of lagged time-varying basis and estimate the coefficient directly. The rationale behind their model is that the dynamic relationship between spot and futures returns, and hence the hedge ratio, can be characterized by regime shifts (Sarno and Valente, 2000). Other articles that apply regime-switching models to financial data include Schaller and Van Norden (1997), Katsimi (2000), Caporale and Spagnolo (2004), Kuo and Lu (2005) and Kasuya (2005), among others.

[2] For ease of comparison and reference, we follow the notation of White (2000) as closely as possible in this section. The values referred to be the symbols f and R in this section are unrelated to those in previous sections of this article.

[3] To apply the stationary bootstrap method of Politis and Romano (1994), we set the smoothi ation. Testing f e differences is relativ the hedged portfolio o hedge method hedge meth hite's realit ng performa