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基于机制转换混合Copula模型的我国股市间极值相依性

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Extreme dependence in Chinese stock markets based onregime-switching mixed Copula

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摘要 通过构建机制转换混合 Copula 模型, 考察了沪、深股市与港、台股市间的尾部相依特征, 研究发现:它们间的尾部相依性呈非对称动态过程, 在低风险状态下, 右尾部相依性普遍高于左尾部相依性; 而在高风险状态下, 左尾部相依性普 遍高于右尾部相依性. 相对于沪、深股市与台股而言, 沪、深股市与港股间的尾部相依性更强, 其 尾部相依性对外来冲击更敏感; 相对于沪市与港、台股市而言, 深市与港、台股市间的尾部对外在 冲击更敏感. 在此次次贷危机中, 沪、深股市与港、台股市间极值风险显著增加, 并呈现明显的金融感染. 而且各尾部相依性的两个结构变化几乎同时发生并分别对应于危机的第一、二阶段, 这表明:沪、深股市与港、台股市间的风险呈系统性特征, 而危机的第三阶段对沪、深股市与港、台股市间的影响较有限.

关键词: 极值事件 金融感染 市场风险 尾部相依性 机制转换

Abstract: Based on regime switching mixed Copula model, this paper finds the tail dependence between Shanghai, Shenzhen and Hongkong, Taiwan stock markets is a dynamic asymmetric process. In the state of low risk, right tail dependence is higher than left tail dependence; in the state of high risk, the situation is opposite. The tail dependence between Shanghai, Shenzhen and Hongkong stock markets is much stronger and more sensitive to exterior shocks than that between Shanghai, Shenzhen and Taiwan stock markets. The tail dependence between Shenzhen and Hongkong, Taiwan stock markets is more sensitive to exterior shocks than that between Shanghai and Hongkong, Taiwan stock markets. Tail dependence shows Chinese stock market risk increases significantly in the crisis and financial contagion happens. Furthermore, the tail dependence shows two big simultaneous structure changes correspond to the first and second stages of the crisis, which means the stock market risk is systematic. However, the third stage of the crisis almost has no influence on Chinese stock markets.

Key words: extreme events financial contagion market risk tail dependence regime switching

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[1] 冯芸,吴冲锋.基于引导和互动性的传染检验[J]. 世界经济, 2002(2): 34-42. Feng Y, Wu C F. Contagion test based on channel and interaction [J]. World Economy, 2002(2): 34-42.

[2] King M, Wadhwani S. Transmission of volatility between stock markets[J]. Review of Financial Studies, 1990(3): 5-33.

[3] Forbes K. The Asian flu and Russian virus: Firm-level evidence on how crises are transmitted internationally[J]. Journal of International Economics, 2004, 63(1): 59-92.

[4] Kodres L E, Pritsker M. A rational expectations model of financial contagion[J]. Journal of Finance, 2002, 57: 769-799.

[5] Forbes K, Rigobon R. No contagion, only interdependence: Measuring stock market co-movement[J]. Journal of Finance, 2002, 57: 2223-2261.

[6] Calvo S, Reinhart C M. Capital flows to Latin America: Is there evidence of contagion effects?[J]// Calvo G A, Goldstein M, Hochreiter E. Private Capital Flows to Emerging Markets after the Mexican Crisis, Institute for International Economics, Washington, DC.

[7] Chiang T C, Jeon B N, Li H. Dynamic correlation analysis of financial contagion: Evidence from Asian market[J]. Journal of International Money and Finance, 2007, 26: 1206-1228.

[8] Longin F, Solnik B. Extreme correlations of international equity markets[J]. Journal of Finance, 2001, 56: 649-676.

[9] Poon S H, Rockinger M, Tawn J. Extreme value dependence in financial markets: Diagnostics, models, and financial implications[J]. The Review of Financial Studies, 2004(2): 581-610.

[10] Rodriguez J C. Measuring financial contagion: A Copula approach[J]. Journal of Empirical Finance, 2007(4): 401-423.

[11] 洪永淼, 成思危, 刘艳辉, 等. 大陆股市与世界其他股市之间的大风险溢出效应[J]. 经济 学季刊, 2004(3): 703-726. Hong Y M, Cheng S W, Liu Y H, et al. Extreme risk spillover between Chinese stock market and international stock markets[J]. China Economic Quarterly, 2004(3): 703-726.

[12] 吴吉林, 张二华. 次贷危机、市场风险与股市间相依性[J]. 世界经济, 2010(3): 95-108. Wu J L, Zhang E H. Subprime mortgage crisis, market risk and stock dependence[J]. World Economy, 2010(3): 95-108.

[13] Ang A, Chen J. Asymmetric correlations of equity portfolios[J]. Journal of Financial Economics, 2001, 63: 443-494.

[14] Nelsen R B. An Introduction to Copulas[M]. Berlin: Springer-Verlag, 1999.

[15] Chen X H, Fan Y Q. Estimation and model selection of semiparametric Copula-based multivariate dynamic models under Copula misspecification[J]. Journal of Econometrics, 2006, 135: 125-154.

[16] Vuong Q. Likelihood ratio tests for model selection and non-nested hypotheses[J]. Econometrica, 1989, 57: 307-333.

[17] Hu L. Dependence patterns across financial markets: A mixed Copula approach[J]. Applied Financial Economics, 2004, 16: 717-729.

[18] Ang A, Bekaert G. International asset allocation with regime shifts[J]. Review of Financial Studies, 2002, 16: 716-763.

[1] 李建平, 李刚, 丰吉闯, 李铭禄. 证券公司整体风险的度量方法与实证[J]. 系统工程理论实践, 2012, (3): 574-579.

[2] 詹原瑞. 市场风险的量度:VaR的计算与应用[J]. 系统工程理论实践, 1999, 19(12): 1-7.