

Return Dependence and the Limits of Product Diversification in Financial Firms

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Abstract

Copula-GARCH models indicate dependence between bank returns and those to insurance underwriting, securities brokerage, and mortgage finance increased during the recent crisis. In contrast, dependence between banks and the broader market was little changed. The crisis-related jump in return dependence within the financial services sector was greatest for banks that had previously appeared the most independent. Larger banks were also especially prone to increased dependence. These findings raise doubts about the ability of financial conglomerates to diversify effectively and highlight the need for policy progress in methods for resolving such institutions should they become illiquid or insolvent.

LITERATURE CITED

Allen, Linda, and Julapa Jagtiani. (2000) "The Risk Effects of Combining Banking, Securities, and Insurance Activities." *Journal of Economics and Business*, 52, 485-97.

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Bartram, M. Söhnke, and Yaw-Huei Wang. (2005) "Another Look at the Relationship between Cross-Market Correlation and Volatility." *Finance Research Letters*, 2, 75–88.

[Google Scholar](#) 

Bollerslev, Tim. (1986) "Generalized Autoregressive Conditional Heteroskedasticity." *Journal of Econometrics*, 31, 307–27.

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[Google Scholar](#) 

Bollerslev, Tim. (1987) "A Conditional Heteroskedastic Time Series Model for Speculative Prices and Rates of Return." *Review of Economics and Statistics*, 69, 542–47.

[Web of Science®](#) 

[Google Scholar](#) 

Boyd, John H., Stanley L. Graham, and Shawn R. Hewitt. (1993) "Bank Holding Company Mergers with Nonbank Financial Firms: Effects on the Risk of Failure." *Journal of Banking and Finance*, 17, 43–63.

[Web of Science®](#) 

[Google Scholar](#) 


Caporale, Guglielmo Maria, Andrea Cipollini, and Nicola Spagnolo. (2005) "Testing for Contagion: A Conditional Correlation Analysis." *Journal of Empirical Finance*, 12, 476–89.

[Google Scholar](#) 

Cherubini, Umberto, Elisa Luciano, and Walter Vecchiato. (2004). *Copula Methods in Finance*. Chichester : John Wiley & Sons Ltd.

[Google Scholar](#) 

Corsetti, Giancarlo, Marcello Pericoli, and Massimo Sbracia. (2005) "'Some Contagion, Some Interdependence': More Pitfalls in Tests of Financial Contagion." *Journal of International Money and Finance*, 24, 1177–99.

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Deng, Saiying (Esther), Elyas Elyasiani, and Connie X. Mao. (2007) "Diversification and the Cost of Debt of Bank Holding Companies. *Journal of Banking and Finance*, 31, 2453–73.

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DeYoung, Robert, and Karin P. Roland. (2001) "Product Mix and Earnings Volatility at Commercial Banks: Evidence from a Degree of Total Leverage Model. *Journal of Financial Intermediation*, 10, 54–84.

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Diebold, Francis S., Todd A. Gunther, and Anthony S. Tay. (1998) "Evaluating Density Forecasts with Applications to Financial Risk Management. *International Economic Review*, 39, 863–83.

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Elyasiani, Elyas, Iqbal Mansur, and Michael S. Pagano. (2007) "Convergence and Risk-Return Linkages across Financial Services Firms. *Journal of Banking and Finance*, 31, 1167–90.

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Engle, Robert F. (1982) "Autoregressive Conditional Heteroscedasticity with Estimates of the Variance of U.K. Inflation. *Econometrica*, 50, 987–1008.

[Web of Science®](#) | [Google Scholar](#)

Fernández, Carmen, and Mark F. J. Steel. (1998) "On Bayesian Modeling of Fat Tails and Skewness. *Journal of the American Statistical Association*, 93, 359–71.

[Web of Science®](#) | [Google Scholar](#)

Fisher, Ronald Aylmer. (1932). *Statistical Methods for Research Workers*. Edinburgh : Oliver and Boyd.

[Google Scholar](#)

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Joe, Harry. (1997). *Multivariate Models and Dependence Concepts. Monographs in Statistics and Probability 73*. London : Chapman & Hall.

[Google Scholar](#) 

Joe, Harry. (2005) "Asymptotic Efficiency of the Two-Stage Estimation Method for Copula-Based Models. *Journal of Multivariate Analysis*, 94, 401–19.

[Web of Science®](#)  | [Google Scholar](#) 

Jondeau, Eric, and Michael Rockinger. (2006) "The Copula-GARCH Model of Conditional Dependencies: An International Stock Market Application. *Journal of International Money and Finance*, 25, 827–53.

[Web of Science®](#)  | [Google Scholar](#) 

Laeven, Luc, and Ross Levine. (2007) "Is There a Diversification Discount in Financial Conglomerates? *Journal of Financial Economics*, 85, 331–67.

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Lambert, Philippe, and Sébastien Laurent. (2001) " Modeling Financial Time Series Using GARCH-Type Models and a Skewed Student Density." Mimeo , Université de Liège.

[Google Scholar](#) 

Longin, Francois, and Bruno Solnik. (2001) "Extreme Correlation of International Equity Markets. *Journal of Finance*, 56, 649–76.

[Web of Science®](#)  | [Google Scholar](#) 

MacKinnon, James G., and Halbert White. (1985) "Some Heteroskedasticity-Consistent Covariance Matrix Estimators with Improved Finite Sample Properties. *Journal of Econometrics*, 29, 305–25.

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Patton, Andrew J. (2006a) "Estimation of Copula Models for Time Series of Possibly Different Lengths. *Journal of Applied Econometrics*, 21, 147-73.

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Patton, Andrew J. (2006b) "Modeling Asymmetric Exchange Rate Dependence. *International Economic Review*, 47, 527-56.

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Rosenblatt, Murray. (1952) "Remarks on a Multivariate Transformation. *The Annals of Mathematical Statistics*, 23, 470-2.

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Sklar, Abe. (1959) "Fonctions de Repartition à n Dimensions et Leurs Marges. *Publications de l'Institut Statistique de l'Université de Paris*, 8, 229-31.

[Google Scholar](#) 


Stiroh, Kevin J. (2004) "Diversification in Banking: Is Noninterest Income the Answer? *Journal of Money, Credit, and Banking*, 36, 853-82.

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Stiroh, Kevin J., and Adrienne Rumble. (2006) "The Dark Side of Diversification: The Case of US Financial Holding Companies. *Journal of Banking and Finance*, 30, 2131-61.

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