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Research Update

Research and Statistics Group www.newyorkfed.org/research

Counterparty Credit Risk Management Is Best Defense against Systemic Risk Linked to Hedge Funds

Despite the unique risk challenges posed by hedge funds, the practices used by financial institutions to manage counterparty credit risk are still the best starting point for limiting the funds' potential for generating systemic disruptions, according to a study forthcoming in the *Economic Policy Review*.

In "Hedge Funds, Financial Intermediation, and Systemic Risk," authors John Kambhu, Til Schuermann, and Kevin Stiroh explain that hedge funds have become key players in the U.S. and global capital markets, managing assets estimated at nearly $1.5 trillion in 2006. A key channel through which largely unregulated hedge funds interact with regulated financial institutions such as banks is prime brokerage relationships, which expose banks to counterparty credit risk through the extension of credit to the funds.

Banks' first line of defense against market disruptions with potential systemic consequences is their counterparty credit risk management (CCRM) practices, note the authors. The practices are used to assess credit risk and limit counterparty exposure. Hedge funds, however, complicate CCRM because of their unrestricted trading strategies, liberal use of leverage, opacity to outsiders, and convex compensation structure. The authors examine how these characteristics may generate market failures that make counterparty credit risk for exposures to hedge funds intrinsically more difficult to manage, both for banks and for policymakers concerned with systemic risk.

The study acknowledges that certain market failures, such as the events surrounding the 1998 collapse of the hedge fund Long-Term Capital Management, have shown CCRM to be imperfect.

Also in this issue...

Yet Kambhu, Schuermann, and Stiroh observe that CCRM practices have improved markedly in recent years, citing such developments as enhanced risk management techniques by counterparties, improved supervision, more effective disclosure and transparency, strengthened financial infrastructures, and more efficient hedging and risk distribution techniques. They add that the institutionalization of hedge funds, driven by the demands of new investors such as hedge funds of funds and other institutional investors, is also increasing discipline and transparency.

Accordingly, the authors conclude that "the current emphasis on market discipline and CCRM as the primary check on hedge fund risk-taking is appropriate," and that CCRM "remains the best line of defense against systemic risk."

The article is available at www.newyorkfed.org/research/epr/forthcoming/0708kamb.html.

Trends Suggest a Decline in U.S. Market Competitiveness, But Not Where Many Think

Over the past few years, there has been growing concern that the U.S. capital markets are losing market share to overseas competitors. Indeed, many observers have singled out the decline in the number of foreign initial public offerings (IPOs) on the New York Stock Exchange and the NASDAQ as evidence of the U.S. equity markets' waning appeal.

A new study, however, suggests that this downward trend does not necessarily point to an erosion in U.S. competitiveness ("Evaluating the Relative Strength of the U.S. Capital Markets," *Current Issues in Economics and Finance*, vol. 13, no. 6). Author Stavros Peristiani instead attributes the decline in foreign IPOs to factors that are also shaping equity markets abroad, such as the tech sector's boom-and-bust cycle and advances made by competing financial markets. Any signs of eroding U.S. competitiveness, he says, are more likely to be seen in the corporate bond market.

Peristiani explains that the NYSE's and NASDAQ's generally dwindling numbers of new listings in recent years in part reflect the effects of the tech sector and are comparable to trends in other markets. The NYSE's drop in new issues in the 1990s owed to fierce competition from the NASDAQ, which attracted high-tech issuers in increasing numbers. The NASDAQ's status as a high-tech market, though, made it more vulnerable to the Internet collapse at the turn of the century, and the exchange saw a dramatic slowdown in new listings after 2000. Yet Peristiani notes that the collapse of the dot-com industry did not impact the U.S. markets alone—it also caused a significant slowdown in IPO activity in overseas venues such as Euronext, Deutsche Börse, and the Hong Kong Stock Exchange.

Moreover, the shrinkage in foreign IPOs does not necessarily mean that U.S. equity markets are less attractive in an absolute sense, according to the author. Rather, markets overseas are advancing and therefore achieving parity with their U.S. counterparts. He observes that other countries are now more prosperous, have deeper pools of capital, and offer more liquid and sophisticated financial markets that adhere to strengthened corporate governance principles. Thus, more competitive and integrated equity markets now have the capital depth to retain their home companies.

"Overall," Peristiani argues, "the NYSE and the NASDAQ continue to be the world's most actively traded markets," despite these developments.

The study suggests that clearer evidence of a deterioration in competitiveness can be found in the U.S. corporate bond market—a key funding source for U.S. and foreign corporations. Here, "some signs of eroding U.S. strength are showing."

The author points out that in 1995, the U.S. bond market issued about twice as much as the Eurobond market, but today it trails its European counterpart in corporate bond issuances. Throughout the 1990s, the European financial system underwent a major transformation stemming from financial liberalization, a reduced reliance on banks as intermediaries between savers and borrowers, and the euro's emergence as a leading global currency. These developments have lowered underwriting costs abroad, explains Peristiani, and helped the Eurobond market surpass the U.S. bond market as the world's largest site for debt underwritings. He adds that "the self-regulatory environment and greater variety of financing instruments offered by the Eurobond market have been especially appealing to top-rated U.S. financial issuers."

The article is available at www.newyorkfed.org/research/current_issues/ci13-6.html.

Publications and Papers

The Research and Statistics Group produces a wide range of publications:

- *The Economic Policy Review*—a policy-oriented journal focusing on economic and financial market issues.
- *EPR Executive Summaries*—online versions of selected *Economic Policy Review* articles, in abridged form.
- *Current Issues in Economics and Finance*—concise studies of topical economic and financial issues.
- *Second District Highlights*—a regional supplement to *Current Issues*.
- *Staff Reports*—technical papers intended for publication in leading economic and finance journals, available only online.
- *Publications and Other Research*—an annual catalogue of our research output.

New Titles in the *Staff Reports* Series

The following new staff reports are available at www.newyorkfed.org/research/staff_reports.

MACROECONOMICS AND GROWTH

No. 294, July 2007
Monetary Regime Change and Business Cycles
Vasco Cúrdia and Daria Finocchiaro

This paper analyzes how changes in monetary policy regimes influence the business cycle in a small open economy. The authors estimate a dynamic stochastic general equilibrium (DSGE) model on Swedish data, explicitly taking into account the 1993 monetary regime change from exchange rate targeting to inflation targeting. The results confirm that monetary policy reacted primarily to exchange rate movements in the target zone and to inflation in the inflation-targeting regime. Devaluation expectations were the principal source of volatility in the target zone period. In the inflation-targeting period, labor supply and preference shocks have become relatively more important.

No. 298, August 2007
Job-Finding and Separation Rates in the OECD
Bart Hobijn and Ayşegül Şahin.

Hobijn and Şahin provide a set of comparable estimates of aggregate monthly job-finding and separation rates for twenty-seven OECD (Organisation for Economic Co-operation and Development) countries; these estimates can be used for the cross-country calibration of search models of unemployment. They find that cross-country differences in job-finding rates are much greater than those in separation rates. These results are quantitatively and qualitatively in line with those published in previous studies; however, they cover a much larger set of countries. The authors combine their estimates with evidence on unemployment and labor force participation rates to impute steady-state worker flows for twenty-three of the countries in their sample.

INTERNATIONAL

No. 295, July 2007
The Long-Run Determinants of U.S. External Imbalances
Andrea Ferrero

Ferrero develops a tractable two-country model with life-cycle structure to investigate analytically and quantitatively three potential determinants of the U.S. external imbalances in the last three decades: productivity growth, demographic factors, and fiscal policy. The results suggest that: 1) productivity growth differentials are the main driving force at high frequencies, 2) the different evolution of demographic factors across countries accounts for a large portion of the long-run trend, and 3) fiscal policy plays, at best, a minor role. The author's main prediction is that among industrialized countries, capital should generally be expected to flow toward relatively young and rapidly growing economies. In addition, the paper shows that international demographic trends might be partly responsible for the recent declining pattern of the world real interest rate.

MICROECONOMICS

No. 300, September 2007
Can Increasing Private School Participation and Monetary Loss in a Voucher Program Affect Public School Performance? Evidence from Milwaukee
Rajashri Chakrabarti

The Milwaukee voucher program, as implemented in 1990, allowed only nonsectarian private schools to participate in the program. However, following a Wisconsin Supreme

Court ruling, the program was expanded to include religious private schools in 1998. In addition, because of some funding changes, the revenue loss per student from vouchers increased. Chakrabarti analyzes, both theoretically and empirically, the effects of these changes on public school performance, as measured by test scores, in Milwaukee. She argues that voucher design matters and that the choice of parameters in a voucher program is crucial in determining the effects of public school incentives and performance. In the context of a theoretical model of public school and household behavior, the author predicts that the policy changes will lead to an improvement in public school performance and then finds that this prediction is validated empirically.

No. 301, September 2007
Effect of Redrawing of Political Boundaries on Voting Patterns: Evidence from State Reorganization in India
Rajashri Chakrabarti and Joydeep Roy

This paper analyzes the effect of a redrawing of political boundaries on voting patterns and investigates whether it leads to closer conformity of an electorate's voting patterns with its political preferences. Chakrabarti and Roy study these issues both theoretically and empirically in the context of a reorganization of states in India. In 2000, Madhya Pradesh, the biggest state in India, was subdivided into Madhya Pradesh and Chhattisgarh. Using detailed data on state elections in Madhya Pradesh and Chhattisgarh, the authors find that voting patterns in the two regions were very similar before reorganization, but strikingly different afterwards, with a relative shift in Chhattisgarh toward its inherent political preferences. These findings are consistent with those obtained from the theoretical model and are also robust to various sensitivity checks.

BANKING AND FINANCE

No. 290, July 2007
Has the Credit Default Swap Market Lowered the Cost of Corporate Debt?
Adam B. Ashcraft and João A. C. Santos

Ashcraft and Santos evaluate the effect that the onset of credit default swap (CDS) trading has on the spreads that underlying firms pay at issue when they seek funding in the corporate bond and syndicated loan markets. Employing matched-sample methods, the authors find no evidence that the onset of CDS trading affects the cost of debt financing for the average borrower. However, they do find economically significant adverse effects to risky and informationally opaque firms. It appears that the onset of CDS trading reduces the effectiveness of the lead bank's retained share in resolving any asymmetric information problems that exist between a lead bank and nonlead participants in a loan syndicate.

No. 291, July 2007
Hedge Funds, Financial Intermediation, and Systemic Risk
John Kambhu, Til Schuermann, and Kevin J. Stiroh

Hedge funds are major players in the U.S. capital markets, but differ from other market participants in key ways, such as their use of a wide range of complex trading strategies and instruments, leverage, opacity to outsiders, and compensation structure. The traditional bulwark against financial market disruptions with potential systemic consequences has been the set of counterparty credit risk management (CCRM) practices by the core of regulated institutions. The characteristics of hedge funds make CCRM more difficult as they exacerbate market failures linked to agency problems, externalities, and moral hazard. While various market failures may make CCRM imperfect, it remains the best defense against systemic risk.

No. 292, July 2007
Market Sidedness: Insights into Motives for Trade Initiation
Asani Sarkar and Robert A. Schwartz

Sarkar and Schwartz infer motives for trade initiation from market sidedness. They define trading as more two-sided (one-sided) if the correlation between the numbers of buyer- and seller-initiated trades increases (decreases), and assess changes in sidedness (relative to a control sample) around events that identify trade initiators. Consistent with asymmetric information, trading is more one-sided prior to merger news. Consistent with belief heterogeneity, trading is more two-sided: 1) before earnings and macro announcements with greater dispersions of analyst forecasts, and 2) after earnings and macro news events with larger announcement surprises. A simultaneous equation system is used to examine the co-determinacy of sidedness, the bid-ask spread, volatility, the number of trades, and the order imbalance.

No. 293, July 2007
Public Disclosure, Risk, and Performance at Bank Holding Companies
Beverly Hirtle

Hirtle examines the relationship between the amount of information disclosed by bank holding companies (BHCs) and their subsequent risk profile and performance. Using data from the annual reports of BHCs with large trading operations, she constructs an index of publicly disclosed information about the BHCs' forward-looking estimates of market risk exposure in their trading and market-making activities. She then examines the relationship between this index and the subsequent risk and return in both the BHCs' trading activities and the firm overall, as proxied by equity market returns. The key findings are that more disclosure is associated with lower risk, especially idiosyncratic risk, and in turn with higher risk-adjusted returns.

No. 296, August 2007
Rediscounting under Aggregate Risk with Moral Hazard
James T. E. Chapman and Antoine Martin

In a 1999 paper, Freeman proposes a model in which discount window lending and open market operations have different outcomes. Freeman's conclusion that the central bank should absorb losses related to default to provide risk sharing goes against the concern that central banks should limit their exposure to credit risk. Chapman and Martin extend Freeman's model by introducing moral hazard. With moral hazard, the central bank should avoid absorbing losses, contrary to Freeman's argument. However, the authors show that the outcomes of discount window lending and open market operations can still be distinguished in this new framework. The optimal policy would be for the central bank to make a restricted number of creditors compete for funds. By restricting the number of agents, the central bank can limit the moral hazard problem.

No. 297, August 2007
Vesting and Control in Venture Capital Contracts
David R. Skeie

Vesting of equity payments to an entrepreneur, which is a form of time-contingent compensation, is very common in venture capital contracts. Skeie shows in a theoretical model that incomplete contracts due to hold-up by the venture capitalist imply that equity compensation, in the form of either short-term or long-term vesting, cannot provide standard contractible equity incentives for the entrepreneur to take an unobservable action involving effort. He introduces a new model of effort based on a verifiable choice of an effort-intensive project, for which the short-term vesting of equity can provide incentives, but which results in a trade-off between incentives and screening. Contingent control rights are a substitute for short-term vesting and provide the largest incentives for effort.

No. 299, August 2007
How Do Treasury Dealers Manage Their Positions?
Michael J. Fleming and Joshua V. Rosenberg

Using data on U.S. Treasury dealer positions from 1990 to 2006, Fleming and Rosenberg find evidence of a significant role for dealers in the intertemporal intermediation of new Treasury security supply. Dealers regularly take into inventory a large share of Treasury issuance so that dealer positions increase during auction weeks. These inventory increases are only partially offset in adjacent weeks and are not significantly hedged with futures. Dealers seem to be compensated for the risk associated with these inventory changes by means of price appreciation in the subsequent week.

No. 302, September 2007
Patterns of Rainfall Insurance Participation in Rural India
Xavier Giné, Robert Townsend, and James Vickery

This paper describes the contract design and institutional features of an innovative rainfall insurance policy offered to smallholder farmers in rural India and presents preliminary evidence on the determinants of insurance participation. Insurance take-up is found to be decreasing in basis risk between insurance payouts and income fluctuations, higher among wealthy households, and lower among households that are credit constrained. These results match predictions of a simple neoclassical model appended with borrowing constraints. Other patterns are less consistent with the benchmark model. Namely, participation in village networks and measures of familiarity with the insurance vendor are strongly correlated with insurance take-up decisions, and risk-averse households are found to be less, not more, likely to purchase insurance.

No. 303, September 2007
The Microstructure of Cross-Autocorrelations
Tarun Chordia, Asani Sarkar, and Avanidhar Subrahmanyam

This paper examines the mechanism through which the incorporation of information into prices leads to cross-autocorrelations in stock returns. The lead-lag relation between large and small stocks increases with lagged spreads of large stocks. Further, order flows in large stocks significantly predict the returns of small stocks when large stock spreads are high. This effect is consistent with the notion that trading on common information takes place first in the large stocks and is then transmitted to smaller stocks with a lag, suggesting that price discovery takes place in the large stocks. ■

Recently Published

Morten Bech and Bart Hobijn. 2007. "Technology Diffusion within Central Banking: The Case of Real-Time Gross Settlement." *International Journal of Central Banking* 3, no. 3 (September): 147-81.

Stefano Eusepi. 2007. "Learnability and Monetary Policy: A Global Perspective." *Journal of Monetary Economics* 54, no. 4 (May): 1115-31.

Rebecca Hellerstein. 2007. "Is There a Dead Spot? New Evidence on FOMC Decisions before Elections." *Journal of Money, Credit, and Banking* 39, no. 6 (September): 1411-27.

James Kahn and Robert Rich. 2007. "Tracking the New Economy: Using Growth Theory to Identify Changes in Trend Productivity." *Journal of Monetary Economics* 54, no. 6 (September): 1670-1701.

Paolo Pesenti. 2007. "Productivity, Terms of Trade, and the 'Home Market Effect,'" with Giancarlo Corsetti and Philippe Martin. *Journal of International Economics* 73, no. 1 (September): 99-127.

Argia Sbordone. 2007. "Inflation Persistence: Alternative Interpretations and Policy Implications." *Journal of Monetary Economics* 54, no. 5 (July): 1311-39. Carnegie-Rochester Conference Series on Public Policy: Issues in Current Monetary Policy Analysis.

Tanju Yorulmazer. 2007. "Network Models and Financial Stability," with Erlend Nier, Jing Yang, and Amadeo Alerton. *Journal of Economic Dynamics and Control* 31, no. 6 (June): 2033-60. Tenth Workshop on Economic Heterogeneous Interacting Agents—WEHIA 2005.

Tanju Yorulmazer. 2007. "Too Many to Fail—An Analysis of Time-Inconsistency in Bank Closure Policies," with Viral V. Acharya. *Journal of Financial Intermediation* 16, no. 1 (January): 1-31.

George Zanjani. 2007. "Regulation, Capital Structure, and the Evolution of Organizational Form in U.S. Life Insurance." *American Economic Review* 97, no. 3 (June): 973-83. ■

Papers Presented by Economists in the Research and Statistics Group

"Hedge Fund Tail Risk," Tobias Adrian. Mannheim University seminar, Mannheim, Germany, September 3. With Markus Brunnermeier. Also presented at a Columbia University seminar, New York City, September 12, and a Princeton University conference, Princeton, New Jersey, September 21.

"Liquidity and Leverage," Tobias Adrian. Baruch College seminar, New York City, September 27.

"Endogenous Productivity and Development Accounting," Roc Armenter. NBER Summer Institute workshop, Cambridge, Massachusetts, July 11. With Amartya Lahiri.

"Intertemporal Distortions in the Second Best," Roc Armenter. Society for Economic Dynamics annual meeting, Prague, Czech Republic, July 2. With Stefania Albanesi.

"Precautionary Reserves and the Interbank Market," Adam Ashcraft, James McAndrews, and David Skeie. Seventh Annual Bank Research Conference, cosponsored by the Federal Deposit Insurance Corporation's Center for Financial Research and the Journal of Financial Services Research, Arlington, Virginia, September 21.

"Optimal Monetary Policy under Sudden Stops," Vasco Cúrdia. European Central Bank conference, Frankfurt, Germany, August 15. Also presented at a Columbia University seminar, New York City, September 11.

"Does Determinacy Imply E-Stability?" Stefano Eusepi. Society for Computational Economics 13th International Conference on Computing in Economics and Finance, Montréal, Canada, June 15. With James Bullard.

"Learning as a Propagation Mechanism," Stefano Eusepi. Society for Economic Dynamics annual meeting, Prague, Czech Republic, June 27. With Bruce Preston.

"Stabilizing Expectations under Monetary and Fiscal Coordination," Stefano Eusepi. Society for Computational Economics 13th International Conference on Computing in Economics and Finance, Montréal, Canada, June 14. With Bruce Preston.

"Fiscal and Monetary Rules for a Currency Union," Andrea Ferrero. Joint European meeting of the European Economic Association and the Econometric Society, Budapest, Hungary, August 30.

"The Long-Run Determinants of the U.S. Trade Deficit," Andrea Ferrero. Joint European meeting of the European Economic Association and the Econometric Society, Budapest, Hungary, August 29.

"A Framework for Identifying the Sources of Local Currency Price Stability with an Empirical Application," Rebecca Hellerstein. NBER Summer Institute workshop, Cambridge, Massachusetts, July 12. With Pinelopi Goldberg. Also presented at a Central European University seminar, Budapest, Hungary, August 25.

"Housing Prices and Growth," James Kahn. Society for Economic Dynamics annual meeting, Prague, Czech Republic, July 3.

“Bank Runs and Institutions: The Perils of Intervention,” Todd Keister. International Monetary Fund Research Department seminar, Washington, D.C., August 14. With Huberto M. Ennis.

“Commitment and Equilibrium Bank Runs,” Todd Keister. Society for Economic Dynamics annual meeting, Prague, Czech Republic, July 2. With Huberto M. Ennis. Also presented at a Pennsylvania State University Department of Economics seminar, University Park, Pennsylvania, September 12.

“Varieties and the Transfer Problem: The Extensive Margin of Current Account Adjustment,” Paolo Pesenti. NBER Summer Institute workshop, Cambridge, Massachusetts, July 12. With Giancarlo Corsetti and Philippe Martin.

“Liquidity, Returns, and Investor Heterogeneity in the Corporate Bond Markets,” Asani Sarkar. Central Bank of Hungary conference, Budapest, Hungary, September 15. With Robert Guo and Til Schuermann.

“Market Sidedness and Clustering: Insights into Market Structure Issues,” Asani Sarkar. McMaster University seminar, Toronto, Canada, September 18. With Robert Schwartz.

“Credit Risk Management in the Murky Middle Market,” Til Schuermann. Risk Management Association conference, New York City, June 28.

“Integrated Risk Management and Economic Capital,” Til Schuermann. Risk Magazine conference, New York City, July 11. Also presented at the Norwegian Computing Center, Oslo, Norway, August 30.

“Interest Rates and Consumer Choice in the Residential Mortgage Market,” James Vickery. Bank of England research seminar, London, England, July 12. Also presented at a Barclays Global Investors seminar, London, England, July 13; Asset Pricing Conference, Centre for Economic Policy Research, Gerzensee, Switzerland, July 19; and the Recent Developments in Consumer Credit and Payments Conference, sponsored by the Federal Reserve Bank of Philadelphia, Philadelphia, Pennsylvania, September 21.

“Patterns of Rainfall Insurance Participation in Rural India,” James Vickery. Asset Pricing Conference, Centre for Economic Policy Research, Gerzensee, Switzerland, July 17. With Xavier Giné and Robert Townsend.

“Federal Financial Exposure to Catastrophe Risk,” George Zanjani. American Risk and Insurance Association annual meeting, Québec City, Canada, August 10. With J. David Cummins and Michael Suher. ■

Call for Papers on the Money Markets

On May 29-30, 2008, the Federal Reserve Bank of New York will host the conference "The Role of Money Markets." The sessions, cosponsored by the Bank and Columbia Business School, will bring together scholars and policymakers interested in the theoretical and applied aspects of these markets.

Authors are invited to submit papers on theoretical and applied topics (in PDF format with fonts embedded) by January 15. Of special interest are papers that investigate the potential effect on money markets if the Federal Reserve begins paying interest on bank reserves in 2011.

Please send submissions to leo.bartolini@ny.frb.org or jamie.mcandrews@ny.frb.org.

For more information: www.newyorkfed.org/research/conference/2008/role_money_mkts.html.

Other New Publications

- *Upstate New York At-A-Glance:* In "A Brain Drain or an Insufficient Brain Gain?" (Number 2, August), Richard Deitz examines the in- and out-migration patterns of college-educated workers and considers implications for upstate New York.
- *Upstate New York Regional Review:* "The Demand for Local Services and Infrastructure Created by an Aging Population" (Volume 2, Number 1). Upstate New York, with a growing senior population, is seeing a rise in the number of frail and disabled elderly who rely on locally provided services and infrastructure. Richard Deitz and Ramon Garcia consider the region's ability to meet this increasing demand in an environment already beset by slow economic growth and fiscal stress.

www.newyorkfed.org/research/regional/index.html

Research and Statistics Group Publications and Papers: July-September 2007

Publications are available at **www.newyorkfed.org/research/publication_annuals/index.html**.

ECONOMIC POLICY REVIEW

Forthcoming
Hedge Funds, Financial Intermediation, and Systemic Risk
John Kambhu, Til Schuermann, and Kevin J. Stiroh

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Evaluating the Relative Strength of the U.S. Capital Markets
Stavros Peristiani

No. 7, August 2007
Job Growth in New York and New Jersey: Mid-2007 Review and Outlook
Jason Bram, James Orr, and Rae Rosen
Second District Highlights

No. 8, September 2007
Is the United States Losing Its Productivity Advantage?
Mary Amiti and Kevin Stiroh

STAFF REPORTS

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