FINANCIAL MARKETS RESEARCH CENTER
SUMMER 1991
Owen AT VANDERBILT

Conference on Securities Markets Transaction Costs

On April 11 and 12, 1991, the Financial Markets Research Center sponsored a conference on securities markets transaction costs in conjunction with the annual meeting of its advisory board. The conference focused on three themes - the measurement of trading costs, the payment for brokerage services (the soft-dollar issue), and the implications for transaction costs of changes in technology and market structure. The conference was attended by representatives of Center members, Vanderbilt faculty, invited faculty from other universities, and invited representatives from industry and government.

The Thursday morning session, chaired by **Jimmy Bradford,** of J.C. Bradford and Company, featured speakers taking different approaches to measuring transaction costs. **Hans R. Stoll,** of the Owen School at Vanderbilt, began the session by noting that trading costs can be measured from market transactions data, from the trading records of particular institutional investors, or from data on the revenues of the securities industry. He presented estimates of market impact costs and commission costs based on revenue and expense data of securities firms. **Ronald Masulis,** also of the Owen School at Vanderbilt, presented a paper, "Measuring the Impacts of Dividend Capture Trading: A Market Microstructure Analysis," co-authored with H. Choe of Penn State University. The paper, which uses market transactions data, analyzes the effect of dividend capture trading on observed volume and on the bid-ask spread.

Josef Lakonishok, of the University of Illinois, presented preliminary results of a study on "Stock Price Behavior Around Institutional Trades," co-authored with Louis Chan also of the University of Illinois. Based on a large sample of transactions carried out by major institutional investors, the authors calculate the price impact of institutional purchase programs and institutional sale programs. The price impacts are compared to a variety of benchmarks. **Gilbert Beebower,** of SEI Corporation, presented an industry perspective on the measurement of trading costs. He noted the importance of trading costs but at the same time recognized the marginal effect of transaction costs on the investment performance of pension funds.

In the Thursday afternoon session, chaired by **Duke Chapman,** of the Chicago Board Options Exchange, a variety of perspectives on soft dollars were presented. Soft dollars are that portion of commission that are returned in the form of services. **Lee Pickard,** formerly head of Market Regulation at the SEC and currently partner in a Washington law firm, provided an overview of the history and current practice in the use of soft dollars. Under SEC safe harbor regulations, commissions may be used to pay not only for the execution of transactions but also for research services. In 1986 the safe harbor was broadened to allow soft-dollar payment for any services that brought "lawful and appropriate assistance to money managers." Conference speakers and participants disagreed on the desirability and feasibility of regulating soft-dollar payments more tightly.

> ***Some laud the new markets because they increase the degree of competition in the provision of securities markets services. Others believe that the new competitors fragment markets and reduce the quality of existing markets.***

David Scheffman, an industrial organization economist at the Owen School at Vanderbilt, examined the soft-dollar issue from the perspective of vertical arrangements in other industries. He noted that in no industries are the business relations between suppliers and customers confined to

From the Dean

As we look forward to a new academic year, it is a pleasure to report that the Owen School and the Financial Markets Research Center continue to make great strides. The Center plays an integral role in the life of the Owen School and in the financial community, and it is a key part of the School's strategy to enhance its international reputation. For the first time in the School's history, *Business Week* listed Owen as one of two "up and coming business schools most likely to break into the top-twenty," and *U.S. News & World Report* mentioned the School as "one of five schools most often named by deans and directors of MBA programs as up-and-comers for their promising innovations." We are delighted, but not satisfied, with these accolades. As our programs and faculty continue to improve, we expect even greater recognition in the future.

For Owen, the past year has been a good one. Placement of the graduating class was strong in a weak market. The admissions process was very successful - at 210 students, the incoming class is the largest and most qualified we have ever admitted. Faculty recruiting was extraordinarily successful. Our teaching faculty now numbers in excess of 50. Contributions to the School continued to increase, as did the level of alumni involvement. The Financial Markets Research Center contributes both directly and indirectly to this success and provides an important link to financial service businesses for our faculty and students.

I am grateful to the members of the Financial Markets Research Center for their participation in, and support of, the Center's activities.

Martin S. Geisel

Jimmy Bradford taking control of the Thursday morning session.

the price dimension. Instead, other dimensions about which buyer and seller can beneficially negotiate are common. **John Peterman,** of the Federal Trade Commission, also commented on soft-dollar payments from the perspective of the Federal Trade Commission, which is faced with regulating comparable arrangements in other industries. **Marshall Blume,** of the Wharton School, provided a progress report on the study of "Soft Dollars and Execution Quality." The study provides evidence on the allocation of soft dollars by type of broker and on the quality of execution of transactions in which soft dollars were and were not involved.

Richard Hinz, of the Pension and Welfare Benefits Administration at the Department of Labor, noted that the use of soft dollars would be outlawed by ERISA, absent the safe harbor granted by the Securities and Exchange Commission. According to Hinz, it is a nearly impossible task to determine the extent to which pension plan sponsors adhere to their fiduciary responsibility in allocating commission dollars, because the quality of execution received in return for those commission dollars is difficult to measure. As a result, the Department of Labor relies on procedural rules, such as the diligence with which money managers are monitored, in evaluating the use of commission dollars by pension plan sponsors. **Chuck Tschampion,** of GM Investment Management Corporation, spoke against soft dollars and argued for the unbundling of research and brokerage services.

Not unexpectedly, the Thursday afternoon session on soft dollars produced lively discussion and a wide variety of opinions. Some argued strongly against soft dollars and favored their strict abolition. Others, noting that similar arrangements existed in other industries, felt that soft dollars provided useful flexibility in paying for research services and execution. Others noted the difficulty of doing away with soft dollars if one wanted to. While services rendered by third parties could be abolished, services provided by the broker executing orders would be difficult to restrict.

The Thursday sessions concluded with a reception and dinner followed, in some cases, by excursions to certain Nashville locales.

The first Friday morning session on technology, market structure, and trading costs, chaired by **Jim Cochrane,** of the New York Stock Exchange, focused on the effect of new competing markets on existing markets. Some laud the new markets because they increase the degree of competition in the provision of securities markets services. Others believe that the new competitors fragment markets and reduce the quality of existing markets. **Alden Adkins,** of the Securities and Exchange Commission, spoke on "Proprietary Trading Systems: Regulatory Issues." He described the commission's attitude to proprietary trading systems, such as the new Wunsch Auction. **Steve Wunsch,** developer of the Wunsch Auction, argued that the Wunsch Auction provides useful competition without fragmenting markets.

Much of the mornings discussion centered on the practice of quote matching and the payment for order flow. **Gene Finn,** of the NASD, discussed the practice of paying for order flow and noted that a special NASD committee headed by David Ruder would soon report on the issue. **Larry Harris,** of the University of Southern California, spoke on "Order Precedence Rules, Quote Matching and Automation." He noted that "quote matchers" may be able to expropriate some of the investment made by those who originally establish the quote and that order precedence rules affect the success of quote matchers. **Stan Besen,** of the Rand Corporation of the Georgetown Law School, an economist who specializes in the telecommunications industry, provided a commentary on the fragmentation/competition discussion from the perspective of developments in the telecommunications industry. Like the stock market, the telecommunications industry, once dominated by AT&T, has experienced increased competition from other long-distance companies, from private networks, and from new communications technology. Besen noted the similarity of the arguments for and against increased competition in telecommunications and in the stock market. This and other topics of the morning session produced lively audience discussion including comments from **Jay Peake,** whose paper, "Fragmentation, Liquidity and a National Market System," was distributed to conference participants.

Lee Pickard describing "soft dollar" practices.

The second Friday morning session, chaired by **Rick Kilcollin,** of the Chicago Mercantile Exchange, began with a theoretical paper on "Private Information, the Third Market, and Investor Welfare," by **Larry Glosten** of Columbia University. Glosten modeled the impact on the primary market's bid-ask spread of a third market maker who purchases order flow. Under the assumptions of the model, the purchase of order flow can raise the bid-ask spread for all investors. **Warren Langley** of Hull Trading Company, spoke on "Perils for the Outsider: Experiences at the Cincinnati and Other Markets." He commented on the dangers to a market maker at a satellite exchange who cannot observe the order flow at the primary exchange. Orders at a satellite market may lose time priority and are in danger of being "picked off" by more knowledgeable market makers in the primary market. **Jim Shapiro** of the New York Stock Exchange noted that primary markets, such as the New York Stock Exchange, bear regulatory costs that competitors to the New York Stock Exchange do not. He foresaw two extreme forms of market organization. One option is to move to truly open competition on an equal basis among all market organizations. This would lead to a dealer market organization with free entry and exit of individual dealers. An alternative is to return to a more closely regulated trading arrangement in which particular markets have exclusive rights to trade particular stocks and are subject to regulatory burdens.

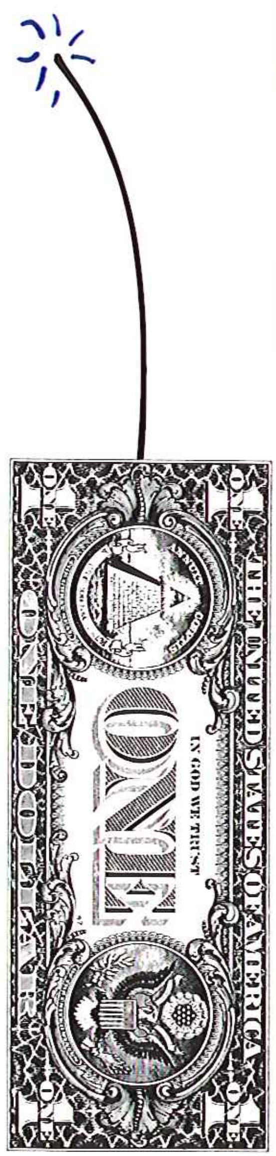
TOP: Gene Finn commenting on the payment for order flow. BOTTOM: Warren Langley discussing market making on a regional exchange.

From the Director

The Center enters its fifth year of operations with an exceptionally strong faculty and an impressive record of research accomplishments. Fourteen associated faculty, drawn from the fields of finance, economics, and accounting have, in the past year, produced an impressive output of fundamental and applied research (detailed later in this newsletter). The Center's faculty associates continue their work on volatility, with papers on stock index expiration day volatility and on the prediction of volatility. A new approach to volatility is reflected in a paper on the changing cross-sectional distribution of stock returns. Several papers reflect the Center's interest in the structure and functioning of stock markets and in the transaction costs of trading in financial markets. In the field of corporate finance, center associates have written on dividend policy, repurchase tender offers, new issues market, capital structure, and on the reaction of stock returns to accounting changes, such as deferred taxes. Several papers have examined issues of international finance, including the term structure of forward rates and the volatility in the foreign currency markets. Other papers have examined the auction process for selling failed banks and option pricing theory under complex behavior of the underlying asset. Economists, associated with the Center, are applying industrial organization concepts and economic theory to problems in the financial markets and financial institutions.

Departing research associate, Athena Lee, flanked by Center director, Hans Stoll, and administrative assistant, Pat Scott.

The Center's faculty associates continue their work on volatility



The accomplishments of Center faculty are recognized by their academic peers at other universities. Faculty associated with the Center serve, or have recently served, on the editorial boards of ten academic journals including the four top journals in finance. The faculty associated with the Center serve on the boards of directors of all the major professional associations in finance.

Published in the past year was the book, International Finance and Financial Policy, containing papers presented at the Center's 1989 Conference on International Financial Policy. The conference was organized to honor Dewey Daane, senior advisor of the Center, upon his retirement as a full time faculty member and after a distinguished career in government, industry, and academia. The book contains a foreword by Paul Volcker and papers on the three major issues addressed at the conference: international imbalances and international policy coordination, the international debt crisis, and global financial markets.

Leaving this year is Athena Lee, research associate for faculty computing support and database management, who has been with the Center since its inception in 1987. Athena very ably maintained the increasingly complex databases used by the faculty and provided computer programming support to faculty. She joins her husband in the Los Angeles area. Replacing Athena are Hao Zhang, who has completed all the requirements for the Ph.D. in economics at Vanderbilt except the dissertation, and Ziyong Cai, who received his Ph.D. in physics from Michigan Technological University.

Membership in the Center continues to expand. During the past year Bankers Trust Company joined the Center, and the New York Mercantile Exchange joins the Center effective the coming academic year.

Goals of the Center

The Financial Markets Research Center at Vanderbilt University fosters scholarly research to improve the understanding of developments in financial markets, financial instruments, and financial institutions. The Center aims to examine these developments from the perspective of participants in financial markets (brokers, exchanges, and financial intermediaries), from the perspective of businesses needing financing, and from the perspective of appropriate regulatory policy. The specific objectives of the Center are:

1 To provide a mechanism for interaction between representatives of the financial community, researchers in financial markets, and the faculty at Vanderbilt.

2 To identify critical research issues in financial markets and to provide a focus for such research.

3 To support research by faculty members and Ph.D. students at Vanderbilt by maintaining data bases and funding research projects.

4 To guide, review, and disseminate research about financial markets.

Funding

The Center is funded by members of the Center and by outside research grants. Funds are used to cover the direct operating costs of the Center and to support the Center's research projects. Members participate in all activities of the Center, receive research reports, and give advice on the activities and research direction of the Center. Research grants for specific projects are sought from various research sponsors including foundations, government agencies, trade organizations, and corporations.

Current Center members serving on the Advisory Board are: Bankers Trust Company; J. C. Bradford & Company; The Chicago Mercantile Exchange; The Chicago Board Options Exchange; Hull Trading Company; The National Association of Securities Dealers, Inc.; The New York Mercantile Exchange; The New York Stock Exchange, Inc.; Refco Group, Ltd.; and Timber Hill Inc.

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Guest Speakers

An important aspect of the education of MBA students and the faculty at the Owen School is the opportunity to listen to and question senior executives from financial industries. Outside speakers are sponsored directly by the Financial Markets Research Center, the Owen Lecture Series, or the Finance Association, or are invited as an integral part of courses such as Monetary and Fiscal Policy and Financial Institutions. Guest speakers during the 1990-91 academic year were:

J. Alfred Broaddus Jr., senior vice-president and director of research, Federal Reserve Bank of Richmond

Kathleen A. Condon, managing director, Bankers Trust Company

Charles W. Cook, Jr., former chairman and chief executive officer, Third National Bank

Jim Cooper, Congressman, D-Tennessee

Robert P. Forrestal, president, Federal Reserve Bank of Atlanta

Foster Friess, president, Friess Associates

Trow Gillespie, partner, New South Capital Management

Jeffrey A. Golden, president and chief executive officer, City Bank and Company, McMinnville, TN

Margaret L. Greene, senior vice-president, Foreign Department, Federal Reserve Bank of New York

Blake Grossman, senior vice-president, Wells Fargo Investment Advisors

Susan J. Irving, faculty, GAO Training Institute

George Jacobsen, partner, Trevor Stewart Burton & Jacobsen

Debbie Jennings, senior director, Morgan Grenfell Capital Management

David M. Jones, senior vice-president and economist, Aubrey G. Lanston and Company, Inc., New York

Sidney L. Jones, Assistant Secretary of the Treasury for Economic Policy

Silas Keehn, president, Federal Reserve Bank of Chicago

Donald L. Kohn, director, Division of Monetary Affairs, Board of Governors of the Federal Reserve System

Eugene A. Leonard, president, Corporation for Financial Risk Management, St. Louis

Rudolph G. Penner, senior fellow, The Urban Institute; former director, Congressional Budget Office

John Rau, chairman, Banking Research Center, J.L. Kellogg Graduate School of Management, Northwestern University

John Sloan, Jr., president and chief executive officer, National Federation of Independent Businesses

Walter Stern, The Capital Group

Peter Sternlight, executive vice-president, Federal Reserve Bank of New York

Frederick M. Struble, associate director, Division of Banking Supervision and Regulation of the Board of Governors of the Federal Reserve System

William Taylor, director, Division of Banking Regulation and Supervision, Board of Governors of the Federal Reserve System

R. Charles Tschampion, GM Investment Management Corporation

Billy Williams, principal, STW Investments

Finance Student Activities

Owen School Finance Association

The purpose of the Owen Finance Association is to provide a link between the Owen School and the financial community. The 1990-91 academic year brought continued success to the Association's efforts. During the Fall semester, the Association conducted trips to New York and Chicago to visit several major financial institutions and exchanges. The Association also hosted speakers who discussed current financial topics and provided students with information about a variety of financial careers. The events were highlighted by the second annual presentation of the Owen Finance Association Outstanding Financial Executive Award. This year's recipient was Donald J. Schuenke, chairman and chief executive officer of Northwestern Mutual Life Insurance Company.

Max Adler Student Investment Fund

The primary purpose of the Max Adler Student Investment Club is the active management of the fund created by the generous gift of Mimi Adler in memory of her late husband, the founder of Spencer Gifts. Students gain practical experience in selecting investments and in managing a portfolio. During the past year a six-member Investment Advisory Board consisting of professionals from the investment community was established to advise the club. For calendar year 1990, the club beat the S&P 500 Index by 1,450 basis points. The club also sponsors investment contests and invites speakers from the investment community. A major event of the club was the banquet and panel discussion featuring the members of the advisory board.

Donald Schuenke receiving the award as Outstanding Financial Executive of the year from Logan Toms, president of the Owen School Finance Association.

Research Workshops

Workshops conducted at the Owen School throughout the year provide a forum for the exchange and testing of new ideas in areas of current research. During 1990-91 the following researchers presented work on finance topics:

Cliff Ball, Owen School: "Jump Diffusion Processes: Estimation Problems with Applications to European Currencies"

George Bittlingmayer, UC/Davis: "The Stock Market and Early Antitrust Enforcement" and "Stock Returns, Real Activity and the Trust Question"

Tim Bollerslev, Northwestern University: "Intra Day and Inter Market Volatility in Foreign Exchange Rates"

Peter Carr, Cornell University: "Alternative Characterizations of American Put Options"

Paul Chaney and Craig Lewis, Owen School: "An Empirical Analysis of Earnings Management"

Sung Choi and Debra Jeter, Owen School: "The Effects of Qualified Audit Opinions on Earnings Response Coefficients"

Bhagwan Chowdry, UCLA: "The Strategic Role of Debt in Takeover Contests"

William Christie and Roger Huang, Owen School: "The Changing Functional Relation between Stock Returns and Dividend Yields"

Bjorn Flesaker, University of Illinois: "Estimation and Testing of the Constant Volatility Heath-Jarrow-Morton Model of Interest Rate Contingent Claims Pricing"

Robert Hodrick, Northwestern University: "Dividend Yield and Equilibrium Stock Returns: Alternative Procedures for Inference and Measurement"

Roger Huang, Owen School: "An Analysis of Non-Linearities in Term Premia and Forward Rates"

Chris James, University of Florida: "Relationship Specific Assets and the Pricing of Underwriter Services"

Robert Lipe, University of Michigan: "Long Horizon Properties of Annual Earnings: An Analysis of Persistence and Valuation"

Ronald Masulis, Owen School: "An Investigation of Market Microstructure Impacts on Event Study Returns"

Dan Nelson, University of Chicago: "Good News, Bad News, Volatilities and Betas"


Clifford Ball


Paul Chaney

Katherine Schipper, University of Chicago: "Exploiting Tax Attributes of Spinoffs to Structure Takeovers and Takeover-Related Defenses"

Ted Sternberg, Owen School: "Winner's Surplus in Sealed Bid Auctions, with an Application to the Market for Failed Banks"

Rene Stulz, Ohio State University: "Global Financial Markets and the Risk Premium on U.S. Equity"

S. Ramu Thiagarajan, Tulane University: "Intertemporal Instability of Earnings Response Coefficients"

Joseph Zechner, University of British Columbia: "Debt Agency Costs and Industry Equilibrium"

Current Activities of Center Affiliates

CLIFFORD BALL, associate professor (finance and statistics). M.Sc., Ph.D., mathematics (New Mexico, 1980).

Conducts research in options, bond, and futures pricing and statistical applications to finance. Current research topics: pricing interest-rate contingent claims; EMS currency options; statistical estimation of diffusion processes employed in financial modeling. Prior to joining the Owen School in 1990, Ball was a faculty member at the University of Michigan Business School and the London Business School. He also has served as a consultant with the investment firm of Shearson, Lehman & Hutton.

During the year, Ball presented a paper at the American Statistical Association meetings in Anaheim and participated in the Western Finance Association meetings at Jackson Hole. He also presented a paper and chaired a session at the Financial Options Research Centre conference at the University of Warwick in Coventry, England. Ball spent a week at the London Business School conducting research into the EMS exchange rate mechanism. In addition, he has served as a referee for numerous research journals.

PAUL CHANEY, associate professor (accounting). M.B.A., Ph.D. (Indiana, 1983), C.P.A., C.M.A.

Conducts research on the economic consequences and capital-market effects of accounting information.

His paper, "The Impact of New Product Introductions on Stockholder Wealth and Market Structure," (with Timothy Devinney and Russell Winer) will be published in the October 1991 issue of the *Journal of Business*. A second paper, "The Effect of Size on the Magnitude of Long-Window Earnings Response Coefficients," (with Debra Jeter) is to be published in the Spring 1992 issue of *Contemporary Accounting Research*. A third paper, "Goodwill: A Global Perspective," (with Jeter) appeared in *Controllers Quarterly*, number 3, 1990.

WILLIAM CHRISTIE, assistant professor (finance). M.B.A., Ph.D. (Chicago, 1989).

Joined the Owen faculty in 1989. Prior to his doctoral studies, Christie worked as a financial analyst at Hewlett Packard (Canada) Limited and the Ford Motor Company of Canada. Current research interests include the relation between dividend policy and expected returns, equity return dispersions, and the measurement of trading costs from a market microstructure perspective.

His paper, "Dividend Yield and Expected Returns: The Zero-Dividend Puzzle," was recently published in the *Journal of Financial Economics* and was presented at the 1990 European Finance Association meetings in Athens, Greece. He also presented the paper "Equity Return Dispersions" (co-authored with Roger Huang) at the 1991 Western Finance Association meetings at Jackson Hole, Wyoming.

MARK A. COHEN, associate professor (economics). M.A., Ph.D. (Carnegie-Mellon, 1985).

Conducts research on government regulation, law and economics, white-collar and corporate crime. Before joining the faculty at the Owen School, Cohen was senior economist with the U.S. Sentencing Commission and earlier worked for the Federal Trade Commission, the U.S. Environmental Protection Agency, the U.S. Department of Treasury, and the U.S. Senate Banking Committee. Cohen's writing has appeared in such publications as the *Journal of Law and Economics* and the *Yale Journal on Regulation*.

Cohen's recent research has focused on white collar and corporate crime and the role of the judicial branch in enforcing government regulation of business. He has served as a consultant to the U.S. Sentencing Commission to analyze current sentencing practice and draft proposed guidelines for the sentencing of firms convicted of corporate crime. During the past year, Cohen presented several papers on corporate crime at conferences and workshops including: a national symposium on the sentencing of organizations sponsored by George Mason University Law School; an academic workshop on enforcement of environmental regulations sponsored by Woods Hole Oceanographic Institution; and the annual meetings of the American Law and Economics Association and the Western Economic Association. One of these papers was published in the *Boston University Law Review* and another is forthcoming in a book on innovations in the environmental enforcement.

Cohen was recently appointed as a peer review consultant for the National Institute of Justice (NIJ). He also received a research grant from NIJ to study the costs and consequences of crime.


William Christie


Mark A. Cohen


J. Dewey Daane

J. DEWEY DAANE, The Frank K. Houston Professor of Finance, Emeritus; senior advisor, Financial Markets Research Center. M.P.A., D.P.A. (Harvard, 1949).

Conducts research on monetary economics and international finance. Daane is a former member of the Board of Governors of the Federal Reserve System and is currently a public director of the National Futures Association. He is also a former public director of the Chicago Board of Trade. Daane served for many years as chairman of the Money Market Committee and vice-chairman of the Trust Board of the Sovran Bank/Central South in Nashville.

In May, Daane was on the faculty of the Banking Investments School sponsored by the Owen School and the IBAA. He has been a frequent speaker on the U.S. Economic Outlook to business and academic groups in Nashville and elsewhere. Most recently he moderated a panel discussion at Owen with Federal Reserve, Treasury, and bank officers on "Banking Reform: The Treasury Proposal - Will it pass? Should it pass?"

Daane participates, along with a group of around 35 economists, in the semi-annual *Wall Street Journal* survey of the economic outlook.

ROGER D. HUANG, associate professor (finance). M.A., Ph.D. (Pennsylvania, 1980).

Current research topics include determinants of bid-ask quotes, structure of international equity markets, volatility in futures markets, stock return dispersions, tests of intertemporal asset pricing models, term structure of interest rates, foreign exchange speculation, and the relation between stock returns and dividend yields.

In 1990, Huang published "Risk and Parity in Purchasing Power" in the *Journal of Money, Credit, and Banking*, "Risk and Return in the Corporate *Bond Market" in the Journal of Financial and Quantitative Analysis* (with Eric Chang), and "Financial Asset Substitution and International Asset Pricing" in *Advances in Financial Planning and Forecasting: International Dimensions* (with Tsong-Yue Lai). His papers on "Volatility in the Foreign Currency Futures Market" (with Campbell R. Harvey) and "Transformed Securities and Alternative Factor Structures" (with Hoje Jo) are forthcoming in the *Review of Financial Studies* and the *Journal of Finance* respectively.

During the past year, Huang's paper on "Volatility in the Foreign Currency Futures Market" was presented at the European Finance Association meeting in Stockholm and his paper on "Equity Return Dispersions" at the Western Finance Association meeting in Jackson Hole. Huang also chaired a session on foreign exchange rate behavior at the Financial Management Association meeting in Orlando.

CRAIG M. LEWIS, assistant professor (finance). M.S., Ph.D. (Wisconsin, 1986), C.P.A.

Conducts research on optimal corporate financial policy, accounting earnings management, futures, and options. Current research topics include the time series behavior of volatility, market responsiveness to earnings announcements, and tests of earnings management.

Published papers by Lewis include the information content of implied volatilities from stock index options and multiperiod corporate financial policy choices. His papers on "Stock Market Volatility and the Information Content of Stock Index Options" (with Theodore E. Day) and "Convertible Debt: Valuation and Conversion in Complex Capital Structures" are forthcoming in the *Journal of Econometrics* and the *Journal of Banking and Finance*, respectively.

During the past year, Lewis's papers (with Paul Chaney), "Accounting Earnings Management and Firm Valuation" and "An Empirical Analysis of Accounting Earnings Management: Evidence from Initial Public Offerings," were presented at the TIMS/ORSA meeting in Nashville and his paper on "Accounting Earnings Management" at the Western Finance Association meeting in Jackson Hole, Wyoming. Lewis also chaired a session on option pricing in corporate finance at the Financial Management Association meeting in Orlando. He also discussed papers in the American Finance Association conference in Washington, DC and the Western Finance Association meeting. He also served as a referee for numerous research journals.

Lewis received the James A. Webb award for excellence in teaching from the regular MBA class of 1991 as well as the outstanding teacher award from the Executive MBA class of 1991.

RONALD W. MASULIS, The Valere Blair Potter Professor of Management. M.B.A., Ph.D. (Chicago, 1978).

Conducts research in the fields of corporate finance, financial institutions, capital markets, and most recently, international finance. He recently authored a book titled *The Debt-Equity Choice* (Ballinger, 1988) that surveys current developments in the area of capital structure.

Prior to joining the Owen School in 1990, Masulis was the James M. Collins Professor of Finance and executive director of the Center for the Study of Financial Institutions and Markets at Southern Methodist University. He also taught for many years at UCLA and worked as a financial economist at the Securities and Exchange Commission, the Federal Home Loan Bank Board, and the Federal Savings and Loan Insurance Corporation. Masulis currently serves on the board of directors of the American Finance Association and the Western Finance Association, and he is associate editor of several finance journals.

This academic year, he has presented papers at Harvard, Maryland, University of British Columbia, London Business School, and INSEAD (Fontainebleau, France). He also spoke on current issues in the financial markets before the Vanderbilt alumni clubs of New York and Dallas. His paper, "The Effect of the 1987 Stock Crash on International Financial Integration," (with Yasushi Hamao and Victor Ng) was published in *Japanese*

Roger D. Huang

Craig M. Lewis

Ronald W. Masulis

Financial Market Research; "An Investigation of Market Microstructure Impacts on Event Study Returns" (with Ronald Lease and John Page) is forthcoming in the *Journal of Finance;* and "Repurchase Tender Offers and Earnings Information" (with Larry Dann and David Mayers) is forthcoming in the *Journal of Accounting and Economics.*

DAVID C. PARSLEY, assistant professor (economics). A.M. (Indiana, 1979), Ph.D. (California, Berkeley, 1990).

Joined the Owen faculty in 1990 after completing his Ph.D. at the University of California at Berkeley. Prior to his doctoral studies, he worked as a research associate at the Federal Reserve Bank of San Francisco.

Conducts research on the effects of exchange rates on price levels, the persistence of the U.S. trade deficit, the effects of money supply announcements, and the stability of economic relationships.

During the year, Parsley participated in an NBER conference on exchange rate regimes in December and presented a paper on hysteresis in U.S. bilateral trade at the Western Economic Association meetings in July.

ROBIN A. PRAGER, assistant professor (economics). A.B. (Harvard, 1978), Ph.D. (MIT, 1987).

Conducts research on industrial organization and government regulation of industry. Prager has published papers on regulatory issues relating to the electric utility, cable television, and railroad industries. She spent the 1990-91 academic year as a visiting faculty member at the Boston University School of Management and will spend the 1991-92 academic year as a visiting faculty member at MIT's Sloan School of Management. Prager plans to return to the Owen School in the Fall of 1992.

DAVID T. SCHEFFMAN, The Justin Potter Professor of American Competitive Enterprise. B.A. (Minnesota, 1967), Ph.D. (M.I.T., 1971).

Conducts research on strategic management, regulation, antitrust, and industrial organization. Current research topics: mergers in the electric power industry, antitrust policy with respect to mergers, distribution channels, and input exchange agreements. Scheffman has a number of research papers and a book being published, including:

David C. Parsley

Robin A. Prager

David T. Scheffman

Theodore Sternberg

"The Application of Raising Rivals' Costs Theory to Antitrust," in the *Antitrust Bulletin;* "Buyers' Strategies, Entry Barriers, and Competition" (with P. Spiller), in *Economic Inquiry;* and *Strategy, Structure and Antitrust in the Carbonated Soft Drink Industry* (with T. Muris and P. Spiller), a book being published by Quorum Books.

Scheffman gave a number of presentations during the past year, including: "Empirical Approaches to Market Definition" and "Economic Analysis of the Antitrust Sentencing Guideline," both at the Antitrust Section of the American Bar Association Annual Meetings; "Strategy and Structure in Soft Drink Distribution," at the Olin School, Washington University; "Speculation and Monopoly in Korean Urban Land Markets," at the Seminar on Korean Political Economy, East-West Center, University of Hawaii; "Statistical Estimation of Markets," at the Atlantic Economics Society Meetings; and "Economic Bases of Traditional Regulatory Approaches to Vertical Arrangements," at the FMRC Conference on Securities Markets Transaction Costs. Scheffman was also an invited participant at the Columbia University School of Law Conference on Electrical Utilities and at the UC Berkeley Conference on Technology and Corporate Competence.

THEODORE STERNBERG, assistant professor (finance). M.A. (Hebrew University, Israel, 1988), Ph.D. (California, Berkeley, 1989).

Conducts research on corporate finance, real estate, bankruptcy reorganization, market microstructure, and banking.

Last December, Sternberg presented a paper on the performance of real estate auctions to the American Real Estate and Urban Economics Association in Washington, DC. In June, he presented a paper on the profitability of the FDIC's failed bank auctions at the Western Finance Association meetings in Jackson Hole. He continues to investigate the U.S. Government's efforts to manage the bank and S&L "mess."

HANS R. STOLL, The Anne Marie and Thomas B. Walker Professor of Finance; and director, Financial Markets Research Center. M.B.A., Ph.D. (Chicago, 1966).

Conducts research on the structure of securities markets and the pricing of options and futures. His current research topics include the short-run prediction of stock returns, the measurement of transactions costs, and the transmission of oil price shocks to other financial markets.

During the past year, Stoll gave several talks on current issues in the financial markets, speaking to NASD brokers at a conference in San Francisco, to the Vanderbilt Board of Trust, and to the New York Vanderbilt Club. In the fall of 1990, he participated as one of five commissioners in the first annual meeting of the Shadow Securities and Exchange Commission held in Washington, DC. The Shadow Commission developed recommendations on program trading and market volatility and on proxy voting. Stoll helped organize the fall research conference of the Chicago Board of Trade, which was held at the Owen School on December 3 and 4. The conference focused on the topic of market microstructure in the futures markets and brought together academics and practitioners.

In the spring of 1991, Stoll gave his paper (with Robert Whaley), "Expiration Day Effects: What Has Changed?" at Virginia Tech and spoke on "World Equity Markets: Current Structure and Prospects for Change" at the Q-Group meeting in Ponte Vedre, Florida. In April, he gave the introductory survey lecture on the microstructure of securities markets at a workshop on finance held at the European Institute for Advanced Studies in Management in Brussels, Belgium.

At the June 1991 meetings of the Western Finance Association in Jackson Hole, Stoll was elected program chairman and president- elect. He will be responsible for organizing the 1992 meetings in San Francisco and in the following year will serve as president of the Western Finance Association. Stoll also serves as a director of the American Finance Association, the Financial Management Association, and the Institute for the Study of Security Markets.

Stoll's publications during the past year include "The Dynamics of Stock Index and Stock Index Futures Returns" (with Robert E. Whaley), published in the *Journal of Financial and Quantitative Analysis*, and "Margins on Stock Index Futures Contracts," which appeared in *Investing*. Stoll is also editor of the book, *International Finance and Financial Policy*, published in the fall of 1990.


Hans R. Stoll


H. Martin Weingartner

H. MARTIN WEINGARTNER, The Brownlee O. Currey Professor of Finance. M.S., Ph.D. (Carnegie Mellon, 1962).

Weingartner taught previously at Chicago, MIT, and Rochester. He is a past president of The Institute of Management Sciences and is associate editor of *Management Science*. His publications include *Mathematical Programming and the Analysis of Capital Budgeting Problems* and numerous articles.

In May, Weingartner was a panelist on negotiation research at the meetings of The Institute of Management Sciences & Operations Research Society of America held in Nashville. His recent working paper, "How to Settle an Estate," considers equitable allocation of assets from an estate or trust when tax basis differs from market value and asset liquidation isn't desirable. He is back at work on some aspects of the capital investment decision process.

Faculty Research Papers

Publications appearing and working papers completed since January 1990 are listed below. Individual copies may be obtained by writing Mrs. Pat Scott, Owen Graduate School of Management, Vanderbilt University, Nashville, TN 37203.

1990-91 WORKING PAPERS

"Equity Return Dispersions," by William G. Christie and Roger D. Huang. Working Paper No. 90-04.

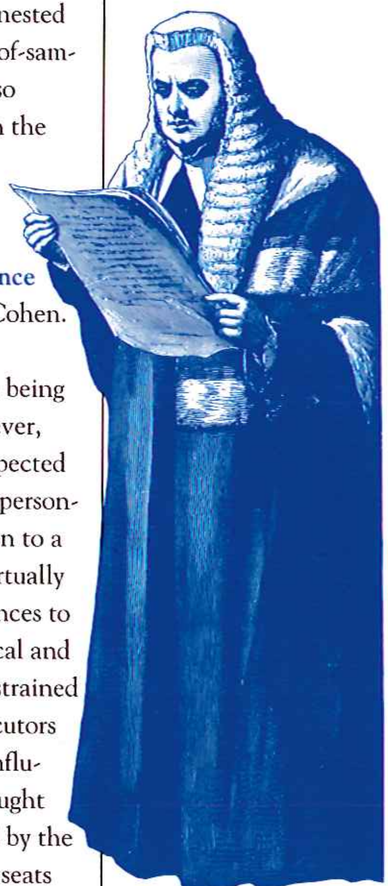
The level of dispersion, as measured by the cross-sectional standard deviation of returns, quantifies the average proximity of individual returns to the mean and conveys information on whether results using portfolio returns can be extended to individual assets. It also allows the identification of periods with high dispersion when asset pricing models are more likely to fail. We find that equity dispersions fluctuate substantially over time (especially during the Great Depression), vary inversely with firm size, and are relatively uniform across industry portfolios. We also report that the variation in dispersion is not random, with our regression evidence indicating that dispersions are higher during economic contractions and poor economic conditions, exhibit a January effect, and produce R-squares as high as 0.5.

"Stock Market Volatility and the Information Content of Stock Index Options," by Theodore E. Day and Craig M. Lewis. Working Paper No. 90-09

Previous studies of the information content of the implied volatilities from the prices of call options have used a cross-sectional regression approach. This paper compares the information content of the implied volatilities from call options on the S&P 100 index to GARCH (Generalized Autoregressive Conditional Heteroscedasticity) and Exponential GARCH models of conditional volatility. By adding the implied volatility to GARCH and EGARCH models as an exogenous variable, the within-sample incremental information content of implied volatilities can be examined using a likelihood ratio test of several nested models for conditional volatility. The out-of-sample predictive content of these models is also examined by regressing ex post volatility on the implied volatilities and the forecasts from GARCH and EGARCH models.

"The Motives of Judges: Empirical Evidence from Antitrust Sentencing," by Mark A. Cohen. Working Paper No. 90-20.

Judges have traditionally been viewed as being independent of the political process. However, economic theory tells us that as rational expected utility maximizers, judges might care about personal goals such as their prospects for promotion to a higher court. Although judges have had virtually complete discretion in deciding what sentences to impose, they are constrained by both political and legal realities. In particular, judges are constrained by a criminal justice system in which prosecutors and potential violators have considerable influence over the number and type of cases brought before the court. They are also constrained by the promotion process for filling new or vacant seats on higher courts. An examination of all federal antitrust offenders from 1955 to 1980 finds that promotion potential explains a significant portion of the variance in sentences. This finding suggests that although judges do have significant discretion in their sentencing decisions, they also respond to incentives.



"An Empirical Analysis of Deferred Taxes by Industry: Magnitude, Growth, Variabiliby, and Stock Market Effects," by Paul K. Chaney and Debra C. Jeter. Working Paper No. 90-21.

We demonstrate that deferred taxes differ by industry in their relative magnitude on the balance sheet, their growth over the years 1969-1985, and their variability over this time period. In addition, we show that the association between the deferred tax component of earnings and security returns is stronger for firms whose deferred tax items are less "predictably recurring" and for firms whose growth in deferred taxes on the balance sheet has been slower. These findings are consistent with a view that the market places little confidence in deferred taxes which appear unlikely to "reverse out" in the foreseeable future and are thus unlikely to directly affect future cash flows.

For financial analysts and other groups using and analyzing financial statements, our results suggest that a portion of the deferred tax liability reported on the balance sheet might be better treated as equity, while a portion of the deferred tax expense included in net income should, perhaps, be disregarded (or added back) in computing profitability ratios. Our results lend some support for changing current reporting practices from comprehensive tax allocation (reporting all deferred tax items) to partial tax allocation (reporting only deferred items expected to reverse in the near future). Consequently, we believe that the relative merits of partial versus comprehensive tax allocation merit further consideration.

"The Effect of Deferred Taxes on Security Prices," by Paul K. Chaney and Debra C. Jeter. Working Paper No. 90-22.

The essential issues being addressed in this paper are: does the deferred tax component of earnings provide incremental information to shareholders beyond that which would be available if net income were computed without the deferred tax component; and, if so, why? Two theories of deferred taxes are examined, a liability argument and a quality of earnings argument. The results suggest that the market is gleaning information about the quality of reported earnings, as evidenced in the magnitude of the earnings response coefficient, from the deferred tax component. In addition, some information may be obtained from that component about future tax payments.

"How to Settle an Estate" by H. Martin Weingartner and bezalel Gavish. Working Paper No. 90-26

This paper considers the equitable divistion of a set of assets, all or some of which are indivisible, among two or more beneficiaries, simultaneously using several methods of valuing the assets. The problem arises when a fiduciary is required to distribute the assets – of a trust or estate, or to divide the property in a divorce or in dissolution of a partnership – in which the assets have separate market values and tax basis. In other variations of this problem, the beneficiaries are presumed to have an infinitely divisible asset, such as cash, or some of the assets may be liquidated. Models for combining consideration of subjective values are also considered. Computational methods for these problems are also discussed and illustrated.

"An Investigation of Market Microstructure Impacts on Event Study Returns," by Ronald C. Lease, Ronald W. Masulis, and John R. Page. Working Paper No. 90-27.

We investigate the importance of bid-ask spread induced biases on event date returns as exemplified by seasoned equity offerings by NYSE listed firms. We document significant negative return biases on the offering day which explain a large portion of the negative event date return documented in the literature. Buy/sell order flow imbalance is prominent around the offering and induces a relatively large spread bias. If order imbalances are suspected, the researcher can use returns calculated from the midpoint of the closing bid and ask quotes, instead of returns calculated from closing transaction prices, to avoid this return bias.

"Speculation, Arbitrage, and The Message in Forward Exchange Rates," by Roger D. Huang. Working Paper No. 90-28.

Forward exchange rate premiums frequently predict the opposite direction of subsequent spot exchange rate changes. This behavior is often attributed to time-varying risk premiums. This paper demonstrates that the evidence also can be the result of interest rate arbitrage. In addition, forward maturity spreads are shown to project the reverse of subsequent shorter-maturity forward exchange rate changes. However, forward maturity spreads correctly forecast the direction of future forward premiums. All the evidence is consistent with the joint presence of speculation and arbitrage.

"Repurchase Tender Offers and Earnings Information," by Larry Y. Dann, Ronald W. Masulis, and David Mayers. Working Paper No. 90-29.

This paper examines the question of whether announcements of stock repurchase tender offers convey information on the firm's future earnings prospects to the market. Several complementary forms of evidence are developed to address this question, and each provides support for the hypothesized relation. We report positive average earnings surprises following tender offers but not, in most instances, preceding them. Analysts' forecasts of earnings also increase following repurchase announcements. We find positive stock price reactions to tender offer announcements to be correlated with earnings surprises over the concurrent and subsequent two years. Finally, stock price reactions to quarterly earnings announcements are more strongly correlated with time-series based earnings surprises in the year prior to the tender offer than during the subsequent year.

"Adverse Selection in Common Stock Offerings: Theory and Evidence," by Hyuk Choe, Ronald W. Masulis, and Vikram Nanda. Working Paper No. 90-30.

It is shown that adverse selection in the primary market for seasoned equity implies that in periods with more promising investment opportunities, firms financing investments through equity financing face a relatively lower adverse selection cost. A key prediction is that the proportion of external financing accounted for by equity issues should be greater in such periods. Also a firm's announcement of an equity offering in such periods is expected to convey less adverse information about firm value to investors, than in other periods. The ability of firms to time equity issues by delaying project initiation might amplify these effects. Empirically, we find evidence that is generally consistent with these predictions. In expansionary phases of the business cycle, larger numbers of firms issue common stock and the proportion of external financing accounted for by equity is substantially higher. The adverse selection costs as measured by the negative price reactions to seasoned common stock offering announcements are significantly lower in these periods.

"Principles of Trading Market Structure," by Hans R. Stoll. Working Paper No. 90-31.

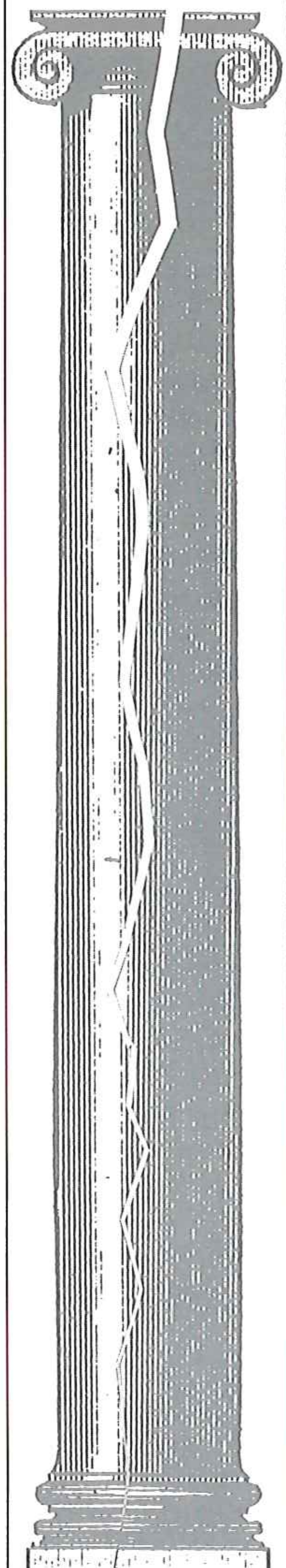
This paper provides a framework for analyzing trading markets and provides guidance on market design and regulatory policy.

"Major World Equity Markets: Current Structure and Prospects for Change," by Roger Huang and Hans R. Stoll. Working Paper No. 90-32.

This paper describes the key features of five major equity markets — London, Toronto, Paris, Tokyo, and Germany. Prospects for the future of world trading markets are discussed.

"Buyers' Strategies, Entry Barriers, and Competition," by David T. Scheffman and Pablo T. Spiller. Working Paper No. 90-33.

This paper develops an analysis of buyers' strategies. We analyze markets in which sellers have significant customer or market-specific investments but in which buyers can make credible, albeit costly and time consuming commitments to obtain alternative sources of supply. Because of sellers' specific assets, **de novo** entry would be naturally blockaded in a standard oligopoly model. We show, however, that once buyers' strategies are considered in markets with these characteristics, the market power of sellers' is more attenuated than models with unsophisticated buyers would predict. In particular, current prices and the decision to switch suppliers (including via vertical integration) are related, so that limit pricing (against switching or vertical integration) is a likely form of equilibrium pricing, even in the presence of full information. Limit prices are shown to increase with the amount of time it takes to switch, and with the level of buyers' switching costs, but to <u>fall</u> with the level of sunk investments. Thus, in such markets, although sunk costs can be a barrier to **de novo** entry, sunk costs restraint, rather than increase, the ability of sellers to exert market power. This paper, then, questions the standard oligopoly model prediction of an inverse relationship between market performance and sunk investments, and shows the relevance of buyers' strategies for predicting market performance.



"Measuring the Winner's Surplus in First Price Sealed Bid Auctions, with an Application to the Market for Failed Banks," by Theodore D. Sternberg. Working Paper No. 90-36.

The economic theory of auctions is concerned with deriving a mapping from a set of tastes or beliefs into a set of corresponding rational bids. This paper is concerned with inverting the mapping for certain first price sealed bid auctions, for by so doing, it becomes possible to estimate the winner's surplus, which is a matter of considerable policy interest. Moreover, this "inversion" technique is equally applicable to private and common values auctions. Applied to 1988 data on Federal Deposit Insurance Corporation auctions of failed banks, the technique finds an average winner's surplus of $4 million per auction.

"Initial Public Offering Underpricing and the Winner's Curse: Some New Results," by Theodore D. Sternberg. Working Paper No. 90-37.

Since the publication of Koh and Walter's (1989) evidence in favor of Rock's (1986) "winner's curse" model of underpricing in initial public offerings, it has become more necessary than ever to clarify the essence of the winner's curse and the assumptions necessary for it to explain IPO underpricing. This paper extends the winner's curse model: in a setting more general than Rock's, it shows the winner's curse can generate overpricing as well as underpricing, characterizes the conditions consistent with underpricing, and offers another interpretation for the empirical evidence.

"Managerial Incentives and Earnings Response Coefficients," by Sung K. Choi. Working Paper No. 90-38.

This study develops and tests the proposition that managerial incentives in making investment and disclosure decisions will be inversely related to stock price response to earnings announcements.

According to the principal-agent literature, such incentives of managers conflict with the interest of outside shareholders. Evidence reported here suggests that there is an agency problem that remains unresolved either in market places or through internal monitoring, and that this "residual agency problem" manifests in security price reactions to firms' earnings announcements.

"The Effects of Qualified Audit Opinions on Earnings Response Coefficients," by Sung K. Choi and Debra C. Jeter. Working Paper No. 90-39.

This study hypothesizes that qualified audit opinions affect the market's responsiveness to future earnings announcements of the firms receiving audit qualifications. Our results show that earnings response coefficients altered significantly after the issuance of qualified audit reports. Moreover, the nature of alterations in earnings response coefficients varied across types of qualifications (e.g., discretionary vs. non-discretionary changes in accounting principles that give rise to consistency qualifications). Overall, our results are consistent with the hypothesis that qualified audit opinions affect earnings response coefficients by affecting the market's assessment of the firm's information system quality.

"Adverse Selection and theRights Offering Paradox," by B. Espen Eckbo and Ronald W. Masulis. Working Paper No. 90-40.

Firms select the equity flotation method which minimizes direct flotation costs and the expected wealth transfer to outsiders. The wealth transfer is greatest in non-intermediated direct sales to outsiders or, equivalently, in uninsured rights offers when current shareholders do not subscribe. In this case, the firm may be better off purchasing quality certification from an underwriter. Since underwriter fees exceed rights distribution costs, the optimal flotation method depends on the expected shareholder takeup in rights issues. Empirical tests support this framework, and present a possible resolution of the longstanding puzzle over U.S. firms' reluctance to issue equity using rights.

"A Theory of Capital Structure Adjustment with Asset Specificity, Agency Costs, and Asymmetric Information," by Ronald W. Masulis and Thomas H. Noe. Working Paper No. 90-41.

Corporate finance theory relies heavily on single period models of capital structure. These models yield optimal debt level predictions which don't appear to be fully consistent with the short run behavior of most corporations. In this paper we formally develop a multiperiod model of capital structure which takes into account the impacts of asset specificity, debt-equity/agency conflicts and asymmetric information. We demonstrate that these conditions introduce frictions in the capital structure adjustment process which inhibit firms from reducing leverage in periods of financial distress. It is hoped that an analysis of theses frictions, along with the security flotations costs and redemption costs, will advance our understanding of firm capital structure decisions. This model may in particular advance our understanding of why firms are unable to avoid bankruptcy when this is preceded by a long period of financial distress.

"Transformed Securities and Alternative Factor Structures," by Roger D. Huang and Hoje Jo. Working Paper No. 90-42.

Grinblatt and Titman (1985) reformulate a result of Chamberlain and Rothschild (1983) to show that the approximate factor structure of Chamberlain and Rothschild is asymptotically equivalent to the strict factor structure of Ross (1976) as long as investors can always repackage securities into an equal number of arbitrary portfolios. This paper uses a Procrustes rotation methodology that is compatible with the repackaging interpretation of Grinblatt and Titman to show that the empirical structure of stock prices is consistent with convergency hypothesis.

"Equity Trading Costs in the Large and in the Small," by Hans R. Stoll. Working Paper No. 91-01.

Equity trading costs — commissions and market impact cost — are calculated "in the large" from revenue of securities firms in the years 1980 to 1989 and compared with estimates of equity trading costs "in the small" from institutional trading data and from markets data.

"The Geography of FDIC Failed Bank Auctions," by Theodore Sternberg. Working Paper No. 91-03.

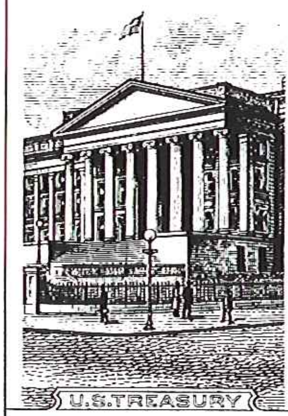
The distance between winners of the FDIC's 1988 auctions for failed banks and the banks they won in those auctions tend to be smaller than the distances between losing bidders and their targets. This relation appears very robust, as it is visible in many cross-sections of the data. Moreover, the probability of winning an auction, as estimated by maximum likelihood in a hypergeometric model, decreases with a bidder's distance from its target.

"Exchange Rate Pass-Through: Evidence from Aggregate Japanese Exports," by David C. Parsley. Working Paper No. 91-04.

This paper presents evidence that aggregate exchange rate pass-through declined for Japanese exports during the 1980's. The analysis investigates pass-through at a sectoral level and asks whether a general decline occurred across all industry sectors, or whether there were particular sectors responsible for the aggregate decline. Pass-through is found to vary widely across the six sectors considered, but no evidence of a decline in any individual sector is found. The conclusion is that a decline in aggregate pass-through may be the result of a shifting commodity composition of trade in which those sectors having lower aggregate pass-through account for a growing proportion of Japanese exports.

"Pricing in Foreign Markets: An Examination of Exchange Rate Pass-Through at the Commodity Level," by David C. Parsley. Working Paper No. 91-05.

This paper develops a microeconomic foundation of pricing in foreign markets. Of particular interest is the response of price to exchange rate changes (pass-through) and the circumstances under which pass-through might change. At a theoretical level, the paper demonstrates how pass-through is a function not only of the usual list of determinants, but also of the expected future course of these determinants. The empirical results, derived from disaggregated data on export prices and quantities of five Japanese products exported to the U.S., support the model's conclusion that pass-through can vary widely across products. The paper develops and utilizes an error correction methodology in all estimations. The conclusion is that little support is found in this dataset for a hysteresis interpretation of recent findings of changes in pass-through.



"Corporate Crime and Punishment: An Update on Sentencing Practice in the Federal Courts, 1988-1990," by Mark A. Cohen. Working Paper No. 91-06.

This paper updates an earlier study of corporate sentencing practice by including data from 1988 through 1990. The main question addressed from an empirical standpoint is whether fines have increased during the past few years. Although somewhat tentative, there is evidence suggesting that fine levels have increased over the 1984-1987 time period (after adjusting for the monetary harm caused by the offense). This appears to be the result of a change in the statutory maximum fine for crimes committed after 1984. There also appears to be a slight trend towards prosecuting larger companies than in the past. Finally, some anecdotal evidence is provided on the factors judges use for sentencing corporations convicted of federal crimes.

"A Branching Model for Bond Price Dynamics and Contingent Claim Pricing," by Clifford A. Ball. Working Paper No. 91-07.

Financial claims that depend on future levels of interest rates are increasing in importance. Examples include: Eurodollar Futures contracts, futures options written on long treasury bonds, variable rate loans, variable-rate mortgage contracts, and their derivative securities. This paper puts forward a branching model for bond price dynamics and develops a discrete time scheme for pricing the corresponding derivative assets. A Markov Chain structure is employed and the required numerical procedure is outlined. The model can estimate, under certain circumstances, the bond option model introduced by Cox, Ingersoll, and Ross (1985).

"Estimation of a Diffusion Process for Spot Rates," by Clifford A. Ball. Working Paper No. 91-08.

Recently, Cox, Ingersoll, and Ross proposed a parametric class of mean reverting square-root diffusion processes to model spot real interest rates in the development of a full equilibrium term structure model. Due to the complexity of the associated transition densities little work has been attempted on the estimation of the parameters of this diffusion. There is considerable interest, however, in testing the term structure model. Discrete observations from this process may be approximated as realizations from an autoregressive process with variance proportional to level. The resultant parameter estimation problem is a straightforward application of generalized least squares (GLS) techniques. The full maximum likelihood estimation of parameters involves modified Bessel functions and requires excessive programming. A study is proposed to compare these methodologies and to assess the accuracy of the GLS approximation. As a result, it should be possible to assess the validity and accuracy of discrete approximations across a range of important financial applications.

"The European Monetary System, Jump-Diffusion Processes, and the Pricing of Options," by Clifford A. Ball and Antonio Roma. Working Paper No. 91-09.

Currently, exchange rates involving the US $ are freely-floating and empirical evidence suggests no mean-reverting behavior. In contrast, this paper examines the bilateral exchange rates of currencies party to the European Monetary System's (EMS) exchange rate mechanism. These exchange rates are limited by direct central bank intervention to lie within predesignated barriers. However, occasionally these barriers are shifted resulting in jumps in the rates. We model these exchange rates by a bivariate jump-diffusion process which incorporates the movement of the central parity and the deviation of the exchange rate from its central parity. We posit mean-reverting behavior which is subsequently tested empirically. The presence of barriers and consequent reflection pose significant statistical difficulties for the empirical work. On the theoretical side, we also propose an option model for pricing derivative assets such as currency options.

"Information Trading and Fixed Income Volatility," by Campbell R. Harvey and Roger D. Huang. Working Paper No. 91-10.

We study the intraday and interday volatility patterns in the Eurodollar and Treasury bill futures markets using transaction data from the Chicago Mercantile Exchange and the London International Financial Futures Exchange. Volatility in the Eurodollar futures contracts is concentrated at the same time on both the exchanges and coincides with U.S. macroeconomic news released between 7:30am and 8:30am Central Time. We show that this concentration of volatility is distinct from volatility induced by trading procedures at the opening by examining the opening market volatilities on different exchanges and at different opening times. We also find evidence of increased volatility due to private information trading between 10:30am and 11:30am Central Time when the Federal Reserve Bank implements its policies through open market operations.

"The Changing Functional Relation between Stock Returns and Dividend Yields," by William G. Christie and Roger D. Huang. Working Paper No. 91-11.

A tax-based hypothesis asserts that firms with higher dividend yields must offer higher before-tax expected risk-adjusted returns. An alternative tax-neutrality hypothesis implies that expected returns are unrelated to dividend yields. This paper examines the implications of the competing hypotheses by estimating the shape of the yield-return function and by comparing the observed patterns through time. The non-parametric kernel estimation procedure used in this paper does not impose a linear structure on the yield-return relation but permits arbitrary functional forms. The results identify a rich variety of nonlinear cross-sectional yield-return patterns. Our inability to identify a persistent positive relation between expected returns and anticipated dividend yields provides evidence incompatible with the tax-based hypothesis.

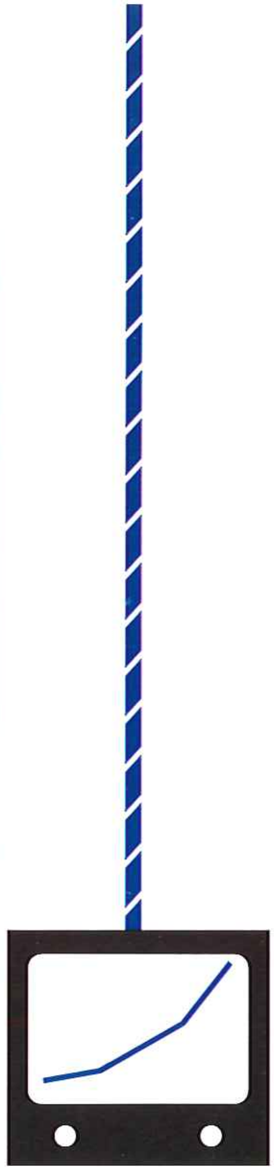
"An Analysis of Nonlinearities in Term Premiums and Forward Rates," by Roger D. Huang and Charles S.Y. Lin. Working Paper No. 91-12.

Term structure models of Cox, Ingersoll, and Ross (1985) imply a linear relation between conditionally expected term premiums on Treasury securities and forward interest rates. Some alternative models of the term structure, however, imply a nonlinear specification. This paper provides a nonparametric study that permits both linear and non linear associations. The analysis uncovers evidence of expected term premiums and their sensitivities to forward premiums that vary over time. The results also indicate that shifts in term structures of expected term premiums cannot be attributed to functional form misspecifications. An evaluation of the out-of-sample forecasting performance shows the predictive ability of the nonparametric representation to be poor relative to a linear model. Moreover, the linear specification is surprisingly robust within-sample and cannot be rejected in favor of the nonlinear alternative.

"Measuring the Impacts of Dividend Capture Trading: A Market Microstructure Analysis," by Hyuk Choe and Ronald W. Masulis. Working Paper No. 91-13.

This study examines transactions data around cash dividend distributions by NYSE and AMEX listed common stocks for several separate tax regimes associated with years 1985, 1986 and 1988. Evidence is uncovered of abnormally large and frequent purchase orders preceding the ex-date and abnormally large and frequent sell orders on the ex-date. Shifts in specialists' bid-ask quotes and spreads are also found. The results are insensitive to measurement based on hourly sampling or transaction by transaction sampling. A significant increase in dividend capture activity is found in the 1988 period. Biases in returns calculated from transaction prices as well as returns based on cum- and ex-date closing prices are documented.

"An Empirical Analysis of Earnings Management: Evidence from Initial Public Offerings," by Paul K. Chaney and Craig M. Lewis. Working Paper No. 91-15.



"The Effects of Deregulating Cable Television: Evidence from the Financial Markets," by Robin A. Prager. Working Paper No. 91-20.

This paper uses financial market data to study the effects of deregulation on the market power of U.S. cable television system operators. The results suggest that although deregulation has enhanced the market power of these firms, the effect was not anticipated at the time when the deregulatory legislation was passed. Two possible explanations for the unexpected increase in market power are offered.

"Environmental Crime and Punishment: Legal/Economic Theory and Empirical Evidence on Enforcement of Federal Environmental Statutes," by Mark A. Cohen. Working Paper No. 91-22

1990-91 Reprints

R1-15	**"The Impact of New Product Introductions on Stockholder Wealth and Market Structure,"** by Paul K. Chaney (with Timothy Devinney and Russell Winer), *Journal of Business*, October 1991.
R1-14	**"Goodwill: A Global Perspective,"** by Paul K. Chaney (with Debra Jeter), *Controllers Quarterly*, 6 (3), Fall 1990.
R2-120	**"Explaining Judicial Behavior, or What's 'Unconstitutional' about the Sentencing Commission?"** by Mark A. Cohen, *Journal of Law, Economics and Organization*, 7 (1), 1991.
R2-119	**"Empirical Trends in Corporate Crime and Punishment,"** by Mark A.Cohen, *Federal Sentencing Reporter*, 3 (3), November/December 1990.
R2-117	**"The FTC in the 1980's,"** by David T. Scheffman (with J. Langenfeld), *Review of Industrial Organization*, 5 (2), Summer 1990.

R2-116 **"The Effect of the 1987 Stock Crash on International Financial Integration,"** by Ronald W. Masulis (with Yasushi Hamao and Victor Ng), *Japanese Financial Market Research* ed. by W. Bailey, Y. Hamao, and W. Ziemba (North Holland), 1991.

R2-115 **"Dividend Yield and Expected Returns: The Zero-Dividend Puzzle,"** by William G. Christie, *Journal of Financial Economics* 28, December 1990.

R2-114 **"A Multiperiod Theory of Corporate Financial Policy Under Taxation,"** by Craig N. Lewis, *Journal of Financial and Quantitative Analysis*, 25, March 1990.

R2- 113 **"Expiration-Day Effects: What Has Changed?"** by Hans R. Stoll (with Robert E. Whaley), *Financial Analysts Journal*, January-February 1991.

R2-112 **"Commentary: International Competitiveness of U.S. Futures Exchanges,"** by Hans R. Stoll, *Journal of Financial Services Research*, 4, 1990.

R2-111 **"Correlations in Price Changes and Volatility Across International Stock Markets,"** by Ronald W. Masulis (with Yasushi Hamao and Victor Ng), *The Review of Financial Studies*, 3 (2), 1990.

R2-110 **"The Dynamics of Stock Index and Stock Index Futures Returns,"** by Hans R. Stoll (with Robert E. Whaley), *Journal of Financial and Quantative Anslysis*, 25 (4), December 1990.

R2-109 **"Margins on Stock Index Futures Contracts,"** by Hans R. Stoll, *Investing*, Spring 1990.

R2-108 **"Stock Market Structure and Volatility,"** by Hans R. Stoll (with Robert E. Whaley), *The Review in Financial Studies*, 3 (1), 1990.

R2-106 **"Firm Behavior in Franchise Monopoly Markets,"** by Robin A. Prager, *Rand Journal of Economics*, 21 (2), Summer 1990.

R2-105 **"Risk and Parity in Purchasing Power,"** by Roger D. Huang, *Journal of Money, Credit, and Banking*, 22, August 1990.

R2-104 **"Risk and Return in the Corporate Bond Market,"** by Roger D. Huang (with E.C. Chang), *Journal of Financial and Quantitative Analysis*, 25, September 1990.

R2-101 **"In Defense of Economics: Norms as Economic Institutions,"** by Mark A. Cohen in *Proceedings of Conference on "The Enforcement of social Values,"* University of Delaware, (forthcoming).

R2-97 **"Program Trading and Individual Stock Returns: Ingredients of the Triple-Witching Brew,"** by Hans R. Stoll (with R. E. Whaley), *Journal of Business*, January 1990.

R2-91 **"Financial Asset Substitution and International Asset Pricing,"** by Roger D. Huang (with Tsong-Yue Lai), *Advances in Financial Planning and Forecasting: International Dimensions*, 4 (Part A), 1990.

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