

OWEN GRADUATE SCHOOL
OF MANAGEMENT

Martin S. Geisel, *Dean*

Hans R. Stoll, *Director of the Financial
Markets Research Center*

J. Dewey Daane, *Senior Advisor of the
Financial Markets Research Center*

From the Dean. . . .

The Financial Markets Research Center of Vanderbilt University was established in the Fall of 1987 under the directorship of Hans R. Stoll, the Anne Marie and Thomas B. Walker Professor of Finance. The Establishment of the Center enhances the Owen Graduate School of Management's goals of fostering high quality research in finance and providing a forum for interaction between the business and academic communities.

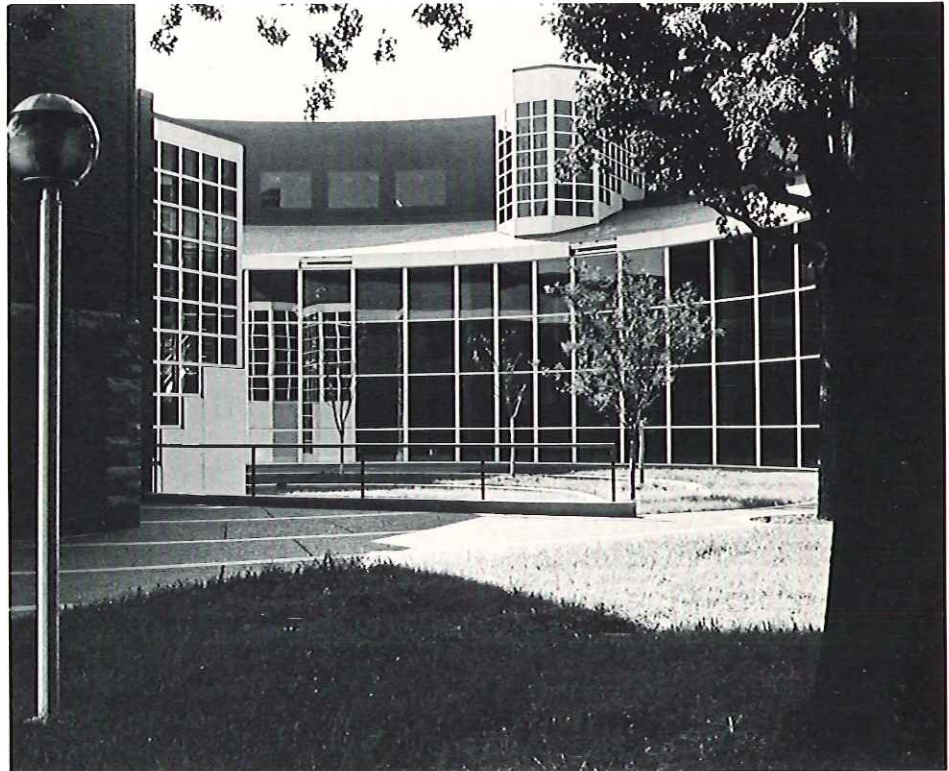
This first Newsletter of the Center chronicles the activities of the Center during its first year and describes the research interests of faculty members associated with the Center. The Center has been launched at a critical time when financial markets are under stress, and it has made a strong start. The Center has made important contributions to the analysis of the stock market crash of 1987 and to other issues facing financial markets today.

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 will be sought from various research sponsors including foundations, government agencies, trade organizations and corporations.



From the Director. . . .

This past year of unprecedented turmoil in the financial markets has proved to be an auspicious one in which to launch the Financial Markets Research Center. The events of October 19, 1987 highlight the importance of independent academic research on the nation's financial markets and financial institutions.

The academic year 1987-88 has been a start-up year for the Center. Nevertheless, it has been an active and gratifying year. Joining the Center during the past year have been the National Association of Securities Dealers, the Chicago Board Options Exchange, the Bank Administration Institute, Refco Group, Ltd., Timber Hill, Inc. and Nelson Capital Corporation. Support of Center activities has also been provided by a research grant provided jointly by the Chicago Mercantile Exchange, the Chicago Board Options Exchange and the Chicago Board of Trade. The grant funded a series of studies

on index futures and options.

Faculty research associates of the Center have been actively engaged in a variety of research topics including stock market structure, behavior of index futures prices, term structure of interest rates, defensive strategy in mergers, stock market price effects of new product introductions, theories of consumption, and a variety of other topics that are described in greater detail below.

During the past year, the Center assumed responsibility for maintaining data bases and for adding to the data bases available at the Owen School. A full-time research associate has been hired to provide programming support and oversee the data bases. The Center also funds research assistants as needed.

Greater detail on the activities of the Center is provided in the remaining portions of this Newsletter.

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 University.
2. To identify critical research issues and to provide a focus for research in financial markets.
3. To support research by faculty members and Ph.D. students at Vanderbilt University by maintaining data bases and funding research projects.
4. To guide, review and disseminate research in financial markets.

Annual Meeting of the Financial Markets Research Center

The first annual meeting of the Financial Market Research Center will be held on Friday, April 8. On Thursday evening April 7, the Center is sponsoring a panel discussion on the Stock Market Crash of 1987: What Have We Learned? Participating in the panel are Joseph Hardiman, President of the National Association of Securities Dealers; Alger (Duke) Chapman, Chairman of the Chicago Board Options Exchange; and Robert Davis, Commissioner of the Commodity Futures Trading Commission.

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 the financial industries. Outside speakers may be sponsored directly by the Financial Markets Research Center, by the Owen Lecture Series or are invited as an integral part of courses, such as the Seminar in Monetary and Fiscal Policy (Professor Daane) and the course in Financial Institutions (Professor Devinney). During the 1987-88 academic year the following speakers spoke at the Owen School:

- 10/8/87 Tone Grant, President, Refco Group, Ltd.
"The Role of Futures and Options in the World Financial Markets"
- 10/22/87 Eugene B. Shanks, Jr., Managing Director, Bankers Trust Company, "The Globalization of Financial Markets"
- 1/27/88 Edwin H. Yeo, III, Counselor to the President, Federal Reserve Bank of New York and former Under Secretary of the Treasury, "Overview of the Financial Terrain"
- 2/1/88 Charles Dunleavy & Tom Walker, Touche Ross, "Analysis of Bank Financial Statements (SUNTRUST BANKS)"
- 2/3/88 Robert P. Forrestal, President, Federal Reserve Bank of Atlanta, "The Role of Monetary Policy"
- 2/8/88 Edwin W. Moats, Jr., CEO, Metropolitan Federal, "The Distinction Between Banks and Thrift Institutions"
- 2/10/88 Bruce K. MacLaury, President, The Brookings Institution, "The Twin Deficits"
- 2/17/88 Eugene A. Leonard, President, Corporation for Financial Risk Management, St. Louis, "A Monetarist View of Fiscal and Monetary Policy"
- 2/24/88 Rudolph G. Penner, Research Fellow, Urban Institute, former Director, Congressional Budget Office, "Current Federal Budget Problems"
- 2/29/88 David J. Gamble, President County NatWest Securities (a subsidiary of National Westminster Bank plc), "The Securities Activities of Commercial Banks"
- 3/2/88 John M. Makin, Director of Fiscal Policy Studies, American Enterprise Institute, "Perspective on Fiscal Policy"
- 3/16/88 Frank E. Morris, President, Federal Reserve Bank of Boston, "The Changing World of Central Banking"
- 3/21/88 Frank V. Cahouet, CEO, Mellon Bank N.A., "Recent Troubles in the Banking Industry and the Turnaround of Mellon Bank"
- 3/23/88 Peter Sternlight, Executive Vice President, Federal Reserve Bank of New York and Manager, Federal Reserve System Open Market Account, "Implementation of Monetary Policy"
- 4/1/88 Hon. Manuel H. Johnson, Vice Chairman, Board of Governors of the Federal Reserve System, "Perspective on Policy Issues"
- 4/4/88 Charles J. Bryan, Executive Vice President Dominion Bank, "The Commercial Lending

- Function at Dominion Bank"
- 4/6/88 Silas Keehn, President, Federal Reserve Bank of Chicago, "The Changing Financial Structure and Its Implications"
- 4/13/88 David M. Jones, Senior Vice President, Foreign Department, Federal Reserve Bank of New York, "Views from a Money Market Economist"
- 4/20/88 Margaret L. Greene, Senior Vice President, Foreign Department, Federal Reserve Bank of New York, "International Dimension of Fiscal and Monetary Policy"
- 4/27/88 Karen N. Horn, Chairman and Chief Executive Officer, Banc One Corporation, Cleveland, Ohio, "A Banker's Perspective on Stabilization"

Research Workshops

Workshops provide a forum for the exchange and testing of new ideas. During the past year the following speakers from within and from outside the Owen School have spoken on financial topics:

- 9/11/87 Ted Day and Craig Lewis, Vanderbilt University, "Expiration Day Effects and the Volatility Implicit in the Prices of Stock Index Options"
- 9/18/87 Merton Miller, University of Chicago, "My Current Research in Market Microstructure"
- 10/2/87 George Oldfield, Cornell University and Paine Webber, Inc., "Pricing Mortgage Pass-Through Securities"
- 10/9/87 Franklin Allen, The Wharton School, "Capital Structure and Imperfect Competition in Product Markets"
- 10/23/87 Tom Ho, New York University, "Corporate Bond Pricing"
- 10/30/87 Joel Hasbrouck, New York University, "Trades, Quotes, Inventories and Information"
- 11/6/87 Roger Huang, University of Florida, "Risk and Parity in Purchasing Power"
- 11/20/87 Ehud Ronn, University of California/Berkeley and University of Chicago, "Impact of Time Aggregation and Sampling Interval on the Estimation of Relative Risk Aversion and the Ex Ante Real Interest Rate"
- 12/2/87 Rick Cooper, Ph.D. student Vanderbilt University, "An Investigation of Duration Constrained Portfolio Management"
- 12/4/87 Vijay Chopra, Ph.D. student Vanderbilt University, "Economic Forces and the Stock Market: Some Extensions"
- 12/14/87 Robin Prager, Vanderbilt University, "Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry"
- 1/8/88 Prasad Padmanabhan, Vanderbilt University "Fisher Hypothesis, Expected Inflation and Common Stock Returns in Developing Countries"
- 1/13/88 Ananth Madhavan, Ph.D. Candidate - Cornell University, "Trading Mechanisms in Securities Markets"
- 1/15/88 Don Keim, The Wharton School, "Earnings Yields Market Value and Stock Returns"

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Activities of Faculty Affiliated with the Center

Participation in the Center is open to all faculty members at Vanderbilt University. The faculty members listed below are currently doing research in financial markets or have expressed an interest in research on financial markets topics.

PAUL K. CHANEY, Assistant Professor (Accounting). B.S., M.B.A., Ph.D., Indiana 1975, 1977, 1983; C.P.A., C.M.A.



Research in the economic consequences and capital markets effects of accounting information and agency theory. Publications on the stock price effect of purchase versus pooling accounting for mergers,

on the incentive effects of government loan guarantees, and on defeasance. Current research on incentives and capital budgeting procedures, on the association among mergers, capital structure and accounting method, and on other topics.

Professor Chaney teaches introductory accounting, intermediate accounting, and financial statements analysis. He has also lectured in a number of executive program seminars on the subject of finance and accounting. During the past year Professor Chaney presented a paper, "The Association Among Mergers, Capital Structure, and Accounting Method," at the April 1987 meeting of the Mid-West American Accounting Association in Milwaukee, Wisconsin. He participated as a discussant in the Financial Management Association Meetings held in Las Vegas in October of 1987.

SUNG K. CHOI, Assistant Professor (Accounting). B.A., Yeungnam (Korea), 1970; M.P.A., Texas, 1978; Ph.D., Iowa, 1985.



Research in accounting and capital markets studies. Papers on public announcements of earnings and changes in security prices, on agency conflicts, risk attitudes and external reporting. Current research on

managerial choice of accounting methods as a signal, on whether analysts forecast earnings rationally, on the control of corporations and takeover premia, and on other topics.

Professor Choi teaches advanced financial accounting and cost accounting. In November of 1987 he presented his paper, "Accounting Information and Capital Asset Prices," at Columbia University.

MARK A. COHEN, Assistant Professor (Economics). B.S.F.S., Georgetown, 1978; M.A., Ph.D., Carnegie-Mellon, 1983, 1985.



Teaching and research interests in government regulation, law and economics, white collar and corporate crime, and the economics of information. Before joining the faculty at the Owen School, he was senior

economist with the U.S. Sentencing Commission. He has also worked for the Federal Trade Commission, the U.S. Environmental Protection Agency, the Department of Treasury and the U.S. Senate Banking Committee. His publications have appeared in the *Journal of Law and Economics*, *Yale Journal on Regulation*, *Law and Society Review*, and *Journal of Environmental Economics and Management*.

During the past year Professor Cohen delivered a speech to the Tennessee Valley Authority, Chattanooga Chapter, National Managers Association and presented a seminar at the Antitrust Division of the U.S. Department of Justice. In July of 1987 he attended the Law Institute for Economists in Hanover, New Hampshire.

J. DEWEY DAANE, Senior Advisor of the Financial Markets Research Center. A.B., Duke, 1939, M.P.A., D.P.A., Harvard, 1946, 1949.



Has been a governor of the Federal Reserve System and Deputy Undersecretary of the Treasury for Monetary Affairs. Currently Chairman of the International Policy Committee and Director of the Sovran

Financial Corporation/Central South and Sovran Bank/Central South in Nashville. Public Director of the National Futures Association and former Director of the Chicago Board of Trade. Research and publications in monetary economics and international finance.

During the past year Professor Daane spoke on the economic outlook to a number of different groups, including a French Delegation of Mayors and the Mason Contractors Association of America. Professor Daane participated in a number of high level meetings on U.S.

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Data Bases

The Financial Markets Research Center has acquired and is supporting the following major data bases:

1. CRSP Data. This data base includes daily and monthly return data for New York Stock Exchange, American Stock Exchange and NASDAQ stocks.

2. COMPUSTAT Data. This file contains income and balance sheet data for listed and major over-the-counter firms.

3. International Financial Statistics. This data base contains exchange rates, interest rates and other financial and macro economic data for member countries of the International Monetary Fund.

4. Stock Index Futures and Options Data. The Center has available and is developing, a variety of data bases on daily and minute-by-minute prices of the major stock indices and their derivative instruments.

5. Transactions Data for Individual Stocks. The Center has acquired transactions data for all New York Stock Exchange listed stocks for the period 1982-1986.

Research...

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1/22/88 Ajay Dravid, Ph.D. Candidate, Stanford University, "Effects of Bid-Ask Spreads and Price Discreteness on Distributions of Stock Returns"

1/29/88 Chris Leach, Ph.D., Cornell University, "Repetition, Reputation and Raiding"

2/3/88 Tom Smith, Ph.D. Candidate, Stanford University, "On Tests of Serial Dependency of Returns"

2/5/88 Rick Ruback, Harvard, "Targeted Repurchases and Common Stock Returns"

2/12/88 Stuart Gilson, Ph.D. Candidate, Rochester, "Optimal Capital Structure and the Cost of Financial Distress for Managers: A Study of Troubled Debt Restructuring"

4/22/88 Jay Shanken, Rochester

and international economic policy, including meetings of the Congressional Budget Office Panel of Economic Advisors in Washington, D.C.; the Executive Leadership Seminar on the State of the U.S. Economy held at the Brookings Institution in Washington, D.C.; the International Monetary Fund and World Bank annual meetings held in Washington, D.C.; the DRI US Economic Outlook Conference held in New York; and the DRI US Economic Outlook Conference held in Chicago. Professor Daane also was a guest at the dinner for his long time friend, the retiring Federal Reserve Board Chairman, Paul Volker.

WILLIAM W. DAMON, Professor (Economics and Finance). B.S., Purdue, 1965; M.B.A., Ph.D., Cornell, 1967, 1970.



Has also taught at Duke, North Carolina State and Columbia. Winner of outstanding teacher award. Research in managerial finance and operations research. Current research on modeling the financing needs of small firms. Professor Damon teaches introductory finance, operations research, microeconomics and the second course in finance to the executive M.B.A. students. During the past year, Professor Damon has also served as Chairman of the Faculty Senate of Vanderbilt University.

THEODORE E. DAY, Assistant Professor (Finance). B.A., M.B.A., Oklahoma, 1974, 1976; A.M., Ph.D., Stanford, 1980, 1981; C.P.A.



Research on asset pricing under uncertainty. Publications on inflation and interest rates, on inflation and stock prices, on the term structure of interest rates, on capital structure and firm size. Current

research examines risk premia in futures prices and the role of futures prices in forecasting spot market prices, implied volatilities in stock index option prices, and other topics.

Professor Day will be presenting the paper, "The Behavior of the Volatility Implicit in the Prices of Stock Index Options," co-authored with Craig Lewis, at the American Stock Exchange Options Colloquium in New York City in March of 1988 and at the meetings of the Western Finance Association to be held at Napa, California in June.

TIMOTHY M. DEVINNEY, Assistant Professor (Economics). B.S., Carnegie Mellon, 1977; AM, MBA, PhD, Chicago, 1979, 1981, 1984.



Research interests in the economics of uncertainty and industrial organization and the application of these areas in the analysis of financial intermediation and the structure of financial markets. Publications

include articles on entry and learning, incentives and multi-period rationing in loan contracts, and credit rationing theory, as well as two books, *Rationing in a Theory of the Banking Firm* and *Issues in Pricing*. Current research on screening as a signal in credit markets, enforcing explicit contracts in banking, and on the adverse incentive effects of depreciation allowances.

During the past year, Professor Devinney presented papers on the Stock Market Impact of New Product Introductions and Bank-Customer Relations at HEC/ISA, Paris France; University of Bern, Bern, Switzerland; University of Karlsruhe, Karlsruhe, West Germany; University of Rochester; University of Illinois; University of Toronto; University of Michigan; SUNY at Buffalo; Carnegie Mellon University; and McGill University. During the fall semester he also served as a Visiting Scholar at the Graduate School of Industrial Administration at Carnegie Mellon University.

CRAIG M. LEWIS, Assistant Professor (Finance). B.S., Ohio State, 1974; M.S., Ph.D., Wisconsin, 1982, 1986; C.P.A.



Research interests in the optimal corporate financial structure, the equilibrium pricing of financial claims under taxation, and stock index futures and options.

Currently examining implied volatilities in stock index option prices.

Professor Lewis will be presenting the paper, "The Behavior of the Volatility

Implicit in the Prices of Stock Index Options," co-authored with Theodore Day at the American Stock Exchange Options Colloquium in New York City in March of 1988 and at the meetings of the Western Finance Association to be held at Napa, California in June.

KNUT A. MORK, Associate Professor (Economics). B.A., M.A., Norwegian School of Economics and Business Administration; Ph.D., M.I.T., 1977.



Publications on the forecast errors in early GNP estimates, on energy prices, inflation and recession, on the effect of commodity price shocks on employment and investment, and on other topics. Recent

research on the forecasting of money supply revisions, testing of the life cycle hypothesis with panel data, and on the pricing efficiency of the crude oil market.

During the past year, Mork has organized a nationwide research group on consumption, sponsored by the National Bureau of Economic Research (NBER), Program on Economic Fluctuations. The group includes members from Princeton University, The Wharton School-University of Pennsylvania, University of Chicago, Northwestern University, University of Virginia, and the Federal Reserve Bank of Minneapolis. The group met for a one-day session at the Owen School in June, for a full week at the NBER Summer Institute in Cambridge, MA, in July, and again for a day in Cambridge in October.

Mork presented his paper, "Testing the Life-Cycle Hypothesis on Panel Data Using Detailed Consumption Diaries and Income Based on Tax Records" (with V.K. Smith) at a Research Meeting of the NBER Economic Fluctuations Program in Palo Alto, CA in February 1987, to the NBER consumption research group in June, and finally at the Bank of Norway during the same month. He also presented the paper, "The Boom That Wasn't: Evidence from 1986-87 on the Macroeconomic Effects of Oil Price Fluctuations," at the Central Bureau of Statistics of Norway in June, at a October conference sponsored by the Norwegian Economic Association in Oslo and finally at the December annual meetings of the American Economic Association in Chicago.

ROBIN A. PRAGER, Assistant Professor (Economics). AB, Harvard, 1978; PhD, MIT, 1987.



Research interests in industrial organization and government regulation of industry. Has worked as a staff economist for a Washington law firm. Professor Prager teaches micro and macro

economics and does research on regulatory issues.

In December 1987, she presented her paper, "Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry," at the annual meetings of the American Economic Association.

HANS R. STOLL, The Anne Marie and Thomas B. Walker Professor of Finance; Director of the Financial Markets Research Center. B.A., Swarthmore, 1961; M.B.A., Ph.D., Chicago 1963, 1966.



He taught at the Wharton School, the University of Chicago, as a Fulbright Scholar in France, and at the University of Karlsruhe in Germany. Visiting professor at the Federal Reserve Board and

member of the staff of the Institutional Investor Study of the SEC. On the editorial boards of *Journal of Financial Economics*, *Journal of Finance*, *Journal of Financial and Quantitative Analysis*, and *Financial Management*. On the board of

directors of the Institute for Research in Microstructure and a director of the Financial Management Association.

Research interests include the structure of securities markets and the pricing of options and futures. Publications on the expiration effects of stock index futures and options, on the stock exchange specialist system, on the new option markets, on alternative views of market-making, on the implications of technological change in the back office of securities firms, on purchasing-power-parity in futures prices, on the put-call parity theory, and on other subjects. Current research on bid-ask spread and the structure of markets and on the dynamics of stock index futures prices.

During the past year, Professor Stoll spoke on the topics Stock Index Futures, Program Trading and Expiration Day Effects at conferences sponsored by the American Stock Exchange in New York City, by Columbia University in New York City, by the University of Rochester, by the Swiss Options and Futures Exchange in Zurich, by the New York Stock Exchange in New York City, by the Berkeley Program in Finance in Santa Barbara, California, and by the American Enterprise Institute in Washington, D.C. Stoll presented his paper, "Inferring the Components of the Bid-Ask Spread: Theory and Empirical Tests," at Washington University, Duke University and the American Finance Association meetings held in Chicago in December of 1987.

Professor Stoll is a member of a recently appointed special committee to study the quality of the NASDAQ market during October 1987.

Faculty Research Papers

The following lists of publications and working papers summarize some of the research interests of Center Associates.

"The Impact of New Product Introductions on The Market Value of Firms," by Paul K. Chaney, Timothy M. Devinney and Russell S. Winer. Working Paper No. 87-30.

Although many mechanisms exist for the evaluation of new products, no one has specifically examined the role that financial markets can play in measuring the impact of new products on firms. The present research provides a financial market-based analysis of the impact of

new product introductions on the market value of firms. Using traditional event study methodology, the impact of new product introductions during the years 1975 through 1984 is examined across a host of industries. The absolute impact of these introductions is found to be remarkably swift and consistent with the impact found for product recalls.

"The Market Effects of Accounting for Business Combinations," by Paul K. Chaney, Kirk Philipich and Linda Lovata. Working Paper No. 86-31.

When the APB issued Opinion 16, alternative accounting methods for business combinations were technically no longer allowed. However, the accounting controversy did not end. This study examines the market's reaction to the choice of accounting for business combinations using event study methodology. The results indicate that when the merger is accomplished with common

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H. MARTIN WEINGARTNER, The Brownlee O. Currey Professor of Finance. A.B., S.B., A.M., Chicago, 1950, 1950, 1951; M.S., Ph.D., Carnegie, 1956, 1962.



Has taught at Chicago, MIT, and Rochester. Past president of the Institute of Management Science. Associate editor of *Management Science*. Publications include *Mathematical Programming* and the *Analysis of*

Capital Budget Problems and articles on mortgage redlining, on appropriate procedures for analyzing leases and on other topics related to financial decision-making. Current research on the financing of entrepreneurial activity and on the management of small firms.

During the past year, Professor Weingartner testified before the House Committee on Science, Space and Technology on the subject of Government Information Policy. In June, he presented a paper on "The Past, Present and Future of Negotiations Support" at the meetings of the International Society for General Systems Research in Budapest, Hungary.

stock, investors are not misled by alternative choices of accounting. In addition, when considering the medium of exchange as well as the accounting method used in the merger, both a tax and a signaling hypothesis are examined to explain the impact on security prices. The signalling hypothesis is rejected while the results support the tax hypothesis. This result suggests that the additional tax shields acquired in a taxable merger result in positive abnormal returns while non-taxable mergers produce no impact on security prices.

"Accounting Information and Capital Asset Prices," by Sung Choi and Gerald Salamon. November 1987.

This paper presents a theoretical analysis of the role of financial disclosures in multiperiod valuation of securities. The analysis shows that investors' anticipation of financial disclosures that will be made at a future point in time affects the

current expected returns (and risks) of the firms' securities. Contrary to previous theoretical work, the result thus establishes the relevance of financial disclosures on valuation of securities. Moreover, the present analysis leads to a formal understanding of many of the prior empirical findings and also provides a basis for the formulation of new testable hypotheses about the relationships between accounting signals and security prices. These relationships include the association between earnings and prices, the increase in stock price variability at earnings announcements, the differential information content of earnings releases, and the differential content of information transfers.

"Market Assessments of Manager-Shareholder Conflicts: Evidence from Takeover Announcements," by Sung Choi, Joshua Livnat, and Paul Zarowin. Working Paper No. 87-32.

This study presents tests of the hypothesis that the increase in a target firm shareholders' wealth as a result of a takeover announcement is positively related to the intensity of the conflicts of interest between managers and shareholders in the target firm before a takeover. The results of the tests indicate that shareholders of target firms in which agency conflicts are expected to be high gain considerably more wealth as a result of successful takeovers than do shareholders of target firms in which conflicts are expected to be low. The evidence seems to indicate that the efficient capital markets, together with the market for corporate control, play an active role in alleviating the apparent agency problems that arise due to the separation of ownership from control.

"The Behavior of the Volatility Implicit in the Prices of Stock Index Futures," by Ted Day and Craig Lewis. Working Paper No. 87-18.

This study examines the behavior of the market volatility implicit in the prices of call options on stock indexes around both the quarterly expirations of stock index futures contracts and the (non-quarterly) expirations of options on stock indexes. The implied volatilities for each index option expiration series are estimated simultaneously using a generalized least squares procedure in which actively traded options are weighted more heavily than thinly traded options. The differ-

ences between the implied volatilities for expiring options and longer options are then used to study the behavior of ex ante market volatility in the period just prior to both quarterly and non-quarterly expiration days.

"Information in the Theory of Financial Institutions," by Timothy M. Devinney. Working Paper No. 87-21.

The exact role played by banks in the economic marketplace has been the subject of academic debate for several decades. On the one side is the "neutral intermediary" school which holds that banks provide little more than portfolio diversification services and keep accounting records of wealth transfers between borrowers and savers. In a competitive financial marketplace banks hold no comparative advantage in either service vis a vis other financial services providers. Banks, therefore, differ from other financial service providers only on the regulatory dimension. On the other side of the debate is the "real resources" schools. The proponents of this orientation do not disagree with the neutral intermediary school but the banks' role in portfolio diversification and its primary accounting function. Their primary contention is that the study of the process of financial intermediation requires the joint analysis of the financial services provided along with the production processes and resources necessary for their provision, not just the analysis of the financial services as the neutral intermediary school implies. The real resources school holds that, without the direct study of the production process of financial intermediation, it will be impossible to understand the true role of banks in an economic marketplace.

"Bank-Customer Relations as Long-Term Contracts," by Timothy M. Flannery. Working Paper No. 87-35.

The presence of durable, transactor-specific information assets in banking can explain several important institutional features that are inconsistent with earlier models of the banking firm. Long-term contracts arise between banks and customers because the transactors can minimize transaction and information costs by trading repeatedly with the same party. It is shown that these contracts arise, in part, as a resolution to a dual moral hazard problem which naturally exists in bilateral monopoly relations.

"A Multiperiod Theory of Corporate Financial Policy Under Taxation," by Craig M. Lewis. Working Paper No. 87-05.

This paper examines corporate financial policy in a multiperiod world with taxation. It is shown that capital structure is relevant, but surprisingly, debt maturity structure is irrelevant. Optimal financial policy implies that the existence of a set

or "band" of debt/asset ratios that are consistent with firm value maximization. In addition, the existing multiperiod literature is generalized by recognizing that the firm has the opportunity to reorganize in bankruptcy. The ability to reorganize highlights the notion that the decision to liquidate is a capital budgeting decision that is independent of bankruptcy.

"The Role of Capital Structure in Corporate Control Contests," by Craig M. Lewis. Working Paper No. 87-34.

The purpose of this paper is to examine the role that corporate financial policy plays in determining the equilibrium allocation of takeover gains in corporate control contests. The model provides a theoretical justification for capital structure changes prior to the completion of a takeover, and shows how capital structure can be used as a strategic device to alter the effective price a bidding firm must pay to acquire a target firm. The positive role that emerges for capital structure can be viewed as a theoretical rationale for "defensive" takeover strategies of this type.

"The Boom That Wasn't: Evidence from 1986-87 on the Macroeconomic Effects of Oil Price Fluctuations," by Knut A. Mork. Working Paper No. 87-29.

The linkages between oil price fluctuations and macroeconomic performance are reexamined with data including the 1986 oil price decline. The results support an interpretation in terms of sectoral reallocations subject to frictions, leading to asymmetric reactions in the aggregate.

"Testing the Life-Cycle Hypothesis on Panel Data Using Detailed Consumption Diaries and Income Based on Tax Records," by Knut A. Mork. Working Paper No. 86-32.

The permanent-income/life-cycle hypothesis is re-examined on data for a panel of Norwegian households, whose consumption has been observed twice during the 1975-77 period. The quality of this data set is significantly superior to those used in literature. The consumption data are taken from detailed diaries. They are complete, divided into five spending categories, and matched with corresponding price data. Demographic variables also are available. Matching data for contemporaneous and lagged incomes are obtained from the Government's tax file.

The data are used to test the implications of the life-cycle hypothesis within a model that simultaneously accounts for relative-price effects, demographics, and Engel-curve effects within consistent framework. The timing of consumption and income is modeled carefully. Overall, our tests do not reject the life-cycle hypothesis. We interpret this finding as an indication that previous rejections in

panel data may have been due to poor data quality. At the same time, some apparent anomalies point to a need for further research.

"Using Stock Price Data to Measure the Effects of Regulation: The Interstate Commerce Act and the Railroad Industry," by Robin A. Prager. Working Paper No. 88-03.

This paper uses financial data to measure the effects of the passage of the Interstate Commerce Act of 1887 upon firms in the railroad industry. Several alternative estimation procedures are employed. The results indicate that the Interstate Commerce Act had a significant positive impact upon railroad stock prices, thereby offering support for the revisionist view of regulatory history.

"The Effects of Regulatory Policies Upon the Cost of Debt for Electric Utilities: An Empirical Investigation," by Robin A. Prager. Working Paper.

This paper develops a model of debt cost determination for regulated electric utilities, based upon an application of finance theory. Estimation of the model allows us to test the hypothesis that regulatory policy directly influences the cost of debt, and also enables us to examine the specific effects attributable to individual regulatory policy variables. We find that regulatory decisions do have statistically and economically significant effects upon the cost of debt for electric utilities, and that the most important effects are associated with the treatment of construction work in progress for ratemaking purposes, the extent of regulatory delay, and whether or not interim rate relief is provided.

"Program Trading and Expiration Day Effects," by Hans R. Stoll and Robert E. Whaley, *Financial Analysts Journal* (March/April, 1987).

This publication is a shortened version of the Stoll/Whaley study of the "Triple Witching" Hour -- the last hour of trading

on days on which index futures, index options and options on index futures expire simultaneously. The study examines the price and volume effects on such days.

"The Economics of Market-Making," by Hans R. Stoll in *The NASDAQ Handbook*. Chicago, IL: Probus Publishing, 1987, pp. 405-424.

This paper examines the economics of market-making with a particular emphasis on the NASDAQ market.

"Effects of Options on Underlying Assets," by Hans R. Stoll, *Aussenwirtschaft* (The Swiss Review of International Economic Relations), (September, 1987).

This paper considers the effects of equity options and index options on the underlying assets, and draws implication for the about to be formed Swiss options and futures market.

"Index Futures, Program Trading and Stock Market Procedures," by Hans R. Stoll, forthcoming in *Journal of Futures Markets*.

This paper examines trading links between futures and the stock market and evaluates modifications in trading procedures that might alleviate market congestion and price effects observed particularly on expiration days. While the paper concludes that the New York Stock Exchange opening price appears to have certain advantages over the closing price as the settlement price for derivative instruments, it also notes that opening procedures on the New York Stock Exchange ought to be modified to provide for more complete disclosure than is now the case.

"Inferring the Components of the Bid-Ask Spread: Theory and Empirical Tests," by Hans R. Stoll. Working Paper No. 87-02.

In this paper the relation between the square of the quoted bid-ask spread and two serial covariances -- the serial covariance of transaction returns and the serial covariance of quoted returns -- is modeled as a function of the probability of a price reversal, π , and the mag-

nitude of a price change, δ , where is stated as a fraction of the quoted spread. "Portfolio Trading," by Hans R. Stoll Working Paper No. 87-14, forthcoming in *Journal of Portfolio Management*.

In this paper the benefits of trading portfolios -- sometimes called program trading -- are examined. The paper concludes that portfolio trading is an important trading innovation of the 1980s but that trading procedures have not yet responded fully to facilitate this form of trading. The paper proposes that portfolios be traded directly on floors of exchanges or in upstairs offices.

"Index Futures and Options: Economic Purpose and Policy Issues," by Hans R. Stoll and Robert E. Whaley.

This paper reviews the nature and purposes of index futures and options, considers the factors that determine the prices of stock index futures and options and examines a variety of policy issues that have come to the fore since the Crash of 1987.

"The Dynamics of Stock Index and Stock Index Futures Returns," by Hans R. Stoll and Robert E. Whaley. Working Paper No. 88-02, January 20, 1988.

This paper examines the minute-by-minute pricing links between stock index futures and the stock market. The paper shows that stock index futures lead the stock market even after adjusting stock prices for lags in the stock index caused by the infrequent trading of some of the component stocks. No evidence is found that stock index futures overshoot index values.

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