Innovations in Finance

Conventional Wisdom circa 1950

"Once you attain competency, diversification is undesirable. One or two, or at most three or four, securities should be bought. Competent investors will never be satisfied beating the averages by a few small percentage points."

Gerald M. Loeb, *The Battle for Investment Survival,* 1935

Analyze securities one by one. Focus on picking winners. Concentrate holdings to maximize returns.

Broad diversification is considered undesirable.

The Role of Stocks

James Tobin
Nobel Prize in Economics, 1981

Separation Theorem:
1. Form portfolio of risky assets.
2. Temper risk by lending and borrowing.

Shifts focus from security selection to portfolio structure.

"Liquidity Preference as Behavior Toward Risk," *Review of Economic Studies,* February 1958.

Single-Factor Asset Pricing Risk/ Return Model

William Sharpe
Nobel Prize in Economics, 1990

Capital Asset Pricing Model: Theoretical model defines risk as volatility relative to market.

A stock's cost of capital (the investor's expected return) is proportional to the stock's risk relative to the entire stock universe.

Theoretical model for evaluating the risk and expected return of securities and portfolios.

Efficient Markets Hypothesis

Eugene F. Fama,
University of Chicago

Extensive research on stock price patterns.

Develops Efficient Markets Hypothesis, which asserts that prices reflect values and information accurately and quickly. It is difficult if not impossible to capture returns in excess of market returns without taking greater than market levels of risk.

Investors cannot identify superior stocks using fundamental information or price patterns.

The Birth of Index Funds

John McQuown,
Wells Fargo Bank, 1971;
Rex Sinquefield,
American National Bank, 1973

Banks develop the first passive S&P 500 Index funds.

1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970 1971 1972 1973 1974

Diversification and Portfolio Risk

Harry Markowitz
Nobel Prize in Economics, 1990

Diversification reduces risk.

Assets evaluated not by individual characteristics but by their effect on a portfolio. An optimal portfolio can be constructed to maximize return for a given standard deviation.

Investments and Capital Structure

Merton Miller and Franco Modigliani
Nobel Prizes in Economics,
1990 and 1985

Theorem relating corporate finance to returns.

A firm's value is unrelated to its dividend policy.

Dividend policy is an unreliable guide for stock selection.

Behavior of Securities Prices

Paul Samuelson, MIT
Nobel Prize in Economics, 1970

Market prices are the best estimates of value.

Price changes follow random patterns. Future share prices are unpredictable.

"Proof That Properly Anticipated Prices Fluctuate Randomly," *Industrial Management Review,* Spring 1965.

First Major Study of Manager Performance

Michael Jensen, 1965
A.G. Becker Corporation, 1968

First studies of mutual funds (Jensen) and of institutional plans (A.G. Becker Corp.) indicate active managers underperform indices.

Becker Corp. gives rise to consulting industry with creation of "Green Book" performance tables comparing results to benchmarks.

Options Pricing Model

Fischer Black,
University of Chicago;
Myron Scholes,
University of Chicago;
Robert Merton,
Harvard University
Nobel Prize in Economics, 1997

The development of the Options Pricing Model allows new ways to segment, quantify, and manage risk.

The model spurs the development of a market for alternative investments.

Innovations in Finance

A Major Plan First Commits to Indexing

New York Telephone Company invests $40 million in an S&P 500 Index fund.

The first major plan to index.

Helps launch the era of indexed investing.

“Fund spokesmen are quick to point out you can’t buy the market averages. It’s time the public could.”

Burton G. Malkiel, *A Random Walk Down Wall Street,* 1973 ed.

The Size Effect

Rolf Banz, University of Chicago

Analyzed NYSE stocks, 1926-1975.

Finds that, in the long term, small companies have higher expected returns than large companies and behave differently.

Multifactor Asset Pricing Model and Value Effect

Eugene Fama and Kenneth French, University of Chicago

Improves on the single-factor asset pricing model (CAPM).

Identifies market, size, and “value” factors in returns.

Develops the three-factor asset pricing model, an invaluable asset allocation and portfolio analysis tool.

“Common Risk Factors in the Returns on Stocks and Bonds,” *Journal of Financial Economics* 33, no. 1 (February 1993): 3-56.

International Size Effect

Steven L. Heston, K. Geert Rouwenhorst, and Roberto E. Wessels

Find evidence of higher average returns to small companies in twelve international markets.

“The Structure of International Stock Returns and the Integration of Capital Markets,” *Journal of Empirical Finance* 2, no. 3 (September 1995): 173-97.

Integrated Equity

Eugene F. Fama and Kenneth R. French

Increasing exposure to small and value companies relative to their market weights and integrating the portfolio across the full range of securities may reduce the turnover and transaction costs normally associated with forming an asset allocation from multiple components.

“Migration,” CRSP Working Paper No. 614, Center for Research in Security Prices, University of Chicago, February 2007.

1975 1976 1977 1978 1979 1980 1981 1982 1983 1984 1985 1986 1987 1988 1989 1990 1991 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001 2002 2003 2004 2005 2006

Database of Securities Prices since 1926

Roger Ibbotson and Rex Sinquefield, *Stocks, Bonds, Bills, and Inflation*

An extensive returns database for multiple asset classes is first developed and will become one of the most widely used investment databases.

The first extensive, empirical basis for making asset allocation decisions changes the way investors build portfolios.

Variable Maturity Strategy Implemented

Eugene F. Fama

With no prediction of interest rates, Eugene Fama develops a method of shifting maturities that identifies optimal positions on the fixed income yield curve.

“The Information in the Term Structure,” *Journal of Financial Economics* 13, no. 4 (December 1984): 509-28.

Nobel Prize Recognizes Modern Finance

Economists who shaped the way we invest are recognized, emphasizing the role of science in finance.

William Sharpe for the Capital Asset Pricing Model.

Harry Markowitz for portfolio theory.

Merton Miller for work on the effect of firms’ capital structure and dividend policy on their prices.

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Financial science is a relatively young academic field. But the theories, research, and applications have significantly influenced investment methodology over the last half-century.

This timeline offers some of the high points in the evolution of modern finance. Prior to 1950, conventional investment managers shunned diversification in favor of securities analysis and concentrated stock picking.

In 1952, Harry Markowitz introduced the modern investment age with his landmark work on building optimal portfolios using diversification and mean-variance analysis. The following two decades brought major developments in asset pricing and market efficiency.

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The rise of computing power and stock return databases gave academics the tools to empirically test their theories and develop more advanced models to explain securities behavior.

Since the 1970s, this research has led to the introduction of advanced forms of passive investing, while casting increasing doubt on the value of active management. More recently, advanced quantitative methods have given rise to the multifactor approach in portfolio construction, and integrated equity.