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Investment Evolution

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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.

1950

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.

1952

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.

1958

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.

1961

Single-Factor Asset Pricing Risk/Return Model

William Sharpe
Nobel Prize in Economics, 1990

Capital Asset Pricing Model: Theoretical model defines risk as market beta, or the covariance of a security with the overall market.

A stock's expected return is proportional to the stock's market beta.

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

1964

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.

1965

Efficient Markets Hypothesis

Eugene F. Fama[1]

Extensive research on stock price patterns.

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.

1966

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.

1968

Timeline: 1950 1951 1952 1953 1954 1955 1956 1957 1958 1959 1960 1961 1962 1963 1964 1965 1966 1967 1968 1969 1970

1. Member of the board of directors of the general partner of, member of the Investment Research Committee of, and consultant to Dimensional Fund Advisors LP.

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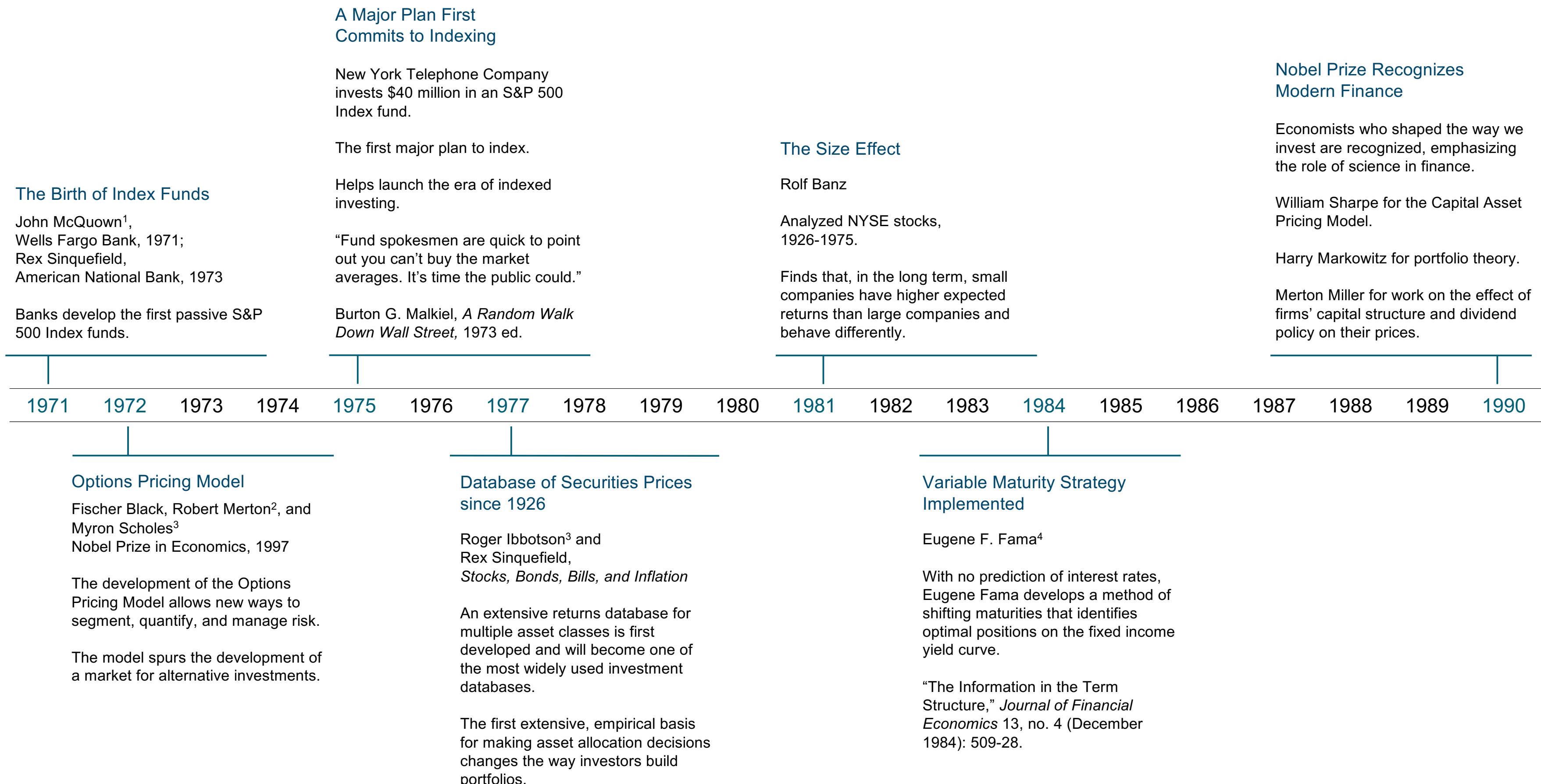
Innovations in Finance



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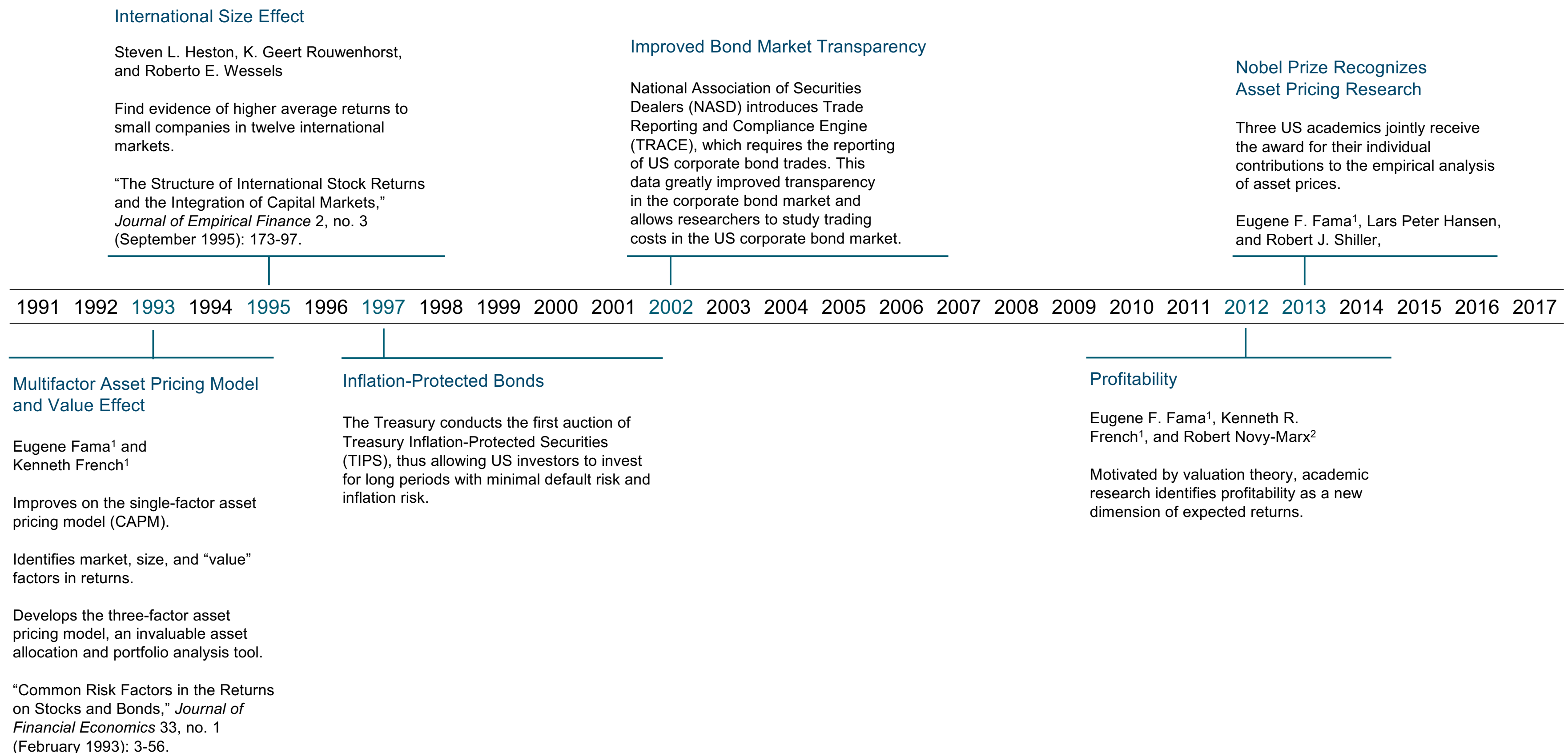
Innovations in Finance



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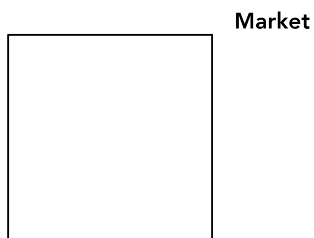
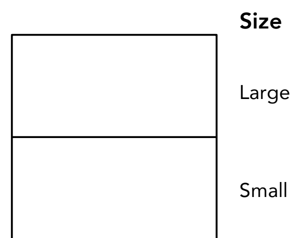
Advancements in Research

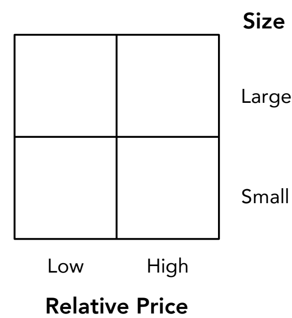
Single-Factor Model (1963)



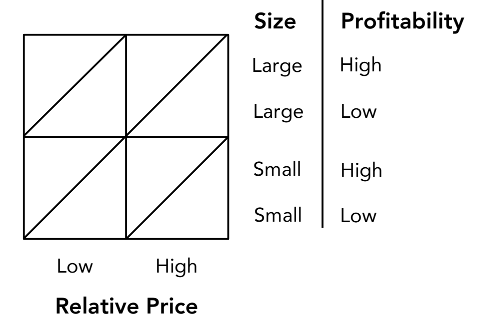
Size Effect (1981)



Value Effect (1991)



Profitability (2012)



The size effect is the tendency of small cap stocks to outperform large cap stocks over the long term. The value effect is the tendency of stocks with lower price-to-book ratios (value stocks) to outperform stocks with higher price-to-book ratios over the long term. Profitability refers to the tendency of higher-profitability stocks to outperform lower-profitability stocks. Profitability is measured as operating income before depreciation and amortization minus interest expense scaled by book. Relative price is the price of a security as it compares to another.

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Investment Management

Conventional Management

- Attempts to identify mispricing in securities
- Relies on forecasting to select “undervalued” securities or time markets
- Generates higher expenses, trading costs, and risks

Index Management

- Allows commercial index to determine strategy
- Attempts to match index performance, restricting which securities to hold and when to trade
- Prioritizes low tracking error over higher expected returns

An Alternate Approach

- Gains insights about markets and returns from academic research
- Structures portfolios along the dimensions of expected returns
- Adds value by integrating research, portfolio structure, and implementation

Efficient Markets Hypothesis

Eugene F. Fama

The Hypothesis States:

- Current prices incorporate all available information and expectations.
- Current prices are the best approximation of intrinsic value.
- Price changes are due to unforeseen events.
- “Mispricings” can occur but not in predictable patterns that can lead to consistent outperformance.

The Hypothesis Does not State:

- All investors are rational.
- Prices are always right.
- Prices should be stable.
- Professional money managers can’t earn higher than market returns.

Eugene F. Fama, “Efficient Capital Markets: A Review of Theory and Empirical Work,” *Journal of Finance* 25, no. 2 (May 1970): 383-417.
Eugene F. Fama, “Foundations of Finance,” *Journal of Finance* 32, no. 3 (June 1977): 961-64.