



INNOVATIONS IN FINANCE

1900
French mathematician **Louis Bachelier** researches the randomness in market movements and recognizes that it will never be an exact science.

1944
Further research from **Alfred Cowles III** published in the *Econometrica* that showed no evidence on an individual's ability to predict the future direction of the stock market.

1953
Professor **Maurice Kendall** published research concluding that pricing patterns in the markets are much less systematic than previously thought and little structure actually exists.

1961
"Investments and Capital Structure"
Merton Miller and **Franco Modigliani** (*Nobel Prize winners in 1990 and 1985*) create a theorem on returns in corporate finance, finding dividend policies are an unreliable guide for stock selection.

1965
"Behavior of Securities Prices"
research from **Paul Samuelson** (*Nobel Prize winner in 1970*) showing that market prices are the best estimate of value.

1968
"First Major Study of Manager Performance"
Research from **Michael Jensen** indicates that active managers regularly underperform indices.

1986
A study by **Gary P. Brinson, L. Randolph Hood** and **Gilbert L. Beebower** determined that asset allocation is one of the most important determinants of long-term returns. **Asset allocation is responsible for 91.1%** of a diversified portfolio's returns, where security selection and market timing attribute 8.9%

2012
"Profitability"
Eugene Fama (*Nobel Prize winner 2013*) **Kenneth French** and **Robert Novy-Marx** identify a new dimension of higher expected returns: **profitability.**

1932
Alfred Cowles III published research in the *Econometrica* based on over 10,000 market forecasters and concluded that performance was worse than the market as a whole.

1952
"Diversification and Portfolio Risk"
Research by **Harry Markowitz** (*1990 Nobel Prize winner*) published in the *Journal of Finance* found that a diversified collection of assets is less risky than picking individual stocks and bonds.

1964
"Single-Factor Asset Pricing Risk/Return Model"
created by **William Sharpe** (*Nobel Prize winner 1990*) defining risk as market beta, and potential returns are proportional to the stock's market beta.

1970
More research from **Eugene Fama** (*Nobel Prize winner in 2013*) concludes that information moves so quickly that the market as a whole knows more than any individual investor could possibly know.

1993
"Multifactor Asset Pricing Model and Value Effect"
Eugene Fama (*Nobel Prize winner 2013*) and **Kenneth French** improve the single-factor pricing model by identifying market, size, and value as additional factors in measuring returns.

2013
"Nobel Prize Recognizes Asset Pricing Research"
Three US academics, **Eugene Fama, Lars Peter Hansen,** and **Robert J. Shiller,** receive the Nobel prize for contributions to the empirical analysis of asset prices.

1958
"The Role of Stocks"
James Tobin (*1981 Nobel Prize winner*) formed the Separation Theorem, which focuses on portfolio structure instead of security selection.

1966
"Efficient Markets Hypothesis"
Research from **Eugene Fama** (*Nobel Prize winner in 2013*) asserts that prices reflect values and information accurately and quickly.