

What Is Verification of Scientific Research?

Explaining the findings of scientific research in financial economics is challenging regardless of the audience, but more so when the results must be expressed in everyday language that is accessible to an audience consisting of participants in employer-sponsored retirement-savings plans and high-net-worth individual investors. Once the research findings are explained in everyday language, there still remains the challenge of enabling members of this audience to independently verify them or to find reliable experts to advise them. The following examples illustrate the dilemma with varying degrees of difficulty of verification.

THE HOUSE FIRE

A traveler passing through a town at night sees a house roof aflame. The traveler rushes to the house, knocks on the door, and tells the occupants that their house is on fire. The alarming report can be independently verified immediately by merely walking outside the house and looking up at the roof.

THE POISONED WELL

An amateur field ecologist discovers by coincidence that a town's water supply is poisoned by lethal toxic waste slowly seeping from a nearby industrial site. She reports her discovery to the mayor and city council members. The shocking report can be independently verified within a few days by sending newly collected samples of the water from the town well to the state water quality inspector.

THE MIRACLE CURE

A janitor at a pharmaceutical company discovers by chance that the company's most successful drug is made from an unidentified compound that is shipped to their

warehouse in bulk containers from a commodity chemical wholesaler. Instead of a miracle cure for cancer as advertised by the company, the drug is a placebo. He discreetly searches for documentary evidence about this drug, and finds confidential reports in computer files that describe the company's covert strategy for reporting fabricated and falsified trials in the scientific testing of the drug on patients in order to be approved for sale by the U.S. Food and Drug Administration (FDA). He secretly collects samples of the raw material from the warehouse, makes backup copies of the electronic documents and sends this evidence to the FDA. His disturbing report can be independently verified within a matter of days by scientists in government laboratories.

THE SUPERIOR INVESTMENT

An unknown, unaffiliated financial economist doing independent research in the important topic of capital asset pricing serendipitously finds that a popular stock-market investment strategy is a vast hoax and a spreading contagion. Millions of participants in employer-sponsored retirement-savings plans and thousands of high-net-worth individuals investing through investment advisors and stock brokers are materially harmed year after year by this hoax and do not know it. The debunking report by this researcher can be independently verified within a matter of weeks, once an unbiased expert in this matter can make a thorough investigation.

This new report of corruption in the financial-services industry is surprising only in its magnitude and in the fact that it originated in academia and was transmitted to industry, not vice versa, even though the hoax-originating scientific research center located in academia was generously supported at its inception and is generously supported annually thereafter by a major company in the financial-services industry.

REPORTED FINDINGS

How does the financial economist report his scientific research findings? And once investors know about the research findings, how does each of them verify the report?

First, the research findings must be published in one or more reputable academic scientific financial economics and finance journals. After ten years of rejections by journal editors, the scientific research findings have been published in two articles in two reputable, new, obscure, academic scientific economics and finance journals. Only academicians are most likely to read the two articles, even though they appear in printed journals that are also published in a digital version online for free viewing and downloading. Non-specialists can not understand the two articles. Competent academic specialists know about this important topic in their discipline related to the cost of capital, and they are duplicitous, duped or distracted. A competent academic specialist in this field of study who has been distracted from this matter and who is not biased by institutional affiliation or by prior publication may not be easy to find.

Second, the new research findings must be communicated to professional finance practitioners. They, in turn, can transmit the research findings to individual investors who have been materially harmed by this vast, long-running, widespread, harmful, costly and wasteful stock-market hoax and contagion spreading further worldwide each year.

Third, there may be widespread regulatory capture in this matter in the sense that whether or not any federal or state laws have been violated, the law enforcement officials and regulators either do not have the necessary specialized expertise or are biased. For example, the U.S. Securities and Exchange Commission (SEC) generally does not actively monitor the investment companies involved, because they are privately owned;

and otherwise, they must be very large in terms of assets under management. The Office of Economic Analysis at the SEC has been headed by academicians who were biased in this matter, due to their institutional affiliations.

Fourth, there may be widespread co-optation in this matter in the sense that whether or not any institutional rules, regulations and ethical codes have been violated, such as incidents of academic fraud and misconduct in science, the chief compliance officers at scientific research centers and universities rarely have the necessary unbiased specialized expertise to investigate this matter. More importantly, institutional compliance officers are often themselves biased by virtue of implicit employment contracts and therefore either must serve the interests of their employers over the interests of truth and science or resign from their positions, as did Attorney General Elliott Lee Richardson under U.S. President Richard M. Nixon.

DILEMMA

How do you explain scientific research results to practitioners who do not have the requisite specialized knowledge to understand the findings? A CFA designation does not confirm the skill set and specialized expertise of a Ph.D. degree in any field of study, let alone in economics or financial economics. The message is more important than the messenger, but a well-known, unbiased, expert messenger can reach a wider audience.

RESOLUTION

One potential resolution of this verification dilemma without recourse to a well-known trustworthy authority is to demonstrate that the popular investment strategy is not logically valid. Such a demonstration based on logic is accessible to most persons. It necessarily follows that if a stock-pricing model is not logically valid, then it cannot

possibly be scientifically valid. This approach using arguments based on classical logic obviates any debate based on financial economics and econometrics, which are not accessible to most persons.

Investors who may be adversely impacted by this hoax and who have learned about it can make more-informed decisions about investing their savings. Once that occurs for a sufficient number of investors, the impersonal laws of economics and the inexorable forces of markets eventually will inevitably correct this massive misallocation of capital and risk-bearing in society through the enlightened self-interest of millions of such investors.

SCIENCE

Scientific knowledge is not absolute truth. Rather, it is the best approximation, subject to new data and new theories that may be discovered. The strength of science, in contrast to other ways of knowing, is self-criticism. The appropriate position for any responsible scientific researcher to take is that his or her research findings may be incorrect, but the facts and arguments are fully disclosed for everyone to scrutinize, and the experiments are described in sufficient detail to be replicated. An error of commission or omission in evidence, reasoning, or methodology may occur in the research, and the error may significantly change the published research conclusions. If such error is detected and published in turn, then this constructive criticism contributes to the advancement of learning and benefits all humanity. I may be wrong. My research findings are published in academic, scientific, peer-reviewed journals to be shared with others who may be interested in this field of study. Fair, open discussion is welcome.