Aristotle as Portfolio Manager

Begging the Question In Stock Pricing

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1. Stock Equities and Analysis

- In the US: NYSE, AMEX and NASDAQ.
- Investment policy: Active management. Not passive management, or “the market portfolio in market proportions” via proxy.
- Investment strategies: Based on stock-portfolio pricing models.
- Investment products: Index funds.

2. Genuine Method

The ultimate criterion of logical thinking.
Proceed from:

A. The better known to the lesser known.
B. The more certain to the less certain.
C. The more clear to the less clear.

Proceed *not* from known to *equally* known.

3. Violation of Genuine Method

A. Logic: Vicious circular reasoning, named “begging the question” by Aristotle, is an ***inference*** drawn from a premise that includes the conclusion, and used to prove the conclusion.

Definitions of words are circular reasoning, but they are not ***inference***.

Inference is the deriving of a conclusion in logic by either induction or deduction.

3. Violation of Genuine Method

B. Math: Failing to isolate the left-hand side of an algebraic equation.

To "isolate" sometimes requires imagination. Computer software lacks the imagination.

Circular reasoning is virtuous when there is no ***inference***. In math, it can serve useful pedagogical purposes.

3. Violation of Genuine Method

C. Science: Failing to isolate a chemical element from a compound.

Madam Marie Curie, in the final step of a long arduous process beginning with pitchblende ore, separated the new element radium from radium chloride.

3. Violation of Genuine Method

D. Statistics: Causal ***inference***, hypothesis testing, and ***simultaneity***.

Inferential statistics, unlike descriptive statistics, requires a hypothesis for testing. The null hypothesis is based on the model equation.

Simultaneity exists when a right-hand-side variable and the left-hand-side variable are related either by mutual causation or by circular identity.

3. Violation of Genuine Method

E. Econometrics, a method of causal ***inference*** applied to economics: Asset Pricing (Part 1 of 4).

Stock-Portfolio Pricing: Models of Expected Return

Return is capital gains plus income. It is a non-observable variable derived from five observable variables: Beginning price, ending price, beginning shares, ending shares, dividends.

3. Violation of Genuine Method

E. Econometrics, a method of causal ***inference*** applied to economics: Asset Pricing (Part 2 of 4).

Stock-Portfolio Pricing: Three-Factor Model

$$R - R_f = a + b(R_M - R_f) + s(SMB) + h(HML) + e,$$

where time, index t, is omitted.

3. Violation of Genuine Method

E. Econometrics, or causal ***inference*** applied to economics: Asset Pricing (Part 3 of 4).

1. Market factor, (*R*M-i – *R*f), is return on market proxy without each subject stock* (M - i) minus return of risk-free (f) rate, e.g., U.S. government bond.
2. Size factor, *SMB* (small minus big), is related to market capitalization (shares *x* price).
3. Value factor, *HML* (high minus low), is related to book-to-market equity ratio, a price yield.

3. Violation of Genuine Method

E. Econometrics, or causal ***inference*** applied to economics: Asset Pricing (Part 4 of 4).

1. Market factor, when defined to exclude each subject stock, is *not* a circular simultaneity.
2. Size factor entails two ***circular simultaneities*** due to price and to shares.
3. Value factor entails two ***circular simultaneities*** due to price and to shares.

4. Econometric Diagnostics

A. Irremediable fatal fallacy: The ***inference*** is vicious circular reasoning, not virtuous.

B. Logically meaningless: Not logical, illogical, senseless, nonsensical.

C. Non-interpretable: Neither a risk, behavioral, agency, nor other story.

D. Indeterminate: Joint hypothesis of efficiency and equilibrium. Perfect multicollinearity of size and value prevents disentanglement.

4. Econometric Diagnostics

E. Not logically valid: No counter-example.

F. Cannot logically describe or explain returns: Neither expected return, historic return, nor variation in return.

G. Not scientifically valid: Violates generally accepted scientific methodology.

H. Pseudo-scientific: Falsely alleged to be scientific.

4. Econometric Diagnostics

I. Irrational: Contradiction to rational pricing hypothesis.

J. Inefficient: Contradiction to Efficient Markets Hypothesis.

K. Destabilizing: Moves market prices away from fundamental values.

L. Economically wasteful: Misallocation of capital; opportunity cost due to excess fees.

5. Biggest Stock Market Hoax

A. Vast, Costly, Harmful

1. Total cost: Far more than $1 billion each year and growing.
2. Cumulative net harm to all persons impacted: Social welfare function.

5. Biggest Stock Market Hoax

B. Long-Running

3. Origin: First product based on the hoax was a U.S. micro-cap index fund that began trading in 1981. The duration is 25 years in 2006.

5. Biggest Stock Market Hoax

C. Widespread

4. Number of investors harmed: Millions.
5. Geographical distribution of investors harmed: Many countries worldwide.
6. Number of professionals in academia and industry involved: Scores.

6. Conclusion and Question

- Total Dollars + Total Years + Total Investors = Egregious Hoax
- Disciplined adherence to structured fatal fallacies is not prudent investing, even without the added cost and excess fees.
- What would a sensible, logical, rational, portfolio manager do? What would Aristotle do?

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