

EC371 Economic Analysis of Asset Prices

Informational Efficiency of Asset Markets – a brief overview

Goal: Assess the informational efficiency of asset markets

In crude terms: “Are asset markets efficient?” (As explained below, this question is ill-posed.)

Define your terms, i.e. define ‘informational efficiency’ (see lecture notes).

Method

What are the criteria for ‘informational efficiency’?

Are the criteria satisfied?

What can be concluded from the evidence?

Applying the method

What are the criteria for ‘informational efficiency’?

- Propose a model – the model describes a mechanism that represents informational efficiency.
Example: one candidate model is the random walk hypothesis. But there are other candidates, each will need justifying as to why it represents ‘informational efficiency’.
- Propose a set of information that is available for the model to make predictions. *Example:* all previous prices of an asset. Other possibilities include information about the company (if the asset is a company’s shares) and macroeconomic data (such as the rate of economic growth).

Are the criteria satisfied?

- Derive predictions from the model – predictions that can be tested using data.
- Choose a dataset, e.g. a company’s shares for a period of time. Specific example: Daily data on Intel shares from January 2000 to October 2010.
- Make statistical assumptions needed to test the predictions (e.g. Normally distributed rates of return on the asset). Choose the significance level of the test, typically 5%.
- Apply statistical hypothesis tests to the data – this is the ‘evidence’. (Simplest example would be a *t-test*.)
- The test implies that either the hypothesis (testable prediction) is *rejected* or *not rejected*.

What can be concluded from the evidence?

- Suppose the test *rejects* the hypothesis – the inference is that the asset market is informationally **inefficient**, *conditional upon* all the assumptions made in carrying out the test, most importantly **conditional upon the proposed model and information set**.
- Suppose the test *does not reject* the hypothesis – the inference is that the evidence is consistent with informational efficiency, *conditional upon* all the assumptions made in carrying out the test, most importantly **conditional upon the proposed model and information set**.

Note: the question “Are asset markets efficient?” is ill-posed because it cannot be answered unconditionally. (Any unconditional answer is incomplete.)

As Fama asserts: tests of asset market efficiency are always tests of a *joint hypothesis*, namely the hypothesis of informational efficiency *jointly* with the model and information set.