

FAMA'S EFFICIENT MARKET IN A NUTSHELL

John Nuttall

University of Western Ontario

jnuttall@uwo.ca

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Below we present five quotes or pairs of quotes from Fama's original papers on the Efficient Market Hypothesis (EMH). After each quote we give our paraphrase of Fama's statement in the quote. There follows in plain language our deductions from the statements, sometimes with a reason. The logical result is the conclusion that Fama has effectively conceded that there is little or nothing of practical value in the EMH concept.

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QUOTE 1

The primary role of the capital market is allocation of ownership of the economy's capital stock. In general terms, the ideal is a market in which prices provide accurate signals for resource allocation: that is, a market in which ... investors can choose among securities that represent ownership of firms' activities under the assumption that security prices at any time "fully reflect" all available information. A market in which prices always "fully reflect" available information is called "efficient". Fa70 p. 383

STATEMENT 1

In an ideal (i.e. efficient) market, stock prices provide signals to help financial investors decide which stocks to hold in their portfolios.

QUOTE 2a

An efficient capital market is a market that is efficient in processing information. The prices of securities at any time are based on correct evaluation of all information available at that time. In an efficient capital market, prices fully reflect available information. Fa76

QUOTE 2b

...market efficiency per se is not testable. It must be tested jointly with some model of equilibrium, an asset pricing model. This point, the theme of the 1970 review, says that we can only test whether information is properly reflected in prices in the context of a pricing model that defines the meaning of "properly". As a result, when we find anomalous evidence on the behavior of returns, the way it should be split between market inefficiency or a bad model of market equilibrium is ambiguous. Fa91 p. 1575

STATEMENT 2

In an efficient market stock prices always accurately (or correctly or properly) fully reflect all available information.

DEDUCTION 2

In an efficient market at any time a security has a 'true' price that represents its 'fundamental' value.

Reason

The phrases from the above quotations "accurate signals", "correct evaluation of all available information" and "information is properly reflected in prices" all point in the same direction. They imply that Fama indeed does believe that a "true" price for each security exists, because otherwise there would be no way of defining what is meant by accurate, correct or proper.

QUOTE 3

The definitional statement that in an efficient market prices fully reflect available information is so general that it has no empirically testable implications. Fa70 p. 384

STATEMENT 3

The definition of Efficient Market in STATEMENT 2 is so general that it has no content.

DEDUCTION 3

In other words the definition is meaningless, and it makes no sense to use it as it stands. There might be a true price, but we do not know how to find it.

QUOTE 4

"market efficiency ... must be tested jointly with some model of equilibrium, an asset pricing model. This point, the theme of the 1970 review, says that we can only test whether information is properly reflected in prices in the context of a pricing model that defines the meaning of "properly". Fa91 p.1575

STATEMENT 4

In view of STATEMENT 3, we need an asset pricing model in order to define market efficiency.

DEDUCTION 4a

Under market efficiency the true price of a security is that given by a unique asset pricing model.

Reason

Presumably, in an efficient market, there is a unique true price for each security at any given time, which probably implies that there is a unique asset pricing model that produces the true prices. In other words Fama seems to be stating that the true or efficient market prices are those determined by a certain asset pricing model.

DEDUCTION 4b

Even with the connection to an asset pricing model, market efficiency is not defined.

Reason

Unfortunately, Fama does not indicate how to find the correct asset pricing model, or even discuss some properties that it might be expected to possess, so we are really no further ahead in our understanding. Again Fama has given us a definition without significant content.

QUOTE 5a

Does the fact that market efficiency must be tested jointly with an equilibrium-pricing model make empirical research on efficiency uninteresting? Does the joint hypothesis problem make empirical work on asset-pricing models uninteresting? These are, after all, symmetric questions, with the same answer. My answer is an unequivocal no. The empirical literature on efficiency and asset-pricing models passes the acid test of scientific usefulness. It has changed our views about the behavior of returns, across securities and through time. Indeed, academics largely agree on the facts that emerge from the tests, even when they disagree about their implications for efficiency. The empirical work on market efficiency and asset-pricing models has also changed the views and practices of market professionals.

As these summary judgements imply, my view, and the theme of this paper, is that the market efficiency literature should be judged on how it improves our ability to describe the time-series and cross-section behavior of security returns. It is a disappointing fact that, because of the joint-hypothesis problem, precise inferences about the degree of market efficiency are likely to remain impossible. Nevertheless, judged on how it has improved our understanding of the behavior of security returns, the past research on market efficiency is among the most successful in empirical economics, with good prospects to remain so in the future. Fa91 p. 1576

QUOTE 5b

Instead of ... only ... the forecast power of past returns, the first category [i.e. weak form tests] now covers the more general area of tests for return predictability, which includes the burgeoning work on forecasting returns with variables like dividend yields and interest rates. Since market efficiency and equilibrium pricing issues are inseparable, the discussion of predictability also considers the cross-sectional predictability of returns, that is, tests of asset-pricing models and the anomalies (like the size effect) discovered in the tests. Fa91 p. 1576

STATEMENT 5

The studies on market efficiency should be judged by their ability to describe the returns of a set of securities. Precise inferences about the degree of market efficiency are impossible.

DEDUCTION 5a

Fama agrees with DEDUCTION 4b - market efficiency is an undefined concept of no direct use.

DEDUCTION 5b

Fama concedes that the only value gained from the work on market efficiency has been the spin-off effect of stimulating research on the predictability of security returns from past data, and this research should be continued without reference to the concept of market efficiency.

NOTE Since the forecasting of returns is of great direct interest to active managers, the extent to which research on the meaningless concept of market efficiency stimulated research on forecasting is difficult to assess. In any case this question relates to personalities, not impartial academic enquiry.

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Fa76 Fama, E., "Foundations of Finance," New York: Basic Books, (1976).

Fa91 Fama, E., "Efficient capital markets II," Journal of Finance, **46**, 1575 (1991)