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Market Inefficiency and Asset Pricing Theory: Recent Trends II. [1]

By

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Heard on the Random Walk

Market Inefficiency and Asset Pricing Theory: Recent Trends II.

The semi-strong Efficient Market Hypothesis (EMH) is a basic working hypothesis used by many investment practitioners. It asserts that capital markets are efficient with respect to publicly available information. This proposition, which has been supported by a large number of studies in the literature of finance over a number of years, implies the impossibility of earning statistically significant subsequent risk-adjusted returns based on this information. The implication for portfolio management is that a disciplined investment process using non public information will be required in order to experience superior risk-adjusted portfolio performance over time.

A number of articles, however, have recently appeared in the academic financial literature which seem to challenge this concept of an informationally efficient market. The May issue of the *Quantitative Investment Strategies* (QIS) booklet described the results of a study which observed substantial positive risk-adjusted subsequent returns for portfolios with high earnings yield (E/P ratio) securities. Since earnings and prices are widely available public information, the existence of significant subsequent risk-adjusted excess returns based on this information suggests a severe form of market inefficiency.

In this issue of QIS, Ball's paper (*Journal of Financial Economics*, June/September, 1978) will be used as the basis for discussion of recent tests of market efficiency. Ball surveys twenty studies which have reported "abnormal" or excess risk-adjusted returns based on prior earnings or dividend information, where risk is defined as beta of the Sharpe-Lintner-Black Capital Asset Pricing Model (CAPM). Fifteen studies used earnings; the remainder used dividend yields and combinations of earnings and dividends data. The magnitude of the reported subsequent risk-adjusted excess returns, given portfolios composed of high earnings yield securities, has ranged from a few percent to as much as forty percent a year. The impact of the studies in aggregate poses a serious challenge to the EMH.

As described in the previous issue of QIS, EMH studies are tests of a joint hypothesis on market efficiency and the validity of CAPM as a model for expected return. If the EMH is not supported by the data, the market may be informationally inefficient and/or the CAPM may be a misspecification of the return generating process. Ball reviews other possible explanations of the abnormal returns which include systematic experimental errors, market imperfections and transaction costs. Ball's important conclusion is that the evidence surveyed is more consistent with the model misspecification hypothesis than with any other. In particular, model misspecification is consistent with both the existence and the tendency for subsequent excess returns to be a monotone increasing function of earnings yields.

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Ball conjectures that earnings yield (and other yield surrogates) proxy for determinants of returns omitted from the CAPM and that capital markets are informationally efficient.

The argument underlying Ball's conjecture can be described as follows: Assume that expected return (in equilibrium) is a sum of independent factors and consider the effect of omitted variables in the return model. Assume also that earnings yield is correlated with expected return. Then, earnings yield is likely to proxy for omitted factors when ex post returns are "risk-adjusted" with respect to the misspecified model. Therefore, subsequent risk-adjusted returns, if CAPM is misspecified, will likely be related to earnings yields in a monotone increasing fashion. This hypothesis is also consistent with the observed tendency that subsequent excess returns persist over time.

There is one other important source of confirmatory evidence for the Ball hypothesis. The earnings studies can be classified on the basis of the earnings variables used in the analysis: 1) earnings yields and 2) changes in earnings per share (EPS). An examination of the results of these two categories of studies reveals some interesting differences. Abnormal returns were generally greater for E/P than EPS studies and tended to persist over time. An EPS study examines the "news" content in the earnings announcement. An E/P study adjusts the news content for both the size of the company (by the price of the stock) and, to some extent, for the market's response to the news information by scaling earnings by the price of the stock after the fiscal year. As a result, E/P studies are likely to proxy for omitted variables in the return model, while EPS studies are more directly tests of the informational efficiency of the market.

Ball's hypothesis must be subjected to a wide variety of tests more directly appropriate to the hypothesis than those reported in his paper. Nevertheless, there is serious and important evidence which suggests that ex post returns are not well described by the CAPM. If true, Ball's conjecture will have a profound effect on such fundamental concepts as security valuation, performance measurement, and portfolio optimization. It is interesting to note that a theoretical parallel exists with respect to Ball's conjecture in the work by Richard Roll (see, e.g., *Journal of Finance,* September, 1978).

The status of market informational efficiency with respect to publicly available information is less clear from the studies reviewed by Ball. While the EPS studies report significant abnormal subsequent returns based on earnings "news," the magnitude of the excess returns tends to be small and the results are therefore more susceptible to criticisms of experimental design. In a future issue, we will turn to some further results on this subject.

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