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BEHAVIORAL FINANCE

The Second Generation

MEIR STATMAN



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Moreover, this market for flour bags is easy to beat. You can easily buy the 6-pound bag for the price of a 5-pound bag, gaining a 1-pound "abnormal return." This abnormal return is an "anomaly," indicating that the market is neither value efficient nor hard-to-beat efficient.

Alternatively, both bags weigh 5 pounds, implying that the market for flour bags is both value efficient and hard to beat but the scale is faulty, sometimes pointing to 5 pounds and sometimes to 6 pounds when a 5-pound bag is placed on it. A faulty scale is analogous to a faulty asset pricing model.

The problem of the joint hypothesis is the problem of determining two variables with one equation. We can overcome the problem by assuming one variable and determining the other. We can assume that markets are value efficient and determine an asset pricing model. Or we can assume an asset pricing model and determine whether markets are value efficient.

The CAPM was accepted as the correct asset pricing model as long as it served to show that markets are hard to beat and value efficient. But the CAPM was largely replaced by the three-factor model when the former indicated that markets are not efficient, yielding abnormal returns to investors in small-capitalization and value stocks.

The three-factor model was judged as faulty when it failed to account for abnormal returns yielded by the momentum factor. And the four-factor model was declared faulty when it failed to account for abnormal returns associated with investment and profitability, idiosyncratic volatility, and net stock issues, among many others.[373]

Empirical asset pricing models, such as the three-factor model, imply a decision to overcome the joint hypothesis problem by assuming that markets are value efficient and using this assumption to determine correct asset pricing models—models that yield no abnormal returns. This is a good choice in investment asset markets, as it is in other markets, whether for cars, restaurant meals, or watches.

When we observe watches showing the same time but selling at prices that range between $10 and $1 million, we do not rush to conclude that the market for watches is inefficient. Instead, we assume that the market for watches is efficient and proceed to infer a watch pricing model. Did we remember to add a prestige factor into the model? Did we remember to add a beauty factor? Did we remember to add a factor accounting for display of moon phases and other "complications"?

The joint hypothesis underlies debates about "smart beta." Smart beta strategies involve allocations that differ from those in an index where

[373]Kewei Hou, Chen Xue, and Lu Zhang, "Digesting Anomalies: An Investment Approach," *Review of Financial Studies* 28, no. 3 (March 2015): 650–705.

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