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Mental Accounting, Loss Aversion, and Individual Stock Returns: Discussion

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Discussion

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THIS IS A STIMULATING and provocative paper. It not only demands our professional respect for its modeling skill, but also forces us to reflect on the nature of financial modeling, and on how far from rationality we should be willing to depart in our assumptions about investor behavior. Conventions here have clearly changed over time.

In the years that followed the development of the Capital Asset Pricing Model in the mid-1960s, before the advent of formal behavioral models of financial markets, convention required modelers to remain for the most part

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within the framework of vNM utility functions and rational expectations.¹ Given these standard behavioral postulates, efforts were concentrated on analyzing the effects on asset prices of informational and other constraints and frictions to which investors were subject, such as taxes, trading costs, agency, and costly information. Virtually no attention was paid to the composition and dynamics of individual portfolios and variation in investor objectives was permitted only within a narrow range²—habit formation, keeping up with the Joneses, recursive utility, and uncertainty aversion being notable examples. Most recently, we have seen the development of formal behavioral models that import findings from psychology to analyze individual investor behavior, as well as to develop models of financial markets. These findings have mainly concerned predictable biases in the formation of expectations and the determinants of attitudes toward risk. This paper takes the radical further step of assuming that investors are concerned directly with the performance of their stocks on an individual basis as well as indirectly with the performance of their overall portfolio (since it is the portfolio return that determines the level of consumption). It is not clear from their formulation (and perhaps they would argue that it does not matter) whether this stock-by-stock focus is to be attributed to a conscious concern with individual stock returns (“I would rather lose \$100 on stock A and make \$50 on stock B than make \$100 on stock A and lose \$50 on stock B”) or whether it is to be attributed to an unconscious decision-making bias that would disappear under the appropriate therapy. In any case, the representative agent in this model, although he is capable of solving a difficult dynamic programming problem, cares not a whit for Markowitz and his prescriptions. This is a radical departure for our discipline and one that should not be accepted lightly.

There is a danger that the relaxation of the rationality criterion will lead to the adoption of radically different behavioral postulates to explain different phenomena. This would be indicative of a degenerative scientific research program (Lakatos (1970)), in which representative agent models become little more than the fables used to justify particular pricing kernels that are found to be empirically successful in explaining asset prices. While this may be the route to explaining asset prices in a statistical sense, it is clearly not the route to understanding them. As an example of different behavioral postulates, the house money effect that underlies part of the model predictions is only one of at least three behavioral stories about how an investor will respond to good news about a stock he has bought. Daniel, Hirshleifer, and Subrahmanyam (1998) argue for “biased self-attribution” which causes the investor to become more confident as his previous positive assessment of the stock is confirmed, and therefore to demand more of the stock; the effect is

¹ Although nonexpected utility preferences were also admitted on occasion.

² Economists have generally been reluctant to accept models that are based on elaborations of investor tastes and the simplest and most parsimonious specifications have generally been preferred. It is interesting that as recently as 1986, Arrow (1986) regarded habit formation as “not rational as economists have used that term.”

much the same as that of the house money effect. On the other hand, O'Dean (1998) argues for the disposition effect, which makes investors more risk averse as their stock gains in value. This effect, for which O'Dean (1998) finds empirical confirmation in that investors tend to sell winners and to hold on to losers, goes in the reverse direction of the house money effect.³ This illustrates the difficulties that beset modelers who depart from the narrow path of rationality; there are many ways in which people may exhibit apparently irrational behavior. Which to emphasize?

The authors borrow the Thaler and Johnson (1990) house money effect from their earlier paper with Santos (Barberis, Huang, and Santos (2001)), which uses it to explain the volatility of stock prices relative to dividends and the related slight predictability of returns. Campbell and Cochrane (1999) achieve the same objective with a carefully crafted (but not very well motivated) model of habit formation. Brennan and Xia (2001) achieve it more simply, with uncertainty about the growth rate of dividends; and it is obvious that heterogeneity in risk aversion will create the same dependency of expected returns on past returns through endogenous shifts in the wealth distribution (see Chan and Kogan (2000)). Thus there is no need to abandon simple rational models of investor behavior in order to explain the stylized facts about aggregate stock returns.

This paper goes further, of course, in that it is concerned with cross-sectional pricing relations. For this purpose, it assumes, as I have mentioned, that investors account for stocks on an individual basis. When a stock goes up, an investor is less risk averse toward the returns on that stock, since he already has "gains in the bank"—this reduces the discount rate, and causes the stock price to grow more than the dividend. This, in turn, induces excess volatility and stock price predictability at the individual stock level, as well as creates cross-sectional relations between size or dividend yield and stock returns. In model simulations, the authors find a positive model relation between dividend yield and returns, which they interpret as a value premium, although the value effect is more properly associated with the book-to-market ratio, and there is no compelling empirical evidence in favor of a dividend yield premium.⁴

A second major prediction of the model, although one that the authors do not stress, is that residual risk is priced. The balance of the empirical evidence is that it is not (Douglas (1969), Miller and Scholes (1972), Fama and Macbeth (1973), and Roll and Ross (1980)) and even if contrary evidence is found, there are alternative explanations to the Barberis and Huang model such as Merton's (1987) information-based model of limited diversification, or models based on asymmetric information and the cost of trading.

On a more technical note, it seems probable that the model predictions are very sensitive to the representative agent structure. In the model, the representative agent continues to hold the stock after it has appreciated in

³ The evidence here is complicated by the recent findings of Rangelova (2000).

⁴ This is despite the adverse tax treatment of dividends for many investors.

value, while requiring a lower rate of return. But if we accept O'Dean's evidence that investors tend to sell winners to new investors, the new investors, not having experienced the gains, will not be subject to the house money effect, should such an effect exist at the individual level.

In summary, this paper represents part of a radical new paradigm in asset pricing. We should welcome it—but cautiously!

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