Some investors ‘bet the farm’

By Editorial Staff *Thu, Oct 11, 2018*

Most respondents overestimate the probability of rare events, and underestimate the likelihood of more certain, but lower-value, payouts, according to a new paper from the National Bureau of Economic Research.

Despite the infinitesimal odds of winning a state lottery, millions of hopeful people buy tickets every day. One explanation for this behavior is that many individuals substantially overstate their likelihood of winning. The tendency for individuals to over-weight low probability events, while also under-weighting high probability outcomes, is known as “probability weighting.”

In “Household Portfolio Underdiversification and Probability Weighting: Evidence from the Field” (NBER Working Paper No. 24928), Stephen G. Dimmock, Roy Kouwenberg, Olivia S. Mitchell, and Kim Peijnenburg show that probability weighting leads investors to under-diversify their stock holdings, hoping to win big by picking “the next Apple,” but thereby taking on more risk than necessary and missing out on improved financial performance.

The researchers surveyed several thousand respondents in the RAND Corporation’s American Life Panel. The survey, required participants to choose between small but highly probable payouts and large but low-probability payouts, allowed the researchers to calculate the guaranteed amount that an individual required to forego an opportunity for a more uncertain, but higher expected payout. Participants were betting with real money.

Most respondents overestimated the probability of rare events, and underestimated the likelihood of more certain, but lower-value, payouts, the researchers found.

“On average, when the probability of winning a lottery is only 5%, our subjects’ certainty equivalent is greater than the expected value of the lottery, which is consistent with overweighting the small probability of winning,” they report. “By contrast, when the probability of winning a lottery is higher (e.g., 50%), our subjects’ certainty equivalent is less than the expected value of the lottery.”

The stronger someone’s probability-weighting tendency, the more likely she or he is to “bet the farm” on individual stocks, rather than investing in a mutual fund that tracks the market. Among those who own individual stocks, 75% held five or fewer, and half held stocks in just one or two individual companies.

Among those in the sample who participated in the stock market, the average share of their portfolio allocated to individual stocks was 45%. When high, this can be a tell-tale sign of under-diversification.

Under-diversification reduces investors’ risk-adjusted returns relative to a fully diversified portfolio. The researchers estimate that the average stockholder’s reliance on probability weighting reduces that investor’s risk-adjusted portfolio income by about $2,500 per year.

When investigating the factors that affect stock ownership, the study controlled for age, income, financial wealth, and education, as well as risk aversion, financial literacy, trust, optimism, and numeracy. Probability weighting was not correlated with intelligence, education or optimism.