

The Powerful Impact of Regret

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Last month we reviewed three key fear triggers - loss, uncertainty, and social isolation - that have a powerful impact on investor behavior. This month, we'll look at a closely related topic - regret. Regret is the feeling we experience when we compare the outcome of a previous decision to what would have happened had we chosen another course of action. It is distinct from disappointment, which is what we feel when confronted with an unexpected negative outcome for which we do not believe our previous decision was responsible. In terms of neurobiology, regret is produced by the activation of the orbitofrontal cortex, a region of the brain that is associated with cognitive processing (see "The Involvement of the Orbitofrontal Cortex in the Experience of Regret" by Camille, Coricelli, Sallet et al). However, repeated experiences of regret (and increasing regret aversion) have been shown to activate the amygdala as well, indicating that there is a fear component involved as well as a cognitive one (see "Regret and Its Avoidance: A Neuroimaging Study of Choice Behavior" by Coricelli, Citchley Joffily, et al).

Research has found that the desire to avoid regret has a strong influence on human decision making (see, for example, "Predicting Human Interactive Learning by Regret-Driven Neural Networks" by Marchiori and Warglien). Broadly speaking, the nature of the regret experience seems to depend on two factors: whether it involved an error of commission or omission, and whether it is being viewed from a near term or longer term time perspective. Errors of commission involve taking actions that later turn out to have worse consequences than an alternative course of action. Errors of omission involve not taking an action that would have produced a better result than the one obtained by not acting. These

are closely related to, and often confused with the Type 1 and Type 2 errors found in statistics. In the statistical field of hypothesis testing, one usually compares a hypothesis that some action has a statistically significant effect with the so-called "null hypothesis" that it does not. In a Type 1 error, the null hypothesis (no effect) is rejected when it is true - hence, this type of error is also known as a "false positive." In a Type 2 error, the test hypothesis is rejected (and the null accepted) when the test hypothesis is actually statistically significant - hence, this error is also known as a "false negative." As you can see, the more you try to limit the chance of one type of error, the more you increase the chance of making the other.

Confusion usually arises when errors of commission and omission are used interchangeably with Type 1 and Type 2 errors. The underlying - and usually unstated - issue is what constitutes the null hypothesis. Consider a manager who decides to make an investment that later declines in value. Clearly, this is an error of commission. But is it a Type 1 or a Type 2 error? It depends. If the null hypothesis was "this is not a good investment" then it is a Type 1 error. But if the null hypothesis was "this is a good investment" and the test hypothesis "this is a bad investment" is rejected, it is a Type 2 error. Do you see how this can get confusing? After struggling for years with how to apply Type 1 and Type 2 error concepts to practical (non-statistical) decision problems, I've come to think of the null hypothesis as whatever in the situation in question constitutes the conventional wisdom. Hence, in my view of the world, a Type 1 error involves accepting a thesis at odds with the conventional wisdom when the latter is correct, while a Type 2 error involves accepting the conventional wisdom when it is actually not correct. Perhaps more important, this helps to make it clear why people tend to place more emphasis on avoiding errors of commission (Type 1) than they do on avoiding errors of omission (Type 2) - the first involves going against the crowd, while the second requires only that you go along with the crowd. This nicely aligns with the findings we reviewed in last month's issue that social isolation is a powerful fear trigger.

Unfortunately, there is other evidence that in this case, our instincts do not align with our best economic interests. Consciously or unconsciously, people seek to minimize future regrets when making important decisions. In their paper "Fear and Loathing in Las Vegas: Evidence from Blackjack Tables", Carlin and Robinson find that errors of commission produce stronger feelings of regret than errors of omission. Consider the situation facing an investor. Deviating from the conventional wisdom (e.g., the weight of different investments in a peer or market benchmark) creates the possibility of generating a loss or a gain. However, losses have a more powerful impact, because they trigger primal fear, which may be further reinforced by heightened uncertainty and social isolation following the loss. This appears to be the neurochemical basis for the findings of prospect theory researchers that human beings' aversion to loss is about twice as strong as their preference for gains. Hence, investors have a natural tendency to be very careful about departing from the conventional wisdom (i.e., to make an error of commission), since sticking with the crowd is the emotionally safer course of action. Unfortunately, in their studies of blackjack players in Las Vegas Carlin and Robinson also find that the economic cost of errors of omission is significantly higher than the cost of errors of commission. The higher economic cost of errors of omission may be one of the reasons behind a second paper's finding that as the period of hindsight lengthens, errors of omission weigh more heavily on our memories than errors of commission (see "Regret for Errors of Commission and Omission in the Distant Versus Near Term" by Leach and Plaks). One wonders if this is also true in the case of investments. Looking back over a five or ten year period, do people most strongly regret the bad investments they made, or the good investment decisions they didn't make? And is there any difference between the emotional power of errors of omission that resulted in foregone gains compared to those that could have avoided realized losses? Unfortunately, we can find no research on these questions - though we have no doubt they are one of the keys to improving the investor/adviser relationship and its underlying system of performance metrics and rewards.

What can investors and advisers do to limit potential regret? First, we can become more aware of our natural tendency to place more emphasis on avoiding errors of commission, and consequent willingness to accept more errors of omission - often at a significant cost. Second, when faced with a decision, we can solicit advice. As Ilan Yaniv notes in his paper "Receiving Other People's Advice: Influence and Benefits", "seeking advice is a basic practice in making real life decisions. Until recently, however, little attention has been given to it, either in empirical studies or theories of decision making", even though the use of advice significantly improved the accuracy of decisions. Another paper ("An Experimental Test of Advice and Social Learning" by Celen, Kariv and Schotter) finds that while most herding theories are based on people simply copying others' observed behavior, advice has a much more powerful effect. Yet all advice is not created equal. In a second paper ("Spurious Consensus and Opinion Revision: Why Might People Be More Confident in Their Less Accurate Judgments?") Yaniv and his co-authors find that receiving advice from independent sources whose views do not agree improves accuracy much more than receiving advice from people who agree, but whose opinions are not independent of each other. However, because of their aversion to conflict (and its attendant threat of social isolation), people tend to have more confidence in a decision made with the second type of advice rather than the first. Similar findings are reported by Michael Smithson, in "Conflict Aversion: Preference for Ambiguity Versus Conflict in Sources and Evidence." In sum, when seeking advice, it pays to gather a range of independent inputs, and to accept a perhaps uncomfortable level of conflict between them as the cost of making the best decision possible.