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Psychological Aspects of the Disposition Effect: An Experimental Investigation

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Summary

This dissertation focuses on the so-called disposition effect, one of the most intriguing phenomena in decision making under risk, particularly in financial markets. The disposition effect describes the investors' tendency to hold their losing investments too long and sell their winning investments too early (Shefrin and Statman 1985). Previous studies regarding the disposition effect primarily focus on comparing the propensity of selling in the gain versus the loss domain by means of cross-sectional analysis (Dhar and Zhu 2006; Odean 1998), but little is known about the investors' decision-making process in a more realistic dynamic setting with multiple decision moments. A key question remains unanswered: what are the determinants of investors' decisions to sell their winning or losing investments in a dynamic setting? In the loss domain, although investors are less inclined to sell losers, many of them eventually sell if losses accumulate further. Combining the empirical evidence that investors tend to avoid the realization of losses relative to gains, with the phenomenon that many investors eventually do sell their losing investments, leads to the seminal question of this dissertation: what are the precise determinants of this capitulation decision? This dissertation adds to the existing literature by providing the first effort to investigate the disposition effect in a dynamic setting. In this dissertation, we make use of experimental methods to investigate individuals' decision-making process. We propose and empirically test two novel explanations of investors' selling decisions, namely (1) adaptation of reference point, and (2) anticipated and experienced emotions.

In Chapter 2 we investigate our first novel explanation for the disposition effect: adaptation of the reference point. The reference point is here not specified as static, instead, it adapts in the direction of a prior outcome, upwards for gains and downwards for losses (Arkes, Hirshleifer, Jiang and Lim 2008). In the loss (gain) domain, a downward (upwards) adjustment

of the reference point implies that the perceived size of the incurred loss (gain) becomes smaller. Any subsequent price of the investment is evaluated relative to this adapted reference point. We formulate a conceptual model that integrates prospect theory (Kahneman and Tversky 1979), adaptation level theory (Helson 1964) and expected utility model (e.g. von Neumann and Morgenstern 1944; Harless and Camerer 1994). This dynamic model predicts how the adaptation of reference point affects individuals' subjective values assigned to subsequent price change, which interact with their subjective expectations for future price movements, and eventually affect the individuals' subsequent investment decisions. In accordance with the adaptation level theory by Helson (1964), we show that the larger the size of prior losses and the longer the time spent in a losing position predict a lower adapted reference point. Consistent with standard finance theory, our results indicate that negative expectations lead to a stronger tendency to capitulate a losing investment. More importantly, consistent with our theoretical framework, we find that the level of reference point adaptation and expectation for future price movements have an interaction effect on capitulation probabilities. After controlling for the effect of subjective expectation, those investors who adapt little to prior losses are more likely to capitulate the losing investment than those who have adapted more to the prior losses.

Chapter 3 builds upon this insight from Chapter 2 and aims to further enhance the understanding of reference point adaptation at the individual level. We explore how personality might explain the differences in individuals' adaptation to losses. The coping literature has demonstrated that differences in personality affect how individuals adapt to various stressful events, such as physical pain and traumatic experiences (Morgan, Matthews and Winton 1995; Miro and Raich 1992). The objective of Chapter 3 is to apply these findings to another type of stressful events, namely financial losses. Many studies in the coping literature are based on the

Big Five model of personality (Bishop et al. 2001; David and Suls 1999). We expect that this model provides a useful context for assessing individual differences in adaptation to financial losses. With the use of a questionnaire, we measure personality differences with the Big Five model of personality (Bishop et al. 2001; David and Suls 1999). Our findings indicate that individuals who score higher on agreeableness and intellect, and lower on conscientiousness adapt to losses to a larger extent. This implies that these investors who have adapted more to their losses are more likely to attach higher subjective positive value for future gain and lower negative value for future loss, as compared to those individuals who have adapted less to prior losses. However, the Big Five personality traits do not have significant impact on adaptation to gains. Our results imply that the relation between personality traits and adaptation is domain-dependent: personality traits only predict adaptation to losses, but not to gains.

In Chapter 4 we test our second proposed explanation for the disposition effect: individual investor's anticipated and experienced emotions. In particular, we examine how anticipated and experienced emotions simultaneously affect investors' decisions to hold on to or to sell an investment in the more realistic dynamic setting of multiple decision moments. We focus on two specific emotions: (1) regret for the loss domain and (2) pride for the gain domain. Although anticipated regret and pride have been suggested as explanation for the disposition effect by Shefrin and Statman already in 1985, these emotions have not been tested empirically. Moreover, an individual's investment decision consists of a chain of decisions. Apart from anticipated emotions, investors also experience emotional feedback from previous decisions. Within the consumer behavior literature, experienced emotions are found to have a significant impact on consumers' switching, complaining, and word-of-mouth intentions (Tsiros and Mittal 2000; Zeelenberg and Pieters 2004). We argue that switching decisions in the marketing domain

are very similar to capitulation decisions in the finance domain, as both of these decisions involve the discontinuation of a relationship between an individual and a product/service with negative performance. Therefore, we expect both anticipated and experienced emotions to predict investors' selling decisions. With two experimental studies, we find that higher experienced regret (pride) leads to a greater probability of selling a losing (winning) investment. As for anticipated emotions, our results indicate that higher anticipated regret leads to a smaller probability to sell a losing investment, but anticipated pride does not affect the probability to sell a winning investment. Thus, with regard to Shefrin and Statman's (1985) proposition that anticipated regret and pride explain the disposition effect, we find empirical support for the former but not the latter. Overall, our results show that emotions, whether experienced or anticipated, are influential on individuals' probabilities to sell their investments.