



Disposing of the Disposition Effect: Extant and Alternative Explanations

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Abstract In this note, we critically survey the literature on one of the most puzzling phenomena in financial markets to be discovered recently, namely the so-called disposition effect—the observation that stock market investors tend to hold on to their losing stocks for too long and sell their winning stocks too soon. While we argue its importance might be overstated to a large extent in terms of its significance for understanding individual investor behavior, we also offer some ideas that could lead to new, more robust theories capable of explaining the disposition effect. We argue there are fundamental behavioral forces behind the latter that connect with basic traits of human behavior, forces that should be the in the spotlight of research aiming to explain market phenomena with individual behavior.

Key words behavioral finance, disposition effect, investor psychology
May 16, 2011 accepted

1. Introduction

This introductory section, besides stating the motivation behind and the objectives of the present research, attempts to answer the following three questions:

- (1) What is the disposition effect ?
- (2) Is it important and if so, why ?
- (3) Is it really an “effect” ?

Empirical research into financial markets has recently identified many so-called behavioral “effects” in financial market data. These refer to regularities in investor behavior that are contrary to rational behavior as exemplified by the rational expectations paradigm, and in particular, expected utility theory. This note surveys the literature on one of the most puzzling phenomena in financial markets to be discovered recently, namely the so-called disposition effect. Our purpose is to:

1. Examine the possible causes and existing theories that aim to explain the disposition effect;
2. Propose new explanations based on the behavioral economics paradigm;
3. Synthesize the above two questions in an attempt to judge whether the disposition effect is in fact an “effect” in the first place and debate whether it deserves the attention it has been getting.

Apparently investors in financial markets tend to sell stocks that have appreciated in price since the time of purchase quickly while at the same time they tend to hold on to losing stocks—those that depreciated in price since purchasing. This asymmetry in investor behavior was first uncovered and termed “the disposition effect” by Shefrin and Statman (1985).

The word “disposition” here thus derives from “to dispose of” meaning “to get rid of” or “to unload” rather than from the more general meaning of the word

“disposition”, namely that of “personal temperament” or “propensity”, or more widely used in the behavioral finance literature (investor) “sentiment”. It is very interesting that the literal definition of the disposition effect is in itself so ambiguous and possibly misleading. Even before delving deeper into the analysis, this fact casts the first doubt on the robustness of and actual viability of the effect. If its definition proper is allowed to be arbitrary to such an extent, can we expect any meaningful insights from examinations of the effect?

Coming back to the main story, the disposition effect is the observation that stock market investors tend to hold on to their losers for *too long* and sell their winners *too soon*. However, what do “too long” and “too soon” really mean here? From the perspective of standard expected utility theory, there is no reason why the changes in investor attitudes (towards risk—risk aversion) needed to explain the disposition effect should occur around the time of the stock purchase decision and around the time of the decision to sell. Bearing in mind that different investors usually have varying wealth levels, different starting positions on stocks and distinct purchase prices, can we really unambiguously state when it is “too soon” to sell or when it is “too long” to hold on to a stock?

These and related doubts serve as the main motivations behind this paper. Perhaps the disposition effect is a robust behavioral phenomenon based on well-established patterns in human decision-making processes, no matter rational or irrational, *and* it provides valid implications for real-world markets—if this is the case, we should indeed carefully examine its mechanisms and dutifully investigate its applicability to financial markets and beyond.

However, the disposition effect might just as well be another fad or “anomaly”—a temporary figment in the financial economics research landscape: someone “discovers” an interesting puzzle, which leads others to wonder whether they could also observe it and maybe even solve it, the debate is fascinating as it heats up; hundreds of papers are written proposing new elegant theories, surveying and analyzing immense amount of field data, designing new laboratory experiments,

and so on. But what if there is no substance behind the “effect”? What if it is all a trick than could easily be explained with basic and unquestionable traits of human behavior? Then all the fuss is really about nothing.

2. Extant Research—Findings and Explanations

We divide our survey of the existing material on the topic into three sections: empirical evidence of the disposition effect, theoretical explanations, and experimental analyses. We only mention works relevant to our main motivation, namely explaining the behavioral bias that the disposition effect has been pronounced to be.

2.1. Empirical Findings

There is a mountain of evidence for the apparent existence of the disposition effect. We will survey here only the most prominent and robust research in this vein, along with some of the newest and less orthodox findings. Majority of the empirical literature focuses on the asymmetry in investor behavior for winning and losing stocks at a certain point in time. Some studies though (including the original paper by Shefrin and Statman (1985)), focus instead on the difference in the length of the holding period of winners and losers relative to some well-defined benchmark. In our survey, we choose to not differentiate explicitly between the two approaches as we believe the underlying logic behind the problem in question is independent of its manifestation. Also, we remark that the holding time, while in itself not being an absolute choice variable, is a result of a series of decisions to buy, sell, or hold and thus we would expect any results based on it to be highly correlated to those based on the behavior at any given point in time.

The paper that started it all is Shefrin and Statman(1985). Based on mutual fund trading data in the US, they offered first tentative evidence of the disposition effect. They suggested that the disposition effect should lead investors to realize their winners relatively quickly but hold on to their losing stocks for an

extended period of time for all months of the year except December. Shefrin and Statman (1985) claim investors sell their losing stocks in December as a measure of self-control. Thus, investors recognize the tax benefits of getting rid of negative-return investments (In the US, the end of the year poses a deadline for the realization of such losses.) even though they are reluctant to do so due to psychological reasons. In effect, these December sales are trades postponed from all the previous months of the year when investors did not want to realize any financial losses.

Lakonishok and Smidt (1986) were next in line to offer evidence for the existence of the disposition effect. They examine trading volume of US stocks and find that shares turnover is positively (but seasonally) correlated with past price changes, which is one of the implications of the disposition effect. Again, in December this correlation is significantly weaker, consistent with tax-related trading before the year-end deadline.

The first major study providing strong evidence in support of the effect was done by Odean (1998). He studies 10,000 individual investor accounts data acquired from a large brokerage house in the US: in his analyses, these accounts are followed between January 1987 and December 1993, that is, for a total of seven years. Odean (1998) does indeed find that individual investors realize profitable stock investments at a much higher rate than their unprofitable ones, except in the month of December. For an entire year, investors in his report would realize 14.8 percent of their gains, but only 9.8 percent of their losses, that is, gains were realized 50 percent more frequently than losses. These findings are robust across traders and across time. One of the most appealing points of the disposition effect is that it leads to suboptimal return performance. Indeed, Odean (1998) confirms this with his data: the stocks sold by the individual investors in his sample outperformed the stocks they bought by 3.32 percent over the subsequent trading period examined.

Hence, his work is the first to suggest that the disposition effect might be a market-wide phenomenon capable of contributing to price and volume variability by affecting supply in that investors who are averse to selling for a loss cause a re-

duction in the supply of potential sellers. Also, and importantly, the author advocates that the behavior characterized by the disposition effect does not appear to be motivated by a desire to rebalance portfolios or by a reluctance to incur the higher trading costs of low priced stocks.

Grinblatt and Keloharju (2001) look at the Finnish stock market investors and their behavior in 1995 through 1996. They find, using an estimated logit model, that financial losses significantly lower the tendency to sell individual stocks—again, consistent with the disposition effect. The authors also examine the behavior across different groups of investors and find that different investors react to past stock price data in heterogeneous ways: institutional investors are more likely to buy shares with favorable past performance, but individuals do the opposite—they are prone to buying stocks with past performance that is below market average. Still, all groups of investors, including financial groups and brokerage houses, government institutions and individuals, exhibit the disposition effect in their study and the magnitudes of the latter are very similar across different groups: the probability of selling a losing stock is about half of that for a winning stock.

As far as other empirical examinations are concerned, we briefly describe a few worth mentioning presently. Strong evidence for the disposition effect is found in Coval and Shumway (2005), who look at the behavior of market makers in the futures market on the Chicago Board of Trade—thus the disposition effect finds its way even into the market microstructure scene. They find that those who lose money during the morning session, will place more trades in the afternoon while at the same time assume greater risks compared with traders who ended up their morning sessions profitably. Another supporting study is that of Shapira and Venezia (2001), this time also for both institutional and individual investors active on the stock market in Israel. The disposition effect is however significantly weaker among institutional investors than among investors with less trading experience in their study. This finding is supported in turn by Locke and Mann (2005), who find in their study of 300 professional future traders active at

the Chicago Mercantile Exchange that the less successful traders hold losing stocks for the longest periods of time, while the more successful traders hold losing stocks for shorter time periods. More recently, Choe and Eom (2009) find supporting evidence for the disposition effect in the Korean futures market; interestingly though, more frequent trading, more volume, and higher value of trades indicate a weaker disposition effect in their study.

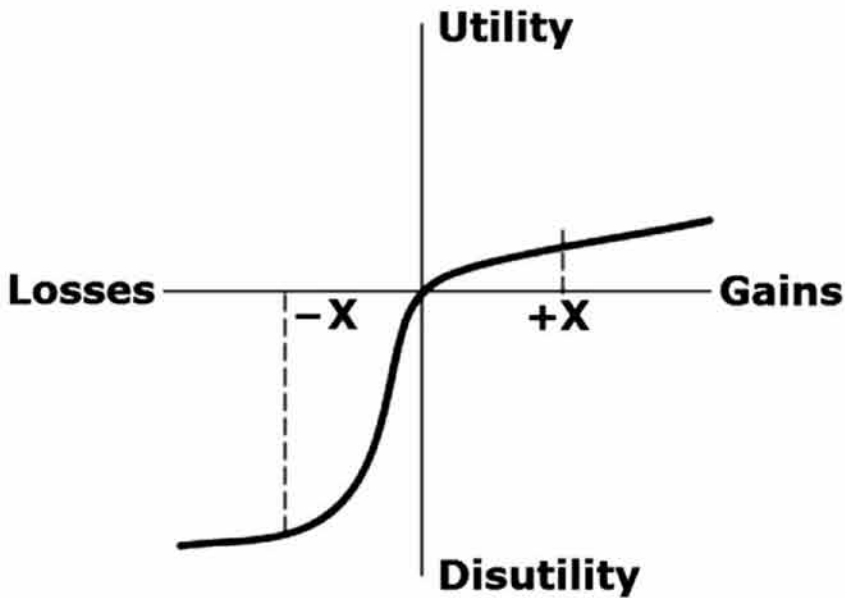
It thus appears that the disposition effect is a pervasive occurrence in financial markets worldwide. Evidence to the contrary hardly exists: the only study offering such evidence is O'Connell and Teo (2009)—they study the behavior of large institutional investors in foreign exchange markets and find that traders are actually more likely to sell a currency after a loss than after a gain, which is in stark opposition to the disposition effect.

2.2. Theory

In this section, we critically survey the most significant theories aimed at explaining the mechanisms behind the disposition effect. We note here that while there are many perfectly rational reasons for people to act in a manner resembling the disposition effect, the latter is defined as over-tendency to behave in an asymmetric way, i.e. to dispose of winning stocks too often or too quickly and to hold on to losing stocks too long and too firmly compared to what the normative theories suggest. Most theories attribute the disposition effect to prospect theory, regret, or mean reversion-related return expectations. We put emphases here on those theories that appeal to basic traits of human decision-making behavior, in other words, those most parsimonious in their method and most general in their relevance and applicability.

Traditional finance theory suggests that actual decisions made by market participants are influenced by the interplay between risk and expected return. One simple candidate idea for an immediate explanation of the disposition effect revolves around the notion of mean reversion in stock returns. Accordingly, if

prices come back to some mean trend or value, negative returns in the future are to be expected for winning stocks and positive returns in the future are to be expected for losing stocks. This argument connects well with the value function—the core of Kahneman and Tversky’s (1979) prospect theory. The value function predicts asymmetric attitudes towards risk after losses and after gains: one becomes risk-loving after experiencing losses but risk-averse (or rather, more risk-averse) after realized gains:



Let us first review a recent research project that refutes the prospect theory as a candidate explanation for the disposition effect, one by Kaustia (2010). Traditionally, the price at which the relevant stock in question was purchased serves as a reference point in the value function. Prospect theory argues that the propensity to sell a stock should decline as the stock price moves away from the purchase price in either direction. Kaustia (2010) finds empirical evidence to the contrary: the propensity to sell a stock does not decline as gains or losses increase but rather it is increasing or constant in the domain of gains and insensitive to returns in the domain of losses. In other words, there is a discontinuity (a “jump”)

in the investors' attitudes towards selling exactly at the point where capital gains are zero. This finding is found to be statistically significant for periods of up to 3 years, though it monotonically weakens as the time period lengthens. Kaustia (2010) parameterizes prospect theory's S-shaped value function and concludes that it cannot predict the pattern of realized returns found in the data and hence that the disposition effect is unlikely to be driven by preferences dictated by prospect theory.

In a related work, Barberis and Xiong (2009) propose a new theory in which investors do derive (dis)utility from realized gains and losses but completely ignore paper gains and losses. The authors study theoretically the trading behavior of an investor with prospect theory preferences in two settings. The first one applies prospect theory to annual (not necessarily realized) stock-level trading profits: after purchasing the stock at the beginning of the year, over the course of the year an investor trades the stock, and, at the end of the year, receives (prospect theory) utility based on his trading profit. This theory leads to a conclusion that for a significant range of parameter values, the prospect theory predicts that investors will be more inclined to sell stocks with prior losses than stocks with prior gains—exactly the opposite to what the disposition effect is all about. In their second setting, prospect theory is defined over only realized gains and losses and indeed, this theory predicts a disposition effect, although not for all values of the parameters; for some, the opposite prediction still materializes. Hence, the authors conclude that investor preferences distinguish between paper and realized gains.

While prospect theory has been the main focus in theoretical considerations of the disposition effect, the pioneering research of Shefrin and Statman (1985) proposed other ingredients as well: mental accounting, regret aversion, and self-control. The combination of the four factors would account for the disposition effect, according to the authors. Regret aversion being the most widely accepted trait of decision-making under uncertainty, we turn next to its relevance for the disposition effect.

Regret is usually defined as a negative emotion evoked by the knowledge that a different choice from the one actually made would have led to a better outcome. This leads to an interesting interpretation involving a dynamic pattern of behavior and experienced utility/emotions: regret can only be experienced after the fact, although it can be in principle anticipated before an action. A decision-maker thus compares a realized outcome to some alternative after the fact and experiences a feeling of blame for having made a suboptimal choice.

Muermann and Volkmann (2007) develop a theoretical dynamic two-asset portfolio choice model that incorporates regret and pride in individual preferences to more closely examine regret as a possible explanation for the disposition effect. Their model captures an investor's dynamically optimal response to realized portfolio returns and feelings of regret and pride implied by such realized returns. Muermann's and Volkmann's (2007) argument rests on the simple intuition that an investor who regrets an investment in a stock that has lost value will hold the stock because he hopes that the stock price will rise in the next period, enabling him to avoid regret. Asymmetrically, if the stock has risen in value, the investor wants to feel pride in having made a good decision and sells the stock; if he had held it and then the price fell, he would have foregone experiencing this positive affect. As with prospect theory, the authors do find specific conditions under which the feelings of regret and pride are compatible with the disposition effect, but those conditions are not robust to model variations.

No formal modes exist for the apparently simple thesis that a belief in mean reversion in stocks can explain the disposition effect. For such a theory to hold water, investors would have to believe that winning stocks will have in the future lower returns than losing stocks or, in the financial economics lingo, that there exists a negative autocorrelation of returns. Such a belief can hardly be justified within the realms of existing theories, both traditional and behavioral. On the other hand, there is no clear evidence that investors do not believe in mean reversion.

2.3. Experiments

Neither empirical literature nor theoretical modeling is capable of explaining the disposition effect because the underlying behavioral mechanisms are unobservable in such settings. Hence the need for carefully designed and executed laboratory experiments, where intrinsic workings of human decision-making processes can be if not directly observed or elicited, then at least indirectly inferred from choices made by experiment participants. We thus devote considerable attention to extant experimental investigations of the disposition effect before proposing some new, alternative and complementary, explanations in the following section.

Weber and Camerer (1998) were the first to search for and indeed find experimental evidence of the disposition effect behavior: subjects in their experiment sold fewer shares when the price fell than when the price rose. On top of that, their setting involves trends in price paths, which the subjects know about, but still, participants in general abstained from selling falling shares—such kind of behavior is clearly suboptimal and harmful to subjects' experiment profits. Flipping the coin, rising prices imply an upward trend in prices, meaning that shares should not be sold; yet, that is exactly what Weber and Camerer (1998) found their subject did. As far as possible explanations for the disposition behavior exhibited by their experiment participants, authors invoke two possibilities: prospect theory and misperception of future probabilities governing the stock market prices. We discussed prospect theory-related theories above and thus proceed to inspect the latter explanation. The theory that subjects misperceive probabilities in Weber and Camerer (1998) is particularly puzzling because the subjects were clearly informed about the probabilities of price changes and they had ample statistical knowledge to calculate appropriate values whenever needed. The authors consequently reject the latter theory in favor of the prospect theory. However, we think there is more to it than meets the eye: primitive psychological mechanisms of decision-making under uncertainty are clearly at work here and they make the subjects respond to stochastic environments in ways that are both surprising and insightful. Participants in the experiment by Weber and Camerer

(1998) are evidently an example of those mechanisms at work—we shall come back to this problem in the next section where we propose alternative explanations for the disposition effect.

A follow-up study to that of Weber and Camerer (1998) using a very similar setup was carried out in Macau by Chui (2001). He experimentally studies the existence of the disposition effect while controlling for the belief in mean reversion. He argues that the unjustified belief in mean reversion should disappear when traders are informed in time about a possible upward or downward trend in prices. In a bold departure from extant explanations of the phenomenon, he evaluates the extent the disposition effect relates to a personality factor, namely internal—external locus of control—a trait put forward by the psychologist Rotter (1966). This attribute measures the extent of feelings on the control of any event experienced by a decision-maker. Thus traders in a financial market might feel they are in control of the outcomes (of stochastically-ruled events). This assumption might only make sense if the number of participants in the market is small and thus the market is not of the perfectly competitive type, which indeed is the case in Chui's (2001) setting. Down to the results, the author confirms the existence of the disposition effect, both in the aggregate and in individual data, even controlling for the mean reversion. He points out that investors themselves could be unaware of their tendency to behave in a disposition effect-related manner and attributes this premise to the above-mentioned personality feature, namely the locus of control. While we applaud Chui's (2001) initiative to invoke psychological traits of human behavior in order to try and explain the disposition effect, we regard his explanation to be only a partial one and his choice of the psychological mechanism to be somewhat arbitrary. The large body of research in psychology offers many much more general theories of behavior that could potentially shed some light on the present issue. Again, we shall come back to those in the following.

Fogel and Berry (2006) relate the disposition effect to anticipated regret in an experimental setting. The authors posit they wanted to “examine the role of omission versus commission with respect to holding losers and selling winners”.

Here, holding on to losing stocks is an act of “omission” with “commission” being the respective counteract in the case of winning stocks. Fogel and Berry (2006) also compare the impact of counterfactual outcomes to real outcomes on the degree of regret experienced and anticipated by their subjects. They hypothesize that greater regret should be associated with an actual loss than with an opportunity cost, and that missed losses should evoke feelings of relief. Regret does appear to play a prominent role in their experiments: almost all respondents reported regret for investment decisions, either for not selling a losing stock soon enough, or for selling a winning stock too soon. While this finding seems strong enough on its own, the experiments conducted by the authors were based on hypothetical situations and what is more, subjects did not have any financial stakes in the outcome; thus the predictive power of these results is necessarily limited.

In a more recent very interesting study, Weber and Welfens (2008) use both field and experiment data to show that investors' attitudes towards financial gains are uncorrelated to their reactions towards financial losses. Hence, they first offer some doubt as to whether the disposition effect is truly an “effect” arguing that it should be rather classified as two separate behavioral biases. Traders exhibiting a strong tendency to sell winning stocks quickly are not necessarily the same traders who hold on to their losing stocks. In other words, some traders are predominantly biased towards selling earlier than normative theories dictate, while others are particularly biased towards keeping losing stocks for longer than optimally. Weber and Welfens (2008) also find that individual effects akin to the disposition effect decrease with trading experience. The authors find that both sides of the disposition effect are not only random but stable on an individual level. This means that both biases as stable personality traits and accordingly we perhaps should look for two unconnected theories if we strive to find out what drives the disposition effect. Therefore, the inherent asymmetry of behavior implicit in the disposition effect might not be a phenomenon on an individual level but rather a population-wide peculiarity. This puts our problem of attempting to explain the disposition effect in a whole new light and necessitates new research ideas and methods.

Other experimental research has so far mainly focused on prospect theory and inherent therein reference point examinations. As these are not our main interest in this survey, we only briefly mention some of the major works in this strand of literature that relevant to our motivation, i.e. those conducive to providing additional insights into the logic and causes of the disposition effect.

Gneezy's (2005) experiment involves shifting the reference level in prospect theory's S-shaped value function to search for evidence on how prior gains and losses influence the risk behavior. It turns out in his experiment that participants use the historical peak of the process as a reference level—a finding somewhat surprising given that the purchase price was traditionally seen as the most intuitive and indeed, obvious, candidate for a reference price. This result might be due to the specific experimental design, though: for instance, an investor may sell her stock at any time, but then she cannot reenter the trade in it. Gneezy (2005) concludes that prior gains and losses do influence the risk attitude, but in a different way from that predicted by the rational theory as represented by the expected utility theory.

Oehler et al. (2003) present an interesting experiment in that the number of possible gains and losses of a stock are equal in their setting: winner and loser stocks go up or down in increments of equal size. They use two reference point proxies in their study: the original purchasing price and last period transaction price. The purchasing price proxy is interpreted as being related to individual behavior here while the last transaction price proxy is a market driven variable. Besides finding overall evidence for the disposition effect, the authors also point out that only a certain proportion of investors are affected by the disposition effect when the participants are grouped according to different benchmarks, the latter defined by appropriate reference points. Thus Oehler et al. (2003) cast additional doubt on the robustness of the disposition effect as a prevailing behavioral bias in financial markets. They also note that investor behavior is strongly influenced by prior performance as well as by prior price paths. This indicates that factors other than reference points only are at work and calls for a more comprehensive research agenda capable of addressing these problems unambiguously. This diffi-

cult task could only be achieved experimentally, if at all.

Vlcek and Wang (2007) conduct another series of experiments and conclude that investor use their initial wealth levels as a reference point and suggest the finding to be attributable to “the house money effect”: a tendency to take more risk after a gain and less risk after a loss. This effect, due to Thaler and Johnson (1990) appears to be in conflict with the prospect theory but could be possibly reconciled with the latter if dynamic considerations are taken into account. The argument here is that each loss is treated as an isolated incident, independent from other losses, while gains are treated asymmetrically in this respect: people integrate consecutive gains and are thus more tolerant to potential losses after experiencing a string of gains.

Experimental research on the disposition effect and related biases barely begun, but as we can see from the above considerations, already some persuasive results have been obtained. This proves the already well-established consensus among economists that there are areas of research wherein without experiments further progress would be severely impaired.

3. Discussion

In this section, we briefly venture to propose two alternative explanations for the disposition effect. These proposals are mostly based on well-documented in psychology patterns of human behavior—patterns that are robust, simple and that have in all probability necessarily evolved through time along with the progress of civilizations and technology. All of them are much more general than the well-defined theories of decision-making under uncertainty or behavioral finance and as such, could prove to be difficult to unambiguously test them. Still, we believe it is worth looking deeper into the human psyche to understand any and all patterns of our behavior.

3.1. Denial

Denial, self-deceit, and unjustified rationalization are widespread modes of be-

havior, both on individual as well as group level. Adam Smith observes: “*He is bold who does not hesitate to pull off the veil of self-delusion which covers from his view the deformities of his own conduct.*” in his “Theory of Moral Sentiments”. Denial is an essential and pragmatic component of our attitude towards life, whether we care to admit it or not. Rational denial protects us against the cruel, inescapable realities of life: death, illness, natural and environmental disasters, the crushing ending of love, taxes, to name but a few. Denial is a way of responding to risky, uncertain, and ambiguous future. According to Offer (2011), denial comes in three forms: (1) rational, typified by the “It’s not really happening” way of thinking, (2) emotional, exemplified by the “I don’t want to know” attitude, and (3) technological, represented by the “Something will turn up” axiom of a rather common outlook on life. If evidence turns out to be inconsistent with our interest, we tend to reject it: typical examples of such mindsets include tobacco addiction or not wanting to know or hear about a fatal disease such as cancer. Even though future is at risk, we deny it by shortening our decision horizons. Yet this could be exactly what apparent disposition traders engage in. The “technological” denial essentially means “hoping for the best” while “ignoring the possibility of the worst”. Such optimism often appeals to market history, yet in an asymmetric way. Thus, accentuating past successes/positive returns on the one hand and downplaying past failures/negative returns on the other, results in a skewed view of history and further in a distorted expectation of the future. In effect, the best response to such a scenario might well turn out to be holding on to losing stocks — because such cases in the past usually resulted in subsequent positive returns. The respective “selling winners” counterpart of the disposition effect need not be implied here. Then, we end up with an explanation that breaks the effect altogether, much like in the work of Weber and Welfens (2008).

For a more complete theory of denial, the interested reader is referred to Festinger (1957). He suggests we form simplified models of reality and refute evidence that contradicts our models. This, in the psychology literature, gives rise to “cognitive dissonance”, which implies not only rejecting conflicting evidence, but also going out of our way to find other evidence that confirms our intrinsic

models of the world.

3.2. Absence and Presence

The disposition effect being an inherently asymmetric phenomenon, we should perhaps ask ourselves whether the asymmetry lies deeper than only at the level of gains and losses experienced by traders. The human brain is wired in such a way that by necessity we notice more of the things that are than of the things that are not. In other words, we perceive and interpret asymmetrically presence and absence of anything that surrounds us, whether in the physical, meta-physical, or cognitive realm.

This reasoning could be applied to explain the disposition effect. If gains are perceived more clearly than losses, then action is taken more often following the former. The behavioral economics literature has traditionally focused on processes that facilitate action, and largely ignored the processes that inhibit action. The presence/absence asymmetry is an example of such a process. An investor who puts disproportionate attention to gains as opposed to losses would arguably act more often after experiencing a gain than after experiencing a loss. In such an investor's brain, there is an intrinsic "gain indicator" switch turned on whenever one of the stocks in his portfolio is ahead, thus leading to action—selling the stock to realize that gain. However, if there is no corresponding "loss indicator" in his brain, absence of gain will not propel the investor to take action on the losing stocks in his portfolio, or will not do so as often as in case of financial gains. Absence of gain would thus serve as an action inhibitor, resulting in an asymmetric action pattern much like the disposition effect.

Attention asymmetry as discussed above has received some coverage recently in the popular psychology literature, notably in Gilbert (2007). However, we believe that in the context of the disposition effect, it can be reconciled with a well recognized bias in decision-making under uncertainty, namely asymmetric attitudes toward information of differing strength and weight. Experimental evidence for the above is documented by Peterson and Pitz (1988) as well as Griffin and Tversky (1992). To gain intuition about what constitutes information

strength and information weight, consider the following simple coin-tossing exercise: high-strength, low-weight information is represented by a small number of fair coin tosses with the same results (e.g. 3 coin tosses with 3 heads), while low-strength, high-weight information typically consists of a large number of coin tosses with a small difference between the number of heads and tails (e.g. 17 coin tosses with 10 heads). When the strength of information is high and its weight is low, people are found to be overconfident and thus should be inclined to take action. Conversely, when available information is of low strength and high weight, people are underconfident and hence prone to postpone making choices. While this argument by itself might serve as a candidate for a theory capable of explaining the disposition effect, coupled with the absence/presence asymmetry it sounds particularly convincing. If an investor ignores (some) losses his stocks sustained, the absence/presence asymmetry would then cause him to disproportionately emphasize gains consequently leading to his subjective information set being full of high-strength/low-weight information—information about incoming gains. The negative loss side of the disposition effect is as a result downplayed and again (as in the case of denial) we end up with an explanation that does not need two sides to it. This time, the “holding on to losers” part is the one left out of the theory and the disposition effect itself ceases to some degree to be an asymmetric phenomenon.

3.3. Conclusion

We offer now some concluding remarks. We do not dispute the fact that the disposition effect as observed in empirical data exists. However, we posit that its importance is overplayed to a large extent. While it is vital to analyze its effects on real financial markets supply and demand balances, claiming it to be a robust “behavioral bias” is likely an exaggeration. We trust there are more fundamental forces behind it, forces that connect with basic traits of human behavior, forces that should be the in the spotlight of research aiming to explain market phenomena with individual behavior. More research along these lines is imminent, for sure.

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