The Disposition Effect

In an efficient market, of course, the disposition effect should not be present; the price paid for the asset is a sunk cost by the time of sale.

However, the field of behavioral finance has proven many times that it was false: we do make decisions taking the price we have paid for a specific asset as the reference point, whereas we should make decisions in the context of a portfolio. This leads to a problem known as the disposition effect: the simplest definition of this effect is in the title of the article *The Disposition to Sell Winners Too Early and Ride Losers Too Long: Theory and Evidence* (Hersh Shefrin and Meir Statman, *The Journal of Finance*).

Shefrin and Statman were the first to put this behavior pattern into a wider theoretical framework concerning a general disposition to sell winners too early and hold losers too long. In this pioneering article, their framework was constituted of four major elements: prospect theory, mental accounting, regret aversion and self-control. We are going to go through each of these elements and discover the different roles they play in the disposition effect.

- **The prospect theory**
  I have already written an article about the prospect theory (→ http://www.edhecstudentfinanceclub.com/wp-content/uploads/bsk-pdf-manager/The_Prospect_Theory_67.pdf). Let us remind what this theory tells us: we follow heuristics and biases when it comes to making financial decisions, we do not behave in accordance with the axioms of expected utility theory and we show an aversion to loss realization. This theory anchors the fact that we make decisions from a reference point, and not from the actual outcome. Take a look at the graph above: we make decisions using the origin of the graph (the price we have paid); remember what we said at the very beginning of the article? *The price paid for the asset is a sunk cost by the time of sale.* We see on the graph that we are more averse to losses: this leads to the keeping of underperforming stocks while we have sold the performing stocks, thus to the disposition effect.

- **Mental accounting**
  The idea behind mental accounting is that we tend to make decisions from the point of view of each account, failing to make decisions from the point of view of the whole portfolio; thus, we fail to take into account possible interactions. We have seen that the gains or losses are calculated relative to the purchase price. Thaler and Jonhson argue that decision makers encounter considerable difficulty in closing mental accounts at a loss: mental accounting also plays a role in the disposition effect.

- **Seeking pride and avoiding regret**
  While closing a stock account at a loss induces regret, closing at a gain induces pride. This leads to a disposition to realize gains and defer losses. Thaler argues that *the asymmetry between the strength of pride and regret leads inaction to be favored over action.* Gross added the idea that people don’t want to give up the hope of making money on a particular investment: *This “disease” has probably wrought more destruction on investment portfolios than anything else.* The investor’s ego also has an impact: accepting to sell at a loss is equivalent to accepting that our first judgment was wrong.

- **Self-control**
  In fact, the disposition effect primarily comes a lack of self-control. As it is often the case, it is always easier to be aware by a lack of self-control than to actually change our way of doing; a solution against the disposition effect could be to commit to sell any stock whose price goes up or down 10% for instance (ex: stop-loss orders).
How to measure the disposition effect?

Odean (1998) has developed a widely used method for measuring the disposition effect, in which we distinguish stocks which are either sold for a gain, sold for a loss, not sold and showing a gain, and not sold and showing a loss. Odean uses the stocks’ original purchase price as the reference point. The sum of the stocks either sold for a gain or not sold and showing a gain gives the total of gains available for realization. The sum of the stocks either sold for a loss or not sold and showing a loss gives the total of losses available for realization.

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\frac{\text{Realized Gains}}{\text{Realized Gains} + \text{Paper Gains}} = \text{Proportion of Gains Realized (PGR)}
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\frac{\text{Realized Losses}}{\text{Realized Losses} + \text{Paper Losses}} = \text{Proportion of Losses Realized (PLR)}
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Comparing PGR and PLR for a large number of investors has allowed to prove a disposition effect: the PGR was significantly higher than the PLR (approximately 15% vs 10%).

Is every investor affected by the disposition effect?

In the article *Patterns of behavior of professionally managed and independent investors*, Shapira and Venezia (2000) show that professional investors are less prone to the disposition effect than individual investors; however, it does not mean that they are totally “immune” from it. Here are their findings: the average duration of a losing (winning) round trip is 55 (25) days for the accounts managed by professional investors, and 63 (20) for the accounts managed by amateur investors. Hence, the difference in the duration between losing and winning stocks for professional is equal to approximately 30 days, whereas it is almost equal to 45 days for individual investors: this difference indicates that professional training and experience help reduce judgmental biases, but it cannot eliminate them.

Barber and al. (2007) documented differences across countries: for example, they found that Taiwanese traders were less willing to realize their losses than American traders; this is due to the fact that Taiwanese investors show a stronger belief in mean reversion than in the US. Thus, they are more confident that their losing stocks will eventually come back to at least the price they have paid (there again: the importance of the price paid as a reference point).

Finally, there simply exists differences between individuals: for instance, Dhar and Zhu (2006) estimated than 1/5 of the population actually exhibit the opposite behavior. They also showed that the disposition effect was stronger for less-sophisticated traders; this result was also demonstrated by Shapira and Venezia. We have already said that amateur investors were more affected by the disposition effect: actually, we can be even more precise by pointing out that the difference primarily comes from a difference in duration between simple deals and sequential deals.
Sources:


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