

Behavior in a simplified stock market: the status quo bias, the disposition effect and the ostrich effect

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Status quo bias: tendency to maintain a previous decision regardless of changes in the environment.

➔ Could be caused by : regret avoidance, drive for consistency, self-perception theory, and illusion of control.

Regret avoidance : individuals feel greater regret for a bad consequence if it is the result of an action rather than inaction.

Drive for consistency : an individual, already believing a previously made choice is optimal, distorts information to maintain the original perception of the choice.

Self-perception theory : an individual infers his own preferences from his past decisions as if he were an outsider observing those decisions.

Illusion of control : belief in personal success at greater levels than what objective data dictates.

Ostrich effect : propensity to ignore unpleasant information about one's investments. Investors prefer to receive positive information about their financial holdings than negative information and do so by selectively avoiding negative information.

Disposition effect : tendency of investors to sell winning stocks and hold on to losing stocks.

❖ OBJECTIVES :

We look to see if these behavioral tendencies, believed to be present in field settings, are observed in a simple laboratory experiment.

We keep only the most basic elements of stock trading : subjects hold only one stock at a time and can observe the market and exchange stocks after every period in which prices change.

If these behavioral biases reveal themselves when the optimal strategy is so simple and transparent, they are likely to be present in other markets which are much more complicated.

Variables that may have interfered with empirical *analysis* (*tax incentives, agency problems with brokerages, false investment information, bragging about stock performance, transaction costs*) are not present in our experiment ➔ if an effect exists without these variables, we know not to attribute it to them.

❖ EXPERIENCE :

Subjects pick one of 20 stocks to hold (but doesn't know the type of each stock). The performance of all stocks is determined by one of 3 random distributions known to subjects.

(Capital gains varied randomly, independent of their previous values & gains and losses in value were independent and identical draws from the characterized distributions).

Table 1 Discrete probability distribution of movement for each type of stock

Stock value distribution per day									
Stock	-20	-10	-5	No change	+5	+10	+20	Expected change	Standard deviation
A	0.025	0.075	0.100	0.200	0.250	0.200	0.150	4.50	9.27
B	0.075	0.125	0.200	0.200	0.200	0.125	0.075	0.00	9.75
C	0.150	0.200	0.250	0.200	0.100	0.075	0.025	-4.50	9.27

For each trial they were given 180 experimental currency units (ECUs) to invest in the market over 20 periods (in each period they could only hold one stock).

At the end of each period subjects saw the performance of the stock they were holding or they had the opportunity to continue on to the next trial or to observe the past performance of the full set of 20 stocks.

After 20 periods, subjects received information concerning the type of each stock they had held during each of the 20 periods and their final balance for that trial. They then began a new trial, with the program randomly reassigning the types of all stocks. There were 8 trials in each experimental session.

At the end of the 8 trials, one trial was randomly chosen and subject earnings were paid using the conversion rate of 1ECU = 0.1 US \$ applied to the end of trial balance.

❖ DATA :

The experiment was conducted on undergraduate students enrolled in economics classes at the Ohio State University economics laboratory (21 people).

❖ METHODS :

- Traditional profit-maximizing strategy :

To not bias our results against an optimal strategy, we will consider both choosing the stock with the highest expected return or highest cumulative return to be optimal strategies

We treat choosing the stock with the highest expected return for the next period, or the stock with the highest total net change from the beginning of a trial as the profit-maximizing strategy and will refer to the "optimal stock."

If a subject begins a period holding an optimal stock, he will continue to hold it, or if two optimal stocks exist, he may exchange one for another. If he begins a period holding a non-optimal stock he will exchange it for an optimal one.

- The status quo bias :

In our experiment, we can test a status quo bias on two levels:

- Choosing not to look to compare returns on the current stock a subject is holding relative to the alternatives available (*regret avoidance or self-perception theory*).
- Choosing to stand pat with a suboptimal stock after having looked and comparing returns with other stocks (*the drive for consistency or the illusion of control*).

- The ostrich effect :

➔ involve a general tendency to avoid negative information.

Here, subjects can avoid negative information by not observing the market when the stock they are holding is performing poorly.

If this is due to the ostrich effect, we should see subjects observing the market significantly more often when they hold a winner as opposed to when they hold a loser.

- The disposition effect :

We test for a disposition effect conditional on subjects observing the market. After observing the market, we expect a disposition effect to cause subjects to sell winners and hold losers.

❖ RESULTS :

Subjects did not observe the market in 50.4% of observations (in mean).

Table 5 shows that the probability of holding a Type A stock is usually > 0.25 ➔ indicating some movement toward choosing superior stocks over time.

While there are individual subject deviations on observing the market, there is nearly $\frac{1}{2}$ of the subjects (9/21) chose not to observe the market a majority of the time.

- Traditional profit-maximizing strategy :

Subjects choose to observe the market more often when they hold a non-optimal stock than when they hold an optimal stock (51.6% of the time vs 45.4%).

Table 8 shows that (*conditional on holding an optimal stock and looking at the market*) subjects overwhelmingly chose to stay with their existing stock (80.7% of the time), switching to a non-optimal stock (1.9% of the time), and switching to another optimal stock (7.9% of the time).

➔ the status quo bias helps to achieve an optimal outcome in this case.

Table 8 Observations testing traditional theory

State	Action			
	Observes market	Conditional on observing market		
		Continues with existing stock	Exchanges for non-optimal stock	Exchanges for an optimal stock
Optimal stock	472	381	9	82
1,040 observations	45.4%	80.7%	1.9%	17.4%
Non-optimal stock	1, 110	417	473	220
2152 observations	51.6%	37.6%	42.6%	19.8%

Choices consistent with profit-maximizing strategy is in bold

- The ostrich effect :

Results suggests that the ostrich effect is not responsible for subjects' tendency to ignore market information. As subjects ignored information when they hold strongly performing stocks about as often as when they hold stocks that had lost value.

Contrary to the ostrich effect, subjects observe stocks relatively more often when they hold a losing stock than when they hold a winning stock.

Since winning stocks are more likely to be optimal than losing stocks, subjects are clearly acting somewhat more rationally than the ostrich effect suggests.

Table 7 Decisions to not observe market by net gain of stock since holding it

State	Action	
	Does not observe the market	Observes the market
Winner	1,189	1,020
2,209 times	53.8%	46.2%
Loser	342	478
820 times	41.7%	58.3%
Neither winner or loser	79	84
163 times	48.4%	51.5%

Choices consistent with the ostrich effect are in bold

- The disposition effect :

Table 10 shows that subjects are more likely to sell losers and hold winners ($P < 0.005$ for individual subject tests).

Table 10 Trades after market is observed (1,582 observations)

State	Action	
	Continues	Exchanges
Winner	647	373
1020 times	63.4%	36.6%
Loser	114	364
478 times	23.8%	76.2%
Neither winner or loser	37	47
84 times	44.0%	56.0%

In our experiment disposing of one stock for another does not generate a realized capital gain or a realized loss of capital since stocks are exchanged.

- ➔ the decision to dispose of a winner or hold on to a loser does not trigger the same gain/loss framework believed to underlie the disposition effect.

❖ CONCLUSION :

In general, subjects chose to ignore information that could have potentially led to higher earnings.

- ➔ status quo bias is reasonably robust across individuals, over time and independent of the stock's performance.

Individuals' reluctance to receive information that might question their own abilities may explain this bias.

The strong status quo result is not consistent with the ostrich effect. Subjects tend to compare their own stock's results to other stocks when their stock is earning a below average rate of return as opposed to an above average rate of return.