

# Inaction Inertia in the Stock Market<sup>1</sup>

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Based on the inaction inertia effect, it was hypothesized that investors who missed an opportunity to leave a “bear market” will be less likely to sell the stock at a later opportunity when facing a grave loss. Participants in a stock-market computer game were given an opportunity to sell their stock for a moderate gain. Having missed this initial opportunity and now facing a grave loss, these participants were less likely to sell their stock compared to participants whose potential loss was not as grave, or compared to participants facing the same magnitude of loss who had no previous opportunity to leave the market. Analysis of the time spent by participants on reading relevant information concerning the stock market suggests that this tendency toward continued inaction was not the result of careful deliberation over market trends. The results are discussed in terms of counterfactual thinking and anticipated regret.

Having opportunities is something for which we all wish. We think of opportunities as favorable combinations of circumstances, allowing us a chance to better our standing, advance, and progress toward our goals. Having missed an opportunity, however, we may become haunted by thoughts about what we could have had if only we had acted in time. These upward counterfactual thoughts—which contrast reality with better occurrences that could have taken place but did not (Kahneman & Miller, 1986; Kahneman & Tversky, 1982; Roesse, 1994, 1997; Roesse & Olson, 1995, 1997)—have the potential if unchecked to elicit the bitter experience of regret and self-blame (Landman, 1993, 1995). One may try to avoid such regret by avoiding thinking about the missed opportunity and the lost counterfactual outcomes. In some situations, however, this avoidance attempt may actually result in continued inaction and in further failure to benefit from similar action opportunities.

<sup>1</sup>This research was supported by a grant from the Israel Science Foundation to the first author.

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Research on the inaction inertia effect has demonstrated that once we realize that we have missed an attractive action opportunity, we are less likely to act on similar opportunities that, although objectively still attractive, offer inferior outcomes in comparison with those we have already forgone (Arkes, Kung, & Hutzel, 2002; Tykocinski & Pittman, 1998, 2001; Tykocinski, Pittman, & Tuttle, 1995). Thus, for example, if one has missed an opportunity to buy a suit for a special 50% price discount, one is less likely to buy it later for a 10% discount than would have been the case if the 50% discount had never been offered.

A number of possible explanations for this effect were considered in early research on inaction inertia. For example, an interpretation based on cognitive dissonance theory was tested explicitly in several experiments (Tykocinski et al., 1995). Those findings clearly revealed that the dissonance predictions, as well as those based on self-perception and commitment analyses, were not upheld. Subsequent work has been consistent with those findings and with the finding by Gilovich, Medvec, and Chen (1995) showing that dissonance processes are apparently not likely to be initiated by inaction as opposed to action.

Tykocinski and Pittman (1998, 2001) argued instead that the psychological juxtaposition of the current opportunity, with its relatively inferior outcomes, and the relatively superior but forgone opportunity triggers upward counterfactual thoughts; and that by rejecting the current action opportunity, one is actually attempting to avoid regret. This interpretation was supported in several published studies. Continued inaction may appear to be illogical because one ends up missing another opportunity to gain, yet it seems to afford, at least temporarily, relief from the negative psychological experience of regret.

Several social psychological phenomena share this aspect of psychological gains at the expense of economic loss. Sunk-cost experiments, for example, have demonstrated that having made a prior investment of time, money, or effort in a failing endeavor increases the likelihood of continued engagement or “throwing good money after bad” in an attempt to “save face,” maintain self-esteem, or justify the initial investment (Arkes & Blumer, 1985; Bobocel & Meyer, 1994; Brockner & Rubin, 1985). But unlike the sunk-cost phenomenon, the inaction inertia effect focuses on consequences of not doing, of having failed to take advantage of an action opportunity, and on the consequences of this initial inaction.

In previous research, inaction inertia was most often demonstrated using a scenario methodology. The goal of the current experiment is to obtain actual behavioral evidence for the effect in a stock-market context where investors often face the unpleasant reality of missed opportunities, and to obtain direct behavioral evidence for the avoidance mechanism that was previously indirectly implicated in producing continued inaction.

To test these ideas, a computer stock-market game was designed. Participants in this game were given the opportunity to purchase a stock and were asked to monitor its performance over time. Initially, the stock increased in value, at

which point some of the participants were given the opportunity to sell it for a modest gain and leave the game. Those who chose not to sell were randomly divided into a large-loss and a small-loss condition. We expected that an investor who declined an initial opportunity to leave a “bear market” with a modest gain would be less likely to sell the stock when subsequently faced with a significant loss compared to an investor (facing the same magnitude of loss) who never had this initial action opportunity, or compared to an investor whose loss was not as substantial. The main dependent variable in this experiment is participants’ willingness to sell the stock following a small or a large plunge in its value. In addition, experts’ opinions and predictions concerning the stock market were periodically presented to participants, and the time they spent reading these opinions served as a behavioral measure for avoidance of this regret-eliciting information.

## Method

### *Participants*

Students participated individually in this experiment in return for course credit and the possibility of winning 150 shekels (~US\$33) to be drawn among those achieving the best outcomes in the game.<sup>3</sup> Of 192 participants, 101 were allocated to a condition in which they were allowed an initial opportunity to sell their stock; 24 participants chose to take this opportunity and thus finished their participation in the experiment. The remaining 77 participants and the 91 participants in the no-initial-opportunity condition were assigned randomly to either the large-loss or small-loss groups.

### *Stock-Market Computer Game*

All information concerning the stock value over time and the three expert reports were presented to the participants on a computer screen. The sequence of events is illustrated in Figure 1.

At the start of the game, participants were asked to purchase one of three stocks for 1,000 shekels. The next screen showed the performance of their stock 1 month later (October) in the form of a graph recording an increase in value to 1,300 shekels. Next, participants were presented with a short paragraph containing the first expert report that explained the reasons for this increase. Participants were asked to punch the “Space” key when they finished reading the report, to move to the next screen. A further increase in the value of the stock to 1,500

<sup>3</sup>Because actual outcomes, in fact, were determined by allocation to conditions, all participants were eventually entered into the lottery.

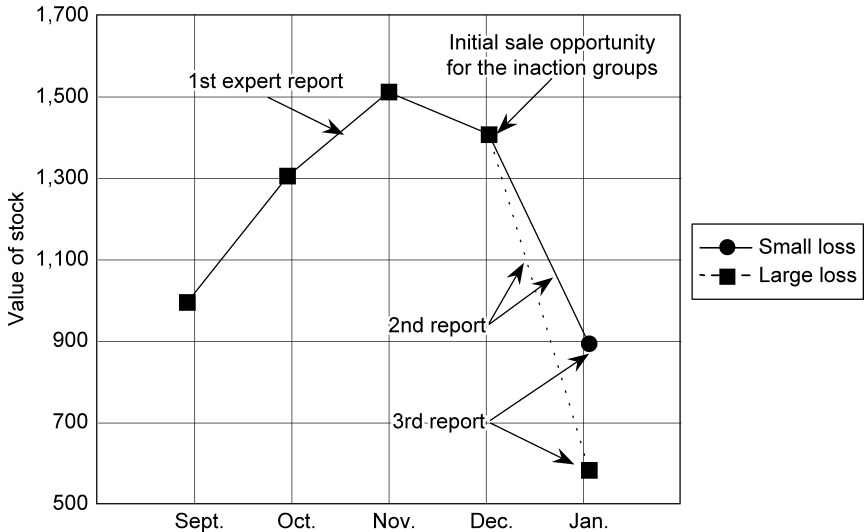


Figure 1. Sequence of events in the stock market game.

shekels was indicated in the November graph, followed by a slight decrease to 1,400 shekels during December. At this point, the second expert report was presented, explaining the reasons for this decrease. After reading the second expert report, some of the participants were given the opportunity to sell the stock, and if they responded affirmatively, they left the game. Those who decided not to sell, as well as participants who were not offered this initial opportunity, continued to the next screen: a graph showing performance in January. This time the graph indicated a dramatic plunge to either 600 shekels for the large-loss condition, or to 900 shekels for the small-loss condition. All participants were then asked if they wanted to sell their stock now, and after indicating their responses, went on to the next screen, which presented the third (and last) expert report explaining the reasons for this plunge. The time that it took participants to read this report was recorded. The next screen, which appeared after participants punched the “Space” key, declared the termination of the game.

The sequence of events as illustrated in Figure 1 resulted in four groups, which represented two levels of a previous opportunity to sell—absent (participants never had a previous opportunity to sell the stock) versus missed (participants decided not to sell the stock for a moderate gain when they were given a previous opportunity to do so)—and two levels of loss (large loss and small loss). The resulting number of participants in each cell was as follows: absent/large loss,  $n = 48$ ; absent/small loss,  $n = 43$ ; missed/large loss,  $n = 40$ ; missed/small loss,  $n = 37$ .

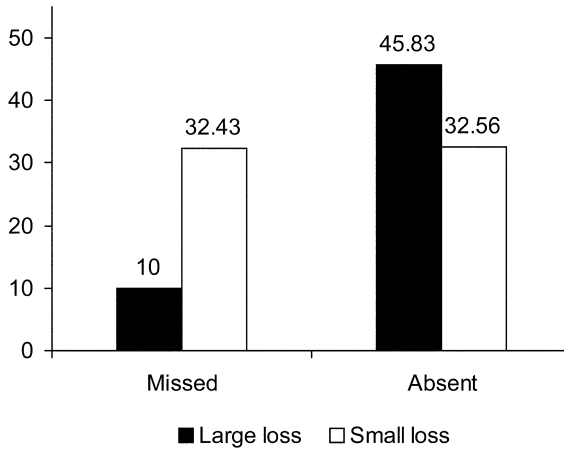


Figure 2. Percentage of participants in each group who chose to sell their stock as a function of previous opportunity condition and the magnitude of loss.

## Results

### *Willingness to Sell the Stock*

The percentages of participants in each group who chose to sell the stock following the plunge in its value are presented in Figure 2. As expected, participants in the large-loss condition who had missed an opportunity to sell the stock were less likely to sell it now, compared to participants who lost less or compared to participants who had no previous opportunity to sell the stock. These differences were found to be significant in a chi-square test,  $\chi^2(1, N = 168) = 13.28, p < .004$ .

With no previous opportunity to sell the stock, participants' willingness to sell it was greater when the loss was large rather than small. This difference, however, was not significant (small, 32.6%; large, 45.8%),  $\chi^2(1, N = 91) = 1.67, p = .19$ . In contrast, the size of the loss had a significant effect in the opposite direction on participants who had missed a previous opportunity to sell the stock for a modest gain. In line with the inaction inertia effect, these participants were significantly less likely to sell when the loss was large rather than small (small, 32.4%; large, 10.0%),  $\chi^2(1, N = 77) = 5.86, p < .01$ .

### *Time Spent on Reading the Expert Report*

It was hypothesized that the reduced tendency toward action after missing an attractive opportunity represents an attempt to avoid regret. In an attempt to

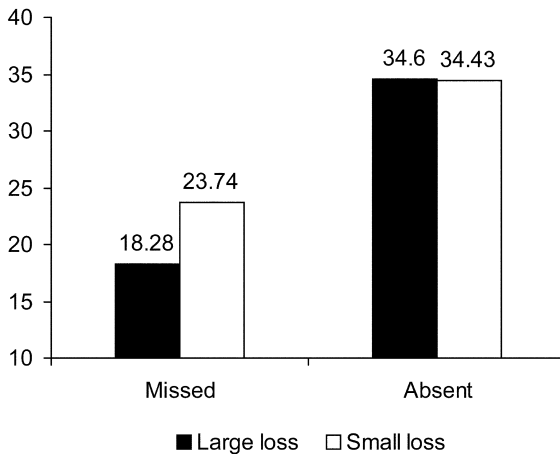


Figure 3. Average reading time (in seconds) as a function of previous opportunity condition and magnitude of loss.

obtain direct behavioral evidence for avoidance, the time spent by participants on reading the third expert report was recorded. This report was of particular interest because it was presented immediately after the participants realized that they were facing a loss, which for some of them was both grave and preventable, the two factors that set the stage for inaction inertia.

The average recorded times (in s) for reading the third report in the four groups were analyzed in a two-way ANOVA design with two levels of previous opportunity (absent and missed) and two levels of loss (large and small). The analysis yielded a marginally significant interaction,  $F(1, 164) = 2.87, p < .09$ .

In general, participants who had missed a previous opportunity to sell the stock invested less time in reading the report, compared to participants who never had a previous opportunity ( $M = 26.64$  vs.  $34.52$ ),  $F(1, 164) = 66.41, p < .000$ . As can be seen in Figure 3, the size of the loss had no significant effect when there was no previous opportunity to sell ( $M = 34.6$  vs.  $34.43$ ;  $F < 1$ ). In contrast, the size of the loss had a significant effect on the reading times of participants in the missed-opportunity condition. Participants in this condition spent significantly less time reading the expert report when their loss was large rather than small ( $M = 18.28$  vs.  $23.74$ ),  $F(1, 164) = 5.00, p < .02$ .

The reading time results are consistent with the regret-avoidance interpretation of inaction inertia. Those who had missed an opportunity to gain and who were now facing a significant loss showed an increased tendency toward inaction and spent less time reading a report that might trigger regret. However, because the participants declared their decision concerning the stock immediately before

Table 1

*Average Reading Time for Participants in the Missed Previous Opportunity Condition as a Function of Magnitude of Loss and Participant's Decision*

	Large loss		Small loss	
	Sold	Did not sell	Sold	Did not sell
<i>N</i>	4	36	12	25
Reading time (in seconds)	21.77	17.9	21.05	25.9

they were exposed to the third report, it is important to test differences in reading times as a function of the nature of the participant's decision. If, for example, shorter reading times were recorded for those who decided to sell, one could argue that these are not indicative of avoidance, but rather they reflect the termination of interest in the game. If, however, participants' reading times were unaffected by their decision, or if shorter reading times were observed for those deciding not to sell the stock, this alternative explanation is unlikely. Thus, the reading times of participants in the missed-opportunity condition were analyzed in a two-way ANOVA design with two levels of loss (large and small) and two decision types (sell and not sell). Although this analysis yielded a nonsignificant interaction,  $F(1, 73) = 1.24, p = .27$ , the pattern of the results is consistent with the avoidance interpretation. As can be seen in Table 1, the shortest reading time (17.9 s) was found for participants who decided to hold onto the stock following a grave loss. Because of the small number of participants in the large-loss/sell condition, a direct pairwise comparison for participants who decided to sell their stock was not performed. However, a comparison between large-loss and small-loss participants who held onto their stock yielded significant results ( $M = 17.9$  vs. 25.9),  $F(1, 73) = 6.07, p = .01$ . Thus, although these results should be interpreted with caution, the difference in reading time as a function of loss size is consistent with the regret-avoidance interpretation. In addition, as this difference was found among those who decided to stay in the market, it cannot be explained in terms of termination of interest.<sup>4</sup>

### Discussion

When judging the costs associated with an action, we may sometimes focus on economic costs and neglect psychological ones. For a person who has missed an opportunity to sell a stock for a modest gain, the action of subsequently selling

<sup>4</sup>The authors thank an anonymous reviewer for suggesting this analysis.

it for a substantial loss entails both economic and psychological costs. Whereas economically one might be well advised to sell and thus “cut” future losses, this same action is likely to trigger the psychological cost of regret for having failed to act sooner. In the domain of positive outcomes, anticipated regret was implicated in producing inaction inertia. Continued inaction may allow us a temporary reprieve from regret that is likely to be elicited by comparing forgone benefits to less attractive present outcomes. The results of the current experiment suggest that a similar process may operate in the domain of stock-market losses.

In the current experiment, the decision of whether or not to sell a losing stock was affected not only by the stock’s present value, but also by the awareness of having missed a more favorable previous opportunity. According to the inaction inertia account, missing an opportunity to sell the stock for a modest gain rendered participants vulnerable to regret. With greater anticipated regret stemming from facing a larger loss, participants were less likely to take the current action opportunity and cut their losses. This increased inaction tendency was absent when participants had either no previous opportunity to sell the stock or faced only a relatively small loss, and hence were unlikely to experience regret.

This interpretation of continued inaction as an attempt to avoid regret was supported by the measure of time spent by the participants on reading the third expert report. If one is trying to avoid regret, brooding over material that is likely to elicit it seems ill-advised. Indeed, those participants who were made susceptible to regret for having failed to escape a serious loss spent the shortest length of time reading this material, compared to all other groups. In sum, the current experiment provides actual behavioral evidence for inaction inertia in the context of the stock market and illustrates the fact that sometimes the decision to hold onto a losing stock is emotion-based, rather than economically strategic.

One potential limitation on the interpretation of the present results concerns the loss of participants in the condition where there was an initial opportunity to sell, because a minority of the participants actually did sell and were thus not included in the final analyses. It is possible that if these participants were somehow induced to stay in the game, they might have shown a different approach to the second opportunity than did the majority of participants whose data we have presented. However, while this does raise some reason for additional caution when discussing comparisons between those who had an opportunity and those who did not, within the participants who did have an initial opportunity and decided to hold onto the stock (the population that was the main focus of this study), we still have random assignment to the large-loss and small-loss conditions, and results in those conditions clearly implicate the kinds of processes found in earlier inaction inertia research.

In the context of the real stock market, there are, no doubt, many forces affecting the decision to sell or not to sell. Among those investing in retirement accounts, for example, both the tax code and the conventional wisdom that the

appropriate long-term strategy is to hold onto stock through short-term market gyrations might underlie forgone opportunities to sell. On the other hand, recent market debacles such as the Enron collapse might challenge such conventional wisdom. The present research suggests that another hitherto unappreciated psychological influence may also be in play. When initial inaction is followed by particularly unwelcome results, regret avoidance in the form of inaction inertia may induce many to hold onto stock that otherwise might be sold.

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