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Regulatory Focus and Investment Decisions in Small Groups

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Abstract

Regulatory Focus Theory (Higgins, 1997, 1998) was applied to small interactive groups. Based on previous research (Levine, Higgins, & Choi, 2000), it was expected that groups with a promotion focus would discuss gain-relevant information, whereas groups with a prevention focus would be concerned with potential losses. Furthermore, promotion groups were expected to make riskier decisions than prevention groups. Regulatory focus was manipulated by rewarding good or penalizing poor group performance on a preliminary task. Subsequently, three-person groups discussed several investment funds and made a consensual investment decision. Results supported the hypotheses and suggested that regulatory focus requires time to exert its influence in groups.

Regulatory Focus and Investment Decisions in Small Groups

One of the main tasks of small groups in organizations is to decide how to manage their budgets and how to invest their monetary assets. Secure investment alternatives often provide only small returns, while riskier investment alternatives have the potential for higher returns alongside the danger of high losses. Ultimately, all investment decisions could be right or wrong, in two respects. First, a decision could be right because a group decided to invest in a favorable enterprise that yielded high returns, or because it rejected an investment that would have resulted in serious losses. Second, a decision could be wrong because of a missed chance for a profitable investment, or because of an investment in a losing opportunity. Since both risky and conservative decisions could be right or wrong, individuals and groups differ in the strategies they pursue. The present study examines how and when basic orientations in groups affect whether groups try to avoid risk or whether they pursue the goal of maximizing their returns.

With his regulatory focus theory, Higgins (1997, 1998) provides a framework to examine different strategies for approaching positive outcomes and avoiding negative outcomes. According to regulatory focus theory, people with a promotion focus are concerned with the presence or absence of positive outcomes. They regulate their behavior towards advancement, aspirations, and accomplishments. In contrast, people with a prevention focus are concerned with the absence or presence of negative outcomes. They orient their behavior towards protection, safety, and responsibilities. Recent research has demonstrated several effects of these strategies on information processing, performance, and decision making (e.g., Higgins, Shah, & Friedman, 1997; Florack & Scarabis, in press; Florack, Scarabis, & Gosejohann, 2005; Förster, Grant, Idson, & Higgins, 2001; Förster, Higgins, & Taylor

Bianco, 2003; Shah & Higgins, 1997; 2001). Zhou and Pham (2004), for instance, found that individuals are differentially sensitive to gains and losses depending on whether a decision task evokes a promotion or a prevention focus. Levine et al. (2000) provided us with first evidence that regulatory focus is also relevant for the performance of small groups. The authors examined three-person groups working on a multi-trial signal detection task (recognition memory). Participants had to indicate whether presented nonsense words had already appeared before. They were told that the groups' performance would be calculated by adding up the correct responses of the individual group members. The regulatory focus was varied by a subtle manipulation. Participants in a promotion focus expected to gain additional money for correct answers, whereas participants in a prevention focus assumed that they would lose money they already had received if they made mistakes. The authors found that after an initial phase, members of promotion groups more frequently recognized stimuli which had not appeared before and were thus riskier in their responses than members of prevention groups. This study therefore extends previous research by demonstrating that people who work together over time converge in their regulatory orientations.

Although the participants in the study by Levine et al. (2000) were aware of the answers of the other group members, they did not interact and discuss their decisions. The present study examined whether regulatory focus also operates in interactive small groups, i.e., whether it directs their decision processes and consequently their decision outcomes. In line with the research of Levine et al. (2000), we assumed that promotion groups are less risk-averse during a discussion and make riskier decisions than prevention groups. In addition to the question whether the regulatory focus generally has an impact on decision processes in

groups, we were interested in whether this impact is affected by time pressure. We suppose that group members do not always agree on their goals and their assessment of possible means for reaching them, but that they converge in their views over time. Levine et al. (2000) referred to the classic work of Sherif (1935, 1936) to illustrate this point. Sherif found that individuals in groups of two or three participants became more similar in the judgment of ambiguous visual stimuli over time. Levine et al. put forward that the participants in the experiments of Sherif as well as individuals working on ambiguous social questions need to develop a shared reality about the best solution and the best means for reaching it. Indeed, Levine et al. did not observe regulatory focus effects in the initial phase of the interaction, but they did find it in a subsequent phase. Therefore, we assume that time pressure in small interaction groups impedes the development of a shared reality of a task and this attenuates regulatory focus effects on group decisions.

Upon preliminary examination, some lines of small group research and also research on individual level behavior suggest a contrary assumption with respect to the effects of time pressure. For instance, the Attentional Focus Model (Karau & Kelly, 1992; Kelly & Karau, 1999) proposes that time pressure serves to narrow group members' focus to the most salient features of the decision task and that groups which have less time for their decision process information less systematically. If we take into account that for individuals in a promotion focus different features of a task are salient and relevant than for individuals in a prevention focus, the Attentional Focus Model may lead to the assumption that the regulatory focus has a stronger impact on decision making under time pressure. This reasoning seems also to be consistent with research on two process models which make predictions about the use of salient cues in individual judgment and decision making

(Chaiken, Liberman, & Eagly, 1989; Kruglanski & Webster, 1996; Petty & Wegener, 1999). However, the argument that time pressure enhances the effects of regulatory focus in groups presupposes that the regulatory focus apriori is coupled with shared diagnostic cues and/or a shared heuristic to pursue the group goal. Indeed, this may be true for groups that have worked on a specific kind of decision problem several times and have developed means that could be applied in a heuristic manner. However, in our view the development of a shared reality is a precondition for regulatory focus effects in groups. Especially in groups working together on an unfamiliar problem for the first time as in the studies of Levine et al. (2000) neither a shared regulatory orientation is prevalent nor can shared heuristics be applied. For those groups, it takes time to develop a shared view and, thus, regulatory focus effects should increase over time. In the present study, we have examined groups who work on an unfamiliar problem without having much of a common history.

To summarize, the main objective of our study was to examine a) whether regulatory focus has an impact on interactive group behavior and group decisions, and b) whether this effect is moderated by time pressure. To examine our hypotheses, we let participants work on two different tasks. The first task was used to induce either a promotion or prevention focus with a framing manipulation (cf. Tversky & Kahneman, 1981). The second task involved a group decision about a financial investment. During this task, the groups made a decision under time pressure or without time restriction. We assumed that prevention focus groups would be more risk-averse during the discussion of the decision and would make less risky investments than promotion focus groups. This effect was expected to be stronger when the time for the group discussion was not restricted.

Method

Participants

One hundred ninety-two students of two different German high schools volunteered for the study. They were divided into 64 three-person groups and randomly assigned to one of the four experimental conditions of the 2 (promotion vs. prevention focus) x 2 (time pressure vs. no time restriction during discussion) experimental design. One group was excluded from the analyses because it had no discussion about the investment decision, as was required.

Procedure and Materials

First, the experimenter thanked participants for their willingness to take part in the study and explained that the study examined how people work on different tasks and how they find solutions for problems. Then, participants were divided into three-person groups. Each group received instructions in separate rooms, where they also worked on all tasks. The experimenter explained to participants that, in the first part of the study, every group member would receive some tasks (a series of progressive matrices) for which she or he had to find correct solutions. The participants were also told that although they would be working on this task individually, the results of all three group members would be summed up and determine the group's outcome. The way the possible outcome was presented differed between the promotion and prevention focus conditions. In the *promotion focus condition*, a group received an empty box and the experimenter said that he would fill the box with chocolate if the group members found correct solutions. In detail, the experimenter explained that the group would receive 6 chocolate bars if together they provided at least 60 percent correct solutions, 12 chocolate bars for at least 75 percent correct solutions, and 18 chocolate bars for at least 90 percent correct solutions. In contrast, the groups in the *prevention focus condition* received a box filled with 18 chocolate bars and were told

that they would have to pay back chocolate bars if they made errors. The experimenter explained that the groups would not have to give any chocolate back if they made errors in less than 10 percent of the tasks, but that they would have to give back 6 chocolate bars for errors between 11 and 25 percent of the tasks, 12 chocolate bars for errors between 26 and 40 percent of the tasks, and that all of their chocolate bars would be taken away for errors in more than 40 percent of the tasks. Groups in every condition received the same performance feedback, but it was framed differently. The experimenter told the promotion groups that they had between 75 and 89 percent correct solutions and the prevention groups that they had between 11 and 25 percent errors, respectively. Thus, every group had 12 chocolate bars at the end of the first part of the experiment. To ensure that the focus manipulation did not affect the mood of participants, we conducted a pretest. In this pretest, we measured the mood of participants who were assigned randomly to one of the two focus manipulation conditions. As expected, no effects of the manipulation were found either on a mood scale with 15 items or on a simple feeling thermometer, $t_s(23) < 1$, *ns*.

After the first part of the experiment, participants received general information about stocks and specific information about four umbrella funds offered by a German bank. They were informed that umbrella funds differ in their volatility. It was said that umbrella funds with high volatility may provide very high returns, but also bear the risk of a big loss, whereas umbrella funds with low volatility are more stable and, thus, more likely to yield a moderate return or loss. Furthermore, the material clarified that umbrella funds with a high share of annuity bonds have a lower volatility. Importantly, participants were then informed about the composition of the four specific umbrella funds and learned that one umbrella fund had a very high share of

annuity bonds and very low volatility, whereas the other umbrella funds had much greater volatility. Participants were asked to rate the four umbrella funds on two four-point scales regarding the chance of a possible loss and the chance of a possible gain (1 = *very low*, 2 = *low*, 3 = *high*; 4 = *very high*).

Then, participants received the instruction for the decision task. The experimenter told participants that the three group members were supposed to act as owners of a small business with equal rights, and that they had to decide about investing 20,000 DM (approximately 9,000 USD in 2001 at the time the study was conducted) into umbrella funds. They were allowed to split the sum into two funds or to invest all the money in one fund. Before participants started the discussion in the *time pressure condition*, the experimenter told participants that they had to reach a decision very quickly, within a maximum of three minutes. To strengthen the perceived time pressure, the experimenter showed participants a stop watch and every minute announced the time remaining. In the *condition without time restriction*, the experimenter told participants that they could discuss the decision as long as they wished. The discussion was recorded on tape.

After the discussion, participants indicated their *group decision* on paper. Then they individually filled out a questionnaire. They were asked how they would invest the money if they had the sole responsibility. We refer to this decision later as the *individual decision*. Furthermore, the questionnaire included questions concerning the perceived time pressure. Participants were asked whether they had had enough time for their decision (*yes*; *no*) and how much time in minutes they would have preferred to have had in addition.

The group discussions were recorded on tape and the last two minutes of every group recording were transcribed. Due to technical problems four tape

recordings had very low quality. A coding of these recordings was not possible. Three raters who were blind to the experimental conditions read each transcript and assessed the risk-aversion during the discussion on a 5 point scale (1 = *not at all*; 5 = *very much*). Risk-aversion was defined as the discussion of means to avoid possible losses and the expressed fear of losing the money, and it was distinguished from the discussion of potential gains. The raters received this definition before they read and assessed the transcripts. The assessments of the three raters were averaged. The intraclass correlation for the three raters was .71, $p < .0001$. High values indicate high risk-aversion during the discussion.

Results

All dependent measures were analyzed at the group level following the procedures recommended by Sadler and Judd (2001). If data was not directly available at the group level, the scores of the group members were averaged into mean scores for each group. All reported statistics are based on the group scores.

Preliminary Analyses

As the main indicator of how risk-averse participants were, we used the proportion of money the groups invested in the most secure umbrella fund. Preliminary analyses showed that participants rated this umbrella fund ($M = 1.35$, $SD = .36$) as having lower risk for losses than all other umbrella funds ($M = 2.04$, $SD = .29$; $M = 2.98$, $SD = .27$; $M = 3.61$, $SD = .37$), $t_s(62) > 13.46$, $p_s < .001$. Thus, a greater risk-aversion should be reflected in higher investments in this umbrella fund. Also, participants rated this umbrella fund ($M = 1.74$, $SD = .51$) as having lower chances for profits than all other umbrella funds ($M = 2.35$, $SD = .34$; $M = 2.97$, $SD = .29$; $M = 3.73$, $SD = .38$), $t_s(62) > 11.12$, $p_s < .001$. Therefore, this fund should be less interesting for people who seek high, even if risky profits.

Time Pressure

The discussions in the condition without time pressure ($M = 5.63$ min, $SD = 4.39$) took on average more than twice as long as the discussions in the condition with time pressure ($M = 2.28$ min, $SD = .92$), $F(1, 59) = 17.63$, $p < .001$. Furthermore, participants in the time pressure condition were more likely to state that they had not had enough time for their decision ($M = 1.24$, $SD = .32$) than were participants in the condition without time restriction ($M = 1.05$, $SD = .15$), $F(1, 59) = 8.44$, $p < .01$. When asked for the time in minutes that they additionally would have needed, they also indicated more time ($M = 2.51$ min, $SD = 5.10$) than participants in the condition without time restriction ($M = .37$ min, $SD = 1.18$), $F(1, 59) = 5.29$, $p < .05$. The main effects for the regulatory focus manipulation and the interactions between the time pressure and the regulatory focus manipulation were not significant for the duration of the discussion, the perception of time scarcity, and for the additionally needed time, $F_s < 1.30$, *ns*.

Regulatory Focus during the Discussion

We assumed that regulatory focus needs time to affect the decision process of groups. Therefore, we further expected that the induced regulatory focus would have a greater influence on the discussion in groups working without time restriction than in those having only limited time available for their decision. In particular, we expected that, in the condition without pressure, prevention groups would show greater loss aversion and be more concerned with the discussion of loss-relevant topics than promotion groups. In the time pressure condition, this difference should be attenuated. As is illustrated in Figure 1, the analysis of the ratings of the last two minutes of the group discussions provides support for this assumption. An ANOVA with the focus manipulation (prevention vs. promotion) and the time pressure

manipulation (no time restriction vs. time pressure) as independent variables and the ratings of loss aversion as dependent measure yielded an interaction between the focus and time pressure manipulation, $F(1, 55) = 3.80, p \leq .05$. In the condition without time restriction, the discussions were more concerned with potential losses when a prevention focus was induced in the previous task ($M = 2.81, SD = .76$) than when a promotion focus was induced ($M = 2.08, SD = .85$), $t(55) = 2.33, p < .05$. In contrast, the regulatory focus manipulation had no effect in the condition with time restriction, $t(55) < 1, ns$. The main effects of the time pressure manipulation $F(1, 59) < 1, ns$, and the focus manipulation were not significant, $F(1, 55) = 1.76, ns$.

Group Decisions

We hypothesized that prevention groups are more risk-averse than promotion groups. However, since we supposed that it takes time for regulatory focus to unfold its effect, we also expected this difference to be stronger when participants had unlimited time during the group discussion. To test our predictions, we computed an ANOVA with the focus manipulation and the time pressure manipulation as independent factors and the proportion of money invested in the most secure umbrella fund as dependent measure. This analysis yielded an interaction between the two experimental manipulations, $F(1, 59) = 4.64, p < .05$ (Figure 2). In line with the expectations, there were higher investments in the most secure umbrella fund in the condition without time restriction when a prevention focus was induced ($M = .23, SD = .26$) than when a promotion focus was induced ($M = .09, SD = .20$), $t(59) = 1.80, p < .05$, one-tailed. In the time pressure condition, there was no significant effect, $t(59) = 1.33, ns$. However, a further inspection of the means showed that the interaction was mainly driven by smaller investments in the most secure umbrella fund by promotion focus groups in the condition without time pressure ($M = .09, SD =$

.20) compared to the time pressure condition ($M = .33$, $SD = .24$), $t(59) = 3.15$, $p < .01$. There was no significant difference between the time pressure and the no-time pressure condition for prevention focus groups, $t(59) < 1$, *ns*. In addition to the interaction, a main effect of the time pressure manipulation appeared, $F(1, 59) = 3.66$, $p < .07$. The groups invested more money in the most secure umbrella fund if they decided under time pressure ($M = .27$, $SD = .25$) than when they had sufficient time for making their decision ($M = .16$, $SD = .24$). The main effect of the regulatory focus manipulation was not significant, $F(1, 59) < 1$, *ns*.

Individual Decisions after Group Discussions

To examine the effects of the experimental manipulation on the individual investment decisions after group discussion, we computed an ANOVA with the focus manipulation (prevention vs. promotion) and the time pressure manipulation (no time restriction vs. limited decision time) as independent factors and the proportion of money that was individually invested in the most secure umbrella fund as dependent measure. This analysis yielded a main effect of the time pressure manipulation, $F(1, 59) = 6.06$, $p < .05$, and a marginally significant main effect of the regulatory focus manipulation, $F(1, 59) = 2.20$, $p < .08$, one-tailed. Participants were more likely to invest in the most secure umbrella fund when they had discussed under time pressure ($M = .29$; $SD = .24$) than when they had had no time limit for the discussion ($M = .15$, $SD = .21$). Furthermore, there was a tendency that participants of the prevention focus groups ($M = .26$; $SD = .25$) were more likely to invest in the most secure umbrella fund than participants of the promotion focus groups ($M = .17$; $SD = .22$). In contrast to the analysis on the group level, the individual level analysis did not yield an interaction between the time pressure manipulation and the regulatory focus conditions, $F(1, 59) < 1.11$, *ns*.

Fit between Individual and Group Decisions

As we suppose that individuals need time to develop a shared view of the decision task, we expected that in the time pressure condition, post-discussion individual decisions would deviate from group decisions to a greater extent than in the condition without time pressure. To test this prediction, we computed an ANOVA with the deviation from the group decision as dependent measure and the time pressure manipulation and the regulatory focus manipulation as independent variables. In this analysis, we observed a significant main effect of the regulatory focus manipulation, $F(1, 59) = 4.24, p < .05$, which was qualified by an interaction between the regulatory focus manipulation and the time pressure manipulation, $F(1, 59) = 4.41, p < .05$. The main effect of the time pressure condition was not significant, $F(1, 59) < 1, ns$. As is shown in Figure 3, in the condition with no time restriction, participants nearly agreed with the group decision and there was no difference in the deviations from the group decisions between promotion and prevention groups, $t(59) < 1, ns$. However, when participants had only limited time to discuss the decision, participants in the prevention focus condition invested more money in the most secure umbrella fund than their group did ($M_{deviation} = .08, SD = .12$), while participants in the promotion focus condition invested less money in this umbrella fund than their group did ($M_{deviation} = -.06, SD = .14$), $t(59) = 3.00, p < .01$.

Correlations of Risk-Aversion in the Discussions with Investment Decisions

The assumption that the regulatory focus has only an impact on investment decisions when the discussion takes longer than when the discussion time is restricted also implies that the risk-aversion in the discussion should be correlated with the investment decisions in the condition without time pressure, but not or at least to a lesser degree in the time pressure condition. Indeed, the computed

correlations confirm this prediction. In the condition without time restriction, the rated risk-aversion in the discussion was significantly correlated with the money the groups invested in the most secure umbrella fund, $r(28) = .46$, $p < .05$, and with the money individuals invested in this fund, $r(28) = .57$, $p < .01$. In the condition with time restriction, the correlations of the rated risk-aversion in the discussion with the individual investment, $r(31) = .17$, *ns*, and with the group investment, $r(31) = .06$, *ns*, were not significant.

Discussion

Previous research has documented numerous effects of regulatory focus on decision making by individuals. Hitherto, research concerned with the impact of regulatory focus on decision making in groups was rare. One exception was the study of Levine et al. (2000), which showed that strategic norms in groups are influenced by regulatory focus induced by the framing of a task. However, the group members in the study of Levine et al. did not make a consensual decision and did not exchange viewpoints in a discussion. Extending the work of Levine and colleagues, we examined the impact of regulatory focus on group interaction processes and group decisions more precisely. We found that regulatory focus had an impact on the risk-aversion in the discussions, on the agreement within the groups, and on the group decision. Given sufficient time to discuss their decision, the group discussions were more risk-averse and the groups invested a higher proportion of their money in a secure investment option when a prevention focus was induced than when a promotion focus was induced. In line with our expectation that a regulatory focus needs time to take effect in groups, we did not observe such differences between promotion and prevention groups when the groups had limited time to reach their decision. Indeed, individuals agreed less with the group decision and their individual

decisions deviated from the group decision more in the direction of the induced focus when the groups had only limited time to discuss rather than when they discussed under time pressure.

Thus, the results support our assumption that a precondition of regulatory focus effects on group decisions is that the group members develop a shared regulatory orientation which occurs over time. The processes that may drive regulatory focus effects may be a consequence of information processing in groups, as well as, normative influences. Much research has shown that group members repeat more common information known to all group members as their discussion progresses (e.g., Larson, Christensen, Abbott, & Franz 1996; Stasser, Taylor, & Hanna, 1989; Winkvist & Larson, 1998) and that the repetition of arguments in this way might produce polarization of attitudes in groups (Brauer, Judd, & Gliner, 1995). Also, it is conceivable that group norms need some time to develop and that, therefore, individuals tend to conform to such group norms (e.g., Deutsch & Gerard, 1955) when the norms are clearer after some time of group interaction.

The finding that the individual decisions under time pressure deviated from the group decisions in the direction of the induced focus suggests that time pressure might have different effects on individual than on group behavior. Indeed, in a conceptual replication of the current study on the individual level (Florack & Hartmann, 2004) we found that an induced regulatory focus had a stronger effect under time pressure. These results are in line with the reasoning that promotion-focused people are affected by different cues than prevention-focused people (Brendl, Higgins, & Lemm, 1995) and that these cues are of special importance when time pressure and, consequently, the need for cognitive closure is high (e.g., Kruglanski & Webster, 1996). However, for regulatory focus to affect systematically

decision making on the group level, the group may need to develop a shared perspective first. Therefore, the data of the present study does not conflict with the theory of need for closure on the individual level (e.g., Kruglanski & Webster, 1996) or the Attentional Focus Model on the group level (Karau & Kelly, 1992). On group level, group members first have to agree on which information is diagnostic and which is not. They have to find a common regulatory orientation. If a group already has built a common regulatory orientation, we would expect the same effects which the theory of cognitive closure suggests for individuals and which the Attentional Focus Model (Karau & Kelly, 1992) suggests for groups: the diagnostic information which is determined by the regulatory focus should be more likely to affect the group decision under time pressure than when there is no time restriction.

Another interesting finding of the current study is that the effect of the focus manipulation on the content of discussion increased for both focus conditions when there was more time for the discussion, but that a significant effect of the manipulation of the discussion time on the group decision was only found for the promotion focus groups. A possible explanation for this finding might be that under time pressure people tend to be more risk-averse. The risk-aversion under time pressure might have elicited safe decisions in both regulatory focus conditions because there was not enough time for the development of a shared regulatory orientation. In contrast, when groups worked without time restrictions a different process might have come into play. When the group members had enough time to develop a shared regulatory orientation, the promotion focus groups shifted to a riskier decision, whereas the prevention focus groups made the same safe decisions as under time pressure, but now not caused by the time pressure, but possibly by the induced prevention focus. Thus, time pressure and the induced prevention focus

might have led to risk aversion, but via different processes. Time pressure might have elicited an immediate caution, whereas the induced prevention focus might have led to risk aversion by exchanging regulatory concerns in the discussion.

Altogether, the field would benefit if future research would attempt to further examine the processes which underlie the impact of regulatory focus on group behavior and to isolate the factors that moderate this impact. Studying the effects of regulatory focus on group behavior, it has to be taken into account that regulatory focus affects the decision process at different stages. Indeed, concrete predictions can be made about the effects of regulatory focus on the identification of a decision problem, the search for relevant information, the formation of a set of decision alternatives, the evaluation of the alternatives, and choice (cf. Pham & Higgins, 2005). Whether a promotion or prevention orientation is of advantage at these stages should depend on the decision problem and the context of the decision. Recently, Dijksterhuis, Bos, Nordgren, and van Baaren (2006) found that individuals made better decisions for complex decision problems when they did not extensively deliberate on the decision alternatives. It could be assumed that prevention-focused groups deliberate more extensively on complex decisions than promotion-focused groups because they are afraid of making a false decision. It would be interesting to examine whether promotion-focused groups produce better results for complex decisions and whether there are other kinds of decisions where prevention-focused groups could be in advantage.

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Figure Captions

Figure 1. Rated risk-aversion during the last two minutes of the group discussion. High values indicate greater risk-aversion.

Figure 2. Proportion of money invested in the most secure umbrella fund (group decision) as a function of time pressure and regulatory focus.

Figure 3. Deviation of the individual decision from the group decision. Positive values indicate that the group members invested individually more money in the most secure umbrella fund than the group did. Negative values indicate that the group members individually invested less money in the most secure umbrella fund than the group did as a whole.





