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On Regretful Hierarchy*

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Abstract

This study evaluates the implications of regretful choices at the group level and suggests that regretful choices in the market may underlie the formation of hierarchy, i.e., a collectivity, which may not mitigate the hazards of transactions but serve to absorb personal emotions, i.e., regrets associated with market transactions. In so doing, this study seeks to identify the role of personal emotion in the theory of the firm vis-à-vis calculative trust that is arguably granted to the impersonal firm.

Keywords: Regrets, Organizational Culture, and Theory of the Firm

INTRODUCTION

Regrets are unavoidable when you sign a contract that is second-best at the expense of the first best that rivals or the third party does not endorse. You may marry an apparently good person that you do not love; you may apply for a seemingly good job that you do not prefer. Herding may arise when everybody ignores his or her own belief and follows regretful choices. Reputation concern is a case in point (Cipriani and Guarino 2005; Scharfstein and Stein 1990). As is the case with reason-based choice (Shafir, Simonson and Tversky 1993), you may make over-investment into regretful choices so that you deplete resources, physical and cognitive, otherwise available to the first best in the near future when you are allowed to make a

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new contract. You may even avoid making choices at all in the fear of regrets that accompany your choices.

This study evaluates the implications of regretful choices at the group level and suggests that regretful choices in the market may underlie the formation of hierarchy, i.e., a collectivity, which may not mitigate the hazards of transactions but serve to absorb personal emotions, i.e., regrets associated with market transactions. In so doing, this study seeks to identify the role of personal emotion in the theory of the firm vis-à-vis calculative trust that is arguably granted to the impersonal firm (Williamson 1985; Meyer and Rowan 1977). The extant literature on the theory of the firm revolves around either emotion-free rationality (Williamson 1985) or emotion-laden irrationality with a good emphasis on positive affect such as trust (Meyer and Rowan 1977). The former sets the ground for efficiency-enhancing authority whereas the latter embraces trust-building social institution. In contrast, this study seeks to unveil as the basis of the firm the state of negative emotion, namely, regrets. Regretful hierarchy thus refers to the firm that rests on the commitments of the individuals to ignore regretful choices.

The structure of argument is the following. First, deliberate choice does not always reflect subjective belief. Choices in the market may deviate from subjective preferences. Such deviation is an essential aspect of decision-making, whose priorities are given to the coordination with the actions of the others (Cyert and March 1963; Simon 1945). Second, regrets may induce individuals to avoid exchanges in open market (exit option) or to be overly committed to the second-best (voice option) (Hirschman 1970). Individuals who seek to avoid regretful choices are vulnerable to influence by others in so much as regrets per se arise from such influence by others. Accordingly they collectively exercise either exit or voice options in face of regretful choices. Lastly, the firm offers a shelter or platform to individuals to compete for regretful choices. The firm allows its members to exit from the regretful market transactions in return for their commitment to the second-best that the firm designs. In short, unlike empathy by the impartial spectator that underlies cooperation (Smith 1759), regret-based hierarchy draws on selfish emotions that compete for the second-best.

PERSISTENT BELIEF AND ADAPTIVE CHOICE

Regrets refer to unpleasant emotions that arise from counter-factual thinking, i.e., 'what if I did not make this choice?' Regrets are self-reinforcing. The motivation to avoid regretful choices *a priori* may lead the person under uncertainty to adopt a popular practice that is second-best. To the extent that the person knows what is the first best, the choice of the second-best will eventually lead to counter-factual thinking, which evokes regrets *a posteriori* at the individual level. Regrets replicate themselves over time. Before detailing the working of regrets, I will depart from and refute the economist folklore that any choice freely made by the individual should reflect his or her belief in or preference over the chosen alternative. The working of regrets comes into play when one's choice deviates from his or her beliefs.

Students of decision-making process have long observed that taste is persistent and choice is adaptive (Einhorn and Hogarth 1981; Ross et al. 1975). From an economic perspective, a choice made by a person should reveal her own preference over alternatives, i.e., which alternative is better than the others. Unless one's preference over an alternative is updated with new information, his or her choice over the alternative should not vary. However, in practice, a person's actual choice may not be consistent with her own belief. Choice under regret avoidance is one way of explaining this discrepancy between belief and choice (Larrick and Boles 1995; Bell 1982; Loomes and Sugden 1982; Zeelenberg and Beattie 1997). A person frequently retrospects her choice, compares forgoing alternatives with chosen one, and experiences regrets from some of choice made before. Since regrets are associated with bad emotions, the person may try to avoid regrets accompanied by her choice when anticipating regrets from forgoing alternatives.

Choice under regret avoidance differs from the imitation of choices by others. Imitation is rather a rationally calculated choice because a person imitates what others choose only when others' choice is believed to be better. Moreover, regret avoidance has room for social influence on an individual choice. To the extent that the feedback from the environment, such as ex post evaluation by others over forgoing alternatives, is an importance source for regrets, regret avoidance leads a person's choice to be socially binding.

The same logic applies to a person's belief, which is the degree to which the knowledge of an alternative is held to be true (Elio and Pelletier 1997; Markoczy 1997). A belief is thus a degree of correspondence between the knowledge of an alternative and the true state of the alternative (Pennington and Hastie 1988). In this regard, belief is also understood as a probabilistic assessment of possible states of an alternative. In comparison, choice in the paper is regarded as the act of deciding, i.e., a kind of behavior. One may treat choice as the evaluation of an alternative per se, yet this study concerns the discrepancy between belief and choice and thus distinguishes choice from evaluation. Note that judgment is an overall result of information processing of alternatives, including preference over alternatives. However, if one ignores individual preference over alternatives, judgment would be reduced into evaluation of instrumentality of alternatives as in valence theory (Vroom 1964). In this sense, such judgment is similar to prediction of occurrence of alternatives, which in turn specifies a belief over alternatives held by an individual. Note also that the deviation of a person's taste from her choice is theoretically equivalent to that of a person's belief from her choice. Both cases refer to the failure of a person's choice to reflect her subjective understanding of the self and the external environment.

Beliefs as well as tastes are by nature difficult to change. Individuals are insensitive to new knowledge obtained, thus being slow at updating their beliefs related to that knowledge. For example, individuals showed a strong perseverance of initial beliefs about their ability even after the experimenter debriefed the false feedback into their ability (Ross et al. 1975). When asked to generate explicitly reasons for a given outcome, individuals were likely to keep their initial beliefs even when new information available disproves their initial beliefs (Davies 1997). Furthermore, interaction with others tended to qualify initial beliefs, rather than to falsify them (Heath and Gonzalez 1995). Although the interaction with others offered more information, individuals were reluctant to modify their beliefs on the basis of the information they collected.

One explanation for this persistent belief is found in the literature on impression formation: initial impression formation may produce persistent belief (Ross et al. 1975; Hirt and Sherman 1984; Koehler 1991). The Initial belief over an alternative is easily accessible in memory, and thus used for interpreting ambiguous information in a consistent way (Higgins and Bargh 1987; Wyer and Srull 1986; Higgins et al. 1977; Hirt and Sherman 1984). Hence, the initial impression of an alternative hinders individuals from attending to new information and the adjustment of the initial impression is at least insufficient (Tversky and Kahneman 1974).

Such a strong initial impression or prior belief is generated through positive hypothesis testing and motivated reasoning (Klayman and Ha 1987; Kunda 1990). As a result, individuals may become confident in prior beliefs as they collect new information and interact with others. It is because individuals test their hypotheses about an event by seeking for information in favor of the hypotheses, rather than information against the hypotheses. Probability overestimation is expected when biased hypothesis testing lead to persistent belief over an event (Sanbonmatsu et al. 1997). Even though they receive substantial amount of information discrediting their hypotheses, individuals are motivated to compromise resulting cognitive dissonance. They hence tend to choose a more reasonable belief out of a set of prior beliefs. For example, a patient will not feel smoking is that bad when his doctor tells him that it harms his health seriously.

Finally, overconfidence in judgment would prevent individuals from adjusting to new information, thus allowing prior belief to persist. Literature on overconfidence has shown two competing explanations. The first one is that the bias in heuristics causes individuals to be stuck in overconfidence in their judgment, which is 'the illusion of validity' at all (Kahneman and Tversky 1973; Brenner et al. 1996; Budescu et al. 1997b). The other is that overconfidence is due to unsystematic random error in judgment, and that judgments made by individuals are consistent and unbiased estimator in large samples (Gigerenzer et al. 1991; Budescu et al. 1997a; Klayman et al. 1999). As a result, relations between overconfidence and beliefs are not clearly depicted; however, they can be detected when combined with different mechanism mentioned above. For example, if there are systematic random errors in overconfidence, then such phenomenon is thought of as by-product of probability overestimation. If judgment is unbiased, yet unreliable, then overconfidence results from noise in information obtained, which can be aggravated by selective attention by individuals.

If beliefs are persistent over time, and prior beliefs constrain the possible range of subsequent beliefs, then one can expect that choices be also made constantly over time. On the contrary, much of research documents that choice among the same alternatives varies with task environments such as time pressure, framing, and relative values of an event (Einhorn and Horgarth 1981; Payne 1982; Kahneman and Tversky 1979). As Einhorn and Hogarth (1981) indicate, choice is sensitive to 'seemingly minor changes in task', which shows the importance of context or situation in decision making for understanding choices made by individuals.

Since individuals are limited in cognitive capacity, different information- processing strategies are employed, depending on task complexity and time pressure. For example, more complex task makes it necessary to reduce the amount of information demand. Therefore, some strategies such as elimination-by-aspects would be more likely to be used by decision makers (Payne 1982). In high time pressure, individuals may choose one among multiple alternatives without generating their own beliefs over the alternatives. Therefore, decisions based on different information processing strategies tend to produce inconsistent choices in various contexts.

Adaptive choice may result from relative gains or losses of alternatives. According to prospect theory (Kahneman and Tversky 1979), attractiveness of each alternative is dependent upon its relative changes from a reference point. For example, given current wealth level, a certain loss of 1000 euros is less attractive than an uncertain loss of 2000 euros because a certain loss is more painful that the other. Therefore, the way a person frames problems frequently influences the judgment about the problems.

If individuals have the same alternatives, and construct problem spaces different from others, then choices made by individuals will vary with framing of problem spaces. In other words, judgment under different reference points or base line probability may result into different choices among the same alternatives. For example, in negotiation where controlled information processing is heavily used, the frame imposed on problems would influence the willingness to accept or reject proposed options (Neal and Bazerman 1992). As a result, important alternatives are under-evaluated or ignored once changing the framing of problems (Koehler 1991).

As shown above, choice does not always follow beliefs. It is because individuals may fail to generate any belief over alternatives, or because choice would be made free from belief. If belief is not a sufficient condition for guiding choices, then there remains to answer that why and when such independence occurs.

REGRETFUL CHOICE

In order to discuss the independence of choice, belief should be retrieved or generated at the point of making choice, or at least before making choice. Therefore, choice without belief, where individuals have difficulty in generating their beliefs, and they don't know their beliefs at all, is not discussed in this paper. When you restrict the class of choice, and consider only choice with belief, independence of choice from belief could be explained in four different ways.

First, according to mental accounting literature (Thaler 1999; Heath and Soll 1996), individuals may choose an alternative that is in their budget set, and is Pareto dominated by other alternatives, a practice that violates the economic assumption of local non-satiation. Decision making is very sensitive to the number of allowable alternatives (see Wertenbroch 1998; Payne 1982). Since individuals partition their total budget into specific accounts, they are reluctant to spend more on an account if they deplete all resources allowed for that account. Suppose you plan to buy a Casals' the 6 Cello Suites, and you fail to find out the CD you like. In that case, you end up with buying another CD that you haven't heard of since you have money to spend on music. Therefore, the way you label resources will affect the choice made among the same alternatives. Framing of problems, and relative loss aversion (Kahneman and Tversky 1979; Neal and Bazerman 1992) could be understood in the same way. In addition to framing, mental accounting will be used for self-control purpose (Wertenbroch 1998).

Second, individuals sometimes make choices against their beliefs since they want to be rational in their choice. An explanation of reason-based choice (Shafir et al. 1993) assumes that individuals are motivated to provide justifiable reasons for their behavior to others and to themselves. In this case, when a favorable outcome of a particular alternative is suspected with positive probability, individuals will not choose the alternative as long as the choice of this alternative is hard to justify. As a result, prediction-decision inconsistency may happen. For example, Hsee (1999) reports that subjects choose less attractive options when some reasons are salient such as loss-minimizing, quantity-maximizing, value-maximizing, and objectivity-seeking.

Third, temporal, yet intense visceral factors such as hunger and sex may cause individuals to behave differently than they would do normally (Loewenstein 1996). Since much intense visceral factors virtually preclude decision making, choice made under the influence of visceral factors does not reflect beliefs over alternatives. Addictive behavior can be illustrated in this way. If smokers even know smoking is bad for health, and they also know that they will regret after smoking, they are tempted to smoke at some time of day, do smoke, and regret their choices.

Finally, individuals will choose an option that is expected to minimize regrets related with decision, though it is not the best option they can choose (Larrick and Boles 1995; Bell 1982; Loomes and Sugden 1982). Individuals frequently retrospect their decisions, compare forgoing alternatives with chosen one, and experience regrets from some of decision made before. Since regrets are associated with bad emotions, individuals may try to minimize regrets accompanied by choice when anticipating regrets from forgoing options. Therefore, beliefs over alternatives cannot predict what is chosen if anticipated regret of the best choice is high (Zeelenberg and Beattie 1997). For example, if anticipating regrets from feedback information about other options, individuals could choose a riskier investment option, which they would not choose without any feedback. In that sense, individuals learn and experience regrets about forgone options due to the feedback from environment.

REGRETS AND SOCIAL INFLUENCE

Most tasks in decision making process lead individuals to develop persistent beliefs over alternatives available. At the same time, individuals experience some emotional consequences such as regrets from feedback on their decisions (see Taylor 1997). Much research on regrets has shown that anticipated or experienced regrets cause individuals to minimize regrets as possible (Larrick and Boles 1995; Zeelenberg and Beattie 1997; Creyer and Ross 1999). However, the direction of choice induced by regrets is not uniform. For example, individuals may be risk averse or risk seeking, depending on which option is expected to minimize regret. Those who are risk averse may opt for an exit option, i.e., not entering the market; whereas those who are risk seeking may opt for a voice option, i.e., being committed to the second-best.

One may argue that experience of regrets would change subjective beliefs over alternatives. However, three counterarguments can be suggested. First, empirical results of past studies indicate that beliefs are persistent over a substantial period. Second, the impact of regret on belief cannot be addressed without specifying the intensity of regret and the interval between regrets. Since individuals are motivated to protect self-image by keeping their previous beliefs, the impact of regret on belief would be negligible unless individuals experience strong regrets from their choice many times in a very short interval. Finally, individuals are reported to experience regret of inaction in the long term (Gilovich and Medvec 1995). This means that the effect of regret of action would last only in the short term and individuals would rationalize such regret of action quickly. Therefore, short-lived regrets cannot parallel persistent belief.

To predict the possible direction of changes in choice, understanding of feedback is needed. In this paper, I consider two contexts: frequency of feedback, and responsibility. Suppose that there are more than two alternatives, whose payoffs are unknown to individuals, and that realized outcomes of all available alternatives are known after choice. Regrets would be great as outcomes of what should have been chosen are more attractive. Since realized outcomes are known to individuals, the more highly negative feedback on chosen options increases regrets experienced by individuals as long as at least one of realized outcomes is positive. In addition, if a person receives frequently negative feedback from similar, yet not identical tasks, then he feels that he makes the same mistakes again, and suffers more from regrets.

Second, responsibility of individuals in their decisions is strongly associated with experienced or anticipated regrets about the decisions (Zeelenberg et al. 1998). If individuals do not make choice voluntarily, then they can attribute the unfavourable results of chosen option to external cues, and generate more reasons. They tend to less regret what is chosen. As a result, the more individuals take responsibility for their decision, the more vulnerable are they to regrets as long as feedback on their decision is expected. For example, Larrick and Boles (1995) report that negotiators who expect feedback on their results succeed in negotiation less than those who do not.

Therefore, individuals can be motivated to externalize their responsibility by choosing generally accepted alternatives, at least by their neighbourhood, if they experience regrets frequently, and anticipate another regrets from current decision making. Therefore, when individuals interact with others in deciding to make which choice, and share feedback on their decision with others, choice is more likely to be influenced by regrets rather than beliefs they have (see Heath and Gonzalez 1995).

Suppose a person, who feels that he has made wrong choices many times, and regrets about them. If he has two alternatives to choose on his responsibility, and his friends told him not to choose an alternative, which he prefers, then it would be hard for him to insist in his own preference. He will take advice from his friends in order to reduce conflicts in decision making. Relations between client and consulting firm would be similar. A manager in project team with a consulting firm may accept recommendation by the firm even though he thinks this recommendation is not reasonable. When the recommendation does not work well afterward, at least he can say, “I knew it”.

REGRETFUL HIERARCHY

Deliberate choice may not always underlie rationality in decision-making when regrets are anticipated in one’s choices. It is likely so when hedonism, not prudence, permeates individual’s decision-making. This in turn suggests that the economic decision theory may be applicable only when individuals do not experience regrets from their decisions. In contrast, we in everyday life frequently accept and act on others’ advice even though we have different opinions of what we should do. For example, in the flower shop, you may end up with roses a salesperson has in season though you feel lilac is better in spring. At the restaurant, you may take risk of having the garlic and butter escargot, though you know you will regret having this. Even in the company, you may accept recommendation, provided by a prestigious consulting firm, which seems nothing better than your current practice. Regrets prevail in the mundane world.

To the extent that regrets are self-reinforcing, the market may not persist when it is populated by those who fear regretful choices and thus avoid entering the market. Typical examples are found in security concern at the early stage of the online retailing industry. Where the market ends, the firm begins. The firm may present a platform to safeguard against regretful choices. The above discussion of feedback frequency and responsibility comes into play.

First, the firm may serve as a ritual where individuals collectively devaluate the foregone alternatives and express their loyalty to the second-best that is presented by the firm. A frequent exchange of devaluations and confirmations may strengthen the very basis of the firm as a sacrifice ritual (Meyer and Rowan 1977).

Second, the ritual of the firm proceeds in a way that presents the firm as the target of criticism by its members (Weeks 2004; Bae 2016). In other words, the firm induces its members to attribute their regretful choices to the influence of the ignorant third party, i.e., the firm. Employees routinely complain of the firm and yet develop a sense of belongingness to the firm. “Our company does not deserve the best talents like us.”

Please note that the working of regrets rests with the ‘privately’ knowable consequences of choices. Regrets are thus a private form of unpleasant knowledge. In comparison, choices in complex organizations are difficult to fully comprehend. The division of labor, vertically and horizontally, comprises the structure of the firm, which refuses to divulge the means-ends chain in the eyes of each organizational member. The consequences of choices are thus difficult to anticipate and to rationalize with counter-factual thinking. Accordingly, the uncertainty of complex organizations cannot fuel regrets at the individual level. Rather it serves as a platform for collective complaints over the firm itself, which in turn help organizational members to ignore the regrets associated with their choices (Weeks 2004; Bae 2016). Regrets are thus internalized emotions whereas the culture of complaints is social and political in nature.

When parties of opposing interests compete to induce transaction-specific investments in joint production, the firm may serve as enforcing cooperative exchange of specialized investments (Williamson 1985; Hart 1995). When the unprivileged seek to modernize production relations, the firm may again serve to foster mutual trust among trading parties (Meyer and Rowan 1977). However, regret-based hierarchy differs from a Williamson type of efficiency-enhancing authority or from trust-building institutions. Rather it is an ignorant institution that takes advantage of regretful choices and directs the attention of its members to the second best. The firm as a ritual draws on a legitimate category that is granted to itself, namely, its core competence (Pontikes and Hannan 2014; Bae 2016). It channels the feedback on its members' regretful choices, which takes the form of social valuations that dictate what is good at the workplace.

Moreover, the rationality (or efficiency) basis of the modern firm dovetails closely with the moral sentiments that run through everyday interactions at the workplace. For example, calculative trust is frequently invoked to characterize cooperation between economically rational actors at the workplace, which often turns into greedy exchange. Cognitive revolution in social science coupled with the financial crisis in 2008 however draws attention to empathy by the impartial third party, an emotion that underlies altruistic behaviour at one's cost. Empathy indicates the sociality of human nature. Without prior connections that are biased against strangers, a group of individuals may cooperate provided that they are able to read and feel the minds of others, their happiness or sorrow, namely, able to perform as the impartial third party (Smith 1759; Nussbaum 2001). In contrast, regret-based hierarchy draws on selfish emotions that are competitive at the workplace. Regrets come from a "private" judgment over one's own past action. It becomes "social" and short-sighted when regret-avoiding individuals join a ritual of collective complaint about the second-best option at hand, which in turn induces individuals to attend to and envy the second best that the other enjoys (e.g., Bae 2016). The firm thus builds on regrets that are short-sighted and competitive in nature.

A simple model of herding illustrates the above discussion. The set-up is the following: Suppose a project whose outcome states, x_1 and x_2, which indicates success and failure respectively. These states are observable at $t + 1$ and realize with the probability σ and $1 - \sigma$, respectively. Two managers at t observe noisy signals that indicate the outcome state of the project, s_1 and s_2. Suppose that the capability of Alpha is higher than that of Beta. Denote the quality of signal available to manager Alpha by $p(s_1 | x_1) = p$ and $p(s_1 | x_2) = 1 - p$; Denote also signal quality for manager Beta by $p(s_1 | x_1) = q$ and

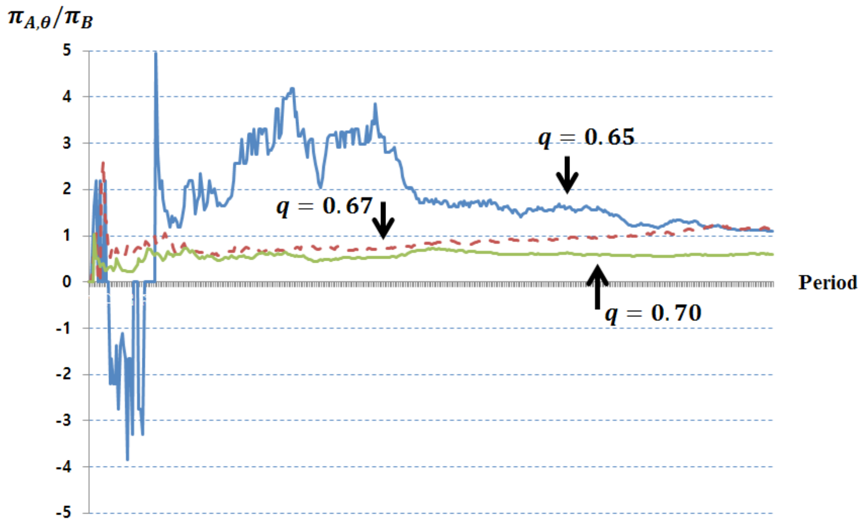

Figure 1. Two Competing Choices in Regretful Hierarchy

$p(s_1 | x_2) = 1 - q$.

Suppose that each manager invests when she observes s_1 and does not when she observes s_2. Suppose also that each manager earns one point from her investment when x_1 arrives; whereas, she loses one point when x_2 arrives. No point is earned when she does not make an investment in the project. The total payoff, π_A, for each manager is the sum of points that she earns during the observation period.

Now assume that manager Alpha seeks to avoid regrets in her choice. At the end of the observation period, manager Alpha undertakes counterfactual thinking and feels regrets from each decision when she fails but the other party wins. Accordingly she discounts the total payoff by θ, which is in proportion to the amount of regretful experiences. Specifically, it is defined as follows: = $\rho(r/N)$, where N is the number of periods, r is the number of regretful investments, and ρ is the sensitive to regrets. The discounted payoff for manager Alpha, $\pi_{A,\theta}$, is then $\pi_A/(1 + \theta)$.

Against this set-up, the working of the regretful hierarchy is examined. The figure 1 gives the results of a Monte Carlo simulation with parameters such that σ = 0.5, p = 0.8 > q, and N = 400. Note that without regrets the payoff perceived by Alpha should be much larger than that by Beta. Once Alpha experiences regretful choices, her discounted payoff comes closer to the payoff by Beta when the quality of signal for Beta is not too lower than that for Alpha. For example, as parameter q becomes larger than 065, Beta's payoff outshines Alpha's discounted payoff. Here comes the logic of the regretful hierarchy.

Suppose that the firm successfully designs a decision procedure, which emulates the decision-making of manager Beta. To the extent that the signal quality of a firm's decision procedure is not substantially lower than that of manager Alpha, a regret-avoiding manager would be better off by imitating what manager Beta does. The firm thus helps manager Alpha to remain active in decision-making in the future even when she suffers from regretful choices in the past.

SUMMARY AND RESEARCH IMPLICATIONS

Regret is an intimate expression of an anxiety when you face the risk of an outcast (Agamben 1998), a negative feedback from the external environment. The firm takes advantage of this personal anxiety, which precludes the room for novel opportunities to explore. The efficiency of the regretful hierarchy thus resides in the ability to design 'stable' rewards and induce its members to compete for such rewards to alleviate regrets and anxieties at the individual level.

Two theoretical implications are derived from the discussion of regretful hierarchy.

First, as is the case with information cascade (Bikhchandani, Hirshleifer and Welch 1992), the firm is viewed as an emergent property of herding in regretful choices. Decisions made by each individual may follow generally accepted standards such as organizational routine if each individual runs risk of regrets from her own choice. Given the unavoidable nature of regret-based choices, the stability of inducements may attract individuals to the firm. Indeed, the concept of routinization (Simon 1945) as well as structural inertia (Hannan and Freeman 1984) points to the importance of stable inducements in the working of the organization. Although the regretful hierarchy is an outcome of seemingly irrational decision-making, the provision of stable inducements may help individuals to avoid exiting from any type of social interactions (i.e., the exit option).

Practically, the above discussion implies that a desirable form of inducements at the workplace would be attainable rewards for complex tasks whose performance responsibility is diffuse. In other words, challenging performance targets would generate regretful choices at the individual level, which may undermine the stability of the hierarchy. Note that the firm should remain as a target for social complaints, not private regrets. In a similar vein, well-metering tasks may leave each individual solely responsible for performance, which again underlies regretful choices as is the case with process re-engineering.

Empirically, regrets are measurable in experimental settings as shown in the literature (Larrick and Boles 1995; Zeelenberg and Beattie 1997; Creyer and Ross 1999). With such set-up, one may examine the choice of governance mode for inter-firm cooperation. For example, it is feasible to see whether the individual in the regret condition is likely to choose a non-market based governance mode (or process control) over a market-based governance model (or output control). The same experimental procedure may apply to the testing of contractual options for performance evaluation.

Second, this study addresses the social aspect of individual regrets and evaluates the role of emotion in the working of the firm. To the extent that the exit option underlies the 'thin' market, i.e., an unstable market with a small number of participants, it is likely that a group of individuals avoiding regrets, i.e., the firm, would help overcome the failure of the market when emotions derail the rational decision making. Note that regret-avoiding individuals may tend to find an easy target to blame when action is taken in the setting of interactive decision-making. Regrets would then play a more important role than one's own beliefs in decision-making. Accordingly, performance feedback from the environment may not trigger the learning from failure at the workplace but the hot-stove effect type (Denrell and March 2001) of adaptation on the employee side. As a result, it is likely that regret avoidance at the group level may lead to the escalation of commitments, which aggravate, not mitigate, the irrationality of decision-making. Future research awaits the analysis of the interplay of emotions and efficiency.

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