

THE FALLACY OF “ONLY THE STRONG SURVIVE”: THE EFFECTS  
OF EXTRINSIC MOTIVATION ON THE PERSISTENCE DECISIONS  
OF UNDERPERFORMING FIRMS

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Dawn R. Detienne

Dean A. Shepherd

Julio De Castro

Utah State University  
Dpt. of Management & HR  
3555 Old Main Hill  
Logan, UT 84322-3555  
dawn.detienne@usu.edu

University of Colorado at Boulder  
Leeds School of Business  
Boulder, CO 80309-0419  
dean.shepherd@colorado.edu

Instituto de Empresa  
Research Dpt.  
Serrano 105  
Madrid, 28006  
julio.castro@ie.edu

**Abstract**

According to economic theory, under-performing firms should be selected out of the market. However, research shows that these firms persist, often for long periods of time. In this article we explore the non-performance factors that contribute to the decision to persist with an under-performing firm. Using the escalation of commitment literature we identify seven variables that are associated with the persistence decision: Personal sunk costs, personal opportunities, previous organizational success, perceived collective efficacy, environmental complexity, dynamism and munificence. We reconcile the economic and psychological views by finding that the extent to which some of these non-performance factors influence the persistence decision is, in part, dependent upon the owner-managers' level of extrinsic motivation.



## INTRODUCTION

What explains the persistence or exit of firms from markets? Traditional economic theory suggests that the decision to persist in or exit the market should be determined by firm performance (Alchian, 1950; Williamson, 1991). This rational perspective assumes that individuals choose between alternatives only after the financial benefits and costs have been weighed (Kahneman & Tversky, 1979; see also Van Witteloostuijn, 1998: 505). For example, Ansic and Pugh (1999) propose that firms will persist until the point that current losses exceed the present value of expected profits because the decision makers are motivated by money.

However, previous research indicates that persistence cannot be fully explained by firm performance. Meyer and Zucker (1989: 9) argue that “efficient performance is only one—and not necessarily the most important—determinant of organizational survival.” In addition, a number of empirical studies have found that factors other than firm performance likely play a role in a firm’s decision to persist in markets (Baden-Fuller, 1989; Gimeno, Folta, Cooper & Woo, 1997; Levinthal, 1991; McGrath, 1999). Under-performing firms are defined as those “organization’s whose performance, by any standard, falls short of expectations, yet whose existence continues” (Meyer & Zucker, 1989: 19), sometimes over long periods of time (Baumol, 1990; Gimeno, et al., 1997; Karakaya, 2000; Van Witteloostuijn, 1998). Meyer and Zucker (1989) refer to these firms as “permanently failing organizations”; Baumol (1990) as “unproductive” entrepreneurship; van Witteloostuijn (1998) as “chronic failures”; Ruhnka, Feldman and Dean (1992) as “the living dead”; Gimeno, et al. (1997) as “underperforming firms”; and McGrath (1999) as “failure-avoidance” organizations. See Table 1 below for additional details regarding previous research. The persistence of under-performing firms represent a drain on the free market system because these firms squander resources and occupy market positions without showing reasonable levels of returns (McGrath & Cardon, 1997).

Although they found support for the expected economic relationship between firm performance and exit, Gimeno, et al. (1997) also found that the specific human capital of the top decision maker impacted the organization’s threshold of performance and consequently the persistence decision. The critical role of the top decision maker and his/her cognitive state, especially in small, tightly held organizations, has been explored in the literature (e.g. Hambrick & Finkelstein, 1987), however, not in the context of persistent, under-performing organizations. Drawing upon the research in cognition, motivation and psychology—specifically escalation of commitment—this study explores the non-firm-performance factors that contribute to the decision to persist with an under-performing firm. Further, we reconcile the economic and psychological views by proposing that the extent to which these non-firm-performance factors influence the persistence decision is, in part, dependent upon the owner-managers’ level of extrinsic motivation.

For this study, we utilize a sample of owner-managers of small firms in high technology industries. Owner-managers in small firms have more discretion than managers in large firms (Hambrick & Finkelstein, 1987) and thus are better positioned to make persistence decisions. In

**Table 1**  
**Research on Under-Performing Firms and Reasons for Persistence**

<b>Date</b>	<b>Author</b>	<b>Labels</b>	<b>Reasons for Persistence</b>
1989	Meyer & Zucker	Permanently Failing Organizations Difficulty in managing those interests	Diversity of interests (Stakeholders)
1990	Baumol	Unproductive Entrepreneurship	Reward structure of the economy (rules of the game)
1991	Levinthal		Firms with previous success are more likely to persist
1992	Ruhnka, Feldman & Dean	Living Dead	An inability to produce highly expected VC returns, thereby minimizing the “chances for a high-multiple exit or in some cases any exit at all.” May be due to deficiencies in investee mgmt., small or slow-growing markets, missed opps. and unanticipated competition.
1997	Gimeno, Cooper, Folta & Woo	Underperforming Firms	Threshold of performance based upon human capital char. such as mgmt. experience, intrinsic motivation, age
1997	McGrath & Cardon		Societal payoffs have been structured so that their lack of performance does not subject them to selection
1998	van Witteloostuijn	Chronic Failures	Cost inefficiency, inertia and strategic competition
1999	McGrath	Failure Avoidance Organizations	Resources are diverted to support the firm because of a distaste for failure. Also, errors in learning and interpretation— such as extrapolation to the future from past success and cognitive bias.
2000	Karakaya		Barriers to exit including cost to divest, commitments

addition, although owner-managers wield more power, they often have less developed routines in place to guide decision making processes and must rely more heavily on cognition (Gartner, Bird & Starr, 1992).

In investigating the decision policies of individuals in terms of non-firm-performance factors and the moderating role of extrinsic motivation, this article makes two main contributions. First, we respond to the call in recent empirical research which has highlighted the need to consider non-firm-performance factors as contributing to the persistence of under-performing firms. Using the escalation of commitment literature as a theoretical foundation, we develop, hypothesize and test seven such non-firm-performance factors (personal sunk costs, personal opportunities, previous organizational success, perceived collective efficacy, environmental complexity, dynamism and munificence).

Second, an implicit assumption of the economic firm-performance perspective is that individuals make decisions based upon financial performance because they are highly extrinsically motivated. We challenge this assumption by suggesting that there is heterogeneity among individuals in terms of their extrinsic motivation, which can help explain why some individuals are more or less influenced by non-firm-performance factors in making the decision to persist with their under-performing firms. Specifically, we propose that individuals with high extrinsic motivation have a decision policy that relies less on non-firm-performance factors than do those individuals with less extrinsic motivation.

The article proceeds as follows: We begin with an introduction to the escalation of commitment literature, followed by the development of the hypotheses for the non-firm-performance variables and the moderating role of extrinsic motivation. We then describe our research method, present our findings, and discuss the results and contributions in light of the existing literatures on the strategic, economic and psychological theories of firm persistence.

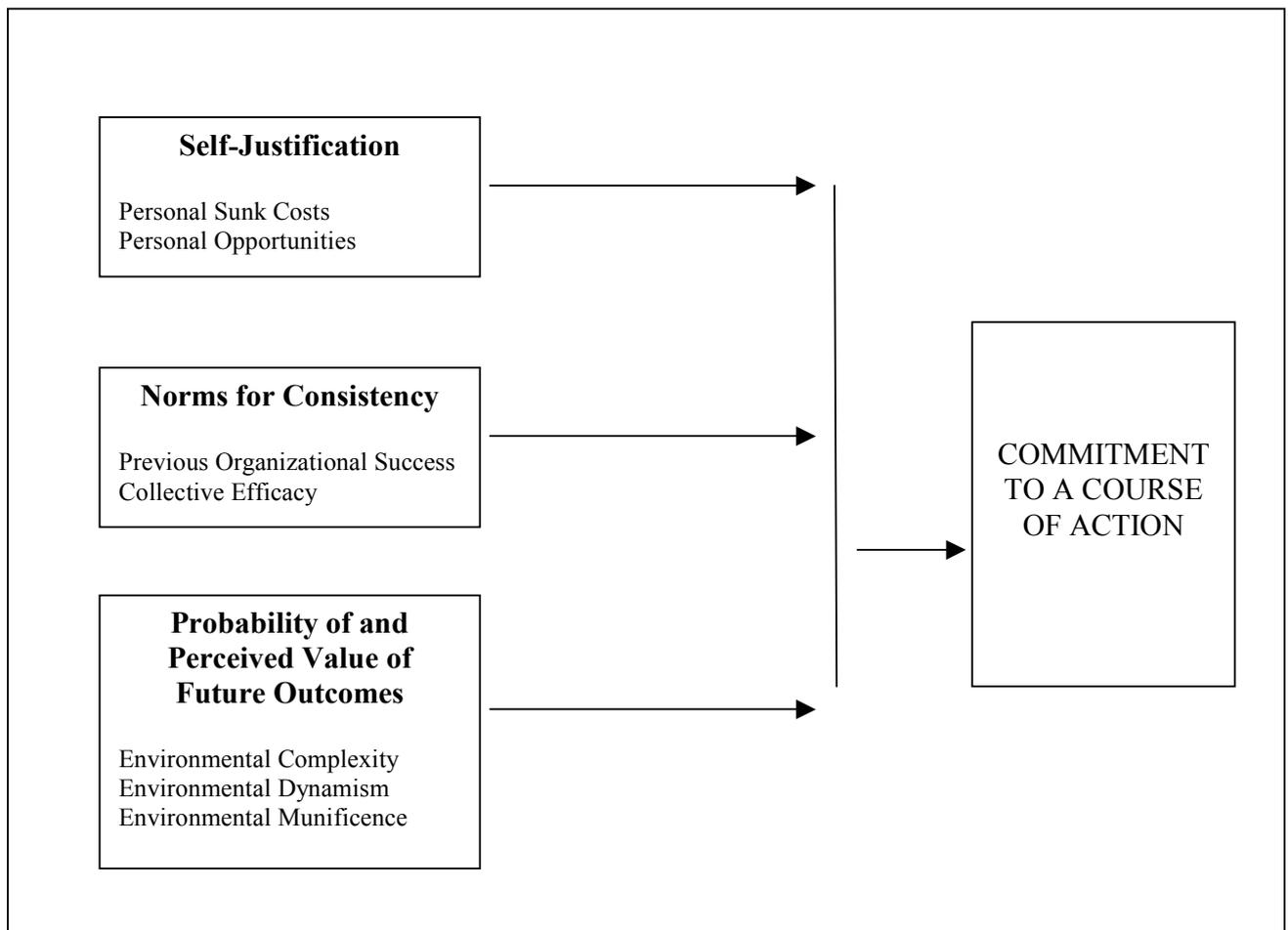
## **ESCALATION OF COMMITMENT AND HIGHLY PERSISTENT, UNDERPERFORMING FIRMS**

Escalation of commitment “refers to the tendency to adhere to a course of action even in the face of negative information concerning the viability of that course of action (Keil, 1995: 348).” Over the past 25 years, researchers have explored the escalation of commitment phenomena in a wide range of activities. For example, Staw (1981) suggests that escalation has been observed in individuals (stock purchases), groups (Chicago’s Deep Tunnel project), companies (airplane brake innovation) and governments (Vietnam War). According to Brockner (1992: 40), “escalation situations include repeated decision making in the face of negative feedback about prior resource allocations, uncertainty surrounding the likelihood of goal attainment, and choice about whether to continue.” He contends that decision makers allocate money, time and sometimes their self-identity in the hope of attaining some goal. However, once negative feedback occurs, individuals must make decisions about whether to persist or to cut losses.

Within organizations, escalation of commitment has been used to help explain multiple organizational issues: the persistence of underperforming information technology projects (Keil, 1995); capital budgeting reinvestment decisions (Schulz & Cheng, 2002); why NBA players with higher draft numbers had longer tenures (Staw & Hoang, 1995); and the Shoreham Nuclear Power Plant fiasco (Ross & Staw, 1993). In each of the above studies, researchers have primarily focused upon the processes that “lead to departures from rational decision making” (Staw, 1981: 333).

But why do some entrepreneurs’ decision policies depart from that expected under a traditional economic explanation? To develop a theoretical framework to explain the persistence of underperforming firms, we rely on Staw’s (1981) theoretical model of the commitment process. Staw (1981) offered four major determinants of commitment to a course of action: 1) motivation to justify previous decisions (self-justification), 2) norms for consistency, 3) probability of future outcomes, and 4) perceived value of future outcomes. These determinants of commitment form the basis of our model of the persistence of under-performing firms. See Figure 1 below.

**Figure 1**  
**Operational model of Staw’s (1981) Commitment Process**



theory is grounded in Festinger's (1957) theory of cognitive dissonance and contends that "individuals will bias their attitudes on a task in a positive direction so as to justify their previous behavior (Staw, 1981: 579)." An individual may be motivated to persist with a previously chosen course of action because of a need to prove to oneself (psychological self-justification) and to others (social self-justification) that s/he is competent and rational (Keil, Tan, Wei, Saarinen, & Timo, 2000). Two indicators of the motivation to justify previous decisions may be the personal sunk costs of the top decision maker and the other personal opportunities available to him/her.

### ***Personal sunk costs***

Owner-managers often invest not only financial resources, but also considerable time, money, and energy (Arkes & Blumer, 1985) to their ventures. Their reputation may be inextricably linked to the venture and result in self-justifications that are either psychological or social (e.g. I am not a failure and I can prove it if I just have a little more time or if I work a little bit harder). Although the time, money and energy resources that an owner-manager has invested in a venture represent a sunk cost and therefore should be irrelevant to future decisions, these personal sunk costs may, in fact, contribute to an individual's need to self-justify. Sunk costs are "costs that have incurred in the past and cannot be changed by any current or future action" (Devine & O'Clock, 1995), which "create a cognitive bias at a subconscious level which may be manifested in the form of emotional attachment" (Keil, et al., 2000). This emotional attachment may be due to the need to justify previous actions and to appear rational and competent. In their work at the industry level, Dean, Turner and Bamford (1997) found that the rate of new firm exit was negatively related to the level of sunk costs. Dean et al.'s (1997) finding could be explained by the role that sunk costs have on the need to justify ones' initial decision to found the business and thereby increase motivation to persist. Thus,

*Hypothesis 1: Among under-performing firms, the extent of owner-managers' personal sunk costs will be positively associated with the decision to persist.*

### ***Personal opportunities***

According to cognitive psychology (Kanfer, 1990: 76), an individual's choice among alternative courses is a key component of motivation. Therefore, a significant source of motivation for individuals may be the personal opportunities available to them elsewhere, (i.e. other jobs or careers; education; retirement) and may impact the decision they make regarding firm persistence. McGrath (1999:14) states "an entrepreneur might disband an economically profitable business if other activities appear more lucrative or interesting, if his or her interests change or if it seems that long-run growth is limited", suggesting that the decision of firm persistence (or in the case of the example, firm exit) is dependent, at least somewhat, on the alternative opportunities available to the owner-manager. Conversely, if decision makers have no or unattractive alternative personal opportunities outside their current firms, they may be more likely to persist. Thus,

*Hypothesis 2: Among under-performing firms, the extent of personal opportunities for owner-managers will be negatively associated with the decision to persist.*

### **Norms for Consistency**

A second determinant of commitment to a course of action is norms for consistency which refers to the idea that individuals may persist with a course of action simply because they believe consistency is the most appropriate form of action (Caldini, 1993; Staw & Ross, 1980). “Because it is a preprogrammed and mindless method of responding, automatic consistency can supply a safe hiding place from troubling realizations” (Caldini, 1993: 53). Therefore, decision makers may look for indications within the organization that consistency is the best policy. Two such indicators may be the organization’s previous success and the top decision maker’s perception of the firm’s collective efficacy.

### ***Previous organizational success***

Previous successful experiences may propel decision makers into believing that success is just around the next corner and that they need to just ‘ride out the storm’. In her work on real options, McGrath (1999) points out three reasons why extrapolating past successes to the future can encourage persistence. First, firm decision makers tend to over-sample success and under-sample failure. Previous success tends to encourage decision makers to underestimate risk and overestimate expected returns (Levinthal & March, 1993: 105) leading them to believe that persistence will eventually be rewarded with additional successes.

A second reason why previous success encourages persistence is that “organizations code outcomes into successes and failures and develop ideas about causes for them (Levinthal & March, 1993: 97).” Due to cognitive biases, decision makers are likely to code successes as a result of one’s own actions and failures to bad luck (Staw, McKechnie & Puffer, 1983). Therefore, decision makers are likely to believe success was due to decisions made or resources available, rather than because of some external source, and that the organization will become successful again. Third, previous success tends to decrease an organization’s willingness to alter a routine or technology even if a new one offers additional benefits (Levitt & March, 1988; McGrath, 1999: 16). Therefore, it appears that previous success leads decision makers to become complacent and content with their current situation and less willing to make changes. Thus,

*Hypothesis 3: Among under-performing firms, previous organizational success will be positively associated with the decision to persist.*

### ***Perceived collective efficacy***

Norms for consistency may also “be determined by the cultural and organizational norms surrounding individuals” (Staw, 1981: 335). It appears that collective efficacy represents an organizational norm that has particular relevance to the persistence decision. Collective efficacy

refers to the collective belief of a group (such as an organization) that it can perform effectively at a particular task. “Perceived collective efficacy will influence what people choose to do as a group, how much effort they put into it, and their staying power when group efforts fail to produce results (Bandura, 1986: 449).”

Although the research into collective efficacy is relatively new, scholars (e.g. Bandura, 1986: 449) contend that “collective efficacy is rooted in self-efficacy” and should operate in much the same manner. In a meta-analysis of the relationships between self-efficacy and persistence outcomes, Multon, Brown and Lent (1991) found a positive relationship between self-efficacy and persistence across a wide variety of subjects, experimental designs and assessment methods. At the group level, research has found that groups categorized as high in collective efficacy demonstrate more persistence than those with low collective efficacy (e.g. Hodges & Carron, 1992; Little & Madigan, 1997). Thus,

***Hypothesis 4:** Among under-performing firms, owner-managers’ perceived collective efficacy of their organization will be positively associated with the decision to persist.*

### **Probability of and Perceived Value of Future Outcomes**

Staw (1981:336) contends that “commitment decisions may be determined as much by a desire to rectify past outcomes as to attain future rewards” suggesting that the probability of future outcomes may also affect the decision to persist with an under-performing firm. Future performance is dependent upon the owner-managers strategic decisions and also the nature of the external environment (Andrews, 1987; Covin & Slevin, 1989; Zahra, 1993). Here we focus on the external environment, specifically its dimensions of complexity, dynamism and munificence.

#### ***Environmental complexity, dynamism and munificence***

First, environmental complexity refers to “the number of relevant factors available for consideration, how relevant the factors are and the number of judgments that must be made (Wood, 1986: 375).” Owner-managers facing a complex environment will perceive considerable uncertainty and will face greater information-processing requirements (Dess & Beard, 1984). Due to the magnitude of uncertainty and larger cognitive demands the owner-managers’ confidence that future outcomes will be positive is eroded.

Second, environmental dynamism refers to the amount of stability/instability in the environment (Beard & Dess, 1979) and reflects the extent to which an individual perceives unpredictable change in the external environment (Bluedorn, 1993). Eisenhardt and Martin (2000) suggest that when markets are very dynamic (high velocity), market boundaries are blurred, industry structure is unclear, product life cycles are shortened and uncertainty is the norm. Environmental instability places tremendous cognitive demands on managers because of the constant need to adapt one’s perception of the environment to fit its current reality (Wiersema & Bantel, 1993).

Environmental instability in an already under-performing firm may cause an owner-manager to doubt the probability of a positive future outcome.

Third, environmental munificence is the extent to which the environment can support sustained growth or the capacity of the environment (Starbuck, 1976). The capacity within the environment to support sustained growth will add to the perceived value of future outcomes. In addition, decision makers operating in highly munificent environments are able to exercise high discretion and are somewhat insulated from external demands. “Lack of environmental munificence, by contrast, creates difficult and stressful conditions for managers” (Wiersema & Bantel, 1993: 487) and limits the discretionary power of decision makers.

High environmental complexity, high environmental dynamism, and low environmental munificence may reduce owner-managers’ confidence that future outcomes will be positive and therefore reduce the likelihood of persistence. Wiersema and Bantel (1993) found that there was higher top management turnover for those firms facing greater environmental complexity, greater environmental dynamism, and lesser environmental munificence. We hypothesize that in under-performing firms, owner-managers that are less confident about the probability of future outcomes are likely to be less willing to exert the additional energy and resources required to persist. Thus,

***Hypothesis 5:** Among under-performing firms, owner-managers’ perceived environmental complexity will be negatively associated with the decision to persist.*

***Hypothesis 6:** Among under-performing firms, owner-managers’ perceived environmental dynamism will be negatively associated with the decision to persist.*

***Hypothesis 7:** Among under-performing firms, owner-managers’ perceived environmental munificence will be positively associated with the decision to persist.*

### **The Moderating Role of Extrinsic Motivation on the Decision to Persist**

Economic theorists of firm exit contend that owner-managers of under-performing firms should not persist, they should exit. Yet, the empirical evidence is that some firms do persist. We have used an escalation of commitment perspective to offer an explanation for why owner-managers may decide to persist with their under-performing firms. But why do some owner-managers’ decisions on firm exit conform more closely with the economic (firm-performance) perspective while others escalate commitment through persistence? To explain some of the heterogeneity among owner-managers in their persistence decisions, we turn to one of the key assumptions of the economic model, namely, people are extrinsically motivated.

### *Extrinsic motivation*

Extrinsic motivation is “a cognitive state reflecting the extent to which an individual attributes the force of his or her task behaviors to some extrinsic outcome” (Brief & Aldag, 1977: 497) and is often conceptualized as financial rewards, personal wealth acquisition, and personal income (Kuratko, Hornsby & Naffziger, 1997).

Because the impact of extrinsic motivation on the relationship between escalation of commitment and persistence has not been explored in the literature, we turn to one well-explored area of research—job satisfaction—to give us insight into possible relationships. The job satisfaction literature is helpful because top decision makers who are motivated primarily by extrinsic reward are likely to be less satisfied with an under-performing organization. Research has consistently found a positive relationship between job satisfaction and organizational commitment (Johnston, Parasuraman, Futrell & Black, 1990). The extent to which an organization meets a person’s expectations influences his or her commitment to the organization (Babakus, Cravens, Johnston & Moncrief, 1996). Numerous studies have shown that low job satisfaction and low organizational commitment increases the propensity to leave an organization (e.g. Bedeian & Armenakis, 1981; Johnston, et al., 1990).

Essentially, extrinsically motivated individuals are less likely to escalate their commitment to the under-performing firm. Therefore, we propose that extrinsic rewards moderate the relationship between non-firm-performance factors and the decision to persist. Stated differently, non-firm-performance cues are less likely to influence the decision to persist for individuals with high levels of extrinsic motivation than for those with low levels of extrinsic motivation. Therefore, we propose that the heterogeneity in individuals’ extrinsic motivation helps explain why some individuals decide for their firms to persist despite low performance while others decide for their firms to exit. Thus,

***Hypothesis 8:** Among under-performing firms, owner-managers’ extrinsic motivation moderates the relationship between non-firm-performance factors and the decision to persist. Non-firm-performance cues—(a) personal sunk costs, (b) personal opportunities, (c) previous organizational success, (d) perceived collective efficacy, (e) environmental complexity, (f) environmental dynamism, (g) environmental munificence—are less likely to encourage persistence for owner-managers with higher extrinsic motivation than for those with less extrinsic motivation.*

## **RESEARCH METHOD**

### **Sample**

The sample frame was constructed from the OneSource Corp Tech Directory (2001), which covers over 50,000 U.S. high-tech companies. Some of the major industries represented include Software, Hardware, Environmental, Photonics, Pharmaceutical and Aerospace. The data

provided by the directory is updated annually with senior level executives and verified in writing. The directory provided contact information such as company name, name of the CEO or other top decision maker, title, phone number, faxes numbers, and addresses. It also includes secondary data such as type of ownership, number of employees, sales in millions, growth rate and SIC codes. After identifying the sampling frame, we further refined The OneSource Corp Tech Directory to include high technology firms within a 50-mile radius (driving distance) and top decision makers of privately held companies with less than 300 employees. A 50-mile radius was chosen because of the importance of being present during the completion of the conjoint experiment and semi-structured interviews.

CEOs of privately held firms were used to ensure that the top decision maker had the authority and control to make decisions regarding persistence. In publicly held companies, the CEO must answer to more stakeholders before making such a decision. Given that there were so few high technology firms with over 300 employees within the 50-mile driving range, we contacted only those firms with less than 300 employees. This search netted a sample frame of 440 firms.

### **Data Collection**

Of the 440 firms and top decision makers identified as possible respondents, we randomly choose half. Therefore, attempts were made to send a fax to 221 firms. Of the 221 firms, we were able to complete the fax to 171 firms. The other 50 firms had either gone out of business or changed fax numbers. Therefore, they were dropped from the sample. We contacted, via phone call, all of the 171 firms that we had sent a fax to and we were able to speak directly with 128 (69%) of the top decision makers to elicit their participation. The other 43 were either out of town, had moved to new location, had recently been purchased by another company or didn't return phone calls. Of the 128 top decision makers we spoke with, 95 agreed to be interviewed for a response rate of 74.2%. However, 4 of those individuals wanted to schedule an appointment too far into the future or missed the appointment resulting in a final sample of 91 top decision makers (71.1% response rate).<sup>1</sup> The response rate was high because we were willing to meet with the top decision maker at their place of business—such convenience likely increases participation. A sample size of 91 exceeds that of most conjoint studies (e.g., Shepherd [1999] had a sample size of 67).

### **Conjoint Analysis**

Research on firm persistence presents significant methodological challenges. Not only is it difficult to identify individuals who are persisting despite poor performance, the stories that these individuals tell may be fraught with bias and error. Much of the research in this area has relied on post hoc methodologies (questionnaire, survey and interview) which have added significantly to the literature but may include retrospective biases due to respondents' motivation to bias the

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<sup>1</sup> Two of the top decision makers who had completed the experiment and survey were not consistent in their responses. Therefore, because of low reliability they were excluded from the analysis resulting in a final sample of 89 top decision makers.

results (March & Feldman, 1981); attribution bias (Fiske & Taylor, 1991); biases and errors associated with self reporting (Sandberg & Hofer, 1987) and lack of crucial information about the event of interest (Phillips, 1981). In addition, previous research (Zacharakis & Meyer, 1997) has shown that the biases and errors in self reporting methods include: overstatement of criteria actually used to make a decision, understatement of the most important criteria and overstatement of the least important criteria.

Conjoint analysis avoids some of the biases and limitations associated with the use of post hoc methodologies (surveys, questionnaires and interviews) to study firm persistence. Information on the decision to persist, despite poor performance, is collected as the decision is made, therefore, researchers can avoid retrospective bias (Aaker & Day, 1986) and problems associated with self-reporting. In addition, attribution bias is attenuated in conjoint analysis because individuals do not have the need to place blame on others for their past 'decisions'. Conjoint analysis is a technique that requires respondents to make a series of judgments based on profiles from which their captured decision processes can be decomposed into its underlying structure (Shepherd & Zacharakis, 1997). In this research, we asked entrepreneurs to make a series of judgments based on profiles developed to discern which variables are significantly related to the decision to persist in the market. According to Green, Krieger and Wind (2001: 56), conjoint analysis methodology evolved from the seminal research of Luce and Tukey (1964) and "thousands of applications of conjoint analysis have been carried out over the past three decades."

### **Possible Limitations of Conjoint Analysis**

As with all techniques, conjoint analysis has a number of limitations. One possible limitation with conjoint analysis is the "concern that respondents could place importance on attributes only because they are presented in the experiment (Shepherd & Zacharakis, 1997: 227)." In order to reduce this possibility, the attributes were theoretically justified and when pilot tested demonstrated face validity. We received comments from the participants that indicated that the top decision makers felt the study had face validity and that we had included the most important variables. One top decision maker stated, "How did you decide what to include in this study—because I think you hit the nail on the head as to what the important components are." Another commented, "This survey is much more realistic, concrete and true to life than a recent survey I got that asked 'How do you make decisions?' This is how we make decisions." A third stated, "All of the variables in this study are important—it is dynamic—as one changes, all others may change too."

A concern in regard to construct validity is the limited number of attributes that can be included in a conjoint analysis. Recommendations vary, but generally no more than 8-10 variables should be included; we included seven variables. In order to address this threat to validity, we conducted pilot studies to ascertain the importance of the variables and asked top decision makers to give us insights into what attributes were missing from the study. Specifically we asked, "What other factors not included in the study might be relevant to the persistence decision?" The number of responses to a particular category range from one to seven suggesting

that there may be other relevant factors, but indicating that the most important variables were included.

### **Experimental Design**

Since a fully crossed, factorial design involving the seven attributes at two levels ( $2^7$ ) requires 128 profiles, an orthogonal fractional factorial design was used to reduce the number of attribute combinations, thus making the decision task more manageable (Green & Srinivasan, 1990). An orthogonal design is one in which the levels of different attributes across profiles are uncorrelated and “the main-effect estimate for each attribute is independent of the others” (Huber, 1987). Our orthogonal, fractional factorial design consisted of 16 profiles which allowed us to test each main effect and six two-way interactions (Hahn & Shapiro, 1966).

Each of the profiles was replicated to test for reliability. Pearson R correlations indicated that the test-retest reliability for the sample was 76.9%, which is consistent with other conjoint analyses (cf. Shepherd & Zacharakis, 1997). In addition, a practice profile was provided at the beginning to familiarize the decision maker with the experiment, resulting in a total of 33 profiles. This practice profile was not included in the analysis.

Some researchers have reported strong attribute order effects for conjoint analysis, while others insist that in practice this rarely occurs (Orme, Alpert & Christensen, 1997). However, to be conservative, we developed six different versions of the experiment that differed in either the order of the decision criteria within a profile or the order of the profiles within the experiment. In order to test for possible order effects, we compared the mean scores across the six different versions and found there to be no significant difference ( $p > .05$ ).

### **Post-Experiment Survey and Semi-Structured Interviews**

A survey was administered to each of the 91 participants directly after the conjoint experiment. The survey was administered to collect individual and firm demographics (owner-managers' age, gender, education level, verification that the individual was a primary decision maker, involvement in creation of firm, founding date). However, the primary reason for the post-experiment survey was to capture extrinsic motivation. The survey was followed by semi-structured interviews, designed to obtain the owner-managers' perception of the experiment and introspection on the decision process.

### **Measures**

#### ***Dependent Variable***

The dependent variable in this study is the decision to persist despite poor performance. Based upon profiles of the independent variables, decision-makers decide whether to persist with the

venture. Specifically, top decision makers were asked “Based upon the above seven dimensions of this currently poorly performing firm, what would your decision be regarding its future?” The dependent variable was collected using an 11-point Likert Scale anchored by “Definitely Remain in the Market” and “Definitely Discontinue Operations”. This scale was then reverse coded so that a higher score reflects a greater likelihood of persistence. The actual decisions are the dependent variable and the varying levels of the attributes are the decision cues.

### ***Personal Sunk costs***

Sunk costs refer to the costs that have been incurred in the past and cannot be changed by any current or future action. In the data collection, we refer to personal sunk costs as personal investment so as not to bias the results with the more negative term “sunk costs.” In previous research sunk costs have been operationalized as an investment of money, effort and time (Arkes & Blumer, 1985). This investment is the personal financial, time and energy the decision-maker has already invested in the firm. After discussions with top decision makers, we operationalized the financial investment as “earning potential” rather than a specific dollar investment. Comments from top decision makers indicated that a specific dollar investment would be hard to control because a \$100,000 investment to one individual may be very significant while it might be minimal to another. Personal investment is operationalized as either high or low:

*High—You have invested five years of earning potential and considerable time and energy in this venture.*

*Low—You have invested no years of earning potential and little time or energy in this venture.*

### ***Personal Opportunities***

Personal opportunities refers to the other opportunities or options that the top decision maker has outside of his or her current venture. It was operationalized as either several or none:

*Several—You have several other options available for yourself outside of this organization that have attractive earnings potential (i.e. job offer, new venture opportunity).*

*None—You do not have any other options available for yourself outside of this organization that have attractive earnings potential (i.e. job offer, new venture opportunity).*

### ***Collective Efficacy***

Collective efficacy refers to the member's belief that the organization can perform effectively. It is operationalized in this study as the 'organization's belief in itself' and consists of two levels—high and low:

*High—You think that the people of this organization as a whole believe it can be successful.*

*Low—You think that the people of this organization as a whole do not believe it can be successful.*

### ***Previous Organizational Success***

Previous organizational success refers to a team or organization's previous success and consists of two levels, previously successful and previously unsuccessful:

*Previously Successful—Three years ago, this organization was considered a market leader with one of the highest market shares and the highest profitability among firms in its industry.*

*Previously Unsuccessful—Three years ago, this organization was considered a marginal player with one of the smallest market shares and lowest profitability among firms in its industry.*

### ***Complexity***

Environmental complexity refers to the heterogeneity of the environment and concerns the number of relevant factors that must be considered. In this study, complexity is operationalized as environmental complexity and consists of two levels, complex and simple:

*Complex—The environment in which this organization operates is very complex with many factors to consider and considerable new information to process (i.e. changing regulation, environmental issues, new technologies and many suppliers).*

*Simple—The environment in which this organization operates is relatively simple with few factors to consider and minimal new information to process (i.e. little changing regulation, no/few environmental issues, no/few new technologies, few suppliers).*

### ***Dynamism***

Environmental dynamism refers to the amount of stability/instability perceived in the environment (Beard & Dess, 1979). In this research it is operationalized as environmental dynamism and consists of two levels, rapid change and stable:

*Rapid Change—The environment in which this organization operates is changing rapidly and very little is certain.*

*Stable—The environment in which this organization operates is relatively stable with few changes and much certainty.*

### ***Munificence***

Environmental munificence refers to the extent to which the environment can support sustained growth (Starbuck, 1976). Past measurements of munificence include rate of sales growth (Hofer, 1975), level of profitability in the industry within which an organization competes (Beard & Dess, 1979) and industry return on equity (Beard & Dess, 1981). In this study environmental munificence is operationalized as growth capacity and consists of two levels, high and low:

*High—There is high potential for growth in this industry.*

*Low—There is low potential for growth in this industry.*

### ***Extrinsic Motivation***

Extrinsic motivation refers to “a cognitive state reflecting the extent to which an individual attributes the force of his or her task behaviors to some extrinsic outcome (Brief & Aldag, 1977). An extrinsic motivation scale was developed for use in this research and was derived from theoretical and empirical research into motivation (Amabile, 1993; Kanfer, 1990; Kuratko, et al., 1997). The measure consisted of four statements designed to capture an individual’s extrinsic motivation. Using a 7-point Likert scale anchored by low motivation and high motivation, respondents were asked to rate their motivation for becoming involved in the current venture on the following four statements: 1) To acquire personal wealth; 2) To increase personal income; 3) To obtain a higher standard of living; and 4) To earn a higher salary. There was one identifiable factor with a Chronbach’s alpha of .85.

### **Data Collection Procedure**

Upon arriving at the decision maker’s place of business, the experiment was explained and individuals were given a cover letter with instructions, which guided them through the experiment. To facilitate with understanding of the study, individuals were provided with a detachable page, which listed all of the variables and definitions of the levels of each. To

facilitate understanding of the attributes, the interviewer read through each of the attributes with the top decision maker and sought questions.

## ANALYSIS AND RESULTS

The experiment provides 32 observations per owner-manager and with 89 owner-managers providing 2848 decisions for the sample. While this means that there are a large number of degrees of freedom for the subsequent analyses, there may be autocorrelation because the 2848 observations are nested within 89 individuals. Hierarchical linear modeling (HLM) accounts for variance among individuals such that the observations within an individual are independent.

The results are reported in Table 2. The first column reports the independent variables, the next three columns report the results for the intercept model, and the final three columns report the extrinsic motivation model. The intercept model represents the decision policy for the sample of owner-managers on the likelihood of firm persistence, holding constant individual differences in extrinsic motivation. Results for the intercept model indicate that among under-performing firms, the likelihood that owner-managers will choose persistence is positively associated with personal sunk costs (coefficient = .326,  $p < .01$ ), positively associated with previous organizational success (coefficient = .583,  $p < .01$ ), positively associated perceived collective efficacy of their organization (coefficient = 1.093,  $p < .01$ ), and positively associated with perceived environmental munificence (coefficient = 1.433,  $p < .01$ ). These findings provide support for hypotheses 1, 3, 4, and 7, respectively. Also the extent of owner-managers' personal opportunities is marginally, negatively associated with the likelihood that they will choose persistence (coefficient = -.075,  $p < .10$ ), providing marginal support for hypothesis 2. Among under-performing firms, owner-manager's perceived environmental complexity and perceived environmental dynamism were not significantly associated with the likelihood that owner-managers will choose persistence and therefore hypothesis 5 and 6 (respectively) were not supported ( $p > .10$ ).

**Table 2**  
**Comparison of Entrepreneurs' Assessment Policies based on Extrinsic Motivation**

	Intercept			Extrinsic Motivation		
	Coefficient <sup>a</sup>	Standard Error	t-ratio	Coefficient <sup>a</sup>	Standard Error	t-ratio
<b>Personal sunk costs</b>	.326	.063	5.21***	.109	.047	2.29**
<b>Personal Opportunities</b>	-.075	.042	-1.773*	-.073	.034	-2.186**
<b>Previous Success</b>	.583	.060	9.689***	.010	.043	.228
<b>Collective Efficacy</b>	1.093	.071	15.454***	-.049	.048	-1.03
<b>Complexity</b>	-.004	.037	-.095	-.050	.022	-2.218**
<b>Dynamism</b>	-.019	.039	-.496	-.068	.025	-2.70***
<b>Munificence</b>	1.433	.094	15.205***	.069	.063	1.095
<b>Intercept</b>	6.354	.113	56.081***	.068	.087	.779

\*\*\*  $p < .01$

\*\*  $p < .05$

\*  $p < .10$

$n = 2848$

<sup>a</sup> All variables were standardized and group centered.

The extrinsic motivation model uses individual differences in extrinsic motivation to explain variance in decision policies among the sample of owner-managers. The results for this model indicate that the decision cues that are used differently depending on the owner-managers' extrinsic motivation are personal sunk costs (coefficient = .109;  $p < .05$ ), personal opportunities (coefficient = -.073;  $p < .05$ ), environmental complexity (coefficient = -.05;  $p < .05$ ), and environmental dynamism (coefficient = -.068;  $p < .01$ ). The positive coefficient for personal sunk costs indicates that sunk costs positive impact on the decision to persist is greater for those that are more motivated extrinsically—this relationship is in the opposite direction to that proposed in hypothesis 8a. The coefficient for personal opportunities indicates that the negative effect of personal opportunities on the decision to persist is greater for those that are more extrinsically motivated, providing support for hypothesis 8b. The coefficients for environmental complexity and environmental dynamism are more negative for those are more motivated extrinsically. This indicates that owner-managers who are more extrinsically motivated are less likely to persist in highly complex and dynamic markets, providing support for hypothesis 8e and 8f, respectively.

Among under-performing firms, owner-managers' extrinsic motivation does not significantly moderate the relationship between the decision to persist and the previous organizational success, perceived collective efficacy, or environmental munificence. These findings do not provide support for hypotheses 8c, 8d, and 8g.

## DISCUSSION AND CONCLUSION

The results of this study indicate that owner-managers significantly use the non-performance cues of personal sunk costs, collective efficacy, previous success, munificence and personal opportunities (marginally) when making a decision about persistence with an under-performing firm. There was variance in the use of decision cues across the owner-managers in the sample. This variance was explained, in part, by the owner-managers level of extrinsic motivation. Those that were more extrinsically motivated were typically less influenced by non-performance cues to persist. Specifically, more extrinsically motivated owner-managers, that is, those that are motivated primarily by financial rewards, were less affected by the level of personal opportunities, environmental complexity, and environmental dynamism. However, those that were more extrinsically motivated were more influenced by personal sunk costs. These results are now discussed in detail.

First, we found a significant, positive relationship between personal sunk costs and persistence. Self-justification theory attributes this relationship to individuals who bias their attitudes in order

to justify previous behavior. Owner-managers may be particularly susceptible to self-justification because their reputation is intricately linked to the success or failure of their venture. One of the owner-managers that we interviewed alluded to this bias in commenting: “Personal investment is very important. I started this company 2 ½ years ago and went without a salary for two years.” However, some individuals were able to recognize that personal investment is a sunk cost and that there is a psychological component: “Personal investment should be a sunk cost, but people have an emotional attachment or component. I’ll bet most don’t see it as a sunk cost;” And, “Personal investment is more emotional than financial.” The finding that high sunk costs result in a greater tendency to persist is consistent with previous research (Keil, et al., 2000). Our contribution has been to identify personal sunk cost as a non-firm-performance factor, apply this concept to under-performing firms and add to the growing literature on highly persistent under-performing firms.

Second, we found that personal opportunities were marginally ( $p < .10$ ), negatively related to the decision to persist with the under-performing firm. However, after adding extrinsic motivation to the equation, personal opportunities was significantly, negatively related to persistence ( $p < .05$ ). The negative relationship indicates that those owner-managers who have other options available to themselves outside of the current under-performing venture are less likely to persist. This was especially true for those individuals who were extrinsically motivated. This finding suggests that, at least some owner-managers consider their own personal situation when making decisions about the direction of the firm.

If this finding were to hold across other samples of top decision makers (e.g. decision makers of medium sized firms or publicly traded firms), it could provide one explanation for some of the ethical issues that are currently capturing the business headlines. Perhaps top decision makers, other than owner-managers, are making decisions for the firm based upon what is best for them at a personal level. If top decision makers consider their own personal situation prior to making decisions for the firm, stakeholders might want to reconsider their selection and compensation decisions regarding top management. Our findings make it important for future research to explore the effect that personal opportunities (as well as other personal issues) have on decisions made for the firm. This stream of research could add an interesting component to current research that is searching for explanations for non-rational firm behavior.

Third, we found that the perceived collective efficacy of the organization had a significant effect on the decision by the owner-manager to persist in the market. When owner-managers perceived the collective efficacy to be high, persistence was higher. Scholars have been slow to recognize the importance of collective efficacy. However, our findings suggest that owner-managers have not. Two owner-managers expressed it this way: “Belief in itself is very important—changing a company culture is very difficult;” And “Organizational belief is really, really important. If people believe...you’ve got something.” Our results indicate that the perceived collective efficacy of an organization is important to decision makers. As Shamir (1990) points out, many of the new organizational structures are built on cooperation and require strong linkages between individual and collective effort. Future research should explore whether perceived (as well as

actual) collective efficacy affects other decision making processes. These processes might include: the ability of the firm to identify new opportunities, the amount of money allocated to research and development, or the willingness to change firm direction.

In addition, collective efficacy may also offer one way to operationalize an aspect of that elusive concept of 'social cognition'. Social cognition, which is the way in which individuals within the organization think about the organization, "lies at the heart of decision making" (Sims & Gioia,1986). Yet, there has been little empirical research that offers a way to operationalize social cognition. This research suggests that collective efficacy may be one way to operationalize social cognition in future research.

Fourth, we found a significant, positive relationship between previous organizational success and persistence. Although previous success is an event that occurred in the past and the past does not guarantee future results, owner-operators were more likely to persist with the firm that has had previous success. In commenting about previous organizational success, owner-managers stated: "Previous success is important because you have figured out the formula before." One explanation for this finding is that change requires effort. Continuance with a course of action can be a preprogrammed and mindless method of responding to a given situation and decision makers may look for indications within the organization that consistency is the best policy. One such indicator may be previous organizational success.

Huff and Huff (2000: 46) point out that "beliefs formed in experience persist despite disconfirmation." Therefore, even though there is evidence (i.e. poor performance) which suggests the need for change, individuals in the organization may choose to persist. This bias in decision making, known as the consistency bias, may explain the positive relationship between previous success and persistence. When individuals form beliefs about organizational processes that led to success, they are unlikely to make changes, even though new evidence suggests the need for change, resulting in non-rational decisions.

This finding leads us to consider whether previous success impacts decision making in "healthy firms" as well. Is it possible that some of the inertia experienced by large, established firms might come, not only from previously established factors such as age and size, but also from a desire on the part of top decision makers to remain consistent? Huff and Huff (2000: 46) allude to this possibility when they state "...there is a remarkable level of resistance to schema change. We believe this resistance at the level of individual cognitive processes is the primary source of inertia in organizations." Future research should explore whether previous success is a consistency bias used by individuals in successful firms as well as those that are under-performing. In addition, future research should explore other possible indicators such as work load and personal goals that might lead top decision makers to choose consistency even though evidence suggests that change is necessary.

Another possible explanation is that individuals within a previously successful organization may fall into a reinforcement trap (March, 1978). These reinforcement traps, which are most common with individuals in leadership positions, (Ross & Staw, 1993) are situations in which people assume, because of previous success, that they will be able to turn losing courses of action around. The basis for a reinforcement trap is less likely to be due to a desire for consistency, but rather an ego related psychological state in which some individuals believe they have the tools required to achieve a given level of success even though evidence indicates the unlikelihood of that result. In our interviews we encountered some individuals who confirmed the possibility that previous success may be a reinforcement trap. One owner-manager commented: "Previous success probably has to do with ego." And another stated: "Because I have done work in turnarounds, I am more likely to hang around if the organization has had previous success." These comments lead us to believe that future research should focus on the conditions that lead some individuals to fall into reinforcement traps and specifically how these traps are related to persistence. For example, are individuals with high self-efficacy more likely to fall into reinforcement traps? Are serial entrepreneurs more or less likely to fall into reinforcement traps?

Environmental munificence, the extent to which the environment can support sustained growth (Starbuck, 1976) was the most important attribute to the owner-managers studied in this research. Owner-managers were more likely to persist in markets where the growth capacity was high and less likely to persist in markets where the growth capacity was low. Several commented on the importance of environmental munificence, for example, "Growth capacity really tells you 'what is the upside';" And "Growth capacity is important because without it, you must 'steal' or 'pull' market share from competitors which is much more difficult."

Although the high significance levels associated with this attribute may be due, in part, to the industry in which this study was conducted (the high technology industry), this finding is important because it points to the significance of the external environment in owner-managers' decision policies. One explanation for the importance of munificence is the belief that persistence may lead to something else. They may have already determined 'what we have is not working, but if we remain active in a highly munificent environment, something big may happen'. One can never be certain when serendipity may play a role in causing the big break for which a firm is waiting. "Chance plays a significant role in affecting the decision and subsequent course of innovation adoption (Van de Ven, Polley, Garud & Venkataraman, 1999: 197)." Therefore, decision makers may choose to persist with an under-performing firm in a munificent environment because they believe that their persistence will lead to something else.

Our findings are an important first step into why non-firm performance factors lead top decision makers into "less rational" models. However, one of the most important findings in this study was that there is heterogeneity among owner-managers in terms of their extrinsic motivation, and this heterogeneity can help explain why some individuals are more or less influenced by non-firm-performance factors in making the decision to persist.

As discussed above, the negative effect of personal opportunities on the decision to persist is greater for those that are more extrinsically motivated. That is, those that are motivated primarily by financial reward are even more likely to use the personal opportunity decision cue and are even less likely to persist.

In addition, our results suggest that extrinsic motivation affects how owner-managers view the personal sunk costs decision cues. Contrary to our expectations we found that the sunk cost decision cue is more positive for those that are extrinsically motivated. We expected that extrinsically motivated individuals would be less influenced by personal sunk costs because the literature suggests that these individuals are less likely to escalate their commitment to the under-performing firm. However, the way in which extrinsic motivation was operationalized (earnings potential invested), these findings suggest that extrinsically motivated individuals place greater value on lost wages. This finding is interesting because it suggests that even those individuals that are extrinsically motivated are influenced by non-firm performance based factors. Just because an individual is more extrinsically motivated (which is more consistent with economic rationalism) they still appear to escalate commitment based on personal financial considerations.

Furthermore, neither environmental complexity nor environmental dynamism was significant for the sample as a whole. However, there was considerable heterogeneity among the owner-managers of the sample in the way that they used these decision cues and this heterogeneity was explained, in part, by the owner-managers' level of extrinsic motivation. Those owner-managers with high extrinsic motivation were less likely to persist as environmental complexity or environmental dynamism increased. One likely explanation for these findings is that individuals motivated primarily by financial reward are not willing to expend the cognitive energy required when the possibility of future financial reward is highly uncertain. One individual stated the position this way: "Complexity is sort of like playing chess in your head—mental chess. More complexity is intellectually challenging, but very tiring." It appears that those that are more extrinsically motivated are less interested "playing the game" for its intellectual challenge.

In conclusion, our results show that non-firm performance factors play a role in the decision to persist with an under-performing firm. We found personal sunk costs, personal opportunities, previous organizational success, perceived collective efficacy and components of the external environment to affect the decision. In addition, we reconcile the economic and psychological views by demonstrating that the extent to which these non-firm-performance factors influence the decision is dependent upon the owner-managers' level of extrinsic motivation. This research adds to the growing literature on highly persistent, under-performing firms and provides evidence that owner-managers make decisions about the firm based upon personal situations. We provide several possible explanations for our findings as well as directions for future research.

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