

The fallacy of “only the strong survive”: The effects of extrinsic motivation on the persistence decisions for under-performing firms

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Abstract

Under-performing firms persist even though existing theoretical perspectives indicate that they should be selected out of the market. Building upon threshold theory [Gimeno, J., Folta, T., Cooper, A., Woo, C., 1997. Survival of the fittest? Entrepreneurial human capital and the persistence of underperforming firms. *Administrative Science Quarterly* 42, 750–783.] and using Staw's [Staw, B.M., 1981. The escalation of commitment to a course of action. *Academy of Management Review* 6 (4), 577–587.] theoretical model of commitment to a course of action, we explore and test the factors that lead entrepreneurs to persist with under-performing firms. We found environmental munificence, personal investment, personal options, previous organizational success, and perceived collective efficacy impact the decision to persist with an under-performing firm. In addition, extrinsic motivation moderates those relationships. This research adds to the growing literature on highly persistent, under-performing firms and complements and extends threshold theory.

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1. Executive summary

Although well-established theoretical perspectives (e.g. economic, population ecology) propose under-performing firms will be selected out of the environment, other research suggests that performance alone does not fully explain the persistence of under-performing firms. Why would one entrepreneur make a decision to persist with an under-performing firm while another would choose to discontinue operations? Gimeno et al. (1997) propose that heterogeneity among entrepreneurs may lead to different thresholds of performance. Other research into reference points and entrepreneurial aspirations (e.g. Kahneman and Tversky, 1979; Stewart et al., 1999) seems to support this perspective.

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Staw's (1981) theoretical model of the determinants of commitment to a course of action (the probability of and perceived value of future outcomes, self-justification, and norms for consistency) provides the theoretical foundation to explore and clarify the factors that lead to the decision to persist with an under-performing firm. To test our model we use a sample of entrepreneurs in small firms in high technology industries. We collected data using a conjoint methodology and analyzed the data using hierarchical linear modeling. Our findings suggest that high levels of environmental munificence, personal investment, collective efficacy, and previous organizational success lead entrepreneurs to persist with an under-performing firm, while increased personal options make it less likely the entrepreneur will persist.

However, the most significant contribution of this research is the impact of extrinsic motivation. We propose and test the hypothesis that there is heterogeneity among entrepreneurs in terms of their extrinsic motivation and that extrinsic motivation helps explain variance in the persistence decision policies (explains variance in the "weight" [emphasis] placed on the different decision factors). Our findings confirm this hypothesis. Entrepreneurs with high levels of extrinsic motivation put less weight on complexity, dynamism, and personal options, when making their persistence decision. This suggests that overall, extrinsically motivated entrepreneurs are less likely to be influenced by the factors that encourage persistence with an under-performing firm. There was one exception. Entrepreneurs with high levels of extrinsic motivation were even more likely to be influenced by personal investment in their persistence decision than those with less extrinsic motivation.

These results provide a strong theory-based rationale, based on commitment processes and threshold theory, to explain why under-performing firms exist. When entrepreneurs perceive growth potential in the market (environmental munificence) they are more likely to persist. When they have invested a significant amount of time, money, and energy (personal investment) they are more likely to persist and even more so if they have high levels of extrinsic motivation. When entrepreneurs have many other options available to them outside the firm (personal options) they are less likely to persist; and this is more so for those with high levels of extrinsic motivation. In addition, when the organization has had previous success and when the entrepreneur's perception of the collective efficacy of the firm is high, they are more likely to persist. Finally, entrepreneurs with high levels of extrinsic motivation are less influenced by whether the market is complex or dynamic in their persistence decision than those with less extrinsic motivation.

Our research provides important answers to the question of why under-performing firms persist—answers that extend the traditional economic rational arguments. In addition, our findings complement threshold theory (Gimeno et al., 1997) in that we establish that heterogeneity among entrepreneurs can help explain why firms have unique thresholds of (or aspiration levels for) performance. Our research begins to fill in the gaps that exist regarding under-performing firms and has implications for both scholars and entrepreneurs.

2. Introduction

What explains the persistence of under-performing firms in the market? From a purely economic or population ecology perspective one would expect that these firms would, over time, be selected out of the market. However, previous research (Baden-Fuller, 1989; Gimeno et al., 1997; Karakaya, 2000; Meyer and Zucker, 1989; van Witteloostuijn, 1998) indicates that firm performance does not fully explain the persistence of under-performing firms. Meyer and Zucker (1989, p. 9) argue that "efficient performance is only one—and not necessarily the most important—determinant of organizational survival." Under-performing firms often survive over long periods of time, even though they earn a subnormal rate of return.

Although there are several perspectives and potential explanations for why these firms persist, our work builds upon that of Gimeno et al. (1997) who found that firms had differing thresholds of performance (reflecting different aspiration levels), which helps explain variance in persistence despite poor performance. Their work suggests that these thresholds differ systematically across firms and can be partially explained by the human capital factors of the owners of such ventures. We build upon their research by exploring factors that contribute to the persistence decision, as well as exploring how an entrepreneur's extrinsic motivation enhances or diminishes the effects of these factors.

In investigating the persistence of under-performing firms we make three main contributions. First, through the application of Staw's (1981) theoretical model of commitment processes, we more fully explore the factors that lead entrepreneurs to persist with under-performing firms. Specifically, we develop hypotheses to test how the probability of and perceived value of future outcomes (predicted by environmental complexity, dynamism, and munificence), self-justifying factors (operationalized as personal investment and personal options) and norms for organizational consistency (operationalized as previous organizational success and perceived collective efficacy) impact the persistence decision.

Second, an implicit assumption of the economic firm performance perspective is that individuals are homogeneous and make decisions based solely upon their firm's financial performance. However, we contend that there is heterogeneity among entrepreneurs in their extrinsic motivation, which can help explain why some entrepreneurs have a different threshold of performance which ultimately affects their decision to persist with an under-performing firm.

Finally, research on firm persistence presents significant methodological challenges. Not only is it difficult to identify from a sample of individuals from under-performing entrepreneurial firms, the stories that the entrepreneurs tell may be fraught with bias and error. The conjoint experimental methodology used in this study allows for the capture of the real-time decisions entrepreneurs make to persist or to discontinue operations, while avoiding most biases inherent in research on persistence based upon post-hoc rationalizations.

To test our model, we use a sample of entrepreneurs of small firms in high technology industries. Although the literature on small firms lags behind that of larger firms, small firms have the greatest potential to impact an economy (Acs, 1999). Whether these small firms are created to fill the niche generated by larger firms (Penrose, 1959) or created to exploit cutting edge technology, they provide 60–80% of new net jobs, represent 99.7% of all employers and account for 41% of jobs in high technology sectors (Small Business Administration, 2006). In addition, the entrepreneurs in small firms have a larger equity stake in the company (Wasserman, 2003) and greater psychological ownership (Pierce et al., 2001) which allows them to have more discretion than the managers of large firms (Hambrick and Finkelstein, 1987) and more control over exit events (DeTienne, 2007; Wasserman, 2003). The article proceeds as follows: We begin with an introduction of under-performing persistent firms and threshold theory as they apply to our model. We then develop hypotheses, describe our research method, present our findings, and discuss the results and contributions.

3. Theoretical development

3.1. Under-performing, highly persistent firms

The negative impact of under-performing firms on the economic system, industry, and organizational stakeholders is significant. These firms represent a drain on the free market system because they squander resources and occupy market positions without showing reasonable levels of returns (McGrath and Cardon, 1997). Under-performing firms impose heavy costs in time, management resources, and impose uncertainty for venture capitalists, suppliers, customers, distributors, competitors, and employees (Karakaya, 2000; Ruhnka et al., 1992). In addition, under-performing firms may be subject to higher transaction costs (Williamson, 1985) as the stakeholders (e.g. suppliers, creditors, customers) try to bargain with the firm for more favorable exchange relationships (Ahlstrom and Bruton, 2004).

Several terms have been used to refer to under-performing, yet persistent firms. For example, van Witteloostuijn (1998) identifies these firms as chronic failures. Bourgeois and Eisenhardt (1987) and Ruhnka et al. (1992) refer to these firms as the living dead. Gimeno et al. (1997) describe them as under-performing firms. McGrath (1999) refers to these firms as failure-avoidance organizations, and Meyer and Zucker (1989) as permanently failing organizations. See Table 1 below for a summary of this research. For purposes of this paper we define under-performing firms as those “organizations whose performance, by any standard, falls short of expectations...yet whose existence continues” (Meyer and Zucker, 1989, p. 19), often over long periods of time (Gimeno et al., 1997; Karakaya, 2000; van Witteloostuijn, 1998).

3.2. Threshold theory and aspiration levels

Although much has been written about how to improve firm performance, survival, and growth and the extant research has acknowledged the existence of under-performing persistent firms (Bourgeois and Eisenhardt, 1987; Karakaya, 2000), Gimeno et al. (1997) was the first to propose a theoretical explanation of the conflicting empirical findings concerning the determinants of organizational survival and performance. They argue that organizational survival is determined both by firm performance and the firm's threshold of performance—defined as “the level of performance below which the dominant organizational constituents will act to dissolve the organization.” Therefore, given a similar level of performance a firm with a low performance threshold might persist, while a similar firm with a high performance threshold is likely to exit.

The threshold concept has been used extensively in other literature. For example, it is widely accepted that individuals have differing thresholds of pain (e.g. Forsys and Dahlquist, 2007) and differing decision thresholds for violence risk management (e.g. Monahan and Silver, 2003) or buyer's remorse (e.g. Cooke et al., 2001). In the

Table 1
Research on under-performing firms and reasons for persistence

Date	Author/s	Labels	Reasons for persistence
1989	Meyer and Zucker	Permanently failing organizations	Diversity of interests (stakeholders) Difficulty in managing those interests
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, and 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 opportunities and unanticipated competition
1997	Gimeno, Cooper, Folta, and Woo	Under-performing firms	Threshold of performance based upon human capital characteristics such as management experience, intrinsic motivation, age
1997	McGrath and 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 made by two or more parties entering into relationships, attitudes of managers, employee tenure, and sunk costs

organizational literature, however, we have been reticent to embrace the threshold perspective. One exception is the research by Green et al. (2003) who found “Failing projects can be prolonged and worthy projects can be prematurely terminated owing to threshold effects” (Green et al., 2003, p. 431).

In a similar vein, research exists which demonstrates that entrepreneurs make decisions based upon reference points or aspiration levels (Kahneman and Tversky, 1979; Stewart et al., 1999; Westhead et al., 2005). Kahneman and Tversky (1979) use entrepreneurs as examples of individuals who code gains and losses relative to their aspiration level. Other researchers have differentiated the aspirations of entrepreneurs from small business owners (e.g. Carland et al., 1984) and the aspirations of novice entrepreneurs from serial and portfolio entrepreneurs (Westhead et al., 2005). Stewart et al. (1999, p. 190) contend “Some owners will be more growth oriented than will others, and performance should be

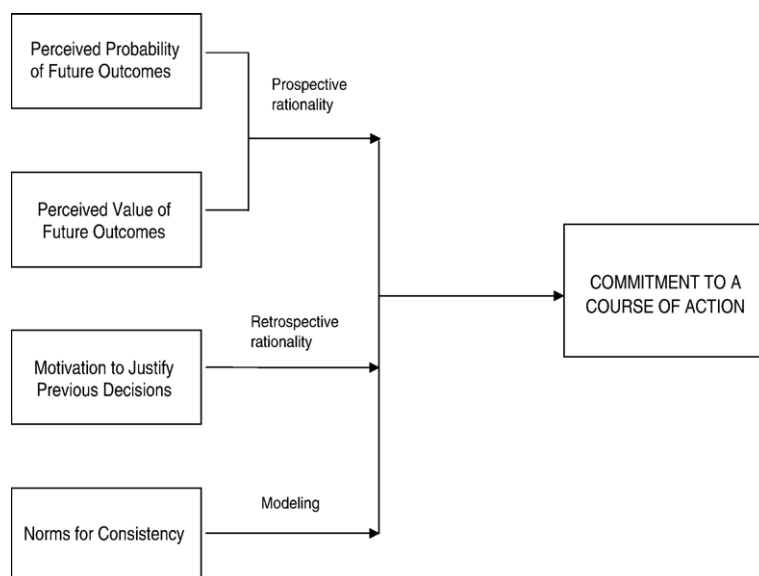


Fig. 1. Simplified version of Staw's (1981) commitment to a course of action.

assessed in light of the owner's aspirations for the venture." In their work on thresholds, Gimeno et al. (1997) use the terms reference, aspiration, and threshold interchangeably. We elected to use the threshold terminology developed by Gimeno et al. (1997) because it has the strongest theoretical link to our specific question; however, we acknowledge a significant link between threshold levels and aspiration levels.

In this research we build upon the threshold perspective by extending the theoretical framework to explain the decision to persist. In developing our model, we turn to Staw's (1981) model of the commitment process to a course of action. This work provides theoretical determinants of commitment to a course of action and is reproduced in Fig. 1 above. We elected to reproduce only the major determinants of Staw's model, rather than the comprehensive model, which is outside the scope of relevance for this research. Staw's model proposed that commitment to a course of action is due to four determinants: (1) probability of future outcomes, (2) perceived value of future outcomes, (3) motivation to justify previous decisions, and (4) norms for consistency. See Fig. 2 below for a complete diagram of our operational model.

3.3. Probability of and perceived value of future outcomes

Entrepreneurs who seek information about the probability of and perceived value of a future outcome are demonstrating a rational approach to decision-making which Staw (1981) refers to as prospective rationality. In order to develop these probabilities and values entrepreneurs look to the external environment for clues (Aldrich, 1979; Duncan, 1972; Staw, 1981). Here we focus on three dimensions of the external environments: complexity, dynamism, and munificence chosen because of their rigorous development (Aldrich, 1979; Dess and Beard, 1984) and wide use in the literature.

3.3.1. Environmental complexity, dynamism and munificence

Environmental complexity refers to the heterogeneity in the environment and the number of factors that must be considered during decision-making (Wiersema and Bantel, 1993). For example, in a complex environment entrepreneurs may have to interact with multiple constituencies, changing regulation, environmental compliance, rapidly changing technology, or multiple suppliers. There are two competing arguments concerning how environmental complexity might impact commitment to a course of action. The first perspective contends that entrepreneurs facing a complex environment will perceive considerable uncertainty and will face greater information-processing requirements (Dess and Beard, 1984). Given high levels of uncertainty an entrepreneur's confidence regarding the probability of positive future outcomes will be eroded. Entrepreneurs may not be willing to put forth the cognitive effort required leading us to believe that in complex environments entrepreneurs would be less likely to persist with an under-performing firm.

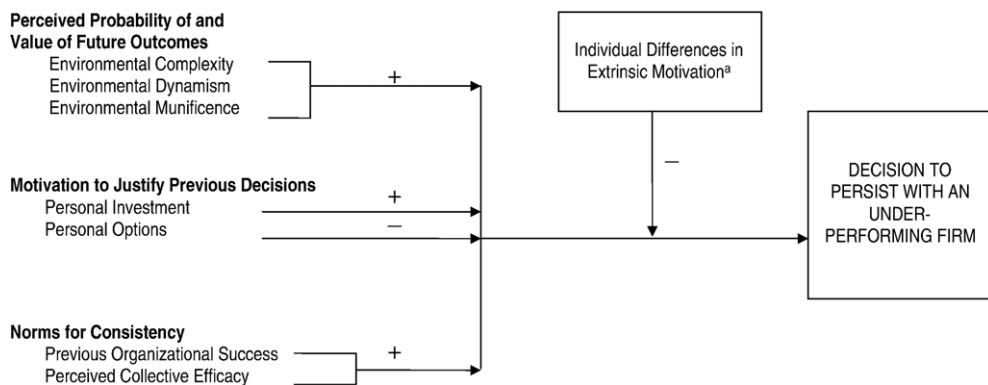


Fig. 2. Operational model. ^aThis is a level 2 variable—the individual level of analysis—all others are at level 1 (the level of the decision). Level 1 analysis: Decision to persist = $B_0 + B_1$ complexity + B_2 dynamism + B_3 munificence + B_4 personal investment + B_5 personal options + B_6 previous organizational success + B_7 perceived collective efficacy. Level 2 analysis: B_1 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_2 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_3 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_4 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_5 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_6 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_7 (from level 1 analysis) = intercept + coefficient extrinsic motivation.

However, within the entrepreneurship literature there are several perspectives that lead us to an alternative hypothesis. First, there is a body of literature that suggests that entrepreneurial opportunities are more prevalent in complex environments (Brown and Eisenhardt, 1997) and that entrepreneurs (because of their speed, flexibility, and niche-filling capabilities) (Dean et al., 1998) are more likely to take advantage of these opportunities. In addition, the research suggests opportunities are identified by those entrepreneurs who have prior knowledge about a particular industry or market (Shane, 2000; Shepherd and DeTienne, 2005). Therefore, the entrepreneur who is currently operating within a given industry or market is more likely to identify potential opportunities and might simply persist until they can identify a new trend or market opportunity.

The entrepreneur may also have several “real options” (Janney and Dess, 2004; McGrath, 1999) that she is observing to see how they play out. For example, suppose you were one of the firms who entered into a joint venture to develop the dominant format for high definition recording and playback (e.g. Blue-ray or HD-DVD). Or the entrepreneur in the herbal supplement industry who has invested resources into drug testing kits because he suspects future government regulation. Even though the current firm may be under-performing, the value of the real options may be high enough to convince the entrepreneur to persist. This coupled with the evidence that entrepreneurs tend to be more overconfident than non-entrepreneurs (Busenitz and Barney, 1997; Forbes, 2005) leads us to hypothesize that entrepreneurs operating in a complex environment are more likely to view environmental complexity as a source of opportunity. Subsequently, their perceived probability of and value of future outcomes may be high.

Environmental dynamism refers to the amount of stability/instability in the environment (Beard and Dess, 1979) and reflects the extent to which an entrepreneur perceives unpredictable change in the external environment (Bluedorn, 1993). Eisenhardt and Martin (2000) suggested 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. Again there are two competing perspectives for the impact that dynamism has on the persistence decision. The first perspective is that 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 and Bantel, 1993). Greater environmental dynamism leads to greater environmental uncertainty and increasingly difficult decision-making (Li and Simerly, 1998). Environmental dynamism also causes entrepreneurs to experience higher levels of both stress and anxiety (Waldman et al., 2001). Thus, environmental instability for an already under-performing firm may cause an entrepreneur to doubt the probability of a positive future outcome and be less likely to persist.

However, the literature on dynamic markets also suggests that there are more opportunities in environments where change is rapid (Brown and Eisenhardt, 1997). Borrowing from the argument made above for environmental complexity, entrepreneurs, because of their prior knowledge and tendency to be overconfident may persist in an environment with rapid change simply because they believe there is a high probability of a positive future outcome. In addition, the research into entrepreneurial cognition—“the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation, and growth” (Mitchell et al., 2002, p. 97)—suggests that entrepreneurs may use cognitive shortcuts (heuristics) rather than rational decision processes to interpret their environment. “Under conditions of environmental uncertainty and complexity, biases and heuristics can be an effective and efficient guide to decision-making. In such settings, more comprehensive and cautious decision-making is not possible, and biases and heuristics may provide an effective way to approximate the appropriate decisions” (Busenitz and Barney, 1997, p. 9). The research has shown that these cognitive heuristics may include entrepreneurial alertness (Gaglio and Katz, 2001), expert-based scripts (Mitchell and Chesteen, 1995), counterfactual thinking (Baron, 1998), cognitive style (Hmieleski and Corbett, 2006), and improvisation (Hmieleski and Corbett, 2006). The bulk of this work suggests that entrepreneurs may be better equipped to handle dynamic environments and may have more positive perceptions about the probability of and perceived value of future outcomes. Thus, they may be more likely to persist with an under-performing firm.

Environmental munificence is the extent to which the environment can support sustained growth or the overall capacity of the environment (Starbuck, 1976). The growth potential of the market may be the primary factor in determining the outcomes of a given business strategy (Dess and Beard, 1984). In addition, entrepreneurs operating in highly munificent environments are somewhat insulated from external demands and have the flexibility to make strategic decisions. “Lack of environmental munificence, by contrast, creates difficult and stressful conditions for managers” (Wiersema and Bantel, 1993, p. 487) and limits the entrepreneur's options for the firm. Entrepreneurs in highly munificent environments are more likely to persist as growth potential increases the probability of and perceived value of future outcomes. Thus, we expect that entrepreneurs operating in highly munificent environments will be more likely to persist with an under-performing firm.

Hypothesis 1. In under-performing firms, persistence is more likely when (a) environmental complexity is high than when it is low, (b) environmental dynamism is high than when it is low, and (c) environmental munificence is high than when it is low.

3.4. Motivation to justify previous decisions

The motivation to justify previous decisions has been well-tested in the literature (Baron, 1998; Keil, 1995) and is most often referred to as self-justification theory (Staw and Fox, 1977). The 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, p. 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 she is competent and rational (Keil et al., 2000). Entrepreneurs who have invested a significant amount of personal resources into the firm may be more likely to justify their previous behavior.

3.4.1. Personal investment

Entrepreneurs often invest not only financial resources, but also considerable time and energy into their ventures (Arkes and Blumer, 1985). This investment may result in an entrepreneur viewing the firm as an extension of his or her identity (Dobrev and Barnett, 2005; Phillips, 2002). Initially one might suspect that a strong identity with the firm would make an entrepreneur more likely to persist. However, Dobrev and Barnett (2005) showed that as the firm grows and ages, founders are more likely to leave to build a new organization. They argue the demands for discipline and conformity posed by exogenous actors change the entrepreneur's identity from founder to bureaucrat. Because some entrepreneurs dislike or cannot adjust to the new identity they are more likely to disengage and seek other opportunities.

Conversely, there is a significant amount of research that has shown that as individuals invest energy, time, effort, and attention into the firm, they develop a strong psychological connectedness (Pierce et al., 2001; Wagner et al., 2003) making it less likely they will leave the firm. The literature refers to this as psychological ownership. The more of oneself that an entrepreneur has invested into an organization, the higher degree of ownership the entrepreneur will feel toward the organization (Pierce et al., 2001). Indicative of this psychological bond is the terminology entrepreneurs often use in referring to their firm. For example, many refer to the firm as "their baby" or "their child" (Cardon et al., 2005; Dodd, 2002). The agency literature reinforces this perspective. One solution to "the agency problem" has been to provide employees ownership in the firm thus reconciling the different goals of principals and agents (Wagner et al., 2003) through the development of shared mental models and psychological ownership. Using a parenthood metaphor, Cardon et al. (2005) argued that this psychological bond may cause entrepreneurs to have problems with separation thus rendering them unable or unwilling to delegate effectively or to make rational decisions about exit. Thus, entrepreneurs who have invested considerable time, money, and energy into their ventures may become psychologically attached and be more likely to persist with an under-performing firm.

3.4.2. Personal opportunities

At other times entrepreneurs may use self-justification to act in their own self-interest. The tendency of individuals to act in their own interest is well-documented in the economics literature beginning with the work of Adam Smith and his oft-quoted "butcher–brewer–baker" statement: "It is not from the benevolence of the butcher, the brewer, or the baker that we expect our dinner, but from their regard for their own interest" (Smith, 1776, 1976). Indeed, agency theory is based upon the premise that individuals will act in their own interest. The bulk of this research (e.g. Graebner and Eisenhardt, 2004; Jensen and Meckling, 1976) suggests that goal incongruity can create a situation in which individuals act to maximize their own self-interest at the expense of the others (Keil et al., 2000).

In self-interest we find a similar situation wherein the decision-maker acts to maximize his or her own utility, resulting in a cognitive bias concerning the best interests of the firm. This process often results in self-justification. For example, a CEO who loves to ski may decide to locate a plant near a world-class ski area, thereby acting in his or her own interest. He may go on to justify this decision based upon needs of the firm (e.g. easier to entertain top executives) even though there is evidence that the firm would be better served with a less expensive location. One indicator of a self-interest bias is the other personal opportunities available to the decision-maker.

According to cognitive psychology (Kanfer, 1990, p. 76), an individual's choice among alternative courses is a key component of motivation. Therefore, the personal options available to the entrepreneur (i.e. other jobs or careers,

education, retirement) may impact the decision she makes regarding firm persistence. In the job turnover literature, alternative employment opportunities are a key factor in employee turnover (Jackofsky and Peters, 1983; March and Simon, 1958). McGrath (1999, p. 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 the decision to persist is somewhat dependent on the alternative options available. If entrepreneurs have no or few attractive personal options outside their current firm, they may be more likely to persist. Thus,

Hypothesis 2. In under-performing firms, persistence is more likely (a) when personal investment is high than when it is low, and (b) when personal options are low than when they are high.

3.5. Norms for consistency

According to Staw (1981), norms of consistency—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 and Ross, 1980)—is also a determinant of commitment to a course of action. “Because it is a preprogrammed and mindless method of responding, automatic consistency can supply a safe hiding place from troubling realizations” (Caldini, 1993, p. 53). Therefore, entrepreneurs may look for indications within the organization that consistency is the best policy and ignore information that suggests change is necessary. Two such indicators are: (1) an organization’s previous success, and (2) the top decision-maker’s perception of the firm’s collective efficacy.

3.5.1. Previous organizational success

Previously successful experiences may cause entrepreneurs to believe that they have the “formula” correct and that persistence will lead to success (Audia et al., 2000; Lant et al., 1992). In their work on strategic persistence, Audia et al. (2000) found the natural tendency in previously successful organizations is to continue to exploit the strategies that worked in the past. Miller (1992) made an interesting contribution to this research in his metaphoric comparison of Icarus (the mythological Greek god) whose greatest asset (his wings) led to his demise and companies whose successes have led to their failure. He states “overconfident, complacent executives extend the very factors that contributed to success to the point where they cause decline” (Miller 1992, p. 31). Janney and Dess (2004) refer to this as managerial adventurism which occurs when individuals who have been previously successful come to believe that they possess some type of superior decision-making skills. Additional evidence of this bias is in the research which has shown that entrepreneurs may be especially susceptible to overconfidence (Forbes, 2005).

Another explanation 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 entrepreneurs may look for indications within the organization that consistency is the best policy (a consistency bias). In her work on real options, McGrath (1999) pointed out three reasons why extrapolating past successes to the future can encourage persistence. First, entrepreneurs tend to over-sample success and under-sample failure. Previous success tends to encourage entrepreneurs to underestimate risk and overestimate expected returns (Levinthal and March 1993) leading them to believe that persistence will eventually be rewarded with additional successes. Second, entrepreneurs are likely to code successes as a result of one’s own actions and failures to bad luck (Staw et al., 1983). Attribution theory researchers (e.g. Heider, 1958; Shaver et al., 2001) propose that individuals attempt to internalize success—suggesting that success was due to their own effort—and externalize failure. 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 and March, 1988; McGrath, 1999). Thus, in previously successful firms, entrepreneurs may be subject to an overconfidence, consistency, or attribution biases which may convince them to persist with an under-performing firm.

3.5.2. Perceived collective efficacy

Collective efficacy refers to the collective belief of a group 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, p. 449). Thus, norms for consistency may also be determined by organizational norms (Staw, 1981). Because collective efficacy influences decision-making it may have particular relevance to the persistence decision.

Although the research into collective efficacy is relatively new, scholars (e.g. Bandura, 1986) contend that collective efficacy is rooted in self-efficacy and should operate in much the same manner. How then does self-efficacy relate to

persistence? In a meta-analysis of the relationships between self-efficacy and persistence outcomes, [Multon et al. \(1991\)](#) found a positive relationship between self-efficacy and persistence across a wide variety of subjects, experimental designs, and assessment methods. If we extrapolate from the self-efficacy literature, we can propose that groups high in collective efficacy should demonstrate higher persistence. Although the research at this level of analysis has been limited, there has been some empirical support for the relationship between collective efficacy and persistence (e.g., [Hodges and Carron, 1992](#); [Little and Madigan, 1997](#)). For example, in sports teams [Hodges and Carron \(1992\)](#) found that groups categorized as high in collective efficacy demonstrate more persistence than those with low collective efficacy. Thus,

Hypothesis 3. In under-performing firms, persistence is more likely (a) when previous organizational success is high than when it is low, and (b) when collective efficacy of organizational members is high than when it is low.

3.6. The moderating role of extrinsic motivation on the decision to persist

Economic theorists (e.g. [Alchian, 1950](#)) contend that under-performing firms should not exist, rather they should exit or be selected out of the environment. Yet, the empirical evidence is that these firms do persist, sometimes indefinitely. Above we detailed potential determinants of persistence with an under-performing firm. But why do some entrepreneur's decisions on firm persistence conform more closely with the rational economic perspective while others do not? To explain some of the heterogeneity among entrepreneurs in their commitment decisions, we turn to one of the key assumptions of the economic model, namely, people are extrinsically motivated.

3.6.1. Extrinsic motivation

Extrinsic motivation is “a cognitive state reflecting the extent to which an individual factors the force of his or her task behaviors to some extrinsic outcome” ([Brief and Aldag, 1977](#), p. 497) and is often conceptualized in entrepreneurship as financial rewards, personal wealth acquisition, and personal income ([Kuratko et al., 1997](#)). The potential for financial reward has long been recognized as an important motivation for entrepreneurial behavior ([Campbell, 1992](#); [Kuratko et al., 1997](#); [Schumpeter, 1961](#); [Shepherd and DeTienne, 2005](#)). For example, [Schumpeter \(1961\)](#) suggested that building an empire for financial reward is an important entrepreneurial motivation. [Campbell's \(1992\)](#) economic theory of entrepreneurship proposes that an individual chooses to be an entrepreneur if the expected present value of profit from entrepreneurship exceeds that of being an employee. [Shepherd and DeTienne \(2005\)](#) established that potential financial reward provides motivation for entrepreneurs (at least those with little prior knowledge) to identify opportunities. [Kuratko et al. \(1997, p. 31\)](#) found that “extrinsic goals concentrating on wealth” were important for sustaining entrepreneurship.

However, there has been little research that has explored how extrinsic motivation might impact persistence. An exception is the work by [Graebner and Eisenhardt \(2004\)](#) which found that financial gain was an important personal motivation for choosing an acquisition strategy. In order to clarify this relationship more fully, we turn to the job pay satisfaction and turnover literatures. Research has consistently found a negative relationship between job pay satisfaction and turnover (see [Cotton and Tuttle, 1986](#) for a meta-analysis and review) and a positive relationship between job pay satisfaction and organizational commitment ([Johnston et al., 1990](#)). This research indicates that individuals who are dissatisfied with the monetary rewards from work have lower levels of organizational commitment and are more likely to leave the organization. Extrapolating this research to the current context, we argue that entrepreneurs who have higher levels of extrinsic motivation are less likely to be influenced by the factors that lead to persistence. Thus,

Hypothesis 4. Among under-performing firms, the greater an entrepreneur's extrinsic motivation the lesser the emphasis on (a) environmental complexity, (b) environmental dynamism, (c) environmental munificence, (d) personal investment, (e) personal options, (f) previous organizational success, and (g) perceived collective efficacy in making the persistence decision.

4. Research method

4.1. Sample and data collection

The sample frame was constructed from the 2001 OneSource Corp Tech Directory which covers over 50,000 U.S. high-tech companies. Updated annually with senior level executives and verified in writing, the directory provided contact information, ownership type, number of employees, sales, growth rate, and SIC codes. After identifying the

sampling frame, we further refined the OneSource Corp Tech Directory to include privately held, high technology firms within a 50-mile radius (driving distance). Privately held firms were selected to ensure that the entrepreneur had the authority and control to make the decision to persist in or discontinue operations. In addition, 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.

A fax was sent to each firm 1 week prior to attempting to reach the entrepreneur via a telephone call. We were able to successfully send the fax to 171 firms. Research indicated that the other firms had either gone out of business, were purchased by another firm (as is typical in high-tech industries), and/or changed fax numbers. Although we could have been more persistent in contacting these firms, 171 potential firms provided more than sufficient power to test the hypotheses. We contacted, via a telephone call, all of the 171 firms to whom we had sent a fax and were able to speak directly with 128 (69%) of the entrepreneurs to elicit their participation. Of the 128 entrepreneurs to whom we spoke 95 agreed to participate in the study; however, four of those entrepreneurs wanted to schedule an appointment too far into the future or missed the appointment which resulted in a final sample of 91 entrepreneurs (20.7% response rate). Two of the entrepreneurs 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 entrepreneurs. A sample size of 89 is more than adequate for this kind of study and exceeds that of most conjoint studies. For example, [Shepherd \(1999\)](#) used a sample of 67, [Hitt and Barr \(1989\)](#) a sample of 68, and [Zacharakis and Meyer \(1998\)](#) a sample of 50.

We used analysis of variance to ascertain that there were no significant differences between respondents and non-respondents. Respondents and non-respondents did not vary in either number of employees ($F = .29, p > .10$) or age of the firm ($F = .22, p > .10$). The mean age of the responding firms was 15.5 years. Sales figures ranged from less than \$1M to \$57M with a mean of \$5.6M. The mean number of employees was 46. Using SIC codes, the firms were divided into four main industries: (1) computer hardware and software (31%), (2) telecommunications (29%), (3) medical technology (16%) and (4) instrumentation and manufacturing (24%).

4.2. Conjoint analysis

Research on firm persistence presents significant methodological challenges because it is difficult to identify entrepreneurs of highly persistent, under-performing firms. Even when you can identify these entrepreneurs their stories may contain bias and error due to retrospective bias ([Aaker and Day, 1986](#); [March and Feldman, 1981](#)), attribution bias ([Fiske and Taylor, 1991](#)), and self-reporting ([Sandberg and Hofer, 1987](#)). Because much of the previous research relying on post-hoc methodologies (questionnaire, survey and interview) may have been subject to the above limitations, we used conjoint analysis.

Conjoint analysis, a technique common in marketing research and used in thousands of research studies over the past three decades ([Green et al., 2001](#)), allows researchers to collect data as the decision is made. Conjoint analysis requires respondents to make a series of judgments based on profiles from which their captured decision processes can be decomposed into an underlying structure ([Shepherd and Zacharakis, 1997](#)). Specifically, we asked entrepreneurs to consider a scenario (based on the seven factors—environmental complexity, environmental dynamism, environmental munificence, personal investment, personal options, previous organizational success, and perceived collective efficacy) and make a decision about whether they would persist with the currently under-performing firm or whether they would make a decision to discontinue operations.

4.2.1. Possible limitations of conjoint analysis

As with all techniques, conjoint analysis has a number of limitations which includes face and construct validity. Problems with face validity occur when entrepreneurs place importance on factors only because they are presented in the study. In order to minimize this possibility, the factors were theoretically justified and, when pilot-tested, demonstrated face validity. We also received comments from the participants that indicated that the entrepreneurs felt the study had face validity and that we had included the most important variables. One entrepreneur 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.” Furthermore, there is evidence that even in the most artificial situation conjoint analysis significantly reflect the judgment policies actually used by decision-makers (e.g. [Brown, 1972](#); [Hammond and Adelman, 1976](#)).

A concern in regard to construct validity is the limited number of factors that can be included. Recommendations vary, but generally the recommended maximum number of factors is eight (Shepherd and Zacharakis, 1997). However, Hitt et al. (2000) used 14 factors in their similar policy-capturing study of international partner selection. In this study we include seven factors. In order to address this potential threat to validity, we conducted pilot studies to ascertain the importance of the factors and asked entrepreneurs to give us insights into what factors 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. One change that resulted after the pilot study was to operationalize the financial investment as “earning potential”, rather than a specific dollar investment. Comments indicated that a specific dollar investment would be hard to control because a \$100,000 investment to one entrepreneur may be substantial while it might be minimal to another.

4.3. Experimental design

Because a fully crossed factorial design involving the seven factors at two levels (2^7) requires 128 profiles, an orthogonal fractional factorial design was used to reduce the number of factor combinations, thus making the decision task more manageable (Green and Srinivasan, 1990). An orthogonal design is one in which the levels of different factors across profiles are uncorrelated and “the main-effect estimate for each factor 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 and 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 and Zacharakis, 1997). In addition, we provided a practice profile (not included in the analysis) at the beginning to familiarize the entrepreneur with the experiment; resulting in a total of 33 profiles.

Some researchers have reported strong factor order effects for conjoint analysis, while others insist that in practice this rarely occurs (Orme et al., 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 ($p > .05$).

4.4. Post-experiment survey and semi-structured interviews

A survey was also administered to each of the entrepreneurs. The survey was designed to collect individual and firm demographics, to verify that the participant was involved in the creation of the firm, and to collect the data on extrinsic motivation. The survey was followed by semi-structured interviews, designed to obtain the entrepreneur’s perception of the experiment and his or her introspection.

4.5. Content of conjoint experiment

4.5.1. Under-performing firm scenario

Respondents were asked to “assume that the following conditions are true across all the scenarios you are about to encounter: You are the top decision-maker of a five year-old firm with 75 employees currently experiencing poor performance relative to other firms in the industry. A selection of your performance measures suggests that sales are currently 20% below the industry average, net profit margin has declined three years in a row, and return on investment is the lowest in the industry.”

4.5.2. Dependent variable

The dependent variable in this study for level 1 (to test hypotheses 1–3) is the decision to persist despite poor performance. Specifically, entrepreneurs 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 dependent variable for level 2 (to test hypothesis 4) is the decision policy—represented by the regression weight for each of the decision factors.

4.5.3. Factors

There are seven factors used in the conjoint analysis. They include environmental complexity, environmental dynamism, environmental munificence, personal investment, personal options, previous organizational success, and perceived collective efficacy. See Appendix A below for a complete definition of each of the factors and the operationalization used in the conjoint analysis.

4.5.4. Extrinsic motivation

Extrinsic motivation was captured using a scale in the post-experiment questionnaire. 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 and Aldag, 1977). Although there were several potential measures (e.g. Super, 1970; Johnson, 2001) of work values (vocational choice [way of life, security, prestige, economic return], work values [altruistic, social, extrinsic, intrinsic]) these scales were developed for employees of the firm and the wording reflects this. In addition, it could present problems of range and skewness if we applied those scales to entrepreneurs. Because none of these measures adequately captured the extrinsic motivation of the entrepreneur and the potential for measurement problems, we developed an extrinsic motivation scale from existing theoretical and empirical research (Amabile, 1993; Kuratko et al., 1997).

The measure consisted of four statements designed to capture an entrepreneur's extrinsic motivation. Using a seven-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 ($e=2.68$, 68.08% variance explained) with factor loadings from .74 to .85 and a Cronbach's alpha of .85. In order to validate this scale we tested the measure with a separate sample of 195 entrepreneurs in two separate industry sectors. Using the identical 7-point Likert scale and identical four statements, the items loaded on one identifiable factor ($e=2.97$, 74.1% variance explained) with factor loadings from .84 to .89 and a Cronbach's alpha of .88.

4.6. Data collection procedure

The experiment and survey were personally administered to each entrepreneur in his or her place of business. To facilitate consistency across data collection, one researcher collected all of the data. Upon arriving at the decision-maker's place of business, the experiment was explained and the entrepreneur was given a cover letter with instructions, which guided him or her through the experiment. To facilitate with understanding of the study, entrepreneurs were provided with a detachable page, which listed all of the factors and definitions of the levels (see column three of Appendix A). In addition, the interviewer read through each of the definitions with the entrepreneur and answered any questions.

5. Analysis and results

The experiment provides 32 observations per entrepreneur. With 89 entrepreneurs, there are a total of 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 (level 1 data) are nested within 89 entrepreneurs (level 2 data). We used hierarchical linear modeling (HLM) to analyze the data because HLM can test models at level 1 (by accounting for variance among entrepreneurs, such that the observations within an entrepreneur are independent) and level 2. For all analyses, the variables are standardized and group centered. The intra-class correlation, a measure of dependence of decisions within entrepreneurs, is .122.

The results are reported in Table 2 below. The first column reports the decision factors, 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 entrepreneurs on the likelihood of firm persistence, holding constant individual differences including extrinsic motivation, and explains 73.8% of the variance in decisions (within and across entrepreneurs). Results for the intercept model indicate that among under-performing firms, the likelihood that entrepreneurs will choose persistence is positively associated with perceived environmental munificence (coefficient=1.433, $p<.01$), positively associated with personal investment (coefficient=.326, $p<.01$), positively associated with previous organizational success (coefficient=.583, $p<.01$), and positively associated with perceived collective efficacy of their organization (coefficient=1.093, $p<.01$). These findings provide support for hypotheses 1c, 2a, 3a and 3b, respectively. Also the extent of personal options is marginally, negatively associated with the likelihood that they will

Table 2

Comparison of entrepreneur's assessment policies based on extrinsic motivation

	Intercept			Extrinsic motivation		
	Coefficient ^a	Standard Error	<i>t</i> -ratio	Coefficient ^a	Standard error	<i>t</i> -ratio
Complexity	–.004	.037	–.095	–.050	.022	–2.218**
Dynamism	–.019	.039	–.496	–.068	.025	–2.70***
Munificence	1.433	.094	15.205***	.069	.063	1.095
Personal investment	.326	.063	5.21***	.109	.047	2.29**
Personal options	–.075	.042	–1.773*	–.073	.034	–2.186**
Previous org. success	.583	.060	9.689***	.010	.043	.228
Collective efficacy	1.093	.071	15.454***	–.049	.048	–1.03
Intercept	6.354	.113	56.081***	.068	.087	.779
Model						
Explained variance			.738			

*** $p < .01$; ** $p < .05$; * $p < .10$; $n = 2848$.

Level 1 analysis: Decision to persist = $B_0 + B_1$ complexity + B_2 dynamism + B_3 munificence + B_4 personal investment + B_5 personal options + B_6 previous organizational success + B_7 perceived collective efficacy.

Level 2 analyses: B_1 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_2 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_3 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_4 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_5 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_6 (from level 1 analysis) = intercept + coefficient extrinsic motivation. B_7 (from level 1 analysis) = intercept + coefficient extrinsic motivation.

^a All variables were standardized and group centered.

choose persistence (coefficient = $-.075$, $p < .10$), providing marginal support for hypothesis 2b. Among under-performing firms, environmental complexity and perceived environmental dynamism were not significantly ($p > .10$) associated with the likelihood that entrepreneurs would choose persistence and therefore hypothesis 1a and b (respectively) was not supported.

The extrinsic motivation model uses individual differences in extrinsic motivation to explain variance in decision policies across entrepreneurs. The results for this model indicate the factors that are used differently depending on the entrepreneur's extrinsic motivation are environmental complexity (coefficient = $-.05$; $p < .05$), environmental dynamism (coefficient = $-.068$; $p < .01$), personal investment (coefficient = $.109$; $p < .05$) and personal options (coefficient = $-.073$; $p < .05$). Although environmental complexity and environmental dynamism are used differently by those with high external motivation from those with low external motivation, these factors were not significantly used by the sample as a whole. This could be because these factors have little influence on the decision to persist. Alternately, it could be those with high extrinsic motivation use complexity and dynamism in the opposite way of those with low extrinsic motivation such that they "cancel" each other out when combined into one sample for analysis. We did a median split of the sample by extrinsic motivation and reran the level 1 analysis. We found that neither environmental complexity nor environmental dynamism, were used significantly in either sub-sample. Given that it appears that environmental complexity and dynamism are not significantly used by entrepreneurs (including sub-samples based on level of extrinsic motivation), it is not meaningful to interpret relationship that explain variance in these decision factors. Therefore, to be conservative, we interpret our findings as not supporting hypothesis 4a and b, respectively.

The coefficient for personal investment for the sample as a whole is significant and positive (coefficient = $.326$; $p < .01$). The coefficient for extrinsic motivation in explaining variance in this decision weight is significant and positive (coefficient = $.109$; $p < .05$). The positive coefficient of extrinsic motivation on personal investment indicates that entrepreneurs with high extrinsic motivation put more weight on personal investment than do entrepreneurs with lower extrinsic motivation. That is, entrepreneurs who are more extrinsically motivated put greater weight on personal investment in their persistence decisions than those with lower extrinsic motivation. This relationship is in the opposite direction of that proposed in hypothesis 4d.

The coefficient for personal options for the sample as a whole is marginally significant and negative (coefficient = $-.075$; $p < .10$). The coefficient for extrinsic motivation in explaining variance in this decision weight is significant and negative (coefficient = $-.073$; $p < .05$). The negative coefficient of extrinsic motivation on personal options (from a baseline of a negative coefficient for the sample as a whole) indicates that entrepreneurs with high extrinsic motivation put more weight on personal options than do entrepreneurs with lower extrinsic motivation. This finding provides

support for hypothesis 4e. Among under-performing firms, an entrepreneur's extrinsic motivation does not significantly explain variance in the use of munificence, previous organizational success, or perceived collective efficacy in entrepreneurs' persistence decision. Therefore, hypothesis 4c, f, and g, respectively, was not supported.

To check for the robustness of our results, we reran the above analysis to include additional level 2 variables as controls, specifically, gender (dichotomous variable), entrepreneurial experience (years as an entrepreneur), and entrepreneurial efficacy. The results for the intercept model and for the extrinsic model did not change substantially from the addition of these control variables, with the exception that extrinsic motivation no longer significantly explained variance in entrepreneurs' weighting of complexity in their persistence decision policies.

6. Discussion and conclusion

The results of this study indicate that entrepreneurs significantly factor in environmental munificence, personal investment, personal options, collective efficacy, and previous organizational success when making a decision about persistence with an under-performing firm. However, one of the most important findings in this study was that there is heterogeneity among entrepreneurs in terms of their extrinsic motivation, and this heterogeneity can help explain why some firms have different thresholds of performance. These results extend previous research in this area, in particular that of Gimeno et al. (1997), and provide a theory-backed rationale for the conditions under which persistence in under-performing firms occur. Individual level variance, in terms of extrinsic motivation, helps explain variance in the influence that results in different relationships between perceived probability and value of future outcomes, self-justification, and norms for consistency, have on the decision to persist with an under-performing firm. These results are now discussed in detail.

First, we found a significant, positive relationship between personal investment and persistence. Self-justification theory attributes this relationship to individuals who bias their attitudes in order to justify previous behavior. Entrepreneurs may be particularly susceptible to self-justification because their reputation is often intricately linked to the success or failure of their venture. Our results also suggest that extrinsically motivated entrepreneurs put greater weight on personal investment in making the persistence decision. We expected that extrinsically motivated entrepreneurs would be less influenced by personal investment. However, the way in which extrinsic motivation was operationalized (earnings potential invested), suggests that extrinsically motivated entrepreneurs may emphasize lost wages (an extrinsic cost). One of the entrepreneurs that we interviewed alluded to this bias by commenting, "Personal investment is very important. I started this company 2 1/2 years ago and went without a salary for two years." This finding is interesting because it indicates that even entrepreneurs who are more extrinsically motivated (which is more consistent with economic perspectives) appear to make decisions based upon personal factors.

Second, for the sample as a whole, we found that personal options were marginally ($p < .10$), negatively related to the decision to persist with the under-performing firm. However, variance in the use of personal options to make the persistence decision is explained, in part, by extrinsic motivation. After adding extrinsic motivation to the equation, personal options were significantly, negatively related to persistence ($p < .05$). The negative relationship indicates that those entrepreneurs who have other options available to themselves outside of the current under-performing venture were less likely to persist. This was especially true for those entrepreneurs who are extrinsically motivated. It is also possible that some personal investments may actually increase the number of personal options available to the entrepreneur. For example, personal investments in the firm can increase the entrepreneur's general human capital (Becker, 1975), which is a basis for increasing the number and quality of other personal options. Therefore, personal investments may directly increase persistence (consistent with the findings of this study) but decrease persistence by increasing the entrepreneur's personal options. It is also possible that while general human capital negatively impacts persistence, firm-specific human capital may increase persistence (Coff, 1997). Future research could investigate the concurrent and perhaps opposing influences of personal investments on persistence using human capital theories (Becker, 1975).

Third, we found that the perceived collective efficacy of the organization had a significant effect on the decision by the entrepreneur to persist in the market. When entrepreneurs 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 entrepreneurs have not. Two entrepreneurs 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 entrepreneurs.

“Once a collective belief takes hold, it tends to perpetuate itself” (Royer, 2003, p. 53). As Shamir (1990) points out, many of the new organizational structures are built on cooperation and require strong linkages between entrepreneur and collective effort. Caution is advised however as collective belief can become so strong that it causes entrepreneurs to make irrational decisions (Royer, 2003). Royer (2003, p. 55) argues that “exit champions” may be as important to the organization as project champions. An interesting area of future research would be to explore the impact that exit champions have on entrepreneurial decision-making.

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, entrepreneurs were more likely to persist with the firm that had previous success. In commenting about previous organizational success, one entrepreneur stated, “Previous success is important because you have figured out the formula before.”

Despite the fact that there is evidence that suggests the need for change (under-performance), entrepreneurs in previously successful firms are more likely to persist. Above we argued that this may be due to overconfidence, consistency, and attribution biases. Another possible explanation is that entrepreneurs within a previously successful organization may fall into a reinforcement trap (March, 1978). These reinforcement traps, which are most common with entrepreneurs in leadership positions, (Ross and 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 it is an ego related psychological state in which some entrepreneurs believe they have the tools required to achieve a given level of success even though evidence indicates the unlikelihood of such a result. In our interviews, we encountered some entrepreneurs who confirmed the possibility that previous success may be a reinforcement trap. One entrepreneur commented, “Because I have done work in turnarounds, I am more likely to hang around if the organization has had previous success.” Future research in this area should focus on the relationship between reinforcement traps and the aforementioned biases. For example is there a relationship between overconfidence and reinforcement traps? Are entrepreneurs with high self-efficacy or habitual entrepreneurs more likely to fall into reinforcement traps? And ultimately what impact does this have on the persistence of under-performing firms? The emerging cognitive perspective in the entrepreneurship literature (e.g. Mitchell et al., 2002) may provide a strong theoretical perspective from which to view these questions.

Although we found strong evidence that previous organizational success impacts persistence, it may be that not all incidences of previous success have the same degree of impact. For example, does previous success in raising equity capital or in product development have more impact on persistence than does success in the market place? Are successful habitual entrepreneurs more or less likely to persist with an under-performing firm? It will be illuminating for future research to further analyze previous success and ascertain whether certain types of success are more likely to lead to persistence. Another interesting point to consider is the impact that time might have on the relationship between previous success and threshold levels. Over time previously successful organizations might actually adjust their threshold or aspiration levels upward; thus they may reach a point at which the positive effect of previous success on persistence begins to decline. A more fine-grained investigation of the factors that lead to these adjustments is a critical next-step to explore these potential extensions to threshold theory.

Fifth, environmental munificence, the extent to which the environment can support sustained growth (Starbuck, 1976) was the most important factor to the entrepreneurs studied in this research. Entrepreneurs 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, stating, “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 factor may be due, in part, to the industry in which this study was conducted, this finding is important because it points to the significance of the external environment in entrepreneur’s 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 et al., 1999, p. 197). Therefore, entrepreneurs may choose to persist with an under-performing firm in a munificent environment because they believe that their persistence will lead to something else.

Although we believe that our findings provide important answers and direct future research, this study is not without limitations. In the methods section we described the potential limitations associated with conjoint analysis.

In addition, we recognize that there are other stakeholders within the organization (e.g. investors, employees) who may also have a financial stake, a governance responsibility, and a decision-making role; thus, our findings are generalizable only to those organizations in which the decision-making power is centralized with the entrepreneur. Future research should focus upon other stakeholders and how they may limit the ability of entrepreneurs to make persistence decisions.

In conclusion, our research provides important answers to the question of why under-performing firms persist. These answers complement and extend the traditional economic rational arguments and extend Staw's (1981) model of commitment to under-performing firms to show that components of the model, encompassing our five specific factors, were important to the persistence decision. In addition, our findings extend threshold theory (Gimeno et al., 1997) in that we found that heterogeneity among entrepreneurs in terms of their extrinsic motivation can explain why some firms have different thresholds of performance.

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Appendix A

Independent variables

Independent variable	Definition	Operationalization 2 levels of each variable
Environmental complexity	The heterogeneity of the environment and the number of relevant factors that must be considered	Complex—The environment in which this organization operates is very <i>complex</i> 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 <i>simple</i> 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).
Environmental dynamism	The amount of stability/instability perceived in the environment	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.
Environmental munificence	The extent to which the environment can support sustained growth	Low—There is low potential for growth in this industry. High—There is high potential for growth in this industry.
Personal investment	The amount of time, money, and energy the decision-maker has invested in the firm	Low—You have invested no years of earning potential and little time or energy in this venture. High—You have invested 5 years of earning potential and considerable time and energy in this venture.
Personal options	Other opportunities or options that the top decision-maker has outside of his or her current venture	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). 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).
Previous organizational success	A team or organization's previous success	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.
Perceived collective efficacy	The entrepreneur's perception that the organizational members believe that the organization can be successful	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.

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