



The nature of entrepreneurial experience, business failure and comparative optimism

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ABSTRACT

Entrepreneurial (i.e. business ownership) experience may enable some entrepreneurs to temper their comparative optimism in subsequent ventures. The nature of entrepreneurial experience can shape how entrepreneurs adapt. Using data from a representative survey of 576 entrepreneurs in Great Britain, we find that experience with business failure was associated with entrepreneurs who are less likely to report comparative optimism. Portfolio entrepreneurs are less likely to report comparative optimism following failure; however, sequential (also known as serial) entrepreneurs who have experienced failure do not appear to adjust their comparative optimism. Conclusions and implications for entrepreneurs and stakeholders are discussed.

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1. Executive summary

Entrepreneurs have a greater tendency to be over-optimistic than non-entrepreneurs. Over-optimism, or what we henceforth call comparative optimism, is the tendency of people to report that they are less likely than others to experience negative events, and more likely than others to experience positive events. Comparative optimism may be necessary for individuals to engage in entrepreneurship, but it may also be a factor leading to venture closure. Some entrepreneurs may be more susceptible to comparative optimism than others. We examine this neglected theme in optimism research. We explore whether entrepreneurial business ownership experience dampens or promotes comparative optimism.

There are contrasting arguments and evidence regarding the relationship between entrepreneurial experience and optimism. Some entrepreneurs realize that they were initially too optimistic, adjust their thinking and consequently report a more realistic outlook with regards to a subsequent venture(s). Experienced entrepreneurs with prior business ownership experience, particularly business failure experience, may be less likely to subsequently report comparative optimism. Alternatively, experienced entrepreneurs may accumulate biases and hence may be subsequently more likely to report comparative optimism. The scant empirical evidence exploring the links between an entrepreneur's experience and comparative optimism provides conflicting findings.

Studies focusing on the *extent* of entrepreneurial experience have ignored the question of whether reported optimism is linked to the *nature* of experience. A more fine-grained view of the *nature* of an entrepreneur's experience may provide insights surrounding how entrepreneurs adjust their thinking following experience, and how experience is linked to the propensity to

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subsequently report comparative optimism. Two aspects of the nature of an entrepreneur's prior business ownership experience are considered; whether past experience(s) is associated with business failure and whether this business ownership experience is acquired sequentially (i.e., sequential entrepreneurs or serial entrepreneurs) or concurrently (i.e., portfolio entrepreneurs). We explore the following research questions: Are experienced entrepreneurs (i.e. repeat or habitual entrepreneurs including both sequential and portfolio entrepreneurs) with prior business ownership failure experience more or less likely to report comparative optimism than novice entrepreneurs with no prior business ownership experience? Are sequential and portfolio entrepreneurs with business failure experience more or less likely to report comparative optimism than novice entrepreneurs?

Using a unique and representative sample of 576 entrepreneurs in Great Britain, we find that repeat entrepreneurs (i.e. sequential and portfolio entrepreneurs) who had not experienced business failure were significantly more likely to report comparative optimism than novice entrepreneurs. Sequential entrepreneurs who had experienced business failure were as likely as novice entrepreneurs to report comparative optimism. Conversely, portfolio entrepreneurs who had experienced business failure were significantly less likely than novice entrepreneurs to report comparative optimism.

We suggest that some entrepreneurs may benefit from checking their optimism by undertaking routines that challenge assumptions about their business(es) and their competitors. We cannot conclusively suggest that macro level bankruptcy laws should be relaxed to enable entrepreneurs who have experienced failure to own further business(es) because not all experienced entrepreneurs learn from business failure. Because portfolio rather than sequential entrepreneurs temper their comparative optimism after a business failure learning experience, there is a case for micro level customized support relating to an entrepreneur's prior business ownership experience. Sequential entrepreneurs could be encouraged to participate in schemes that examine the nature of their prior mistakes (and successes) before embarking on a subsequent venture(s).

2. Introduction

Scholars have recently drawn upon cognitive psychology to provide the psychological foundations for understanding the behavior of entrepreneurs. Entrepreneurship research that draws on the principles of cognitive psychology has become a significant sub-field (Baron, 2004; Mitchell et al., 2002). The term 'entrepreneurial cognition' has been introduced to describe the way in which entrepreneurs think and behave. Entrepreneurial cognition refers to "the knowledge structures that people use to make assessments, judgments, or decisions involving opportunity evaluation, venture creation and growth" (Mitchell et al., 2002: 97). Studies focusing upon entrepreneurial cognition emphasize the use of heuristics and biases by entrepreneurs. Heuristics refer to simplifying and time-saving strategies that individuals use to make decisions. Cognition scholars argue that entrepreneurs are particularly susceptible to the use of heuristics and biases in complex environments (Baron, 1998). In the absence of heuristics, such as over-confidence (i.e. an unwarranted belief in an individual's abilities to bring about a particular outcome, Forbes, 2005), over-optimism or what we henceforth call comparative optimism (i.e., the tendency of people to report that they are less likely than others to experience negative events, and more likely than others to experience positive events, Helweg-Larsen and Shepperd, 2001),⁴ and representativeness (a willingness to generalize from a small number of observations, Busenitz and Barney, 1997), entrepreneurship would appear to be too daunting a task (Busenitz and Barney, 1997). Evidence suggests that rates of start-up activity are positively associated with overconfidence (Koellinger et al., 2007). Some heuristics, however, can lead to poor decisions. Over-confidence and comparative optimism may encourage an individual to exploit an opportunity but they may also encourage establishment of under-capitalized firms (Hayward et al., 2006). Under-capitalized firms that over-stretch their actual rather than perceived resources are susceptible to higher business closure rates (Storey, 1994). Indeed, high new venture failure rates have been attributed to the indiscriminate use of heuristics, such as over-optimism (De Meza and Southey, 1996). Studies exploring the consequences of an entrepreneur's comparative optimism reveal that comparative optimism can be advantageous under certain circumstances but it can also be disadvantageous (Alvarez and Busenitz, 2001; Hmieleski and Baron, 2009).

There is growing theoretical and empirical interest in the factors associated with entrepreneurs who are more likely to report comparative optimism relative to non-entrepreneurs (Cooper et al., 1988; Fraser and Greene, 2006). The scant empirical evidence exploring the links between an entrepreneur's profile and comparative optimism is mixed. There are unanswered questions surrounding the role played by an entrepreneur's prior entrepreneurial experience.

Studies provide contrasting arguments and evidence regarding the relationship between entrepreneurial experience and optimism. Economists have argued that people entering entrepreneurship gradually learn about their abilities through running a business, and change their behavior in response to observing how well they do (Jovanovic, 1982). Some entrepreneurs realize that they were initially too optimistic, and that this may have contributed to the closure of the business. Entrepreneurs with more realistic expectations may grow their business(es) or continue their entrepreneurial career elsewhere (Fraser and Greene, 2006). This perspective suggests experienced entrepreneurs may be less likely to report comparative optimism. In contrast, cognition studies suggest that people with prior experience can be associated with biases (Tversky and Kahneman, 1974). Specifically, they may infer too much from limited information, inappropriately weight information cues, and become over-confident in their

⁴ The terms comparative optimism, unrealistic optimism, over-optimism and the optimistic bias are often used inter-changeably. Following Shepperd et al. (2002) we use the term 'comparative optimism' for two reasons: First, unlike terms such as optimistic bias and unrealistic bias which imply a comparison between personal judgments and an objective criterion, comparative optimism arises from social comparisons. Second, the former terms imply that differences in risk judgments made for the self and those made for the average person stem from a distortion of personal judgment. However, differences in risk judgments may arise from distortions about individuals' judgment about their personal risk, or judgment about the risk of the average person. Comparative optimism can accommodate both these difference in risk judgment, rather than implying a particular source.

judgments (Brailey et al., 2001), which can retard subsequent behavior. Thus, experienced entrepreneurs may be more likely to report comparative optimism than their inexperienced counterparts.

Evidence on the link between an entrepreneur's prior experience and reported optimism is mixed. Fraser and Greene (2006), focusing upon a broad measure of optimism, found that more experienced entrepreneurs were less likely to report optimism. Using a more widely accepted measure of optimism, Cooper et al. (1988) found no significant relationship between entrepreneurial experience and reported comparative optimism. Comparing growth expectations with actual growth rates, Landier and Thesmar (2009) noted that repeat entrepreneurs (i.e. both sequential and portfolio entrepreneurs) who had started at least one prior business were more optimistic than novice entrepreneurs.

The decision to utilize a broad view of experience may help explain contradictory views in theoretical and empirical studies. Specifically, focus solely on the *extent* of entrepreneurial experience masks the heterogeneous nature of experience. A more fine-grained view of the *nature* of an entrepreneur's experience may reveal more about how entrepreneurs adjust their thinking based on that experience, and how experience is associated with subsequently reported comparative optimism. Understanding the relationship between the nature of entrepreneurial experience and comparative optimism addresses an important missing theoretical and empirical link regarding factors linked to entrepreneurial behavior. This link has implications for policy-makers seeking to minimize the potential wastage of some publicly subsidized resources, in part, suggested by high business failure rates by over-optimistic entrepreneurs (Danson, 1996). Fresh empirical evidence relating to the link between entrepreneurial business ownership experience and comparative optimism is sought by those deliberating whether to relax bankruptcy laws to enable entrepreneurs who have experienced failure to own a further firm (DTI, 2004).

We explore the research gap relating to the role played by entrepreneurial (i.e. business ownership) experience relative to other skills and knowledge acquired by entrepreneurs associated with variations comparative optimism. Specifically, two inter-related aspects of the nature of an entrepreneur's experience are considered. First, we consider business failure experience and whether this acts as a trigger for entrepreneurs to reassess their judgment (McGrath, 1999) and hence adjust their comparative optimism. Second, we consider whether business ownership was acquired sequentially (i.e., sequential entrepreneurs but also known as serial entrepreneurs) or concurrently (i.e., portfolio entrepreneurs) (Ucbasaran et al., 2006), and how these different kinds of experience may influence the nature of the response to business failure. We explore the following research questions: Are experienced entrepreneurs (i.e. repeat or habitual entrepreneurs that include both sequential and portfolio entrepreneurs) with prior business ownership failure experience more or less likely to report comparative optimism than inexperienced (novice) entrepreneurs? Are sequential and portfolio entrepreneurs with business failure experience more or less likely to report comparative optimism than novice entrepreneurs?

We seek to make several conceptual and empirical contributions. First, we contribute to the comparative optimism literature by introducing a complementary perspective that focuses on the factors associated with its presence, rather than solely its consequences. Second, we contribute by arguing that the conflicting theoretical and empirical evidence relating to the relationship between experience and comparative optimism can be reconciled by examining the *nature* of past experience, rather than simply its presence or extent. Third, we extend the cognition literature relating to the link between prior business failure experience and subsequent thinking and behavior (Shepherd, 2003), by examining the comparative optimism reported by repeat entrepreneurs who have and have not experienced business failure and comparing this with the comparative optimism of novice entrepreneurs who have no prior entrepreneurial experience. Fourth, although the heterogeneity of repeat entrepreneurs is recognized (Westhead and Wright, 1998), theoretical arguments underpinning this heterogeneity have not been developed. Drawing upon insights from motivation, control and personal commitment studies, we extend the conceptual base relating to the nature of prior business ownership experience reported by sequential and portfolio entrepreneurs (i.e. sub-types of repeat entrepreneurs) who may respond differently to business failure. Finally, our evidence seeks to inform the regulatory and resource allocation decisions of practitioners who are seeking to maximize the returns from public policy intervention as well as informing debate concerning whether initiatives should be introduced to make it easier for entrepreneurs who have failed to start new businesses. The latter debate is typically predicated on the assumption that entrepreneurs learn from failure. However, we argue that this is not the case for all types of entrepreneur. Our evidence does not necessarily support moves to relax bankruptcy laws in order to encourage 'failed' entrepreneurs to re-enter the entrepreneurial pool. Rather, we advocate more customized support for entrepreneurs based on their experiences, knowledge and needs.

In the next section, we develop theory and hypotheses relating to the links between the nature of an entrepreneur's prior business ownership experience and subsequent reported comparative optimism. The data and methods to test these hypotheses are then discussed. Results are reported and then reflected upon in the discussion and conclusions sections.

3. Theory and hypothesis derivation

3.1. Experience with business failure and comparative optimism

The nature of prior experience, specifically perception of an experience as a 'failure' or a 'success', can shape subsequent attitudes and behavior (Shepherd, 2003). Business failure does not solely relate to the bankruptcy, receivership or liquidation of a venture. Gimeno et al. (1997) argue that business survival (and the decision to terminate a venture) will be shaped by the owner's personal threshold of performance. This would explain why one of two businesses operating at the same level of performance may be closed, while the other survives. To accommodate this view, business failure is defined here as the termination of a venture that has fallen short of its owner's goals (McGrath, 1999).

Evidence from other domains suggests individuals are less likely to display optimism after a negative event experience (Van de Velde et al., 1992). Individuals who have not experienced a negative event often believe they are exempt from them (Higgins et al., 1997), and are more likely to report comparative optimism. Despite having been exposed to more learning opportunities, repeat entrepreneurs who have not experienced a negative event such as business failure may feel exempt from failure. The latter entrepreneurs may have limited motivation to question their thinking and decision-making, because it appears to have previously yielded positive results. Routines not associated with failure are likely to be retained (Levitt and March, 1988). Entrepreneurs who have not experienced failure may be more susceptible to confirmation bias (i.e., disconfirming evidence is rejected), and misattribution of success to one's own decisions and actions (McGrath, 1999). These biases may mean that entrepreneurs not experiencing business failure report comparative optimism regarding a subsequent venture(s). Hence:

Hypothesis 1a. Repeat entrepreneurs (i.e. sequential and portfolio entrepreneurs) who have not experienced business failure are more likely to report comparative optimism than novice entrepreneurs.

Experience with business failure can be associated with cognitive/functional effects (Ucbasaran et al., 2009). Studies suggest that people are less likely to report comparative optimism after a negative event experience (Burger and Palmer, 1992; Van de Velde et al., 1992; Weinstein, 1980). Several explanations may be offered for this evidence. Prior experience with a negative event enables some people to imagine themselves in future failure situations (Frieze et al., 1987), leading people to believe that if it happened in the past, it can happen again (Helweg-Larsen and Shepperd, 2001). Indeed, people may come to overestimate the base rate of a negative event after experiencing it and hence believe it is more likely to reoccur (Weinstein, 1980).

An alternative explanation for why comparative optimism is less likely following failure is that failure can represent a 'clear signal' that encourages individuals to question their attitudes and behaviors relating to the failure (Sitkin, 1992). Failure can facilitate learning by encouraging the individual to conduct a post-mortem to understand what led to the failure. Also, failure may encourage entrepreneurs to be more realistic about their own skills and their expectations with regard to a subsequent venture(s). People that have learned from the experience of a negative event may, therefore, subsequently report subjective opinions that are more aligned with objective facts (i.e. a reduced likelihood of reporting comparative optimism). To take advantage of potential learning benefits associated with business failure however, an individual must re-enter business ownership (Shepherd, 2003). Hence:

Hypothesis 1b. Repeat entrepreneurs (i.e. sequential and portfolio entrepreneurs) who have experienced business failure are less likely to report comparative optimism than novice entrepreneurs.

3.2. Sequential and portfolio entrepreneur business failure experience and comparative optimism

Comparative optimism may be less likely after a business failure experience if the entrepreneur has learnt from the experience. The extent to which learning takes place may depend on the entrepreneur's response to failure. Shepherd (2003) suggests that an entrepreneur's experience with business failure can be a traumatic event that generates negative emotions which interfere with learning. The context in which the failure is experienced may influence how the entrepreneur responds to failure, impacting the propensity to report comparative optimism in subsequent ventures.

Whether an entrepreneur learns from prior business failure may be linked to the nature of their prior business ownership experience. As intimated earlier, repeat entrepreneur studies suggest that business ownership experience can be acquired sequentially or concurrently (Ucbasaran et al., 2006). Sequential entrepreneurs are involved in one venture at a time while portfolio entrepreneurs own more than one business at the same time. We propose that the relationship between business failure experience and comparative optimism may differ between sequential and portfolio entrepreneurs. For a sequential entrepreneurs, the associated (emotional) costs are likely to be high (Shepherd et al., 2009), because the entrepreneur is committed to a single business. Strong emotions and commitment can retard learning after a failure experience (Brown et al., 2001; Shepherd, 2003). To ensure a perception of control after a failure experience, some people may remain (or become) optimistic in order to reduce their sense of vulnerability (Janoff-Buhlman, 1989). Further, to maintain self-esteem entrepreneurs may attribute failure to external factors (Weiner, 1986).

Following business failure, a sequential entrepreneur who was highly committed to a failed firm may find it difficult to adjust reported comparative optimism with regard to a subsequent venture. Attribution errors and self-serving biases may dominate. However, to compensate for emotional loss, sequential entrepreneurs may report a coping strategy of reporting comparative optimism after a failure experience. To ensure a sense of self worth, sequential entrepreneurs that have experienced failure may thus increase their propensity to report comparative optimism. Hence:

Hypothesis 2a. Sequential entrepreneurs who have experienced business failure will be more likely than novice entrepreneurs to report comparative optimism.

In contrast, portfolio entrepreneurs may reduce the emotional costs potentially associated with a single business failure by diversifying their portfolio of businesses (Rosa, 1998). When one business fails, portfolio entrepreneurs may not experience as strong an emotional reaction as sequential entrepreneurs who have placed all their eggs in one basket. Portfolio entrepreneurs may wait to see how the business develops before committing additional resources. Consequently, a sequential entrepreneur may report more commitment to an individual venture than a portfolio entrepreneur. Due to the relative emotional costs of failure, portfolio entrepreneurs may be less likely to report comparative optimism than sequential entrepreneurs and inexperienced novice entrepreneurs. Therefore:

Hypothesis 2b. Portfolio entrepreneurs who have experienced business failure are less likely than novice entrepreneurs to report comparative optimism.

4. Data collected and research methods

4.1. Sample, data collection and respondents

Primary information has to be collected to identify types of entrepreneurs relating to their prior business ownership and business failure experience. Information was gathered from a survey of firms to identify whether the key decision-maker in each firm was a novice, sequential or portfolio entrepreneur. The sampling frame of firms was constructed by obtaining sampling quotas by four broad industrial categories (i.e., agriculture, forestry and fishing, production, construction and services), and the eleven Government Official Regions from summary tables detailing the population of businesses registered for Value-Added-Tax in Great Britain in 1999 (Ucbasaran et al., 2006). Names and addresses of firms were purchased from Dun and Bradstreet. Non-independent businesses were removed. Industry and standard region sampling proportions were identified for a stratified random sample of independent private businesses. A stratified random sampling frame of 4307 independent firms was drawn from the cleaned list of business names.

Given the key issues under investigation and the emphasis on the entrepreneur as the unit of analysis, a key informant approach was adopted (Kumar et al., 1993). A structured questionnaire was mailed in September 2000 to a single key respondent in each business in the sampling frame. Valid respondents had to have sufficient knowledge as well as an adequate level of involvement with regard to the issues under investigation. In line with previous studies, key respondent entrepreneurs were the principal owners of at least one business they had established or purchased (Cooper and Dunkelberg, 1986), and were key decision-makers in the surveyed business. To ensure validity of the survey data, several questions ascertained the exact status of the respondent. In total, 54 respondents were identified as not being a founder and/or the principal owner of the business, and were regarded as non-respondents. Although information was not available from multiple respondents in each firm, reliability checks on key firm-level variables such as business age, employment size and legal status detected strong correlations between the archival data provided by Dun and Bradstreet, and the survey evidence provided by key informants. The correlations ranged from 0.77 to 0.88 suggesting the data from the key informant was reliable.

After a three-wave mailing (i.e., two reminders), 767 questionnaires were returned. Respondents who had inherited their business or who filed missing information returns to any of the selected dependent, independent or control variables were excluded from further analysis. In total, 576 respondents provided complete data for the selected variables, an effective response rate of 13.4%. This rate is comparable and in many instances better than similar studies (Storey, 1994).

The sample comprised 278 (48%) novice entrepreneurs and 298 (52%) repeat entrepreneurs. Respondents on average owned 2.2 businesses, while this figure was 3.4 businesses for repeat entrepreneurs. Some 101 repeat entrepreneurs (i.e., 34%) had experienced business failure, of which, 60 (i.e., 59%) were sequential entrepreneurs and 41 (i.e., 41%) were portfolio entrepreneurs. The average age of respondents was 50 years (49 and 51 years for novice and repeat entrepreneurs, respectively).

4.2. Sample representation

Using chi-square and Mann Whitney *U* tests, no statistically significant response bias was detected with regard to industry, standard government official region, legal form, age of the business and employment size between the respondents and non-respondents at the 0.05 level. We have no cause to suspect that the sample is not representative of the population of independent private firms in Great Britain.

4.3. Measures

4.3.1. Dependent variable

There is limited consensus surrounding how to measure an entrepreneur's comparative optimism. Numerous measures have been operationalized which makes it difficult to compare results between studies (Cooper et al., 1988; Fraser and Greene, 2006; Hmieleski and Baron, 2009; Landier and Thesmar, 2009). Guided by social psychology, which is the source of the construct, we noted that comparative optimism could be measured directly, or indirectly. The direct method asks a respondent to assess whether they are more or less likely to experience an event than a specified target person. The indirect method asks a respondent to assess their own probability of experiencing an event. This question is then repeated by asking the respondent to assess the probability of an average person who is similar to the respondent experiencing the same event. The difference between the scores for each question provides an indication of the respondent's comparative optimism. Indirect measures appear to be preferred for measuring optimism in social psychology studies (Otten and van der Pligt, 1996). While direct methods have some merit, indirect measures are generally more conservative, stable and reliable (Helweg-Larsen & Shepperd, 2001). An indirect method was selected to measure comparative optimism. The two questions presented by Cooper et al. (1988) were used to construct the OPTIMISM dependent variable. Respondents were asked: "What are the odds of *this* business achieving your expectations for it in the future?" They were then asked: "What are the chances of any other business like yours succeeding?" Respondents were asked to rank their responses to both questions on zero to ten scales. No chance of success was ranked zero, whilst certain chance of success was

Table 1Descriptive statistics and correlation matrix ($n = 576$).

	MEAN	S.D.	1	2	3	4	5	6	7	8	9	10	11	12	13
1 OPTIMISM	0.57	0.50	1.00												
2 NOVICE	0.48	0.50	-0.09	1.00											
3 REPEATnofail	0.34	0.47	0.12	-0.70	1.00										
4 REPEATfail	0.18	0.38	-0.04	-0.45	-0.33	1.00									
5 SEQUENTIALfail	0.10	0.31	0.04	-0.33	-0.25	0.74	1.00								
6 PORTFOLIOfail	0.07	0.26	-0.11	-0.27	-0.20	0.60	-0.09	1.00							
7 AGE _{owner}	49.78	10.04	-0.03	-0.12	0.09	0.05	0.04	0.03	1.00						
8 GENDER	0.86	0.35	0.08	-0.13	0.11	0.04	0.01	0.05	0.18	1.00					
9 PARENT	0.37	0.48	0.08	-0.11	0.04	0.10	0.07	0.07	-0.02	-0.01	1.00				
10 ETHNIC	0.94	0.24	0.05	0.01	0.00	-0.01	0.02	-0.04	0.01	-0.04	-0.06	1.00			
11 EDUCATION	13.39	2.41	-0.01	-0.02	0.03	0.00	-0.05	0.06	-0.07	-0.05	0.02	-0.03	1.00		
12 TOTAL	2.24	2.34	0.04	-0.51	0.22	0.40	0.08	0.51	0.13	0.10	0.12	0.00	0.00	1.00	
13 TEAM	0.36	0.48	0.00	-0.01	0.01	0.00	0.01	-0.01	0.01	0.07	0.02	0.02	0.04	-0.02	1.00
14 AUTONOMY	0.23	0.42	0.06	0.03	-0.04	0.01	0.09	-0.09	-0.03	-0.04	-0.03	0.00	0.06	-0.03	-0.02
15 INFORMATION	9.04	4.22	0.06	-0.05	0.00	0.07	0.04	0.06	-0.03	0.05	0.03	-0.13	0.09	0.06	0.07
16 OPIDENT	2.52	1.97	0.06	-0.22	0.11	0.16	-0.01	0.24	-0.18	0.10	0.03	-0.03	0.10	0.30	0.04
17 FINANCE	33,166.00	117,924.00	0.00	-0.13	0.05	0.11	0.06	0.08	0.11	0.06	0.09	0.03	0.06	0.08	0.04
18 AGE-BUS	0.00	21.51	0.03	-0.01	-0.01	0.03	0.02	0.02	0.31	0.11	0.21	0.02	-0.05	0.14	0.11
19 AGE-BUS ²	462.02	2215.26	0.04	-0.02	-0.01	0.04	0.03	0.03	0.09	0.05	0.17	0.03	0.08	0.14	0.10
20 SIZE ₁₋₉	0.70	0.46	-0.03	0.17	-0.11	-0.09	-0.01	-0.13	-0.04	-0.07	0.07	-0.04	0.03	-0.16	-0.20
21 SIZE ₁₀₋₄₉	0.20	0.40	0.02	-0.13	0.09	0.06	0.00	0.10	0.02	0.09	-0.06	0.01	0.05	0.08	0.19
22 SIZE ₅₀₋₂₄₉	0.05	0.22	0.07	-0.07	0.04	0.04	0.00	0.06	0.04	0.07	0.01	0.03	-0.04	0.10	0.08
23 PROFIT	0.74	0.44	0.12	-0.02	0.05	-0.04	0.01	-0.07	-0.02	0.09	-0.03	-0.01	-0.01	-0.07	-0.04
24 START-UP	0.79	0.41	0.02	-0.01	0.01	0.01	-0.01	0.02	-0.03	0.03	-0.15	-0.01	0.00	0.00	-0.19
25 SIC 3	0.11	0.31	-0.07	0.02	-0.09	0.09	0.06	0.05	0.07	0.06	-0.07	-0.02	-0.02	-0.04	0.04
26 SIC 5	0.09	0.29	-0.05	-0.04	0.00	0.06	0.09	-0.02	-0.03	0.11	-0.04	0.03	-0.06	0.09	-0.04
27 SIC 6	0.31	0.46	0.10	0.08	-0.06	-0.03	-0.02	-0.02	-0.03	-0.02	0.03	0.00	-0.13	-0.03	0.00
28 SIC 7	0.02	0.15	0.01	-0.05	0.01	0.05	0.02	0.05	0.00	-0.01	0.01	0.04	-0.01	0.04	0.03
29 SIC 8	0.25	0.43	-0.03	-0.06	0.11	-0.06	-0.08	0.00	-0.01	0.09	-0.06	0.01	0.16	0.01	0.04
30 SIC 9	0.14	0.35	-0.06	-0.02	0.05	-0.04	-0.01	-0.05	-0.05	-0.25	0.01	-0.06	0.11	-0.04	-0.06
31 COMPETITION	0.38	0.49	-0.11	-0.02	0.03	-0.01	-0.04	0.03	0.09	0.13	0.03	0.00	-0.02	0.09	0.11

Correlations coefficients with an absolute value greater than 0.08 are significant at the 0.05 level.

ranked ten. The response to the first question was then subtracted from the response to the second question. Difference scores were not evenly distributed. To improve estimation, difference scores were converted into a categorical variable. A positive difference score is indicated by respondents reporting comparative optimism. The latter respondents were allocated a value of '1' for the OPTIMISM variable. Respondents reporting a negative or zero difference score were allocated a value of '0'.⁵

4.3.2. Independent variables

4.3.2.1. Experience of business failure. Each respondent reported the total number of failed businesses they had owned. Business failure was deemed to have taken place if the respondent had closed or sold a business due to bankruptcy, liquidation or receivership, or if the business had been closed or sold because it had failed to meet the expectations of the entrepreneur (Gimeno et al., 1997) (see Section 5.3 for further robustness checks). By definition, novice entrepreneurs had no prior business ownership experience at the time of the survey, and hence had not experienced business failure. Repeat (i.e., entrepreneurs who have owned at least two businesses) may or may not have experienced business failure. A distinction was made between repeat entrepreneurs who had experienced failure (REPEATfail) (yes = 1, no = 0) and repeat entrepreneurs who had not experienced failure (REPEATnofail) (yes = 1, no = 0). The two types of entrepreneurs were compared with novice entrepreneurs (NOVICE), which is the reference category.

4.3.2.2. Experience of failure reported by sequential and portfolio entrepreneurs. A distinction was made between sequential entrepreneurs who had experienced business failure (SEQUENTIALfail) (yes = 1, no = 0) and portfolio entrepreneurs who had experienced business failure (PORTFOLIOfail) (yes = 1, no = 0). They were compared with novice entrepreneurs (NOVICE), which is the reference category.

⁵ Direct measures tend to focus primarily on the respondents own state rather than on the difference between themselves and their peers. Indirect measures offer greater flexibility by allowing researchers to identify the source of comparative optimism, which may stem from judgment about one's own risks, or judgments about others risks. Further, indirect measures explicitly require respondents to think about the comparison with other peers (Covey and Davies, 2004). Indirect measures allow researchers to disentangle comparative optimism caused by entrepreneurs perceptions about themselves and their business(es) (i.e., response to the first question used to calculate the operationalized comparative optimism measure) vis-à-vis comparative optimism caused by entrepreneurs ignoring (or underestimating) data on business failure rates reported by entrepreneurs who have or are exploiting similar opportunities (i.e., response to second question) (Hayward et al., 2006). In Section 5.3, we explore the extent to which comparative optimism is linked to the prior business ownership and business failure experience by sub-types of entrepreneurs.

Table 1 (continued)

14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
1.00																	
0.01	1.00																
0.02	0.12	1.00															
−0.04	0.03	0.12	1.00														
−0.01	0.04	−0.06	0.16	1.00													
−0.02	0.01	0.04	0.15	0.83	1.00												
0.02	−0.08	−0.16	−0.05	−0.10	−0.05	1.00											
−0.03	0.13	0.12	0.00	0.04	0.02	−0.77	1.00										
0.03	−0.04	0.15	0.14	0.07	0.01	−0.34	−0.11	1.00									
0.08	−0.11	0.03	−0.04	−0.06	−0.06	−0.05	0.06	0.02	1.00								
0.02	−0.04	0.04	−0.18	−0.43	−0.30	0.08	−0.02	−0.02	0.10	1.00							
−0.06	0.05	−0.06	−0.04	0.05	−0.02	−0.12	0.09	0.08	−0.03	−0.01	1.00						
0.06	0.09	−0.01	0.08	−0.01	−0.05	0.00	0.02	−0.04	0.04	0.06	−0.11	1.00					
0.00	−0.04	0.03	0.01	0.00	0.01	0.10	−0.04	−0.13	−0.07	−0.09	−0.23	−0.21	1.00				
−0.05	−0.05	0.01	−0.03	−0.01	−0.02	−0.05	0.04	0.07	0.04	0.05	−0.05	−0.05	−0.10	1.00			
−0.02	0.00	0.09	−0.06	−0.01	0.05	−0.06	0.03	0.10	0.07	0.11	−0.20	−0.18	−0.38	−0.09	1.00		
0.06	−0.04	−0.05	−0.05	−0.11	−0.05	0.00	−0.02	−0.02	0.06	0.00	−0.14	−0.13	−0.27	−0.06	−0.23	1.00	
−0.06	0.03	0.10	0.02	0.09	0.05	−0.05	0.06	0.07	−0.03	0.05	0.02	0.04	−0.14	0.05	0.17	−0.11	

4.3.3. Control variables

Human capital, information search, firm-level and external environmental context variables considered in previous studies were selected as control variables. Entrepreneurs with greater human capital to leverage may have a higher likelihood of reporting comparative optimism surrounding the surveyed venture because they have reason to be confident in their abilities to manage the business. To isolate the effects of the nature of prior business ownership experience, the following general human capital variables were operationalized: age of the owner in years (AGE_{owner}); whether the owner was male (GENDER; male = 1, female = 0); whether the owner was drawn from a business owning family (PARENT; yes = 1, no = 0); whether the owner was drawn from an ethnic minority (ETHNIC; yes = 1, no = 0), and owners years in education (EDUCATION). Entrepreneurship-specific human capital was measured with regard to the total number of businesses owned by the respondent at the time of the survey (TOTAL). An entrepreneur's optimism may be shaped by the presence of entrepreneurial team members. Team members can provide access to additional human and other forms of capital that may favorably influence the surveyed ventures prospects (Watson et al., 2003). Unrealistic expectations about the venture may be less likely to be reported if the entrepreneur operates as part of a team because the entrepreneur likely has to justify her/his decisions to a greater extent. Indeed, Forbes (2005) found that over-confidence (often highly correlated with comparative optimism) is tempered if the entrepreneur has to report to outside investors. Respondents indicating that they currently had multiple equity partners in the business were allocated a value of '1', while respondents who owned the business on their own were allocated a value of '0' (TEAM).

Entrepreneurs can go into entrepreneurship for several reasons. In contrast to portfolio entrepreneurs, sequential entrepreneurs typically display a strong desire for autonomy and a desire to gain and maintain control (Katz, 1994; Wright et al., 1997). Consequently, the motivational patterns need to be controlled when comparing the attitudes and behavior of portfolio and sequential entrepreneurs. A control variable was gathered relating to the main motivation for owning a business reported by entrepreneurs. Evidence suggests that sequential and portfolio entrepreneurs are more likely than novice entrepreneurs to report autonomy and control as the main motivation (Westhead and Wright, 1998). Respondents reporting their main motivation was autonomy and control were allocated a value of '1', whilst those citing other main motivations were allocated a value of '0' (AUTONOMY).

Entrepreneurs who collect and analyze information can reduce their exposure to risk, and this information can be used to make more informed decisions (Weinstein and Klein, 1996). Respondents were presented with 14 sources of information. The total number of sources of information used was ascertained (INFORMATION).

Repeat entrepreneurs may identify superior quality opportunities (Baron and Ensley, 2006). Identification of more opportunities may allow repeat entrepreneurs to pursue better quality opportunities if they select the best opportunities from the array (Gruber et al., 2008). Consequently, they may be more optimistic about the prospects for their latest venture. We

controlled for the number of opportunities identified by asking respondents 'how many opportunities for creating or purchasing a business have you identified within the last five years'. They were presented with 8 opportunity identification outcomes (i.e., 0, 1, 2, 3, 4, 5, 6 to 10, or more than 10 opportunities) (OPIDENT).

We anticipate that entrepreneurs reporting comparative optimism would invest more personal funds in their business ideas. Respondents indicated how much they personally invested when they established/purchased the surveyed business (FINANCE).

Several firm level characteristics linked to venture prospects and performance (Storey, 1994) were collected. Firm age may indicate whether the venture is susceptible to liabilities of newness, adolescence and/or obsolescence. Respondents were asked to indicate the year in which the surveyed business received its first order/customer (AGE-BUS). To check for potential non-linearity, we included a quadratic term for the age of the business (AGE-BUS²). To avoid problems with multicollinearity and ensure meaningful interpretation, both AGE-BUS and AGE-BUS² were centered (Cohen et al., 2003). AGE-BUS was measured in terms of the deviation from the mean business age (i.e., 20 years), and AGE-BUS² was measured as the deviation from the mean business age squared. Surveyed firm size at the time of the survey was measured with regard to the total number of full-time employees. A distinction was made between the following size categories: between 1 and 9 employees (SIZE₁₋₉); between 10 and 49 employees (SIZE₁₀₋₄₉); and between 50 and 249 employees (SIZE₅₀₋₂₄₉) (yes = 1, no = 0). The reference category was firms employing 250 or more employee (SIZE_{over250}). Respondents were asked to indicate whether the business operated at a profit with regard to the last financial year because this may shape optimism about the venture. Individuals reporting profits were allocated a value of '1', whilst those reporting a loss or break-even were allocated a value of '0' (PROFIT). Respondents were also asked to indicate whether the surveyed business was a start-up or had been purchased or inherited. Individuals reporting that the surveyed business was a start-up were allocated a value of '1', whilst those who had purchased or inherited the surveyed business were allocated a value of '0' (START-UP).

A firm's competitive environment can influence its survival prospects and economic performance. The external environmental context was, therefore, considered. Industry environments may differ in average performance, reinvestment intensity, sunk costs and barriers to exit (Gimeno et al., 1997), which may shape an entrepreneur's optimism surrounding the business. With reference to the UK Standard Industrial Classification (SIC) codes firms were allocated to their principal industrial category. The following industry dummy variables were computed: manufacturing (SIC3); construction (SIC5); distribution, hotels, catering and repairs (SIC6); transport, storage and communication (SIC7); financial intermediaries, real estate, renting and business activities (SIC8); and other services (SIC9) (yes = 1, no = 0). Firms engaged in agriculture, forestry, fishing, and mining and quarrying (SIC0 and SIC2) were regarded as the reference category. Respondents were asked to indicate the number of competitors the surveyed business had with regard to the following options: 'none'; 'between 1 and 5 competitors'; 'between 6 and 10 competitors'; 'between 11 and 25 competitors', and 'over 25 competitors'. Five binary variables were computed for each response (yes = 1, no = 0), only one of which was significantly associated with OPTIMISM. A single competitor variable was selected. Respondents reporting 'over 25 competitors' were allocated a value of '1', otherwise a value of '0' was allocated (COMPETITION).

4.4. Common method bias

To minimize common method bias steps were taken relating to protect respondent anonymity (Podsakoff et al., 2003); reduce statement ambiguity by pre-testing the survey on entrepreneurs (Tourangeau et al., 2000); ensure statements relating to the dependent variable were not located close to the independent variables on the questionnaire; and triangulation from archival sources was conducted (Parkhe, 1993). All variables were included in a principal components analysis to conduct a Harman one-factor test (Podsakoff et al., 2003). Twelve components with eigenvalues greater than 1.0 were identified, and they accounted for 66% of the variance. The largest component accounted for only 9% of the variance. There is limited evidence to suggest the results will be affected by common method bias.

5. Results

Means and standard deviations are reported in Table 1. Correlation coefficients reported in Table 1 suggest our models are not seriously distorted by multicollinearity. The hypotheses were tested using Probit analysis. To test for robustness, Wald tests were computed to compare the coefficients of the independent variables. Model 1, reported in the first column of Table 2, relates to the testing of Hypotheses 1a and b, while Model 2 relates to the testing of Hypotheses 2a and b.

5.1. Hypotheses 1a and b

Model 1 in Table 2 suggests that repeat entrepreneurs who have not experienced failure are significantly more likely to report comparative optimism than novice entrepreneurs at the 0.01 significance level. The Wald test comparing the coefficients of REPEATnofail and NOVICE (Wald chi-square value = 6.50 at $p < 0.01$) confirmed this result. Hypothesis 1a is supported. The coefficient of the REPEATfail variable in Model 1 suggests that while repeat entrepreneurs who have experienced failure are less likely than novice entrepreneurs to report comparative optimism, the likelihood was not statistically significant. The Wald test comparing the coefficients of REPEATfail and NOVICE confirms no significant difference (Wald chi-square value = 0.15 at $p > 0.10$). Hypothesis 1b is not supported.

Table 2
Probit models relating to the likelihood of entrepreneurs reporting comparative optimism^a.

Variables	Dependent variable: Likelihood of reporting comparative optimism	
	Model 1	Model 2
<i>Business ownership experience</i>		
REPEATnofail ^b	0.136 ^c	0.099 ^d
REPEATfail ^b	−0.028	–
SEQUENTIALfail ^b	–	0.075
PORTFOLIOfail ^b	–	−0.325 ^c
<i>Entrepreneur characteristics</i>		
AGE _{owner}	−0.003	−0.003
GENDER	0.105	0.113 ^d
PARENT	0.073	0.717
ETHNIC	−0.142	−0.134
EDUCATION	0.001	0.004
TOTAL	0.004	0.022 ^d
TEAM	−0.011	−0.017
AUTONOMY	0.070	0.053
INFORMATION	0.012 ^c	0.012 ^c
OPIDENT	0.001	0.005
FINANCE	0.000	0.000
<i>Firm and environment characteristics</i>		
AGE-BUS	0.001	0.001
AGE-BUS ²	0.000	0.000
SIZE _{1–9}	0.039	0.042
SIZE _{10–49}	0.072	0.088
SIZE _{50–249}	0.216 ^d	0.230 ^d
PROFIT	0.157 ^c	0.157 ^c
START-UP	0.090	0.097
SIC 3	−0.250 ^e	−0.272 ^c
SIC 5	0.289 ^c	0.337 ^c
SIC 6	−0.080	−0.105
SIC 7	−0.143	−0.165
SIC 8	−0.231 ^e	−0.255 ^c
SIC 9	−0.259 ^c	−0.287 ^c
COMPETITION	−0.134 ^c	−0.140 ^c
N	576	576
McFadden R ²	0.08	0.10
Log likelihood	−361.61	−355.86
<i>Test for significance of model</i>		
χ^2	64.13	75.63
Prob > χ^2	0.00	0.00

^a All marginal effects.

^b Reference category is NOVICE.

^c Significant at the 0.01 level.

^d Significant at the 0.1 level.

^e Significant at the 0.05 level.

5.2. Hypotheses 2a and b

Model 2 in Table 2 suggests no significant difference between the SEQUENTIALfail group and the novice entrepreneur reference group, even though the sign on the coefficient is positive as expected. This result was confirmed by the Wald test comparing the coefficients of SEQUENTIALfail and NOVICE (Wald chi-square value = 0.92 at $p > 0.10$). Hypothesis 2a is thus not supported. The PORTFOLIOfail coefficient suggests that portfolio entrepreneurs who have experienced failure were significantly less likely to report comparative optimism than novice entrepreneurs at the 0.01 significance level. This result was confirmed by the Wald test comparing the coefficients of PORTFOLIOfail and NOVICE (Wald chi-square value of = 7.95 at $p < 0.01$). Hence, Hypothesis 2b is supported.

5.3. Robustness checks

Additional analyses were conducted to explore the robustness of our results and their sensitivity to the operationalization of our business failure and optimism measures.

5.3.1. Business failure

Models presented in Table 2 relate to a broad failure measure. Business failure is not solely a function of economic performance because it can also relate to performance relative to a critical threshold (Gimeno et al., 1997). An entrepreneur may choose to close or sell a business that may not be a total economic failure. A distinction can be made between economic business failure (i.e., firm bankruptcy), and failure because the business did not meet expectations (i.e., closure/sale of a business whose performance was too low in relation to the entrepreneur's expectations). To explore whether our results were sensitive to failure definitions the following more fine-grained definitions were operationalized: repeat entrepreneurs who had experienced the failure of at least one business solely due to economic reasons (i.e., firm bankruptcy, liquidation or receivership) (REPEATfail-economic) (yes = 1, no = 0); repeat entrepreneurs who experienced failure of at least one business because it failed to meet their expectations (REPEATfail-expectations) (yes = 1, no = 0); sequential entrepreneurs who had experienced the failure of at least one business due to bankruptcy, liquidation or receivership (SEQUENTIALfail-economic) (yes = 1, no = 0); sequential entrepreneurs who experienced failure of at least one business because it failed to meet their expectations (SEQUENTIALfail-expectations) (yes = 1, no = 0); portfolio entrepreneurs who had experienced failure of at least one business due to bankruptcy, liquidation or receivership (PORTFOLIOfail-economic) (yes = 1, no = 0); and portfolio entrepreneurs who experienced the failure of at least one business because it failed to meet their expectations (PORTFOLIOfail-expectations) (yes = 1, no = 0). The reference category was NOVICE. Additional probit models were computed and are reported in Table 3. These models confirmed that the results presented in Table 2 are not sensitive to the business failure definition operationalized with regard to Hypotheses 1a, b and 2a.

Model 3 in Table 3 shows that when an economic definition of business failure is operationalized (i.e., fail-economic), the sensitivity analysis suggests that portfolio entrepreneurs who have experienced failure are less likely to report comparative optimism than novice entrepreneurs, but the likelihood is no longer significantly different. However, when an expectations definition of business failure is operationalized (i.e., fail-expectations), Model 4 in Table 3 suggests that the results reported in Table 2 are confirmed with regard to Hypothesis 2b.

Table 3

Robustness check: probit models relating to the likelihood of entrepreneurs reporting comparative optimism using alternative measures of failure^a.

Variables	Dependent variable: Likelihood of reporting comparative optimism			
	Model 3	Model 4	Model 5	Model 6
<i>Business ownership experience</i>				
REPEATnofail ^b	0.125 ^c	0.095 ^d	0.130 ^c	0.097 ^d
REPEATfail-economic ^b	−0.083	−	−	−
REPEATfail-expectations ^b	−0.043	−	−	−
SEQUENTIALfail-economic ^b	−	−0.056	−	−
SEQUENTIALfail-expectations ^b	−	0.071	−	−
PORTFOLIOfail-economic ^b	−	−0.208	−	−
PORTFOLIOfail-expectations ^b	−	−0.296 ^e	−	−
REPEATonefail ^b	−	−	−0.005	−
REPEATtwofail ^b	−	−	−0.110	−
SEQUENTIALonefail ^b	−	−	−	0.102
SEQUENTIALtwofail ^b	−	−	−	−0.023
PORTFOLIOonefail ^b	−	−	−	−0.331 ^e
PORTFOLIOtwofail ^b	−	−	−	−0.327 ^c
<i>Significant control variables^f</i>				
GENDER	0.107 ^d	0.114 ^d	−	0.115 ^d
TOTAL	−	0.22 ^d	−	0.023 ^d
INFORMATION	0.012 ^c	0.012 ^c	0.012 ^c	0.012 ^c
SIZE _{50–249}	0.214 ^d	0.225 ^d	0.218 ^d	0.233 ^d
PROFIT	0.158 ^e	0.156 ^e	0.160 ^e	0.159 ^e
SIC 3	−0.246 ^c	−0.261 ^c	−0.257 ^c	−0.275 ^e
SIC 5	−0.289 ^e	−0.338 ^e	−0.299 ^e	−0.399 ^e
SIC 8	−0.233 ^c	−0.251 ^e	−0.240 ^e	−0.259 ^e
SIC 9	−0.261 ^e	−0.288 ^e	−0.267 ^e	−0.289 ^e
COMPETITION	−0.136 ^e	−0.142 ^e	−0.136 ^e	−0.141 ^e
N	576	576	576	576
McFadden R ²	0.08	0.09	0.08	0.10
Log likelihood	−361.23	−356.58	−361.235	−355.56
<i>Test for significance of model</i>				
χ^2	64.89	74.19	64.89	76.24
Prob> χ^2	0.00	0.00	0.00	0.00

^a All marginal effects.

^b Reference category is NOVICE.

^c Significant at the 0.05 level.

^d Significant at the 0.1 level.

^e Significant at the 0.01 level.

^f All control variables included in Models 1 and 2 were included in Models 3 to 6. Due to space restrictions, only significant relationships are reported.

Models reported in Table 2 do not consider the number of failed businesses previously owned by repeat entrepreneurs. In total, 197 (66%) repeat entrepreneurs reported no experience of business failure, whilst 101 (34%) repeat entrepreneurs reported economic or failure to meet expectations prior business failure, of which 67 (23%) reported one failure and a further 34 (11%) reported 2 or more failures. To explore whether the results presented in Table 2 were sensitive to the number of business failures previously owned by repeat entrepreneurs the following variables were operationalized: repeat entrepreneurs who had experienced one business failure (REPEATonefail) (yes = 1; no = 0); repeat entrepreneurs who had experienced two or more business failures (REPEATtwofail) (yes = 1; no = 0); sequential entrepreneurs who had experienced one business failure (SEQUENTIALonefail) (yes = 1; no = 0); sequential entrepreneurs who had experienced two or more business failures (SEQUENTIALtwofail) (yes = 1; no = 0); portfolio entrepreneurs who had experienced one business failure (PORTFOLIOonefail) (yes = 1; no = 0); and portfolio entrepreneurs who had experienced two or more business failures (PORTFOLIOtwofail) (yes = 1; no = 0). The reference category was NOVICE.

Additional models were computed including the number of prior business failures (see Table 3) and they confirmed the results reported in Table 2. Notably, Model 6 in Table 3 shows that both PORTFOLIOonefail and PORTFOLIOtwofail are significantly less likely to report comparative optimism than novice entrepreneurs.

5.3.2. Optimism

As discussed in the description of the comparative optimism measure (see Section 4.3), comparative optimism may stem from judgments about one's own risks or judgments about others' risks. To explore whether the comparative optimism reported in Table 2 stems from assessments about one's own risk or assessments about similar others' risk, the following two more fine-grained optimism dependent variables were operationalized. First, we created a dependent variable in response to the question: "What are the odds of this business achieving your expectations for it in the future?" (i.e., optimism relating to own business). Second, a dependent variable was created based on responses to: "What are the chances of any other business like yours succeeding?" (i.e., optimism relating to similar other peoples' businesses). Both variables were measured on zero to ten scales. No chance of success was ranked zero, whilst certain chance of success was ranked ten. Models reported in Table 2 were re-run with reference to the latter optimism dependent variables. Ordered probit and ordinary least squares (OLS) regression analysis were used to test hypotheses relating to the categorical dependent variables. Irrespective of the technique utilized similar results were detected. To save space, only ordered probit models are presented in Table 4. Models 7 and 8 focus on 'optimism relating to own business', while Models 9 and 10 focus upon 'optimism relating to similar other peoples' businesses'. While Hypothesis 1b was not supported using the combined comparative optimism dependent variable, supporting Hypothesis 1b, Table 4 shows that repeat

Table 4

Robustness check: ordered probit models relating to the likelihood of two types of comparative optimism^a.

Variables	Dependent variable: Optimism relating to own business		Dependent variable: Optimism relating to similar other peoples businesses	
	Model 7	Model 8	Model 9	Model 10
<i>Business ownership experience</i>				
REPEATnofail ^b	−0.175	−0.171	−0.309 ^c	−0.264 ^d
REPEATfail ^b	−0.356 ^c		0.019	
SEQUENTIALfail ^b		−0.368 ^d		−0.106
PORTFOLIOfail ^b		−0.320		0.383 ^e
<i>Significant control variables^f</i>				
GENDER			−0.229 ^e	−0.234 ^e
PARENT	−0.216 ^d		−0.182 ^d	−0.180 ^e
TEAM	−0.208 ^d	−0.207 ^d		
AUTONOMY			−0.188 ^e	
PROFIT	0.594 ^c	0.594 ^c	0.257 ^d	0.263 ^c
SIC 5			0.632 ^c	0.679 ^c
SIC 8			0.427 ^d	0.440 ^d
SIC 9			0.610 ^c	0.631 ^c
COMPETITION			0.171 ^e	0.174 ^e
N	576	576	576	576
McFadden R ²	0.03	0.03	0.03	0.03
Log likelihood	−1109.57	−1109.54	−1153.38	−1151.17
<i>Test for significance of model</i>				
χ^2	77.05	77.09	69.35	73.76
Prob > χ^2	0.00	0.00	0.00	0.00

^a Analysis was also conducted using OLS regression analysis. Similar results presented by the probit and OLS models.

^b Reference category is NOVICE.

^c Significant at the 0.01 level.

^d Significant at the 0.05 level.

^e Significant at the 0.1 level.

^f All control variables included in Models 1 and 2 were included in Models 7 to 10. Due to space restriction, only significant relationships are reported.

entrepreneurs with prior business failure experience (REPEATfail) were significantly less likely than novice entrepreneurs to report 'optimism relating to their own business' (Model 7), but not with regard to 'optimism relating to similar other peoples' businesses' (Model 10). Thus, these findings suggest that the results relating to the testing of **Hypothesis 1b** are being driven by assessments of risk about similar others and that the experience of failure does not dampen this latter form of optimism.

Evidence presented in **Table 2** suggested that sequential entrepreneurs who had experienced business failure were not more likely to report comparative optimism than novice entrepreneurs. **Table 4** shows sequential entrepreneurs with prior business failure experience (SEQUENTIALfail) were significantly less likely than novice entrepreneurs to report 'optimism relating to their own business' (Model 8), but not with regard to 'optimism relating to similar other peoples businesses' (Model 10). Evidence in **Table 2** suggested that portfolio entrepreneurs who have experienced business failure are less likely than novice entrepreneurs to report comparative optimism. Model 8 in **Table 4** shows portfolio entrepreneurs with prior business failure experience (PORTFOLIOfail) were not significantly less likely than novice entrepreneurs to report 'optimism relating to their own business'. Contrary to expectation, they were weakly more likely than novice entrepreneurs to report 'optimism relating to similar other peoples' businesses' (Model 10).

6. Discussion

6.1. Key findings

Guided by insights from conceptual work relating to comparative optimism and cognitive theory, four hypotheses relating to links between an entrepreneur's prior business ownership experience and current comparative optimism were developed and tested. Our findings support the validity of opposing views on the potential learning benefits associated with entrepreneurial experience and specifically business failure experience. We find that entrepreneurial experience offers opportunities to reduce the likelihood of subsequently reported comparative optimism but this depends on the nature of the experience.

Despite exposure to more learning opportunities through multiple business ownership experiences, we find that repeat entrepreneurs not experiencing business failure are *more* likely than novice entrepreneurs to report comparative optimism. This finding questions the ability of entrepreneurs to learn solely from positive experiences. Some experienced repeat entrepreneurs appear to be prone to the liabilities of success (McGrath, 1999).

Building on arguments in favor of the learning benefits of failure, we expected that repeat entrepreneurs who have experienced a business failure would be less likely to report comparative optimism than novice entrepreneurs with no business failure experience. Evidence confirms that *only* portfolio entrepreneurs (and not sequential (serial) entrepreneurs) experiencing business failure are less likely than novice entrepreneurs to report comparative optimism. These results are interesting for two inter-related reasons. First, the circumstances under which business failure is experienced appears to be linked to how the entrepreneur responds to and learns from that experience. Our evidence reveals significant differences in how sequential and portfolio entrepreneurs make sense of their experience of business failure. While portfolio entrepreneurs report a lower likelihood of reporting comparative optimism following business failure experience, sequential entrepreneurs appear to maintain their comparative optimism. Second, our results suggest that entrepreneurs who have experienced business failure are heterogeneous. Entrepreneurs having experienced business failure should not be aggregated into a single crude business failure group that does not differentiate economic business failure from failure to meet an entrepreneur's expectations.

Our data allows us to offer more nuanced insights into the nature of the relationship between experience and comparative optimism. First, we were able to distinguish between economic failure and failure to meet expectations. Second, we were able to examine associations with the number of failures. Finally, we were able to detect the sources of comparative optimism by examining whether it was driven by perceptions of risk about one's own business or perceptions of risk about similar other entrepreneurs' businesses. Our results suggest that future studies may benefit from considering these additional dimensions of business failure experience and optimism.

6.2. Theoretical implications

Our results provide fresh insights into an emerging debate relating to business failure. While some scholars view failure as representing an opportunity for learning (McGrath, 1999), others have argued that it may be difficult to learn from business failure (Shepherd, 2003). Our findings suggest that both views have some validity. Experience of business failure offers opportunities for learning, but only under certain conditions. Emotional costs of business failure may be 'diluted' for portfolio entrepreneurs because they have another business(es) to fall back on. Portfolio entrepreneurs may adopt an experimental approach which often results in them making smaller and incremental investments into new ventures. They, therefore, may strategically seek to minimize the emotional and financial costs of business failure. Relative to sequential entrepreneurs, portfolio entrepreneurs may be more able to distance themselves from their ventures, and adopt a more objective evaluation of each business owned.

Our findings confirm this view, revealing that sequential entrepreneurs are unable to revise the likelihood of reporting comparative optimism downwards. Additional analysis reported in **Table 4**, however, suggests that sequential entrepreneurs with prior business failure experience were significantly less likely to report 'optimism relating to own business'. Their comparative optimism appears, therefore, to be driven by their assessment of risks about similar others. Portfolio entrepreneurs seeking to minimize their exposure to risk, and to lower their personal and financial commitment to a single venture, may select a

diversification strategy associated with two or more firms. These conditions appear to minimize the costs of failure, which may make learning more likely. However, this kind of entrepreneurial experience is a necessary but not sufficient condition for tempering optimistic expectations. Our results suggest that portfolio experience has to be coupled with business failure experience to trigger adoption of more realistic expectations with regard to subsequent ventures owned.

6.3. Limitations and implications for future research

Our study has several limitations that give rise to opportunities for further research. First, the cross-sectional nature of the data limits our ability to observe real outcomes and compare them with expectations (Landier and Thesmar, 2009). These limitations could be addressed in future research using longitudinal data comprising information from cohorts of novice entrepreneurs followed over time. Identification of total time in business ownership, the number of business failures, and transitions into sequential and portfolio entrepreneurship, as well as into paid employment would represent valuable research opportunities. While we delineate between sequential and portfolio entrepreneurs, additional studies could monitor transitions between finer sub-types of entrepreneurs, for example, sequential portfolio entrepreneurs (i.e., those who exit from one portfolio of businesses and then own a completely different group of firms) and portfolio sequential entrepreneurs (i.e., portfolio entrepreneurs who after exiting a previous business subsequently end up owning a single business).⁶

A longitudinal study would enable the measurement of the level of optimism at different points in real time. Further, it would enable comparison of reported expectations with real subsequent outcomes. We did not gather information on the comparative optimism reported by entrepreneurs when they entered business ownership. Future longitudinal studies should explore whether sequential entrepreneurs are from the outset of their entrepreneurial careers more likely to report comparative optimism than other types of entrepreneurs, and whether this might explain their willingness to put all their eggs in one basket compared to portfolio entrepreneurs.⁷ Fresh insights could be ascertained by exploring the linkage between the initial and subsequent propensity to report comparative optimism. Future studies could also explore the relationship between the comparative optimism construct explored in this study and the dispositional optimism construct (Hmieleski and Baron, 2009). While empirical evidence points to little or no correlation between the two constructs (e.g. Davidson and Prkachin, 1997; Fontaine, 1994), additional empirical studies could confirm this in the context of entrepreneurship.

We did not explore the timing and sequence of business failure experience reported by types of entrepreneurs. Timing of failure may influence how the entrepreneur makes sense of a failure. Strong emotions (i.e., grief) may be common in the period immediately after failure, but less emotional responses and interpretations of failure may emerge over time (Cannon, 1999). Further studies are needed to explore the timing of business failure and to consider the difficulties involved in defining business failure and success. Some outcomes can be unambiguously classed as failures or successes. However, others fall into a gray-zone of near-failure and near-success (Rerup, 2006). Links between alternative definitions of business failure and success and comparative optimism could be explored.

Studies could consider the actual financial and non-financial costs of business failure and links with subsequent optimism and behavior. An entrepreneur having lost his/her life savings in a business failure may exhibit greater emotional damage, and this may constrain the ability to learn from that experience. Consequently, the entrepreneur may become less optimistic when a subsequent venture is owned. While we have controlled for a number of venture-specific characteristics, it is not clear whether entrepreneurs experiencing business failure subsequently own firms that are less innovative and/or report lower wealth creation and job generation contributions. Entrepreneurs who have previously failed with limited financial resources may subsequently seek to exploit less risky and potentially less innovative business opportunities. Further, entrepreneurs seeking to preserve their sense of control may subsequently select a less innovative business opportunity and remain optimistic. Ucbasaran et al. (2009) found no significant relationship between entrepreneurs' experience of business failure and innovativeness of their most recent venture. However, the latter study did not delineate between sequential and portfolio entrepreneurs.

6.4. Implications for practice and policy

Our results have implications for policy-makers seeking to minimize the potential wastage of some publicly subsidized resources towards enterprise creation and development. The bias of over-optimism can be a contributory factor leading to business failure. Entrepreneurs who have received public subsidies reporting comparative optimism can potentially push their own and other non-subsidized firms out of business. While we acknowledge that additional research is warranted surrounding whether entrepreneurs reporting comparative optimism are more likely to obtain external public support, and to own firms with higher business failure rates, evidence presented in this study does not conclusively suggest that macro level bankruptcy laws should be relaxed to enable entrepreneurs who have experienced failure to start and/or purchase a further business(es). Practitioners need to appreciate that not all experienced entrepreneurs learn from business failure. We highlight that portfolio rather than sequential entrepreneurs temper their comparative optimism after a business failure experience. There is a case for micro level customized support relating to an entrepreneur's prior business ownership experience (Westhead et al., 2003) and business failure experience. Sequential entrepreneurs could be encouraged to participate in schemes that help them examine the nature of their prior mistakes (and successes) before embarking on a subsequent venture. Entrepreneurs may benefit from developing routines that challenge

⁶ We thank a reviewer for this suggestion.

⁷ We thank a reviewer for this suggestion.

assumptions about their business(es) as well as their competitors. Routines may include involving others in the business that encourage the lead entrepreneur to justify their actions. On the downside, entrepreneurs should be aware that routines to minimize biases can exacerbate problems. Supporting this assertion, we find that entrepreneurs who had used more sources of information were more likely to report comparative optimism. Greater information search may increase perceptions of control, which is associated with propensity to report optimism (Helweg-Larsen and Shepperd, 2001). Nevertheless, inexperienced novice entrepreneurs with no prior business ownership experience to leverage should be provided with advice surrounding the potential problems associated with high levels of comparative optimism. Further, they may be encouraged to consider team business ownership as well as to participate in schemes that illustrate routines to minimize potential drawbacks associated with high levels of comparative optimism.

7. Conclusions

Entrepreneurs are frequently described as suffering from an optimism bias. High new business failure rates can be attributed to this bias. It is not clear whether all entrepreneurs are equally prone to this potential bias. We have argued that an entrepreneur's prior business ownership experience and business failure experience are linked to the likelihood of reporting comparative optimism. Using a unique representative sample of 576 entrepreneurs, we find that experience with business failure represents an opportunity to temper the likelihood of reporting comparative optimism for some types of experienced entrepreneurs. Portfolio entrepreneurs are generally less likely to report comparative optimism. However, the experience of business failure does not appear to alter the likelihood of sequential entrepreneurs reporting comparative optimism. Our findings help reconcile conflicting theoretical arguments and empirical evidence relating to the relationship between business ownership experience and comparative optimism. Our study highlights some of the challenges associated with studying the relationship between entrepreneurial experience and optimism and highlights numerous avenues for future research.

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