



Extending behavioral theory of the firm to new ventures: Dispositional optimism as a moderating influence on new product introductions in high-tech ventures

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ABSTRACT

Extant literature has typically drawn from the behavioral theory of the firm (BTOF) to examine new product introductions in the context of well-established companies. This paper extends the behavioral theory of the firm to entrepreneurial firms and argues that jointly considering founders' dispositional optimism together with the performance feedback promises to yield a better understanding of new product introductions in new ventures. We analyze a longitudinal dataset on the activities of 344 newly founded high technology ventures in the United States. The key insight of our study is that when BTOF is applied to the context of nascent, entrepreneurial ventures, the personality and dispositional characteristics of the entrepreneur must be considered. Specifically, we find that performance attainment discrepancy leads to new product introductions, but only when the entrepreneur's dispositional optimism level is high.

1. Introduction

Historically, scholars attempting to understand risky organizational actions, such as new product introductions, draw insights from the behavioral theory of the firm (BTOF) (Cyert and March 1963; Gavetti et al., 2012; Greve, 1998; Steinberg et al., 2022). According to the BTOF, firms performing below aspirations take risks and initiate strategic change to improve performance to a satisfactory level. On the other hand, firms operating at, or above aspirations tend to maintain the *status quo* (Bromiley, 1991, 2005; Chen and Miller, 2007; Cyert and March, 1963; Greve, 2010). However, the BTOF's extension to new ventures has been limited (Bromiley and Rau, 2022). In fact, entrepreneurship scholars argue that because of the liabilities of newness (Stinchcombe, 1965) and smallness (Aldrich and Auster, 1986), new ventures are more readily threatened by performance decline (Wiklund et al., 2010) and may become more risk averse when performance falls short of aspirations (Howell, 2021; Mahto and Khanin, 2013; Sepulveda and Bonilla, 2014). Moreover, unlike well-established companies, new ventures may not have readily available resources to invest in new strategic initiatives given that attracting additional resources from resource providers often depends on the evidence of positive emergent trends in performance (Lichtenstein and Brush, 2001; Marion et al., 2012; Yemisi et al., 2015). Accordingly, some entrepreneurship scholars argue that young ventures take riskier actions when performance is at or above aspirations, compared to when performance is below aspirations (Wennberg et al., 2016).

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So, significant questions remain unanswered as to how new, young ventures, with limited histories of performance and limited resources, consider risky strategic initiatives, such as new product introductions, in response to an attainment discrepancy between their expected and actual performance. We suggest that the actions new ventures initiate in response to performance feedback depend on founders' psychological characteristics. This is because founders are the primary decision makers who evaluate past performance and determine the future strategic direction of their ventures (Grilli, 2021; McMullen and Shepherd, 2006; Shepherd et al., 2014). We argue that when performance is below the aspirations, new ventures with more optimistic founders will be more effective at processing negative feedback more thoroughly and flexibly and look for different alternatives and introduce new products to restore performance. Less optimistic founders, on the other hand, may disengage themselves from working towards new product introductions when faced with adversity.

We test our hypothesis on a sample of 344 high technology new ventures. Our results show a significant interaction effect of performance feedback and dispositional optimism on new product introductions and confirm our hypothesis. This finding is important because our theoretical knowledge of implications of the interplay between performance feedback and entrepreneurial characteristics has been limited. Our results demonstrate that in the context of entrepreneurial ventures, it is critical to factor in the personality and dispositional traits of the entrepreneur. Utilizing such an approach, we can explain how entrepreneurs with different characteristics view the discrepancy between the expected and the actual performance differently, and the impact this has on initiating strategic changes, such as new product introductions. By doing so, our study lays the foundation for a more judicious application of BTOF in entrepreneurship, thus laying out a pathway for future research in this arena.

2. Theory

One of the fundamental tenets of BTOF is that, due to their own bounded rationality, decision-makers satisfice regarding performance expectations rather than optimizing on performance targets (Cyert & March 1968). According to BTOF, in the complex and multilayered organizational structures of well-established companies, political actors engage in negotiations and quasi resolution of conflict to set up *ex ante* organizational performance aspirations. These are compared against the actual performance achieved. Depending on the discrepancy between aspiration and performance, decision-makers may aim for change and undertake new and risky initiatives. In other words, managers look to past performance to determine managerial action (Cyert and March 1963; Levinthal and March 1981). Low performance relative to aspirations is a problem. To raise performance above the aspiration level, firms search for alternative solutions and undertake new risky initiatives such as new product introductions. High performance relative to aspirations, on the other hand, causes managers to maintain the *status quo* (Bromiley, 1991; Chen and Miller, 2007; Levinthal and March 1981).

Applied to the specific context of entrepreneurial ventures; however, it becomes critical to understand the potential moderating impact of the entrepreneur's personal characteristics on the venture's decision-making in response to performance feedback (Dew et al., 2008). This is because unlike established companies, new ventures do not have much of an operating history, established routines, or complex multilayered structures. Therefore, the ways in which new ventures form their aspirations, make sense of past performance, and decide on new strategic direction is largely influenced by founders' characteristics (Hayward et al., 2006; Shane et al., 2003; Simon and Shrader, 2012). That is, individual idiosyncrasies are more likely to influence the way strategic decisions are made in response to performance feedback in entrepreneurial firms than in established firms (Bromiley and Rau, 2022). As such, in their theoretical discussion of extending the BTOF to entrepreneurial firms, Bromiley and Rau (2022, pg. 34) assert that:

"If the founding members of an entrepreneurial firm have a significant effect on its aspirations, routines, and search processes, it makes sense to combine BTOF analysis with analyses based on demographic and psychological characteristics of the entrepreneurial firm's managers and top management team."

One important dimension of individual difference is the founder's level of optimism, a disposition that represents "*the extent to which people hold generalized favorable expectancies for the future*" (Carver et al., 2010: 879). In general, entrepreneurs display higher levels of optimism than non-entrepreneurs (Dushnitsky, 2010; Trevelyan, 2008) and the degree of optimism varies among entrepreneurs (Hmieleski and Baron, 2009; Ucbasaran et al., 2010). Studies examining the influence of optimism on entrepreneurial outcomes have produced mixed results. Some researchers found that optimism benefits entrepreneurship (e.g., Chen et al., 2013; Dawson and Henley, 2012; Lindblom et al., 2020), while others found that optimism associates negatively with entrepreneurial outcomes (e.g., Hmieleski et al., 2013; Palich and Bagby, 1995), and still others have shown that optimism does not have a direct effect, but plays a moderating role (Michael et al., 2011).

In general, researchers that have recognized a negative influence of optimism during entrepreneurial decision-making concluded that highly optimistic entrepreneurs tend to misjudge the riskiness associated with their projects; they tend to attribute the resulting failure to external, temporary, and situation-specific factors, and tend to distance themselves from failures. For example, in their experimental study involving 205 entrepreneurs, Amore et al. (2021) found that dispositional optimism is negatively associated with the likelihood and extent of belief updating in response to negative feedback and reduces a firm's innovation effectiveness. In their study, Hmieleski and Baron (2009) also found that while dispositional optimism reduces the entrepreneur's ability to improvise in dynamic environments. In contrast, in stable environments high levels of dispositional optimism support the entrepreneur's improvisational efforts on firm performance. Adopting a nuanced stance, the authors suggest that operating with realistic levels of dispositional optimism can help entrepreneurs to engage in improvisational efforts, based on the prevailing environmental conditions.

Studies finding a positive influence of optimism have shown that optimists are more effective than pessimists at processing negative feedback more thoroughly and flexibly (Aspinwall et al., 2001; Conversano et al., 2010; Kappes et al., 2012). These researchers suggest two theoretical mechanisms. The first is the mediating influences of positive affect (Rego et al., 2007). Based on the broaden-

and-build theory (Fredrickson, 2004), this view suggests that since optimistic individuals take credit for successes and distance themselves from failures, they experience positive affect more frequently and negative affect less frequently, and “positive affect broadens the individual's momentary thought-action repertoire, thus promoting the discovery of novel and creative actions, ideas and social bonds” (Rego et al., 2011: 249). Pessimistic disposition, on the other hand, is associated with more negative emotions, which narrow the focus of attention and decrease creative search, thereby lessening the likelihood of a successful idea emerging. The second mechanism is Carver and Scheier's (1981) self-regulatory model, which suggests that the positive attribution style of optimistic disposition increases the perceived capacity to cope with challenges. In support of this argument, Papenhausen (2010) empirically demonstrates that managerial dispositional optimism associates positively with problematic search because “the expectancy of success in attaining goals motivates individuals to remain engaged in effort, even in the face of adversity” (p. 717).

Both Fredrickson (2004) broaden-and-build theory, and Scheier and Carver, 1992 self-regulatory model suggest that optimism promotes imagination, effort, and persistence even in the face of setbacks. Accordingly, in the context of new ventures, we argue that optimism as a personal disposition is likely to influence how entrepreneurs will respond to shortfalls in performance and initiate strategic change, such as new product introductions. Specifically, we propose that more optimistic founders will respond to negative performance feedback with continued search efforts to try to solve problems, which often implies development of new products instead of denying the problem or wishing it would go away (Darvill and R, 1991). By contrast, less optimistic entrepreneurs will tend to view the desired outcome (i.e., restoring performance) as unattainable and disengage themselves from the issue instead of actively trying to solve their performance problem. That is, they will tend to lose the momentum for creative action when performance declines.

When performance is above aspirations, on the other hand, we do not expect any difference in terms of new product introductions between new ventures founded by both optimistic and unoptimistic entrepreneurs (Lipkus et al., 1993). High performance compared to aspirations is a positive outcome that pleases entrepreneurs, causing a positive affective experience both in optimistic and unoptimistic entrepreneurs; therefore, the effort they will exert for new product introductions will not be meaningfully different. Thus.

Hypothesis 1. There is a significant interaction effect between performance attainment discrepancy and dispositional optimism in affecting new product introductions such that when performance is below aspirations, new ventures founded by more optimistic founders are more likely to introduce new products relative to those founded by less optimistic founders.

3. Method

3.1. Sample

Firm level data to test the hypotheses comes from the Kaufmann Firm Survey (KFS), a large panel data set of new businesses founded in the U.S. in 2004. Because KFS follows the same cohort of firms over time (from 2004 to 2011), we can observe past performance during the first four years (from 2004 to 2008) and observe new product introductions during the next three years (from 2008 to 2011). The sample size in 2008 is 344 high technology new ventures.¹ KFS collects data on a range of venture characteristics and founder attributes allowing for firms having up to ten founders. However, for new ventures with more than one founder, we consider only the lead founder² in the measurement of individual-level variables.

3.2. Measures

Table 1 provides a brief overview of the variables. The dependent variable is new product introductions, measured as a discrete variable every year from 2008 to 2011. In our analyses, it is coded 1 if the venture introduced at least one new product in 2008 and for any year over the next three-year period, otherwise it is coded 0. In the final sample, 52% of the surviving firms introduced at least one new product to the market between 2008 and 2011.

We measure performance attainment discrepancy with the following question asked in 2008: “How much do you think your business met your expectations for growth between when the business started in 2004 and 2008? Would you say its growth a) Exceeded, b) Met, or c) Did not meet your expectations?” We code 1 if the answer is “exceeded,” or “met,” and code 0 if the answer is “did not meet expectations.” About 49% of the lead founders state that they met or exceeded their performance expectations, while 51% state that they did not meet their growth expectations.

Founder dispositional optimism is measured in 2008 using 5-point scale item for the question “In uncertain times, I usually expect the best.” The answers ranged from 1 = Completely disagree to 5 = Completely agree. Given that the data comes from a nationally administered survey by an external agency, it is not possible for us to add to or modify any of the survey questions. Therefore, a single item serves as the optimism measure in the study, which is a limitation. We suggest that more comprehensive survey questions to measure optimism are used in future research.

We incorporate a comprehensive set of control variables for the characteristics of the lead founder as well as firm characteristics to account for alternative explanations. These control variables include gender (Reavley et al., 2005), education (Tang and Murphy, 2012), the average number of hours per week the lead founder works for the startup (Bitler et al., 2005), the number of founders

¹ High technology firms are defined by the KFS based on the categorization by Hadlock et al. (1991).

² Lead founder is defined as the founder who has the largest equity share of the company. If founders have equal equity shares, then lead founder is designated as the one most involved with the day-to-day operations. In the final sample, 56% of the new ventures have one founder, while 30% have two founders, 10% have three founders and 4% have four or more founders.

Table 1
Variable definitions.

Variable	Abbreviation of Variables	Definition
New Product Introductions	New Product	(1) Dummy = 1 if the firm introduced at least one product each year between 2008 and 2011, 0 otherwise.
	No of Product (Robustness)	(2) Number of products introduced each year between 2008 and 2011.
Performance Attainment Discrepancy	Performance Discrepancy	Dummy = 1, if the business met or exceeded the primary founder's expectations for growth between when the business started (2004) and 2008, 0 otherwise.
Founder Optimism	Optimism	5-point scale item to the question in 2008 "In uncertain times, I usually expect the best."
Gender of the Primary Founder	Female	Dummy = 1 if founder is female, 0 otherwise.
Age of the Primary Founder	Age	Age of the founder
Education of the Primary Founder	Education	Dummy = 1 if education is bachelor's degree or more, 0 otherwise.
Number of Hours Worked	Hours Worked	Number of hours in an average week the primary founder spends working at the new venture.
Number of Owners	Number of Owners	Total number of owners of the business.
Total Employees	Total Employees	Total number of Employees (log).
Total Assets	Total Assets	Total Assets \$ (log).
Technology Generating Industry	Technology Generating	Dummy = 1 if firm is operating in a technology generating industry, 0 otherwise.
	2- Digit SIC Dummies (Robustness)	28: Chemicals and allied products 35: Industrial machinery and equipment 36: Electrical and electronic equipment 38: Instruments and related products

(Delmar and Shane, 2006; Müller, 2010), the number of employees and total assets to account for firm size, and whether the industry is technology generating or not.³

4. Results

Table 2 reports descriptive statistics and pair-wise correlations for all variables used in the main analyses. Pair-wise correlations among the variables are generally as expected. Consistent with prior literature, education, average number of hours worked per week, number of owners, total employees, total assets and technology generating industries are all significantly and positively correlated with new product introductions in new ventures.

Due to the binary nature of the dependent variable, our main econometric method is logit estimation. The first and second columns in Table 3 indicate the effect of performance attainment discrepancy and the effect of dispositional optimism on new product introductions separately and respectively. Column 3A in Table 3 presents the results for Hypothesis 1, the interaction effect of performance attainment discrepancy and dispositional optimism on new product introductions. The results show that the interaction term (Performance Discrepancy*Dispositional Optimism) significantly affects new product introductions with $z = 1.83$ $p = 0.06$, supporting our hypothesis.

To detail the interaction effect, we compared coefficients of firms performing the same as or above, and below their aspirations to see if founder optimism influences the probability of new product introductions in a significantly different way for these two different types of firms. Analysis shows that when performance is below aspirations, dispositional optimism increases the probability of new product introductions with a coefficient 0.364 and $t\text{-stat} = 2.56$, $p = 0.01$, supporting Hypothesis 1. We also find when ventures perform above their aspirations, dispositional optimism has no significant effect on new product introductions (-0.368 , with $p = 0.981$).

Column 3B in Table 3 reports the estimated coefficients in Column 3A transformed to odds ratios, rather than the coefficients themselves. The odds ratios, which are derived from exponentiation of the estimated coefficients from the logistic regression, indicate the influence of a one-unit change in each variable on the odds of introducing a new product. Our results in Column 3B in Table 3 show that one unit increase in optimism level increases the probability of new product introductions by 44% (Odds ratio of 0.69)^{4,4} when performance is below aspirations^{5,5} We also calculate the marginal effect of founder optimism in new ventures performing below their aspirations. The marginal effect, i.e., the change in the probability of introducing a new product with respect to a change in the founder optimism holding all other variables at their mean value, is calculated by taking the derivative of the logit function with

³ Although our sample consists only of high technology new ventures, the speed of new product introductions may still vary within the high technology industries. Therefore, following Chapple et al. (2005), we control whether the industry is technology generating. This variable is constructed such that if a new venture operates in an industry that has above average R&D spending or R&D employment, it is coded as 1, 0 otherwise.

⁴ The odds ratio of 0.692 for the interaction (Performance Discrepancy*Dispositional Optimism) shows the odds of new product introduction for new ventures performing at or above their aspirations compared to ventures performing below their aspirations. Therefore $1/0.692 = 1.44$ shows that one unit increase in optimism level increases the probability of new product introductions by 44% when performance is below aspirations.

⁵ A similar conclusion can be reached using the odds ratio 1.439 which is the effect of the dispositional optimism when the performance is below aspirations. The odds ratio of 1.439 shows that the one unit increase in optimism level increases the probability of new product introductions by 44% for low performing firms.

Table 2
Descriptive statistics and Pairwise Correlations.

Variables	Mean	Std. Dev.	1	2	3	4	5	6	7	8	9	10	11
1 New Product	0.52	0.50	1										
2 Performance Discrepancy	0.48	0.50	0.02	1									
3 Optimism	2.3	1.20	0.13**	0.05	1								
4 Female	0.15	0.35	−0.04	−0.06	−0.12**	1							
5 Age	51.21	9.6	−0.09	−0.06	0.03	0.02	1						
6 Education	0.51	0.50	0.14**	−0.13**	−0.08	−0.03	0.06	1					
7 Hours Worked	44.5	20.72	0.26**	0.16**	−0.04	−0.09	−0.09	−0.08	1				
8 Number of Owners	4.41	12.92	0.18**	−0.12**	−0.11**	0.00	−0.04	0.20***	0.14***	1			
9 Total Employees (log)	1.29	1.17	0.21**	0.23**	−0.09	−0.09	−0.11**	0.11**	0.37***	0.25***	1		
10 Total Assets (log)	6.26	6.07	0.11**	0.25***	−0.01	−0.07	−0.06	0.05	0.39***	0.23***	0.55***	1	
11 Technology Generating	0.13	0.34	0.14**	−0.07	−0.03	−0.02	0.08	0.19***	0.00	0.05	0.00	0.08**	1

Note. ***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

Table 3
Regression results for new product introductions.

Model	(1) (Logit)	(2) (Logit)	(3A) (Logit)	(3B) (Odds ratios)
Optimism x Performance Discrepancy			−0.368* (0.201)	0.692 (0.201)
Dispositional Optimism	0.187* (0.098)	0.189* (0.098)	0.364*** (0.142)	1.439 (0.142)
Performance Discrepancy		−0.053 (0.248)	1.294 (0.778)	3.647 (0.778)
Woman	−0.038 (0.375)	−0.043 (0.375)	−0.027 (0.379)	0.973 (0.379)
Age	−0.104 (0.068)	−0.103 (0.087)	−0.119 (0.086)	0.888 (0.086)
Age squared	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	1.001 (0.001)
Education	0.426* (0.245)	0.420* (0.247)	0.373 (0.249)	1.452 (0.249)
Hours Worked	0.023** (0.007)	0.023** (0.007)	0.024** (0.007)	1.024 (0.007)
Total Employees	0.078 (0.138)	0.080 (0.138)	0.064 (0.137)	1.066 (0.137)
Total Assets	0.031 (0.058)	0.033 (0.058)	0.044 (0.058)	1.045 (0.058)
Number of Owners	0.066 (0.047)	0.065 (0.047)	0.061 (0.045)	1.063 (0.045)
Tech Generator	0.541* (0.334)	0.540* (0.334)	0.549* (0.337)	1.732 (0.337)
Constant	0.394 (2.236)	0.394 (2.236)	0.082 (2.212)	1.085 (2.212)
Pseudo R2	0.109	0.109	0.115	0.115
Log likelihood	−205.02	−205.02	−203.45	−203.45
N	332	332	332	332

Notes. Standard errors are presented in parentheses.

***, **, and * denote statistical significance at the 1%, 5%, and 10% level, respectively.

respect to founder optimism. When we do that, an increase in optimism by one unit (on a scale of 1–5), increases the probability of introducing a new product by 10.33%.⁶

5. Discussion

In this research, we show that there is a significant interaction effect between performance attainment discrepancy and dispositional optimism such that when the performance is below aspiration, it is the optimistic entrepreneurs who initiate strategic change in the form of new product introductions, but optimistic and unoptimistic entrepreneurs do not show any significant difference in their

⁶ The marginal effect gives the absolute rate of product introduction, or the predicted probability of product introduction, relative to the controls in the model. Therefore, it is slightly different from the odds ratio. Our results show that new ventures performing below their aspirations have a predicted probability of 10.33% of new product introduction by an increase in optimism by one unit. Similar marginal effect can be calculated for the ventures performing at or above their aspirations, however, since our results show that the effect of optimism is only significant for new ventures performing below their aspirations, there is no value to perform such calculation.

new product introduction behaviors when performance is above aspirations. The moderating role of entrepreneurial optimism in the relationship performance feedback and new product introduction is reinforced through a series of robustness tests presented in [Appendix A](#).

This research makes several contributions. First, prior research such as [Dew et al. \(2008\)](#) suggests that if the behavioral theory of the firm is applied to an entrepreneurial setting, it needs to consider creative action by entrepreneurs based on performance feedback, and especially with due cognizance of the entrepreneur's psychological characteristics. However, research only recently explores the idea that the role of the founders' characteristics needs to be considered in combination with BTOF to explain the phenomenon of interest in entrepreneurial firms (e.g., [Bromiley and Rau, 2022](#); [Hagen et al., 2023](#); [Schumacher et al., 2020](#)). This study contributes to this research effort by examining the moderating role of entrepreneurial optimism in new product introductions in response to performance decline and makes BTOF more relevant to explain decision-making by entrepreneurial firms.

This study also contributes to entrepreneurship research that pays particular attention to the role of founder optimism for new venture outcomes. Some of these studies find a positive influence of optimism ([Chen et al., 2013](#); [Dawson and Henley, 2012](#); [Lindblom et al., 2020](#)), and others find a negative effect ([Amore et al., 2021](#); [Hmieleski et al., 2013](#)). This research adds to this effort by showing not only that dispositional optimism increases new product introductions in new ventures, but also this effect is stronger for ventures that perform below their aspirations while it loses its significance for ventures that perform at the same as or above their aspirations. This novel finding refines our understanding of the influence of optimism in different contexts and informs the recent debate on the effect of optimism on new venture outcomes.

Finally, given that the competitiveness of new ventures, especially in high technology industries, depends on their ability to continually innovate and introduce new products, our findings have important practical implications. Our study concludes that entrepreneurs are heterogeneous in how they react to performance discrepancy such that optimistic entrepreneurs are more willing to respond to low performance with increasing new product introductions, while unoptimistic entrepreneurs are significantly less willing to do so. While entrepreneurs may not easily choose to be optimistic, these results might benefit high-tech entrepreneurs in choosing more optimistic entrepreneurs as co-founders, or investors in choosing companies with more optimistic founders, particularly when they are faced with performance decline. When performance is above aspirations, on the other hand, there may be little need to consider founder optimism as an important factor in these decisions.

CRedit authorship contribution statement

R. Isil Yavuz: Writing – review & editing, Writing – original draft, Supervision, Project administration, Investigation, Data curation, Conceptualization. **Dev K. Dutta:** Writing – original draft. **Mehmet A. Soytaş:** Methodology, Formal analysis.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

The data that has been used is confidential.

Appendix A. Robustness checks

We conduct a series of robustness checks to ensure the accuracy of our findings. First, one main concern with the estimations in our statistical analyses might be the effect of selection bias on the results. The selection bias arises since our sample consists only of firms surviving the first four years and managing to report past performance relative to aspirations. These firms may differ in important ways from firms that do not survive. Although we include as many relevant variables as possible as controls, differences between these two groups might be due to some unmeasured variables. For example, it is possible that firms that perform above their aspirations are more likely to survive. To correct for the possible selection bias and to check our results' validity under selection, we estimate a Heckman selection specification (Heckprobit specification in STATA). The mills ratio is not significant in the new product introduction equation (coefficient = -1.17 , t -stat 1.17) and the coefficient of performance attainment discrepancy remains still insignificant (t -stats = 0.66).

Second, it is possible that more optimistic entrepreneurs are unrealistic and are more likely to report positive past performance relative to their aspirations. There are three lines of evidence that suggest this is not a significant concern. First, the correlation coefficient between performance attainment discrepancy and entrepreneurial optimism is not statistically significant. Second, the correlation between performance attainment discrepancy and actual revenue data is significant. And the t -test analysis rejects the equal means hypothesis with a p -value of 0.027 , indicating that the amount of revenue of those ventures meeting or exceeding their growth expectations are in fact significantly different (and higher) than the amount of revenue of new ventures not meeting their growth expectations. Finally, we rerun our analysis by replacing our performance attainment discrepancy measure with alternative objective performance feedback measures (i.e., past revenue) by following the method suggested by [Bromiley \(1991\)](#), and Wiseman and Bromiley (1996) and these analyses confirm our results, increasing our confidence in the validity of our findings.

We also extend the main estimations in various directions such as, (i) other measures of other risky actions such as new process introductions; (ii) analysis restricted to single owner firms; (iii) number of new products as the dependent variable to check the validity of the results under different specifications and measures, and the results are largely consistent with the results presented in [Table 3](#).

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