“How aspiration and expectation shortfalls drive strategic investments”

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HOW ASPIRATION AND EXPECTATION SHORTFALLS DRIVE STRATEGIC INVESTMENTS

Abstract

Performance feedback is an important concept to explain managerial risk taking. This paper aims to distinguish between two forms of performance feedback: A performance shortfall can be positively or negatively associated with risk inclination. The first effect arises for a shortfall from aspirations, while the second effect occurs if there is a shortfall from expectations. The hypotheses are tested on a sample of S&P 1500 firms over a period of 19 years (1992–2010) using a fixed effects regression model. The empirical results suggest that missing aspirations increases the likelihood of risk taking in the form of higher strategic investments. Missing expectations in contrast diminishes managerial power and discretion to engage in risk taking and thus lowers strategic investments. The results further support the idea that both effects reinforce each other, suggesting that shortfalls from expectations and aspirations have an interactive effect. By distinguishing between these two sides of performance feedback, this study provides an improved understanding on managerial risk taking. Additionally, this paper highlights how motivation and power interact when analyzing managerial risk taking.

Keywords performance feedback, managerial risk taking, firm aspiration, behavioral theory of the firm

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INTRODUCTION

Performance feedback theory suggests that poor performance (i.e., performance below aspiration levels) increases the probability of organizational change and risk taking (Cyert & March, 1963). This relationship has been supported in a variety of contexts, including strategic change decisions (Chattopadhyay et al., 2001, Chen, 2008, Greve, 1998), introduction of new products (Joseph & Gaba, 2014), internationalization decisions (Jung & Bansal, 2009), and organizational restructuring (Gaba & Joseph, 2013). In general, it has been argued that falling short of performance increases managerial motivation to engage in risk taking (Greve, 1998).

While a positive association between poor performance and organizational change is well accepted in the management literature (see Greve, 2003b for a review), arguments from the domain of finance and accounting suggest otherwise (e.g., Denis & Denis, 1995; McAnally et al., 2008).

This study argues that falling short of *aspirations* (i.e., performance reference points derived from firms' historical or social performance (Greve, 2003a)) motivates managers to engage in problemistic search (Cyert & March, 1963) and is consequently positively related to managerial risk taking. Falling short of *expectations* (i.e., performance ref-

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erence points derived from external expectations towards firm profitability (e.g., security analysts' earnings expectations)) lowers managerial power and discretion and therefore negatively affects managerial risk taking.

This paper contributes to the understanding of managerial risk taking by disentangling the mechanisms underlying performance feedback theory (Greve, 1998). Beyond the established motivation effect, it shows that a performance shortfall also has a second yet overlooked effect that limits senior managers' power for taking decision risk. Collectively, these results suggest that it is necessary to simultaneously examine the effects of both aspirations and expectations.

1. LITERATURE REVIEW

When investigating organizational change and risk taking, performance feedback theory was found to be relevant in a variety of applications (Baum et al., 2005; Greve, 2003a; Joseph & Gaba, 2014). Performance feedback's underlying mechanisms is described to be a motivation effect (Greve, 1998). As firms fall short of their performance aspirations, they experience a so called "attainment discrepancy" (Lant, 1992), which induces them to engage in problemistic search (Cyert & March, 1963) in order to achieve performance closer to aspirations. Especially in recent years, a variety of studies modified performance feedback theory predictions. For example, scholars have argued for differential effects associated with (a) short-term and long-term performance feedback (Ben-Oz & Greve, 2012), (b) inconsistent performance feedback (Joseph and Gaba, 2014), and (c) sequential performance feedback (Greve, 2008).

Although performance feedback theory has led to great insights on risk taking in general, recent empirical evidence suggests that it might not be sufficiently specified (e.g., Desai, 2015; Iyer & Miller, 2008). Taking the example of corporate acquisitions that are highly risky and important to firm survival and performance (Deutsch et al., 2007), but also framed as opportunities (Dutton & Jackson, 1987), Iyer and Miller (2006) found that poor firm performance (performance below the aspiration level) was related to lesser, rather than greater, acquisition likelihood, counter to feedback theory expectations. Following from this and related findings, Desai (2015, p. 7) concludes that "despite a clear theoretical prediction regarding problemistic search, empirical support for this prediction has been mixed."

The finance and accounting literature on expectations can provide an explanation for such inconsistent findings and may help to generate more precise predictions than performance feedback theory alone. From a finance perspective, a performance shortfall mostly signals senior managements' inability to meet market expectations to create shareholder value (Dikolli et al., 2009), leading to increased monitoring and scrutiny of senior managers (Gillan & Starks, 2000; Moyer et al., 1989). Such increased monitoring and scrutiny is likely to curtail managerial power to engage in risk taking (Tosi et al., 1997).

Consistent with prior work on the BTOF (Cyert & March, 1963; Desai, 2015), the power-argument derived from finance literature is equally important to decision making as the motivation-argument derived from management literature. More specifically, given the potentially conflicting objectives and interests among organizational members (Cyert & March, 1963), such as the senior management team and the executive board (Desai, 2015), senior managers require sufficient power to successfully implement their decisions. Cyert and March (1963) refer to such power as a "quasi resolution of conflict" in which decision makers need to form a coalition to implement decisions. However, in case of performance shortfall, senior management power may decline (Boeker, 1992; Ocasio, 1994), limiting the discretion of the CEO and the top management team (Daily & Johnson, 1997) and, consequently, constrain managerial risk taking. Anecdotal evidence may clarify this argument. Jerry K. Pearlman, the CEO of the repeatedly underperforming Zenith Electronics Corporation, was forced to meet with the board of directors every two weeks for the approval of his strategic decisions (Dobrzynski, 1994).

In contrast to most prior work studying the effect of performance feedback (e.g., Ben-Oz & Greve, 2012; Desai, 2015), a performance shortfall may thus sometimes be associated with greater risk taking. However, in the case of falling short of the reference point of external performance expectations, this study suggests that missed expectations are associated with lower risk taking. Specifically, a shortfall from aspirations is positively associated with firms' strategic investments (Benner and Ranganathan, 2012), whereas a shortfall from expectation is negatively associated with strategic investments. Furthermore, the literature suggests that there is an interaction effect between the aspiration-driven and expectation-driven performance feedback effects. Specifically, as any performance shortfall may come with a 'motivation' and 'decline in power-effect', falling short of aspirations while exceeding expectations shows a greater effect towards firms' strategic investments when compared to either effect in isolation.

2. AIM

The aim of this study is to show how two mechanisms of performance feedback – expectations and aspirations – have opposite effects on managerial risk taking.

3. HYPOTHESES

H1: When performance falls below aspirations, firms' strategic investments increase.

H2: When performance falls below expectations, firms' strategic investments decrease.

H3: The effect of performance below aspirations on firms' strategic investments is stronger when performance is higher than expectations.

4. METHODS

4.1. Sample and data

The sample is constructed based on the S&P 1500. Consistent with prior studies (Berger & Ofek 1995, Çolak & Whited 2007, Villalonga 2004), all firms from the financial services industry (SIC codes 6000-6999) are excluded from the analysis. Missing data limited the final dataset to a total of 1,471 firms and 11,170 firm year observations.

4.2. Dependent variable

Following Benner and Ranganathan (2012), strategic investments are defined as the sum of capital and R&D expenditures. The absolute value is divided by total sales, and industry adjusted this measure by deducting the mean value of this ratio in the respective 4-digit SIC-Code industry. Consistent with Benner and Ranganathan (2012), missing R&D values were replaced with "0" and included a dummy variable as control for these observations.

4.3. Independent variables

Shortfall of aspirations was calculated as the difference between a firm's ROA and its aspiration level. The aspiration level was determined as outlined in Greve (2003). For ease of interpretability, the measure is inverted, so positive values indicate a performance shortfall. To capture if a firm was *beyond expectations*, analyst EPS forecasts were used and the difference between the realized EPS and the forecasted EPS was calculated. Thus, a positive value indicates that the firm exceeded analysts' expectations.

4.4. Control variables

Several control variables were included: firm size, firm diversification, the market-to-book ratio, the number of EPS forecast, and three types of slack variables (absorbed, unabsorbed and potential). Finally, calendar year dummies were included in the models to account for time specific effects.

4.5. Econometric analysis

A fixed-effects panel regression model is used to test the hypotheses. To test the robustness, the models were recalculated as random effects models, and no material differences were found in the results. All control variables are lagged by one period.

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5. RESULTS AND DISCUSSION

To detect potential issues of collinearity, Table 1 reports pairwise correlations of the dependent and independent variables, in addition to the mean and standard deviation. The highest pairwise correlation of 0.63 in the sample is between the number of analysts' estimates and firm size. This correlation is to be expected as larger firms also tend to receive higher analyst coverage. Overall, the correlations do not indicate a problem of collinearity between the independent variables.

Table 2 shows the results of the fixed-effects panel regression models. Model 1 is the control model; model 2 includes aspiration shortfall; a measure for expectation shortfall is added to model 3. Finally, model 4 includes the interaction term of both measures.

Table 1. Descriptive statistics and pairwise correlations

VARIABLE	MEAN	SD	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
(1) Strategic investments	–0.07	11.04									
(2) Shortfall of aspirations	–0.06	0.07	0.15*								
(3) Beyond expectations	–0.02	0.09	0.03*	–0.15*							
(4) ln(assets)	7.11	1.47	–0.02*	0.05*	0.08*						
(5) Diversification	0.46	0.51	–0.11*	0.07*	0.01	0.34*					
(6) Absorbed slack	0.24	0.16	0.04*	–0.25*	–0.04*	–0.19*	–0.12*				
(7) Unabsorbed slack	0.51	1.23	0.05*	–0.13*	0.02	–0.21*	–0.15*	0.29*			
(8) Potential slack	0.87	30.51	–0.01	–0.01	–0.03*	0.00	0.01	0.00	–0.01		
(9) Market-to-book ratio	1.5	1.34	0.03*	–0.47*	0.17*	–0.13*	–0.15*	0.28*	0.28*	–0.01	
(10) Number of estimates	5.81	5.06	0.06*	–0.13*	0.09*	0.63*	0.09*	0.03*	–0.01	–0.01	0.15*

Note: * $p < 0.05$; $N = 11{,}170$.

Table 2. Regression results from fixed-effects models

Variable	Strategic investments			
	(1)	(2)	(3)	(4)
ln(assets)	–0.05	–0.35	–0.45**	–0.44**
	(0.22)	(0.22)	(0.22)	(0.22)
Diversification	–0.81***	–0.85***	–0.83***	–0.84***
	(0.28)	(0.27)	(0.27)	(0.27)
Absorbed slack	16.99***	14.58***	16.12***	16.11***
	(1.76)	(1.75)	(1.77)	(1.77)
Unabsorbed slack	0.26***	0.30***	0.29***	0.29***
	(0.10)	(0.10)	(0.10)	(0.10)
Potential slack	–0.002	–0.0005	–0.0001	–0.0004
	(0.002)	(0.002)	(0.002)	(0.002)
Market-to-book ratio	0.54***	0.79***	0.75***	0.76***
	(0.08)	(0.08)	(0.08)	(0.08)
R&D control	0.001***	0.001***	0.001***	0.001***
	(0.0003)	(0.0003)	(0.0003)	(0.0003)
Number of analyst estimates	0.02	0.03	0.03	0.03
	(0.03)	(0.03)	(0.03)	(0.03)
Shortfall of aspirations		24.78***	25.05***	25.65***
		(1.55)	(1.55)	(1.58)
Beyond expectations			4.93***	5.43***
			(0.89)	(0.92)
Shortfall of aspirations x beyond expectations				22.13*
				(10.56)
N	11,170	11,170	11,170	11,170
R^2	0.02	0.05	0.05	0.05
F Statistic	8.63***	17.94***	18.46***	17.98***

Note: *$p < 0.05$, **$p < 0.01$, ***$p < 0.01$. Calendar Year dummies are included in all models.

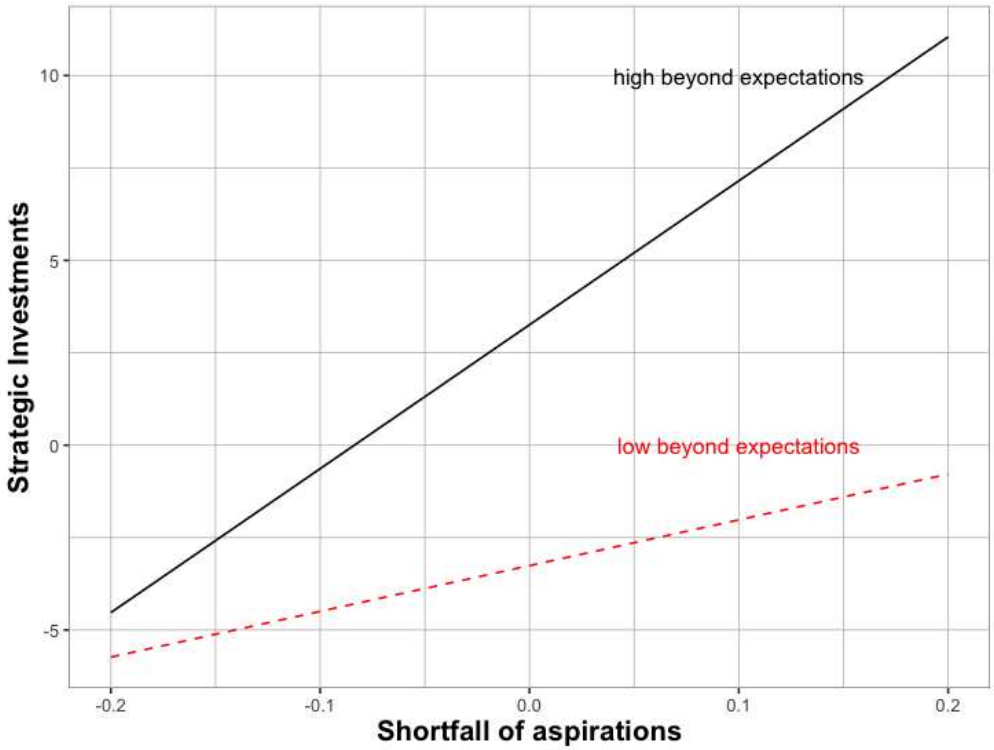

Figure 1. Moderating effect between shortfall of aspirations and beyond expectations

Model 2 shows a positive and significant ($p < 0.001$) effect of aspiration shortfalls on strategic investments, confirming hypothesis 1. The difference between realized EPS and the forecasted EPS exhibits a positive and significant effects ($p < 0.001$) on strategic investments. This finding supports hypothesis 2, which states that falling below analyst expectations will reduce the likelihood of strategic investments. Finally, model 4 shows a positive and significant moderating effect ($p < 0.01$). This supports hypothesis 3. The moderating effect is visualized in Figure 1. The red dashed line shows the predicted strategic investments for lower levels of beyond expectations, the solid black line shows the predicted level of strategic investments for higher levels of beyond expectations.

The F-Statistic of all four models is highly significant ($p < 0.001$). Overall, the results support the idea that when a firm's performance falls below aspirations, strategic investments increase, while a shortfall from expectations decreases strategic investments. This supports the idea that punishment from stock analysts has a strong impact on strategic investments, while falling short of accounting performance compared to industry peers is likely to increase those investments.

CONCLUSION

The main objective of this paper is to clarify the theoretical mechanisms underlying performance feedback theory. Given that prior work provided mixed evidence on whether a performance shortfall is associated with increased or decreased risk taking (e.g., strategic investment), performance feedback theory seems to be not fully specified. According to the findings, such inconsistencies arise because a secondary effect has been overlooked. This effect originates from a performance shortfall that thwarts the so far studied motivational effect. According to the findings, this secondary effect is a decline in power that emerges simultaneously to the motivation effect when suffering a performance shortfall. Therefore, this study shows that both effects have to be considered simultaneously.

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The results show how falling below analyst expectation reduces strategic investments, while fallowing short of peer accounting performance amplifies strategic investments. This study also helps to qualify the findings provided by earlier work. For example, the fact that a performance shortfall is associated with lesser (rather than greater) acquisition activity could be attributed to the power-decline effect arising from a performance shortfall. Earlier research describes acquisitions as opportunity-framed decisions that are highly risky and important to a firm's survival and performance.

This study contributes to previous research by highlighting how performance feedback's motivational effect may decline (as opportunity-framed decisions inherently come with a high degree of motivation), whereas the importance of power may increase. In the aggregate, this study shows how falling short of peer performance leads to higher strategic investments, while falling below stock analysts' expectations inhibits those investments.

AUTHOR CONTRIBUTIONS

Conceptualization: Jan Mammen.
Investigation: Jan Mammen.
Methodology: Jan Mammen.
Validation: Jan Mammen.
Writing – original draft: Jan Mammen.
Writing – review & editing: Jan Mammen.

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