

**DRIVEN BY ASPIRATIONS, BUT IN WHAT DIRECTION?
PERFORMANCE SHORTFALLS, SLACK RESOURCES AND
RESOURCE-CONSUMING VS. RESOURCE-FREEING
ORGANIZATIONAL CHANGE**

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ABSTRACT

Prior literature drawing on the behavioral theory of the firm has not considered how resource constraints impact the direction of organizational change in response to performance shortfalls relative to aspirations. We argue that decreasing financial resources resulting from substantial performance shortfalls and the absence or availability of slack resources together affect the emphasis on different types of organizational change in response to performance shortfalls. Using data on the acquisition and divestment behavior of 530 companies in the information and communications technology sector from 1992 to 2014, we find that the frequency of resource-consuming acquisitions and that of resource-freeing divestments are affected differently by performance below aspirations and that these relationships are moderated by the level of financial slack.

Managerial summary: This paper examines if firms respond to performance shortfalls with acquisitions or divestments. We argue and show that the closer the firm is to the aspired level of performance, the more likely it is to respond with resource-consuming acquisitions to close the performance gap, whereas the further it is from aspired performance, the more likely the firm is to respond with divestments to free resources. Financial slack weakens these relationships between performance relative to aspirations and acquisitions or divestments such that it increases the likelihood of a response through acquisitions while it reduces the likelihood of a response through divestments.

INTRODUCTION

How do companies respond to performance shortfalls? Research in the tradition of the behavioral theory of the firm (Cyert and March, 1963) suggests that when performance falls below aspiration levels, the organization responds with problemistic search to identify solutions to address this performance shortfall and, as a result, undertakes organizational change (Greve, 1998; Kacperczyk, Beckman, and Moliterno, 2015). While empirical research typically has not been able to directly observe the search process, it has shown that there is a relationship between performance shortfalls and a broad range of behaviors that reflect organizational change – including changes in market position (Greve, 1998), investments in facilities (Audia and Greve, 2006), acquisitions (Iyer and Miller, 2008), divestments of poorly performing units (Shimizu, 2007), and R&D projects (Greve, 2003a). However, existing theory does not explain the direction that organizational change takes but rather simply views performance shortfalls as a universal change trigger.

In this paper, we argue that behavioral theory can be extended to explain the direction of organizational change. To do so, however, requires clarifying the concept of organizational change. Prior research on problemistic search has often only vaguely defined the dependent variable, treating a wide variety of different organizational phenomena as interchangeable proxies for change in organizational behavior. In addition, prior theoretical research has not fully accounted for the effects of resource constraints due to performance shortfalls and those due to the absence of slack resources in guiding problemistic search and, ultimately, the direction of organizational change that a firm may undertake in response to performance shortfalls. In particular, the latter omission is somewhat surprising given the recognition of slack resources in the behavioral theory of the firm (Cyert and March, 1963). We argue that these shortcomings of prior research are important because organizations may engage in a variety of actions that differ substantially in terms of how they are affected by the availability

of resources and, as a result, the direction of organizational change is likely to be affected by the availability of resources. Resource constraints may be a central contextual factor affecting the direction of organizational change (Sitkin and Pablo, 1992) and must therefore be better integrated into the behavioral explanations of responses to performance shortfalls.

We address these research gaps by developing theoretical arguments for two alternative change paths that organizations may follow in response to a performance shortfall: change through emphasizing resource-consuming strategic actions and change through emphasizing resource-freeing strategic actions. Greater performance shortfalls and the financial position of the firm may interact and lead to resource constraints that shape the firm's direction of organizational change. Specifically, we expect change through emphasizing resource-consuming strategic actions when large performance shortfalls lead to increasing resource constraints, whereas we expect the opposite to hold for resource-freeing actions. An example from our data may help further clarify our argument. Among the firms we studied, Verisign Inc. fell substantially short of profitability expectations in early 2008, and this decline worsened over the course of 2008. As a result, the firm, which had previously been an active acquirer, all but abandoned its resource-consuming acquisition activities to engage in several resource-freeing divestments later in 2008 and 2009.

We further hypothesize that the direction of organizational change is affected by the availability of financial slack. Financial slack may act as a financial buffer (Cheng and Kesner, 1997; Cyert and March, 1963) that gives firms the freedom to choose how to respond to performance shortfalls by enabling an emphasis on resource-consuming actions or by avoiding resource-freeing actions. In other words, we expect the degree of financial slack to affect the amount of freedom that managers enjoy when deciding the direction of organizational change in response to a performance shortfall. For instance, Qwest, a firm in our sample, faced a substantial performance shortfall during 2001 and 2002. Given that the

firm had almost no financial slack at the time, it was forced to respond to this performance shortfall by divesting several directory-business related operations during 2002 and 2003.

We examine these ideas by investigating firms' responses to performance shortfalls as changes in the emphasis on acquisition and divestment activities. Acquisitions and divestments are polar types of organizational change behaviors that have the same goal of addressing the gap between actual and aspired performance. In addition, drawing upon behavioral theory arguments, both types of activities have been linked to performance shortfalls (e.g., Iyer and Miller, 2008; Shimizu, 2007). However, from a strategic perspective, acquisitions and divestments are based on two different and competing logics: acquisitions are resource-consuming investments made to improve a firm's competitive position, whereas divestments free resources and narrow a firm's focus. In our study, we pay particular attention to separating our arguments on the effects of resource constraints on organizational change through emphasizing resource-freeing and resource-consuming actions from related effects of risk taking (e.g., Bromiley, 1991; Wiseman and Bromiley, 1996) and of threat rigidity (e.g., Chattopadhyay, Glick, and Huber, 2001; Staw, Sandelands, and Dutton, 1981) that could offer alternative explanations.

We test our predictions using the acquisitions and divestments of a sample of 530 public corporations in the U.S. information and communications technology (ICT) sector during the 1992-2014 period. Consistent with our predictions, our results show that important differences in how performance shortfalls affect the intensity of organizational change through acquisitions and divestments and that these relationships are moderated by the firm's level of financial slack. In particular, we find that firms respond to performance that is below aspirations by intensifying change through acquisitions when they are relatively close to aspirations and when they have abundant financial slack, whereas the intensity of change through divestments increases when the firm is far from aspirations and when firms have

little or no financial slack. Our results suggest that effects of resource constraints on the direction of organizational change in response to performance shortfalls are distinct from the related effects of performance shortfalls on risk taking and from the effects of threats to firm survival.

Our study makes several important contributions to the literature. First, we add to the behavioral theory explanations regarding the consequences of performance below aspirations by considering the direction of the resulting organizational change and by developing more fine-grained theoretical arguments for two important types of strategic responses to performance shortfalls, i.e., resource-consuming acquisitions and resource-freeing divestments. Our arguments and results suggest that the intensity of organizational change through acquisitions and divestments may exhibit substantially different relationships with performance relative to aspirations due to their resource-consuming or resource-freeing natures. Distinguishing between resource-consuming and resource-freeing strategic actions is an important first step toward a typology of strategic actions in response to performance that falls short of aspirations. Our second contribution to behavioral theory is related to the role of resource constraints in affecting the direction of organizational change in response to performance shortfalls. Our study identifies the important role of resource constraints that arise from performance shortfalls and elucidates the moderating role of slack resources in affecting the intensity of resource-consuming versus resource-freeing organizational change in response to performance below aspirations. Finally, our study makes a methodological contribution to research on performance aspirations by introducing matching methods as an approach to identifying the relevant comparison groups for the formation of social aspirations for each focal firm instead of using the industry average as a proxy for social aspirations, which is common in empirical research on performance feedback.

PERFORMANCE SHORTFALLS, SLACK RESOURCES AND RESOURCE-CONSUMING VS. RESOURCE-FREEING ORGANIZATIONAL CHANGE

Performance shortfalls and organizational change

The behavioral theory of the firm (Cyert and March, 1963; March and Simon, 1958) continues to be the most-utilized explanation of the relationship between performance relative to aspirations and firm responses. The behavioral theory of the firm views aspirations as deriving from “the organization’s past goal, the organization’s past performance, and the past performance of other ‘comparable’ organizations” (Cyert and March, 1963: 115). Firms are thought to regulate behavior based upon performance relative to these aspirations. As long as the firm achieves its aspirations, firm behavior remains unchanged, governed largely by organizational routines (Cyert and March, 1963; Gavetti *et al.*, 2012). When a firm falls short of its aspirations, problemistic search is triggered to find solutions, and organizational change results when the firm has identified a solution it believes to address the performance shortfall (Greve, 1998; Iyer and Miller, 2008; Moliterno and Wiersema, 2007).

Whereas Cyert and March’s theory of responses to performance shortfalls focuses on search and organizational change, later research has often confounded organizational change and risk taking (Argote and Greve, 2007; Kacperczyk *et al.*, 2015). As noted by Kacperczyk and colleagues, “the integration of risk into these arguments is a result of behavioral scholars drawing upon prospect theory (Kahneman and Tversky, 1979), implicitly invoking this theory’s notion of loss aversion in the domain of failure as a mechanism that is conceptually equivalent to behavioral theory’s performance below a set reference point” (Kacperczyk *et al.*, 2015: 229). However, Kacperczyk *et al.* (2015) suggest that organizational change and risk taking may be two separate – even often unrelated – outcomes of performance below aspirations. Nonetheless, research focusing on either of these outcomes is well advised to control for the other outcome to avoid confounding the theoretical mechanisms underlying each of them. In this paper, we focus our arguments on organizational change, specifically,

the direction of organizational change in response to performance below aspirations.

However, we take potential effects of risk taking in response to performance feedback explicitly into account in the empirical design of our study.

Prior research has demonstrated that organizational change triggered by performance below aspirations may involve a broad variety of strategic actions, including acquisitions (Iyer and Miller, 2008), divestment of acquired units (Shimizu, 2007), factory expansion (Audia and Greve, 2006), product introductions (Audia and Brion, 2007), production and format changes (Greve, 1998), and R&D investment (Greve, 2003a), among others (see Shinkle (2012) for a complete review). However, prior research has focused typically on showing the relationship between performance below aspirations and a specific form of organizational change, empirically predicting a single-action category, and has not investigated multiple action categories in the same study. To understand how performance below aspirations influences the direction of change, it is necessary to examine several response categories simultaneously.

In this article, we focus on two actions that reflect opposing directions of change: resource-consuming acquisitions and resource-freeing divestments. Given that acquisitions and divestments may involve multi-billion-dollar transactions and may require complete firm restructurings (Barkema and Schijven, 2008; Capron, Dussauge, and Mitchell, 1998), these two types of transactions are among the most dramatic changes an organization can undertake in response to a performance shortfall. Furthermore, prior results involving firms' responses to performance below aspirations have been mixed – particularly for acquisitions and divestments (Iyer and Miller, 2008; Shimizu, 2007). Given that the large-scale organizational changes triggered by shortfalls on important corporate performance measures, such as return on assets (ROA), typically involve a multitude of simultaneous and likely coordinated actions (Keil *et al.*, 2008; Shi and Prescott, 2012) we conceptualize firm

response to performance shortfalls and the direction of change, which are the focus of our study, as the emphasis on an action type within a portfolio of simultaneous actions undertaken by the corporation.

Resource-consuming acquisitions and resource-freeing divestments as polar types of organizational changes in response to performance shortfalls

Acquisitions can be viewed as organizational changes responding to performance shortfalls (Kacperczyk *et al.*, 2015) because they can provide the firm with opportunities to improve operations, add new capabilities and knowledge (Ahuja and Katila, 2001; Puranam, Singh, and Chaudhuri, 2009), restructure operations (Karim, 2006), enter into new fields of business or geographies (Barkema and Vermeulen, 1998), or augment market power by increasing company size or efficiency via economies of scale and scope (Haleblian *et al.*, 2009).

Clearly, acquisitions are resource-consuming organizational changes. In an acquisition, the firm commits substantial additional financial and managerial resources to acquire a majority interest in another firm with the goal of achieving a positive performance impact. Because acquisitions may require financial resources that can extend into the billions of dollars, acquisitions presuppose that the acquirer has a substantial amount of financial resources available to it. Consistent with this argument, prior research has found that firms pursue more aggressive acquisition behavior when they are in a strong financial position (Harford, 1999).

Whereas acquisitions aim to address a performance shortfall by committing additional resources, management can also opt for the opposite strategy and choose to free resources by divesting underperforming units to improve profitability (Brauer, 2006; Harrigan, 1982). Addressing performance shortfalls through divestment relies on a different logic than undertaking acquisitions. Divestment may improve short-term profitability by converting tied-up resources into liquid assets that can be reinvested into the firm's core business (Duhaime and Grant, 1984) or that can be used to build a buffer against environmental

influences (Hamilton and Chow, 1993). Because certain types of resources are tradable in factor markets, managers can identify divestment opportunities and transfer firm resources to other buyers in the market – where they may offer more value than they offer the firm in their current usage – and allow the firm to appropriate (all or part of) the margin (Moliterno and Wiersema, 2007). Although such actions are frequently theorized to be triggered by poor performance at either the unit or corporate level (e.g., Harrigan, 1981), divestment may also simply result from a proactive search for better opportunities for firm resources (Berry, 2010). A divestment strategy can also offer an opportunity to refocus the current strategy of the firm (Markides, 1992) and may further be motivated by the notion of simplifying the decision-making environment and reducing management’s reliance on heuristics (Duhaime and Schwenk, 1985), such as the purely financial controls (Hitt et al., 1996) that are frequently used in highly diversified firms (Hoskisson and Hitt, 1988). Overall, divesting a loss-making business generally has an immediate positive impact on earnings per share and returns on assets, which makes divestments of underperforming business units an intuitive response to a shortfall in corporate profitability – particularly when an organization faces an immediate need for liquid financial resources (Shimizu, 2007).

Performance shortfalls and resource-freeing and resource-consuming change

According to the basic reasoning of behavioral theory outlined above, any strategic change might be expected to be more likely when performance falls below aspirations and triggers problemistic search for a solution. That is, prior behavioral theorizing does not predict directions of organizational change. However, we argue that the relationships between the magnitude of a performance shortfall and the frequency of either resource-consuming acquisitions, on one hand, or resource-freeing divestments, on the other, move in opposite directions.

When facing a performance shortfall, an organization may search for solutions among a broad range of strategic actions including, but not limited to, acquisitions or divestments. Whether the firm changes its behavior towards emphasizing acquisitions or towards emphasizing divestments will depend upon how it evaluates the suitability of a course of action in solving the problem at hand. One central determinant in this evaluation is the distance from aspiration levels (Baum *et al.*, 2005). A direction of organizational change that is suitable to address small performance shortfalls may not be particularly suitable as a response to large performance shortfalls and vice versa. In other words, when organizations are further from aspiration levels, they may choose a different course of action than when the organization's performance is close to the target (Baum *et al.*, 2005).

In particular, as the gap between aspirations and performance widens, the organization typically faces increasing resource constraints (Audia and Greve, 2006). In practice, a sizable distance from aspirations indicates that the firm faces substantial losses, whereas performance close to aspirations suggests either profitability (albeit not at the desired level) or at least a lower level of losses. Such resource constraints will intensify organizational change emphasizing resource-freeing actions and reduce organizational change emphasizing resource-consuming actions. As a result, *ceteris paribus*, organizations that are close to performance aspirations are more likely to intensify attempts to mend performance shortfalls through resource-consuming acquisitions, whereas such resource-consuming strategic actions become rarer as the organization drops further below the aspired-to performance level. This argument is consistent with Iyer and Miller's (2008) unexpected findings that the further a firm sinks below its aspirations, the less likely it is to engage in acquisitions; moreover, this study helps reconcile these findings with the behavioral theory of the firm.

Logically, the relationship between the level of performance shortfall and the frequency of divestments should move in the opposite direction. Divestments free resources. Therefore,

after controlling for other factors, firms are likely to intensify organizational change involving divestments when large performance shortfalls suggest growing resource constraints, and divestments will be less likely the closer organizational performance is to aspiration levels because freeing resources may be less central in such cases (Moliterno and Wiersema, 2007; Shimizu, 2007). Thus, we formulate our first set of hypotheses as follows:

***Hypothesis 1a:** There will be a negative relationship between an organization's performance shortfall and the rate of acquisitions such that the further the organization's performance falls below its aspiration level, the lower its rate of acquisitions.*

***Hypothesis 1b:** There will be a positive relationship between an organization's performance shortfall and the rate of divestments such that the further the organization's performance falls below its aspiration level, the higher its rate of divestments.*

Financial slack moderating the effect of performance shortfalls on resource-freeing and resource-consuming organizational change

In addition to distinguishing between resource-consuming acquisitions and resource-freeing divestments, we further argue that financial slack moderates firms' response to performance shortfalls. Slack reflects a resource stock that can either enable the organization to emphasize change through resource-consuming actions or buffer itself from the necessity to emphasize resource-freeing actions.

Slack can be defined as the stock of resources available to an organization that can be readily diverted or redeployed to achieve organizational goals (George, 2005; Voss, Sirdeshmukh, and Voss, 2008). Although slack can come in a variety of types (i.e., financial and non-financial) (Bourgeois, 1981; George, 2005), we focus here on financial slack.

Financial slack may be central to larger organizations because it allows the organization to accommodate multiple conflicting goals and may enable different types of organizational responses (Cyert and March, 1963). With additional resources, projects with different goals can coexist because the competition for resources is less intense. In addition, firms can afford to accept less-than-perfect solutions as satisficing when they have financial slack (Bourgeois,

1981; Cyert and March, 1963). Fundamentally, financial slack allows experimentation by providing additional resources that can be used flexibly (Bourgeois, 1981).

Financial slack can be understood as a resource that the organization can draw upon to implement strategic actions that it may seek to undertake and as a buffer that protects the firm from the immediate consequences of performance below aspiration levels. Thus, it may allow an organization to refrain from taking unwanted actions (George, 2005). Both perspectives are important for understanding the interaction of financial slack with the relationship between performance aspirations and the emphasis on change through acquisitions or divestments.

For acquisitions, the characteristic of slack as an enabling resource is central. In short, financial slack enables managers to engage in (multiple) acquisitions that they may view as a solution to a performance shortfall. Whereas performance shortfalls not only trigger search but also create resource constraints with respect to the flow of resources, financial slack may alleviate these constraints and enable organizational change through resource-consuming actions. As a result, financial slack may enable a larger number of acquisitions when performance is slightly below aspirations. The role of slack is even more important with respect to larger performance shortfalls. We argued above that in such situations, the resources available for resource-consuming actions such as acquisitions have typically become increasingly constrained due to weakened cash flow from operations. As a result, in the absence of alternative resources, the number of acquisitions will be reduced. Financial slack might also provide alternative resources to respond to large performance shortfalls with an aggressive acquisitions strategy, which would mean (at the very least) that the number of acquisitions would not be reduced as much (Cheng and Kesner, 1997). As a result, an otherwise negative relationship between the magnitude of the performance shortfall and the rate of acquisitions is weakened.

For divestments, financial slack may be viewed mainly as a buffer that can reduce the necessity for a firm to respond to performance shortfalls through resource-freeing change (Cheng and Kesner, 1997). Managers are typically reluctant to divest organizational units (Hayward and Shimizu, 2006; Shimizu, 2007) either because they have overcommitted to a prior course of action (Ross and Staw, 1986) or because of the reputational loss that might accompany divesting a high-profile unit (Hayward and Shimizu, 2006; Shimizu, 2007). Without slack, however, a firm may be forced to respond to a performance shortfall with a program of divestments to free resources for more profitable operations. Conversely, financial slack may allow managers to continue operating existing businesses (Shimizu, 2007) or at least to reduce the number of divestments necessary to address the resource constraints caused by large performance shortfalls. Thus, the positive relationship between the magnitude of an organization's performance shortfall and the rate of divestments is weakened with financial slack. We therefore expect the following:

***Hypothesis 2a:** High levels of financial slack weaken the negative relationship between an organization's performance shortfall and its rate of acquisitions.*

***Hypothesis 2b:** High levels of financial slack weaken the positive relationship between an organization's performance shortfall and its rate of divestments.*

METHODS

Data and sample

Our empirical setting for this study is large publicly traded U.S. firms (S&P 1500 firms) in the ICT sector during the 1992-2014 period. Acquisitions and divestments are important in the ICT industry because it is a dynamic sector in terms of technological change (Brown and Eisenhardt, 1997). Thus, companies are likely to engage in strategic reorientations (Lant, Milliken, and Batra, 1992) and resource redeployment to maintain the required pace of adaptation.

Our sample consists of all U.S. based publicly traded firms that were operating in the ICT sector and that were part of the S&P 1500 index during the 1992-2014 period. After a firm entered into our sample, we followed it as long as it continued to operate in the ICT sector, regardless of its later presence in the index, to eliminate potential survivorship bias. We operationalized the ICT sector based on three-digit SIC codes and included sectors 357, 366, 367, 481, 482, and 737 in our definition of ICT. All performance data were obtained from Compustat, acquisitions and divestments data were obtained from SDC Platinum, and the diversification measure – one of our control variables – was formulated using Compustat Segment data. We used I/B/E/S data of analysts' earnings forecasts and CRSP data to create measures of risk taking. Our resulting unbalanced panel contained 530 companies and between 4,767 and 4,660 firm-year observations with complete data (depending on the model).

Variables

Dependent variables

As our dependent variables, rates of resource-consuming and resource-freeing organizational change, we used the annual frequencies of acquisitions and divestments. The annual *acquisition rate* and *divestment rate* of firms were measured as the number of majority acquisitions and divestments announced each calendar year. We focused on the annual counts of these two types of transactions because our focal companies frequently undertake multiple transactions within a year and because companies sometimes made both types of transactions during the same period (even the same day). Because our central argument involves search and organizational change, a frequency-based measure captures the dimension of interest better than an alternative measure based on transaction values, and it also avoids missing data, as the exact value of transactions is not published for most deals. Acquisition and

divestment frequencies are measures of organizational change in the performance feedback literature (Kacperczyk *et al.*, 2015).

Independent variables

Performance shortfalls. Previous research on performance shortfalls has considered several performance metrics to which managers pay attention when evaluating a firm's performance level relative to aspirations, including returns on assets (ROA) (e.g., Audia and Greve, 2006; Chen and Miller, 2007; Greve, 2003a; Shimizu, 2007), market share (Baum *et al.*, 2005; Greve, 1998), and returns on sales (ROS) (Audia, Locke, and Smith, 2000). Given our focus on acquisitions and divestments, which are commonly decided by the top management, we chose to concentrate on ROA because it is the most commonly used measure in research on aspiration levels (Shinkle, 2012), and this metric can be calculated easily from financial statements and is thus available for managers and shareholders alike. Profitability is highly relevant for a firm's long-term survival and typically also for management compensation; therefore, all stakeholders are likely to pay attention to this metric.

Although profitability is generally considered a relevant accounting-based performance metric, choosing an appropriate comparison point is not necessarily straightforward.

Comparisons with the previous historical performance of a firm itself or with the performance of similar firms are generally considered the best options managers have in forming aspiration levels (Cyert and March, 1963). Following prior literature, we chose to model historical and social aspirations separately because recent empirical work suggests that firms tend not to combine these two and may respond to them differently (Bromiley and Harris, 2014; Kim, Finkelstein, and Halebian, 2015; Washburn and Bromiley, 2012). The historical comparison-based performance shortfall was built using the classic recursive measure, which weights previous performance and previous aspiration levels to form current aspiration levels (Cyert and March, 1963). Historical aspiration is defined as follows: $A_t =$

$\alpha P_{t-1} + (1 - \alpha)A_{t-1}$, where A_t denotes the aspiration level at time t , P_{t-1} is the performance of the firm at time $t-1$, and A_0 is defined solely by the performance for the first year in the data. Aspirations adjust to previous achievements (March and Simon, 1958), and the coefficient α denotes the relative importance of the previous aspiration level versus the actual prior performance as the current aspiration level. Larger values of α indicate more rapid adjustments of aspiration levels based on feedback from actual performance, which should be expected in a dynamic sector (Joseph and Gaba, 2015). We chose a fixed, relatively large value of α ($\alpha = 0.75$) and repeated the analyses with different values of α . The reported results are based on $\alpha = 0.75$, but the results are robust also for $\alpha = 0.50$ and $\alpha = 0.25$. *Historical comparison-based performance shortfall* is thus the absolute value of the difference between current performance and current aspiration.¹

The social comparison-based aspiration level is traditionally defined as the difference between the focal firm's performance and the average (Audia and Greve, 2006; Baum *et al.*, 2005; Greve, 1998; Shimizu, 2007) or median (Iyer and Miller, 2008) performance of all firms in the industry. However, as noted in the original formulation of the behavioral theory of the firm (Cyert and March, 1963: 115), social comparison theory posits that the comparison is conducted with similar others (Festinger, 1954). Managers of large firms may not consider all other industry participants as their peers; instead, they may focus on a smaller referent group of meaningful others (Fiegenbaum and Thomas, 1990, 1995). Indeed, recent research strongly suggests that organizational performance aspirations depend on the focal reference group most relevant to a firm's performance rather than on the performance of all industry participants (Blettner *et al.*, 2015; Moliterno *et al.*, 2014). Therefore, we constructed our social comparison-based aspiration levels by using a matching approach to identify the

¹ Our interest is in the magnitude of performance shortfalls. To ease the interpretation of the models, we use the absolute value, which indicates that the performance shortfall always takes only positive values. This approach is comparable to the commonly applied reverse coding of below-aspiration performance.

most relevant peer companies within each industry-year group (based on three-digit SIC codes) present in Compustat North America data. We first applied exact matching based on year and industry and then identified the k closest matches for each sample observation based on their revenue and total assets by calculating the Mahalanobis distance (Mahalanobis, 1936) between the focal firm and other firms within the industry-year in terms of revenue and total assets, which we used because these variables reflect the size of the company – one of the most important characteristics managers use when categorizing firms (Baum and Lant, 2003). Because management and external stakeholders – such as analysts – are unlikely to pay attention to a large group of peers and will most likely focus on a smaller number of comparable peers, we sought to keep the peer group narrow. The reported results are based on peer group size $k = 5$, but the models are robust to alternative values of $k = 3 \dots 7$. For each peer group, we calculated the average performance and subtracted it from the actual performance of the focal firm. As discussed above, the absolute value of this difference was used to form our measure of *social comparison-based performance shortfalls*.

Financial slack. In our study of acquisitions and divestments, the time horizon of acquisitions is long enough to allow companies to arrange financing if it is required and available. Therefore, we decided to base our measure of financial slack on leverage (Bourgeois, 1981; Greve, 2003a; Iyer and Miller, 2008), and we measured slack using the equity-to-debt ratio. We chose the equity-to-debt ratio over the more commonly used debt-to-equity ratio to make the results easier to interpret and more intuitive: large equity-to-debt values indicate large financial slack. The ratio between equity and debt is also commonly used as the measure for “potential slack” (Bromiley, 1991), which Iyer and Miller (2008) found to be the most relevant type of slack for acquisitions. Although our theoretical interest is in the roles of slack resources constraining and enabling different types of organizational change in response to performance shortfalls (i.e., a moderation effect), the inclusion of slack

resources in all models also controls for the main effects of slack resources on the direction of organizational change (additional related control variables are described below).

Control variables

As discussed above, it is important to separate our arguments from alternative risk-based explanations. Two alternative explanations that warrant particular attention, given that prior literature has frequently mixed arguments from these explanations with behavioral theory accounts regarding organizational change, are the threat rigidity hypothesis (Staw *et al.*, 1981) and prospect-theory-based arguments regarding changes in risk taking in response to performance (Kahneman and Tversky, 1979).

To disentangle the effects of resources constraining or enabling search and organizational change from the potential threat rigidity arising from proximity to financial distress, we included Altman's Z score², the standard control for *bankruptcy risk*, as a control variable (Miller and Chen, 2004). We reverse coded this variable to ease the interpretation; larger values in the models indicate higher bankruptcy risk.

We also included a control for firm-level *risk taking* to segregate the effects of adjustments in risk taking from the effects that performance below aspirations has on the direction of search and organizational change. We measured risk taking using the square root of the standard deviation in analysts' forecasts on earnings estimates during the focal year, operationalized as in Bromiley and Harris (2014). For further robustness testing, we collected firm-level Beta as an alternative measure for risk taking (see, e.g., Bromiley, 1991).

To exclude the alternative explanation that resources directly explain the type of organizational change rather than enabling or constraining problemistic search and the adoption of different types of organizational change, we added several controls. Because the

² Altman's (1983) Z score is calculated as $(1.2 \times \text{working capital divided by total assets}) + (1.4 \times \text{retained earnings divided by total assets}) + (3.3 \times \text{income before interest and taxes divided by total assets}) + (0.6 \times \text{market value of equity divided by total liability}) + (1.0 \times \text{sales divided by total assets})$.

size of a firm can influence the available resources – which thus influences the absolute number of acquisitions and divestments of which it is capable – we included the logarithm of total assets to control for size. Intangible resources available for a firm can affect its ability to conduct acquisitions and divestments and the potential benefits to be gained from them. Thus, we also included controls for *technological* and *marketing resources*, which were measured using R&D expenses per sales³ and advertising expenses per sales, respectively (Iyer and Miller, 2008). For these two variables, missing values were replaced with zero, and dummy variables were included to account for data limitations. We included a control for free cash flow (Lehn and Poulsen, 1989) because cash resources may influence firms' ability to finance transactions.

We controlled for *diversification* because diversified firms are more active in terms of both acquisitions (Maksimovic and Phillips, 2008) and divestments (Haynes, Thompson, and Wright, 2000). We used Shannon's Entropy Index and measured diversification as $\sum p_{jt} * \ln(1 / p_{jt})$, where p_{jt} is the proportion of assets that the firm receives from segment j at time t .

We added a control for *engagement in alternative action*, i.e., the number of divestments (acquisitions) conducted during the focal year for models predicting acquisitions (divestments), because these decisions can be coordinated and made simultaneously within the firm, and acquisitions could thus influence the divestment pattern (and vice versa). We also controlled for *above aspiration performance deviations* – measured with the same approach that we used for performance shortfalls – to take into account the impact of such performance on acquisition patterns (Iyer and Miller, 2008). In addition, we included *year and industry dummies*; the propensity to engage in acquisitions and divestments is likely to vary between industries and years because mergers and acquisitions sometimes occur in

³ Studies on risk taking (e.g., Miller and Bromiley, 1990) have utilized R&D investments as a measure of the strategic risk the firm takes. Including it in all our models as a control should further reduce the possibility that risk taking explains our results.

waves (McNamara, Halebian, and Dykes, 2008), and environmental uncertainty in an industry has been shown to affect divestment behavior (Damaraju, Barney, and Makhija, 2015). Table 1 reports the descriptive statistics of the data that were used in the analysis (year and industry dummies and indicator variables controlling for missing values are omitted).

+++Insert Table 1 about here+++

Analytical approach

Overall, we are interested in how large firms respond to performance shortfalls using acquisitions and divestments under specific conditions (i.e., the presence of slack). Because our unit of analysis is the firm-year observation, the two responses we model are not mutually exclusive, and because firms can – and typically do – respond with multiple acquisitions and divestments every year, we estimate these models using a count data model for panel data. Because the dependent variables are overdispersed, we use a negative binomial model over a Poisson model for the main analyses. To retain all sample companies in the analyses regardless of whether they made acquisitions and/or divestments during the sample period, we estimated the main analyses using a random effects negative binomial estimator.⁴ However, as an additional robustness check, we estimated a fixed effects Poisson model with robust standard errors, also known as the quasi-conditional maximum likelihood estimator (Wooldridge, 1999), which led to similar results. In additional robustness tests, we also ran our models using a Heckman type two-stage approach to account for the possibility that firms might first decide to respond to a performance shortfall and then choose the type of response; this approach led to similar results. However, because such implementation in non-linear models has been criticized (Greene, 2012), our reported results are based on models without the inverse Mill's ratio.

⁴ Although the random and negative effects in Stata's negative binomial models are on the dispersion parameter and not on the mean, the fixed effects specification still drops companies that did not engage in acquisitions or divestments during the sample period.

Our hypothesized relationships involve firms' responses to performance shortfalls, i.e., performance *below* aspirations. We used spline functions to identify below-aspiration performance (and used the same approach to define above-aspiration performance that we used as a control variable). Spline functions allow a piecewise linear specification to ensure that the slope of the regression line can differ above and below the given thresholds; such functions are commonly used as a solution to model attainment discrepancies in the literature (see, for instance, Greve, 2003a). This approach is a natural choice because behavioral theory predicts that firms will respond to performance deviations from a reference point (Cyert and March, 1963). Therefore, we created linear splines with knots at the extreme values and zero and entered the below-aspiration splines and below-aspiration splines into the regression models. In this manner, we were able to concentrate on performance shortfalls and eliminate the effects of the above-aspiration performances from our theorized variable. We chose to employ one percent winsorizing for our hypothesized variables as a baseline to ensure that our results are robust and not biased by potential outliers.

RESULTS

Table 2 reports the results of our regression analysis containing our models predicting firms' engagement in acquisitions and divestments. All models contain year and industry dummies in addition to indicator variables that control for the imputed missing values of intangible resources and diversification; however, these are omitted from the tables for space reasons.

In all models, the control variables are generally as expected. Total assets have positive and statistically significant effects on divestment and acquisition frequencies ($p = 0.000$ in all models), which is expected because larger firms divest and acquire more in absolute terms. Regression coefficients for technological and marketing resources and free cash flows are not significant. For technological resources, this finding is consistent with the prior empirical work of Iyer and Miller (2008). The main effect of financial slack is positive and statistically

significant in models predicting acquisition frequency but insignificant in all models predicting the frequency of divestment. The control variables for above aspiration performance deviations are all statistically insignificant, which is consistent with our theoretical predictions about problemistic search and resource-consuming acquisitions and resource-freeing divestments as responses to performance shortfalls.

In our first set of hypotheses (Hypotheses 1a and 1b), we predicted that the further below aspirations the performance of the firm was (i.e., the larger the discrepancy between aspirations and actual performance), the less it engages in acquisitions and the more it engages in divestments. In Table 2, the corresponding regression coefficients are negative and significant at $p = 0.001$ and $p = 0.002$ in Models 1 and 2 that predict acquisition rates using aspiration levels derived from both historical and social comparisons, respectively. These results offer support for Hypothesis 1a. To assess the effect size and practical significance of these results, we convert the regression coefficients into incidence rate ratios (IRRs). In both historical and social comparisons, a one-standard-deviation increase in the performance shortfall is associated with 15% and 14% decrease in acquisition rates, respectively. This is in line with Hypothesis 1a. Furthermore, in Models 5 and 6 that predict divestments, supporting Hypothesis 1b, these coefficients are positive and significant at $p = 0.031$ and $p = 0.036$ for historical and social comparisons, respectively. The corresponding IRRs show that a one-standard-deviation increase in performance shortfalls leads to an increase in divestment rates of approximately five percent for both historical and social comparisons. Together, these results indicate that our first hypotheses are supported, which suggests that a firm's response to performance shortfalls are different for resource-consuming and resource-freeing organizational change.

+++Insert Table 2 about here+++

Hypothesis 2a predicted that high levels of financial slack would *weaken* the negative effect that performance shortfalls have on acquisition rates. In Table 2, the corresponding regression coefficients for the interactions between slack and performance shortfalls on acquisitions are positive and significant at $p = 0.001$ (Model 3) and $p = 0.000$ (Model 4) for historical and social aspirations, respectively. These results offer support for Hypothesis 2a. To further interpret the interaction effects, we provide graphical presentations of them (Greene, 2010; Hoetker, 2007). Figures 1a and 1b show the respective average marginal effects over the complete range of the values of performance shortfalls in our sample. Marginal effects are presented for low (one standard deviation below the sample mean), average, and high values of financial slack (one standard deviation above the sample mean). Together with significant coefficients, these figures support our hypothesis regarding the weakening influence of financial slack: For firms with high values of slack, the effect of performance shortfalls on acquisition rates is not as steep for both historical and social aspirations compared with firms with low values of slack. This finding is consistent with our general argument regarding slack acting as an enabler for acquisitions by providing resources. IRRs indicate that the size of the moderating effect of financial slack is practically significant; for low values of slack (one standard deviation below the sample mean), a one-standard-deviation increase in performance shortfalls reduces the acquisition rate by approximately 22 percent in historical and 22 percent in social comparison, whereas the effect is approximately 12 and 10 percent for high values of slack (one standard deviation above the sample mean) in historical and social comparison.

Hypothesis 2b predicted that firms with low levels of financial slack would divest more than those with high levels of slack in their responses to performance shortfalls. In other words, we hypothesized a weakening effect. In Table 2, the corresponding regression coefficients testing the interaction are negative and significant at $p = 0.164$ (Model 7) and $p =$

0.050 (Model 8) for historical and social comparisons, respectively. This finding supports Hypothesis 2b regarding social comparison, whereas the result regarding historical comparison is very weak evidence at best. A graphical presentation of the average marginal effects is provided in Figures 1c and 1d. The direction of interaction is as expected: firms divest most when they have an excessive amount of debt (i.e., a low level of financial slack) and are simultaneously underperforming. For low values of slack, a one-standard-deviation increase in the social performance shortfall is associated with a 12 percent increase in divestment rates (social aspirations), whereas the effect is approximately nine percentage points less for high values of slack (social aspirations).

+++Insert Figure 1a and Figure 1b about here+++
+++Insert Figure 1c and Figure 1d about here+++

Alternative dependent variable and specification

As an alternative specification, we also ran additional random-effects GLS panel models that predicted the relative emphasis on acquisitions in the organizational change, that is, the yearly share of acquisitions on all transactions (acquisitions and divestments). These models have the drawback that firm-years without transactions result in missing values. As a default option, such firm-years are dropped from analysis, but we also tested additional specifications in which the missing values were replaced either by a theoretical value indicating equal attention to acquisitions and divestments (i.e., 0.5) or by the sample mean to address the potential selection effect. All these models led to similar results to those of our main analysis: the degree of performance shortfall is negatively related to the share of acquisitions, and financial slack weakens this negative relationship. In Table 3, we report the results based on models that omit firm-years with no transactions.

+++Insert Table 3 about here+++

Accounting for risk taking and threat rigidity

As explained in the introduction, we paid particular attention to disentangling our arguments from alternative explanations arising from the threat rigidity hypothesis (Staw *et al.*, 1981) and prospect-theory (Kahneman and Tversky, 1979). To control for the potential effects of threat rigidity (Staw *et al.*, 1981), all our models include controls for bankruptcy risk. This control variable is positive and significant for models predicting divestments in Table 2 and negative and significant in our alternative specification models in Table 3, overall indicating that firms emphasize change through divestments if bankruptcy is considered a risk. Our hypothesized effects remain robust when threat rigidity is controlled. Further, given that acquisition and divestment behavior can be influenced by the propensity to take risks, we controlled for risk taking in year *t* in our models predicting acquisition and divestment behavior, thereby partialing out the simultaneous effect of performance below aspirations on risk taking and on acquisition and divestment behavior from the effects of resource constraints, which are the focus of our theorizing. Our results for both measures of risk-taking used suggest that our hypothesized effects remain robust when the mechanism is controlled.

DISCUSSION

Our study of the direction of organizational change in response to performance shortfalls examined the interacting effects of performance below aspirations and financial slack on firms' emphasize resource-consuming versus resource-freeing organizational change. We focused on the frequency of two polar types of organizational responses to performance shortfalls and showed that firms respond to performance below aspirations by increasing the frequency of resource-consuming acquisitions when they are relatively close to aspirations and when they have abundant financial slack, whereas they increase the frequency of resource-freeing divestments when they are far from aspirations and when they have little or no financial slack.

Implications for theory

Our study has important implications for explanations of the effects of performance aspirations rooted in the behavioral theory of the firm (Cyert and March, 1963; Gavetti *et al.*, 2012). First, our study helps clarify the nature of organizational responses to performance that is below aspirations. Prior research on responses to performance shortfalls has focused on individual strategic action categories as proxies for organizational change (Iyer and Miller, 2008; Shimizu, 2007) and has not considered the possibility that firms' search and the direction of organizational change may be affected by the magnitude of performance shortfalls. In fact, in a review of the literature on performance feedback, Greve (2003b) notes that "the theory poses few limitations on what behavior can change in response to performance feedback, so we expect rather similar results when studying different forms of organizational change" (p. 77). In other words, the direction of organizational change in response to performance shortfalls has not been considered in prior theorizing (Gavetti *et al.*, 2012; Shinkle, 2012). By simultaneously analyzing resource-consuming acquisitions and resource-freeing divestments as responses to performance shortfalls, we have shown that performance shortfalls have distinct effects on the frequency of actions in these categories of organizational change and that the direction of organizational change reflected in the mix of these polar responses to performance shortfalls is affected by the magnitude of the performance shortfall and by resource constraints. This finding is an important extension of behavioral theories of performance feedback. Given the lack of prior theorizing about the direction of change in response to performance shortfalls, our findings regarding the relevance of distinguishing resource-consuming and resource-freeing organizational responses suggest that further insight into firm responses may be gained by developing a more comprehensive typology of different responses and by investigating how the direction of search among these alternatives responds to performance shortfalls.

Our second important contribution to explanations of responses to performance shortfalls that are rooted in the behavioral theory of the firm relates to the broader role of resource constraints. Despite the recognized role that resources play in Cyert and March's (1963) Behavioral Theory of the Firm in regulating slack search, the role of resource constraints in regulating responses to performance shortfalls, i.e., their role in problemistic search, has been undertheorized in behavioral explanations of responses to performance feedback. Our arguments suggest that resource constraints arising from the distance from performance aspirations, which can be thought of as resource flows, when combined with the availability of slack resources (i.e., resource stocks), direct search and organizational change to either resource-consuming organizational change or resource-freeing organizational change.

More generally, our results also contribute to a deeper understanding of the role of context in shaping responses to performance shortfalls. Although there is broad agreement that firm behavior is never context free (Johns, 2006), the manner in which context affects behaviors continues to be debated (Shinkle, 2012). Prior research regarding the effects of the context on responses to performance feedback has often confounded arguments on two levels of analysis. On the one hand, prior research has suggested that contextual factors such as the threat of financial distress can shape the psychological processes of decision makers (e.g., Audia and Greve, 2006; Greve, 2011; Jordan and Audia, 2012; March and Shapira, 1992; Miller and Chen, 2004). This argument operates mostly at the individual level of analysis and therefore would seem less applicable to firm-level theorizing on the effects of performance feedback on problemistic search and organizational change (Kacperczyk *et al.*, 2015). On the other hand, related theorizing on the firm level of analysis, often by the same authors, has also conceptualized contextual factors as enabling or constraining strategic choices (e.g., Audia and Greve, 2006; Greve, 2011; Miller and Chen, 2004). This study has adopted the latter conceptualization, arguing for a role of financial slack in guiding the emphasis among

different actions taken in response to performance shortfalls, which thereby moderates the direction of the organizational change in response to performance shortfalls. In particular, our arguments and findings suggest that organizations with no financial slack may be constrained by financial limitations in seeking to address large shortfalls with respect to performance aspirations through (multiple) resource-consuming acquisitions, whereas organizations that have financial slack are not so constrained and are able to put more emphasis on such resource-consuming strategies. In the context of resource-freeing divestments, a similar effect can be observed. In the absence of slack, large performance shortfalls trigger firms with little financial slack to increase divestments to free resources, whereas organizations with financial slack choose fewer divestments when the organization has fallen short of its performance aspirations.

In addition to these theoretical contributions, our study also makes a methodological contribution to research in behavioral theory with respect to explanations of the aspiration–organizational change relationship as it relates to recent discussions on social comparison-based performance aspirations. These discussions urge more careful measurement of social aspirations instead of the industry averages that are commonly used in the previous literature (Moliterno *et al.*, 2014; Shinkle, 2012). With respect to social aspirations, although Cyert and March (1963: 115) previously referred to “comparable organizations” as a source of social aspirations based on social comparison theory (Festinger, 1954), our study is the first (to the best of our knowledge) to identify the closest peers in the analysis of social aspirations by using matching to select comparable firms from the universe of other firms. Consistent with these arguments and with research on strategic groups and reference points (Fiegenbaum, Hart, and Schendel, 1996; Porac *et al.*, 1995), our unreported post hoc analyses that show stronger effects of peer-based social aspirations than of industry-average-based social aspirations also suggest that firms do not consider all industry participants as their equals and

that social performance aspirations follow the narrow group of firms that are considered most similar to the focal firm. Such matching resembles the actual decision process of managers and stock market analysts when choosing peer groups (e.g., for the valuation of acquisition targets based on multipliers). Our empirical approach is important for the discussion of the relative effects of social and historical aspirations (Baum *et al.*, 2005; Bromiley and Harris, 2014; Greve, 2003a; Joseph and Gaba, 2015; Kim *et al.*, 2015). Finding a dominant effect of historical aspirations in prior research could also be related to the lack of an efficient proxy to fully capture the desired effect of social comparison.

Limitations and future research

Several limitations must be acknowledged that also open avenues for future research. First, our theorizing focused on the role of financial slack as constraining and enabling problemistic search and, as a consequence, resource-consuming and resource-freeing organizational changes in response to performance shortfall. Future research might examine the potential effects of other resources and capabilities on the direction of problemistic search and organizational change. Our arguments regarding the resource-consuming and resource-freeing nature of acquisitions and divestments allow us to explain prior mixed results regarding firms' responses to performance shortfalls through acquisitions and divestments. However, because not all actions that a firm may undertake in response to a performance shortfall may map as easily to our distinction between resource-consuming and resource-freeing actions as acquisitions and divestments (e.g., new product introductions have elements that are both resource-consuming and resource-freeing), this distinction should be taken as the first step toward a typology of strategic responses to performance shortfalls that must be complemented by additional dimensions that might be of relevance in understanding firms' likely response strategies to performance shortfalls.

Given that we selected firms that are part of the S&P 1500 to ensure comparability with prior research, our sample consists of relatively large firms. For these firms, acquisitions and divestments are part of the relevant choice set of alternatives, which may not hold for SMEs. Different response categories – such as R&D investments or factory expansions – may better map to this distinct set of firms. However, utilizing these categories might produce somewhat less clear-cut results because these responses involve somewhat more limited financial resources, and problemistic search among them may therefore be less affected by the resource constraints that we argue drive the results for acquisitions. Although we agree that smaller firms are indeed subject to resource constraints, our current findings should not be generalized outside the sampling frame without further empirical confirmation.

Our results provide further evidence that performance shortfalls may trigger multiple simultaneous responses in the form of organizational change and risk taking and that these responses are distinct (Argote and Greve, 2007; Kacperczyk *et al.*, 2015). Given that our study has focused on how resource constraints affect the direction of organizational change, we have focused on empirically separating the effects on organizational change and risk taking. This is not to say that there may not be links between these two responses to performance shortfalls. Future research should therefore build on this insight emerging from our study and prior related research and investigate in greater detail how these responses interact in different circumstances.

A further limitation relates to the secondary data we utilize. Given the type of data we utilize for our study, we can only observe those alternatives (acquisitions and divestments) that were actually adopted by the focal firms and not those alternatives that were considered during the search process but not adopted. Additional insight might therefore be gained through careful in-depth qualitative research investigating the search and choice processes that lead to the organizational changes we observe in our study.

Like many prior studies on performance feedback (Baum *et al.*, 2005; Greve, 2011; Iyer and Miller, 2008), our study implements a single organizational level performance metric (ROA), which we acknowledge as a separate empirical limitation. Although ROA is likely to be a focal metric for organizations, it has relevance mostly at the corporate level and does not allow us to capture the effects of business unit–level performance feedback that may also affect acquisition and divestment patterns (Iyer and Miller, 2008). Including performance metrics from multiple levels (Gaba and Joseph, 2013; Shimizu and Hitt, 2005) would enable future research to further increase the detail of the decision-making context, which we believe is relevant for advancing research in behavioral theory.

In our study, we implemented a novel measure for identifying the reference group for social aspirations, thereby building upon recent arguments that challenge the use of industry averages (Moliterno *et al.*, 2014; Shinkle, 2012). Although our matching approach represents progress over prior approaches, it continues to be a relatively coarse instrument for identifying a firm’s peers for comparison. Future research therefore should consider qualitative approaches to gain further in-depth insight into the question of which firms are the most influential reference points and how firms identify these performance referents.

Conclusion

In sum, we hope our findings facilitate future research on performance feedback–driven strategic behavior by illustrating that organizational change is not a homogeneous category. Based on our distinction of resource-freeing and resource-consuming organizational change, our findings demonstrate that the strategic context of a company influences which of a variety of possible responses a firm chooses when performance falls below aspirations. Strategic behavior may simply be more complex than prior theorizing has led us to believe, and much more is to be learned in the domain of this topic.

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Table 1. Descriptive statistics and correlations

Variables	Mean	s.d.	1	2	3	4	5	6	7	8	9	10	11	12	13
1. Acquisition rate	1.16	2.21													
2. Divestment rate	0.35	1.07	0.30												
3. Performance shortfall from aspirations (historical)	0.01	0.04	-0.04	0.00											
4. Performance shortfall from aspirations (social)	0.01	0.04	-0.06	0.00	0.88										
5. Financial slack	2.41	2.71	-0.08	-0.13	0.01	-0.05									
6. Risk taking	0.45	2.19	-0.02	-0.00	0.04	0.04	-0.03								
7. Bankruptcy risk	-5.90	10.20	-0.05	0.08	0.09	0.16	-0.49	0.03							
8. Diversification	0.20	0.44	0.18	0.24	-0.04	-0.04	-0.17	0.04	0.09						
9. Total assets (logarithm)	7.00	1.74	0.44	0.38	-0.10	-0.10	-0.29	-0.02	0.08	0.27					
10. R&D/sales	0.18	3.34	-0.01	-0.02	0.06	0.11	0.08	-0.01	0.01	-0.05	-0.07				
11. Advertising/sales	0.02	0.41	0.09	0.03	0.02	0.04	-0.03	-0.00	-0.03	0.01	0.09	-0.01			
12. Free cash flow	0.19	1.93	0.00	0.02	-0.04	-0.04	-0.04	0.00	0.01	0.01	0.03	-0.04	-0.02		
13. Performance above aspiration level (historical)	0.01	0.03	-0.07	0.01	-0.09	0.02	-0.02	0.00	0.11	-0.03	-0.10	0.02	-0.01	0.07	
14. Performance above aspiration level (social)	0.02	0.04	-0.02	-0.06	-0.06	-0.15	0.19	-0.03	-0.19	-0.02	-0.12	-0.00	0.02	-0.01	0.07

Table 2. Negative binomial regression results for acquisition and divestment rates

Variables	Acquisitions				Divestments			
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Performance shortfall (historical) _(t-1)	-4.506 (1.352) [0.001]		-6.652 (1.568) [0.000]		1.388 (0.743) [0.031]		2.344 (1.150) [0.021]	
Performance shortfall (social) _(t-1)		-4.098 (1.356) [0.002]		-6.771 (1.500) [0.000]		1.307 (0.727) [0.036]		3.011 (1.141) [0.004]
Performance shortfall (historical) x Financial slack _(t-1)			0.600 (0.188) [0.001]				-0.224 (0.228) [0.164]	
Performance shortfall (social) x Financial slack _(t-1)				0.733 (0.188) [0.000]				-0.418 (0.253) [0.050]
Financial slack _(t-1)	0.029 (0.011) [0.005]	0.030 (0.011) [0.004]	0.024 (0.011) [0.019]	0.025 (0.011) [0.015]	0.024 (0.026) [0.181]	0.027 (0.026) [0.155]	0.028 (0.026) [0.149]	0.033 (0.026) [0.105]
Diversification _(t-1)	-0.023 (0.054) [0.666]	-0.032 (0.054) [0.552]	-0.027 (0.053) [0.614]	-0.036 (0.054) [0.498]	0.307 (0.073) [0.000]	0.300 (0.074) [0.000]	0.307 (0.073) [0.000]	0.301 (0.074) [0.000]
Risk taking	-0.374 (0.096) [0.000]	-0.402 (0.097) [0.000]	-0.367 (0.096) [0.000]	-0.396 (0.097) [0.000]	-0.017 (0.030) [0.568]	-0.017 (0.032) [0.591]	-0.017 (0.030) [0.568]	-0.017 (0.032) [0.588]
Bankruptcy risk _(t-1)	-0.001 (0.001) [0.373]	-0.001 (0.001) [0.336]	-0.001 (0.001) [0.345]	-0.001 (0.001) [0.342]	0.034 (0.008) [0.000]	0.033 (0.008) [0.000]	0.033 (0.008) [0.000]	0.031 (0.008) [0.000]
Total assets (logarithm) _(t-1)	0.357 (0.023) [0.000]	0.361 (0.023) [0.000]	0.355 (0.023) [0.000]	0.357 (0.023) [0.000]	0.502 (0.033) [0.000]	0.503 (0.034) [0.000]	0.506 (0.034) [0.000]	0.511 (0.034) [0.000]
R&D/sales _(t-1)	0.015 (0.292) [0.958]	-0.048 (0.295) [0.871]	-0.121 (0.300) [0.686]	-0.234 (0.298) [0.432]	0.055 (0.443) [0.901]	0.050 (0.444) [0.910]	0.027 (0.447) [0.952]	0.021 (0.455) [0.963]
Advertising/sales _(t-1)	0.637 (1.035) [0.538]	0.413 (1.066) [0.698]	0.621 (1.036) [0.549]	0.427 (1.066) [0.688]	1.170 (1.564) [0.454]	0.859 (1.587) [0.588]	1.174 (1.564) [0.453]	0.850 (1.587) [0.592]
Free cash flow _(t-1)	0.010 (0.014) [0.484]	0.009 (0.015) [0.519]	0.011 (0.015) [0.467]	0.010 (0.015) [0.493]	0.016 (0.015) [0.288]	0.015 (0.015) [0.302]	0.016 (0.015) [0.290]	0.014 (0.014) [0.320]
Performance above aspiration level (historical) _(t-1)	-1.285 (1.033) [0.213]		-1.359 (1.041) [0.192]		1.093 (1.164) [0.348]		1.124 (1.157) [0.331]	
Performance above aspiration level (social) _(t-1)		0.055 (0.526) [0.917]		0.007 (0.528) [0.989]		-1.075 (1.128) [0.341]		-1.034 (1.120) [0.356]
Acquisition rate					-0.006 (0.009) [0.499]	-0.008 (0.009) [0.397]	-0.006 (0.009) [0.493]	-0.008 (0.009) [0.401]
Divestment rate	-0.012 (0.013) [0.373]	-0.015 (0.014) [0.281]	-0.011 (0.013) [0.392]	-0.014 (0.014) [0.308]				
N	4767	4660	4767	4660	4767	4660	4767	4660

Standard errors in parentheses, p-values in brackets. One-tailed p-values for hypothesized variables, two-tailed p-values for control variables. Hypothesized variables are winsorized (1%). Year and industry dummies, in addition to indicator variables controlling for missing values, are included in all models but omitted from the table.

Table 3. Random-effects GLS panel regression results for relative share of acquisitions

Variables	Model 9	Model 10	Model 11	Model 12
Performance shortfall (historical) _(t-1)	-1.207 (0.540) [0.013]		-3.632 (0.666) [0.000]	
Performance shortfall (social) _(t-1)		-1.178 (0.700) [0.046]		-3.843 (0.673) [0.000]
Performance shortfall (historical) x Financial slack _(t-1)			0.479 (0.095) [0.000]	
Performance shortfall (social) x Financial slack _(t-1)				0.563 (0.099) [0.000]
Financial slack _(t-1)	0.013 (0.004) [0.001]	0.011 (0.004) [0.002]	0.007 (0.004) [0.033]	0.006 (0.004) [0.064]
Diversification _(t-1)	-0.072 (0.023) [0.002]	-0.069 (0.023) [0.003]	-0.070 (0.023) [0.002]	-0.067 (0.023) [0.004]
Risk taking	-0.115 (0.031) [0.000]	-0.117 (0.032) [0.000]	-0.105 (0.031) [0.001]	-0.107 (0.032) [0.001]
Bankruptcy risk _(t-1)	-0.001 (0.001) [0.024]	-0.001 (0.001) [0.025]	-0.001 (0.001) [0.022]	-0.001 (0.001) [0.027]
Total assets (logarithm) _(t-1)	-0.002 (0.006) [0.701]	-0.001 (0.007) [0.842]	-0.005 (0.006) [0.446]	-0.006 (0.007) [0.353]
R&D/sales _(t-1)	-0.030 (0.088) [0.737]	-0.026 (0.093) [0.777]	0.030 (0.088) [0.729]	-0.017 (0.087) [0.847]
Advertising/sales _(t-1)	0.365 (0.254) [0.151]	0.382 (0.263) [0.147]	0.403 (0.244) [0.099]	0.477 (0.257) [0.063]
Free cash flow _(t-1)	0.005 (0.004) [0.221]	0.005 (0.004) [0.154]	0.007 (0.003) [0.029]	0.008 (0.003) [0.007]
Performance above aspiration level (historical) _(t-1)	-0.459 (0.297) [0.121]		-0.642 (0.288) [0.026]	
Performance above aspiration level (social) _(t-1)		0.244 (0.200) [0.223]		0.169 (0.195) [0.384]
N	2552	2509	2552	2509

Standard errors in parentheses, p-values in brackets. One-tailed p-values for hypothesized variables, two-tailed p-values for control variables. Hypothesized variables are winsorized (1%). Year and industry dummies, in addition to indicator variables controlling for missing values, are included in all models but omitted from the table.

Figure 1a. Marginal effects of performance shortfall (hist.) on acquisitions.

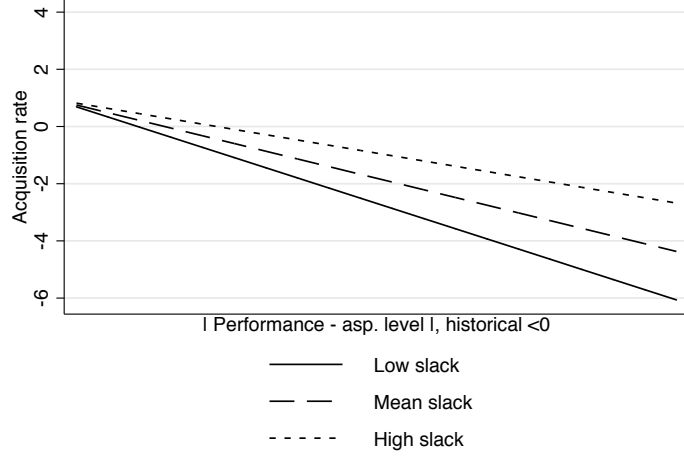


Figure 1b. Marginal effects of performance shortfall (social) on acquisitions.

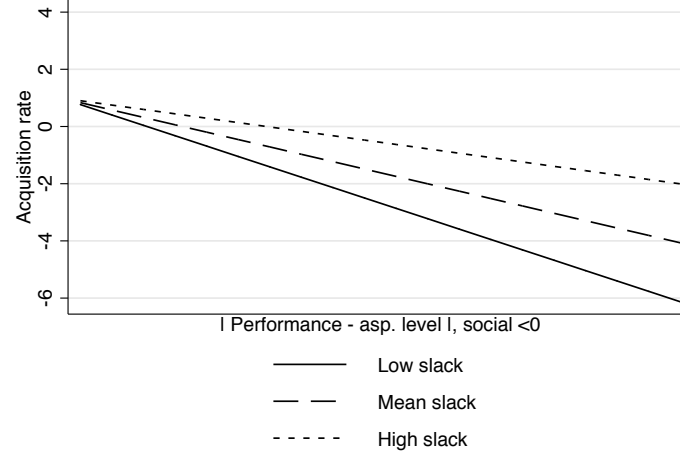


Figure 1c. Marginal effects of performance shortfall (hist.) on divestments.

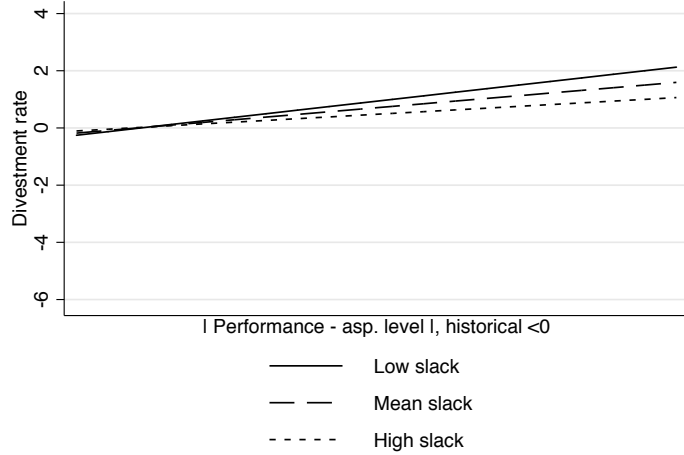


Figure 1d. Marginal effects of performance shortfall (social) on divestments.

