Better safe than sorry:

Subsidiary performance feedback and internal governance in multiunit firms

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ABSTRACT

This paper explores the link between subsidiary performance feedback and internal governance mechanisms in multiunit firms. A central premise of performance feedback models is that performance below aspirations is associated with increased risk tolerance and thereby with a higher likelihood of taking excessive risks in resource allocation decisions. Building on this observation, we contend that the headquarters of multiunit firms take this association into account in the design of internal (i.e., headquarters-subsidiary) governance mechanisms. Accordingly, a subsidiary's performance-aspiration gap (below aspirations) is positively associated with the headquarters' oversight of its resource allocation decisions and negatively associated with the provision of incentive schemes that promote risk taking. Regression results, using data on subsidiaries in France between 1998 and 2004, support our hypotheses and show that subsidiaries performing below historical and social aspirations are less likely to be given discretion in investment decisions and incentivized by cash bonuses. In the supplementary analyses we also provide suggestive evidence that subsidiary performance problems in multiunit firms trigger structural adaptation in the internal governance mechanisms in pursuit of regaining fit.

Keywords: autonomy; governance; incentives; organization design; performance feedback; resource allocation; structural adaptation

BETTER SAFE THAN SORRY: SUBSIDIARY PERFORMANCE FEEDBACK AND INTERNAL GOVERNANCE IN MULTIUNIT FIRMS

Choosing how to allocate scarce resources among risky alternatives constitutes one of the crucial roles of managers in organizations. The behavioral research tradition contends that managers' allocation choices are critically affected by performance comparison against a given aspiration level, or simply performance feedback (e.g., Audia & Greve, 2006; Bromiley, 2005; Greve, 1998, 2003b; Miller & Chen, 1994). This is because current standing with respect to aspirations—broadly referring to "levels of outcomes that will satisfy the individual or organization" (Washburn & Bromiley, 2012: 896)—is used by boundedly rational decision makers to determine the boundary between success and failure (March & Simon, 1958). Performance below aspirations is thus perceived as failure and may result in an increased propensity to take risk in search of regaining satisfying performance levels (Cyert & March, 1963). Much of the related empirical literature provides supportive evidence, indicating a direct (Gooding, Goel, & Wiseman, 1996; Greve, 1998; Ketchen & Palmer, 1999; Lehman, Hahn, Ramanujam, & Alge, 2011; Miller & Chen, 2004) or contingent (e.g., on firm size and resources, Audia & Greve, 2006) association between performance below aspirations and increased risk tolerance of organizational decision makers.

In multiunit organizations, such as multidivisional firms or business groups, aspiration-driven behavior spans multiple levels of the organizational structure. In particular, resource allocation decisions at the business unit level are likely to be affected by performance feedback both at the focal unit's (subsidiary) level and at the corporate (firm) level. Consequently, different motivations, biases, and causal models of decision making of corporate and business unit managers lead to alternative responses to performance problems, with distinctive implications for business unit behavior (Gaba & Joseph, 2013). The emerging literature on

performance feedback in multiunit organizations has explored these dynamics, focusing on the link between performance feedback and a multitude of resource allocation decisions at the business unit level, including changes in marketing, research and development (R&D), and product mix (Arrfelt, Wiseman, & Hult, 2013; Gaba & Joseph, 2013; Kacperczyk, Beckman, & Moliterno, 2015; Rhee, Ocasio, & Kim, 2014; Vissa, Greve, & Chen, 2010).

A recurring gap in the performance feedback literature, however, has been the lack of attention to the implications of performance feedback for internal governance mechanisms. This is a salient theoretical and empirical line of inquiry because internal governance mechanisms allow firms to influence the behavior of subordinate organizational actors (Holmstrom & Milgrom, 1991; Poppo & Zenger, 2002). The resource allocation process literature argues that in large companies, the top management manipulates the structural context—various organizational and administrative mechanisms designed by and at the discretion of headquarters to influence the actions of decision makers at lower levels of the organizational hierarchy—to exert influence on key processes in subordinate units, including capital investment and internal corporate venturing (Bower, 1970a; Burgelman, 1983). Hence, business unit performance problems should affect not only how the business unit allocates its resources, but also how the headquarters interacts with the unit and influences its decision making.

Addressing this gap, this paper explores the influence of subsidiary performance feedback on the internal (i.e., headquarters-subsidiary) governance mechanisms. We build on the observation that performance below aspirations increases risk tolerance of managers and activates a problemistic search, "search that is stimulated by a problem and is directed toward finding a solution to that problem" (Cyert & March, 1963: 121; cf. Greve, 2003b). Although problemistic search may help the firm to regain desired performance levels, a potential downside

is that increased risk tolerance can also be associated with higher likelihood of undertaking high-risk projects that may result in inefficient organizational choices, such as wasteful or myopic investments, or even putting an organization's survival at risk (e.g., Arrfelt et al., 2013; Greve, 2003a). We argue that multiunit firms take this association into account when choosing the optimal design of internal governance mechanisms (such as increased corporate oversight), which can be used to reduce the likelihood of excessive risk taking. This argument is consistent with prior work showing that managers higher up in the organizational hierarchy (in our case, the headquarters) are more able to benefit from an "outside view" and hence be less susceptible to suboptimal and biased decision making (Lovallo & Kahneman, 2003). Similarly, the internal governance mechanisms can serve an important role of cognitive repairs (Heath, Larrick, & Klayman, 1998), countering the excessive risk taking in response to negative performance feedback. Accordingly, in order to reconcile the need for problemistic search with the increased demand for corporate control at the subsidiary level, headquarters of multiunit firms are therefore likely to alter internal governance design to influence the decision-making process of subsidiaries that are performing below aspirations.

More specifically, we focus on two central aspects of organization design: the allocation of decision rights and the provision of incentives. We posit that headquarters are more likely to have oversight over resource allocation decisions of subsidiaries that perform below aspirations. This is in line with the observation that allocation of resources serves as a means to constrain or promote investment decisions and concomitant risk taking in organizations (Cannella & Lubatkin, 1993; Stein, 2003). The reversal of investments is costly once they are made, and post-investment interventions can only partially offset the cost of such decisions. We also argue that headquarters are less likely to incentivize the managers of subsidiaries that perform below

aspirations with year-end cash bonuses. This is because such incentive schemes promote risk taking and hence may further exacerbate the hazard of suboptimal allocation decisions (Dushnitsky & Shapira, 2010), consistent with the behavioral agency model, which establishes a negative link between managers' risk bearing (i.e., perceived risk to their wealth that can result from the endowment effect, employment risk, or other threats) and risk taking at the firm level (Beatty & Zajac, 1994; Wiseman & Gomez-Mejia, 1998; see also Barberis, 2013). To test our predictions, we analyzed data from subsidiaries of firms operating in France between 1998 and 2004. Regression results based on these data, and robustness checks, support our predictions.

In this study we make three main contributions. First, we contribute to the existing theoretical and empirical work that documents aspiration-driven behavior but abstracts away from governance choices that might mitigate it. As we explore the interface between headquarters and their subsidiaries, our contribution is particularly salient to the emerging literature on performance feedback in multiunit firms (e.g., Gaba & Joseph, 2013). Second, our study contributes to the literature that explores the allocation of decision rights within firms and empirically examines the antecedents of delegation (e.g., Colombo & Delmastro, 2008; Finkelstein, Hambrick, & Cannella, 2008). To our knowledge, this is the first study that demonstrates the influence of subsidiary performance feedback on the allocation of decision rights. Finally, our contributions extend to the theory of incentives as well. So far, the studies drawing on the behavioral tradition and the theory of incentives have remained largely disjointed (cf., Kaplan & Henderson, 2005; see also Argyres, 2011). Our study innovates by establishing a link between subsidiary performance feedback and provision of incentives in multiunit firms.

SUBSIDIARY PERFORMANCE FEEDBACK AND INTERNAL GOVERNANCE

A central premise of the behavioral theory of the firm is that boundedly rational organizational actors aspire to certain levels of performance and make decisions based on their current position vis-à-vis these aspirations (Bromiley, 2005). Building on this insight, "performance feedback" models have emerged as a major research stream investigating resource allocation decisions, risky organizational change, and search processes in organizations (see Greve, 2003a for a review). The past two decades of empirical research on the topic have led to an accumulation of robust support for the salience of performance feedback on a large spectrum of firm behavior, including changes in market niches (Greve, 1998), acquisitions (Anand & Singh, 1997), strategy selection (Miller & Chen, 1994), R&D expenditure (Greve, 2003b), corporate risk taking (Bromiley, 1991), and tie formation (Baum, Rowley, Shipilov, & Chuang, 2005).

The core mechanism through which performance feedback affects the decisions of organizational actors is that it changes their propensity to take risks. An aspiration level serves as a reference point to decision makers, a point against which they compare the extent to which current performance is satisfactory. In other words, the aspiration level represents a discrete boundary between success and failure (Kameda & Davis, 1990; Schneider, 1992). Thus, performance below aspirations, placing a decision maker in the failure zone, is interpreted as a problem and triggers an organizational search for solutions (Cyert & March, 1963; Greve, 1998). Managers' risk tolerance increases, along with the probability of engaging in a problemistic search and ensuing risky organizational changes and investments (Bromiley, 1991).[1] Accordingly, in this paper we build on this prior work and take the positive association between performance below aspirations and increased propensity to take risk as a given.

Although such an increase in risk tolerance may be beneficial in breaking the inertial forces in organizations, it may also lead to high-risk and/or unnecessary changes, and, hence, can hamper the organization's performance, even putting its survival in jeopardy (Audia & Greve, 2006; Greve, 2003a). For example, the pressure to address poor performance may trigger wasteful or myopic capital allocation decisions, excessive entry into new markets, overinvestment in capacity and R&D, or incorrect pricing decisions (e.g., Arrfelt et al., 2013; Lant, Milliken, & Batra, 1992). A direct implication of the observation that low performance can lead to suboptimal organizational choices is that firms may benefit from mitigating this relationship.

Building on this premise and focusing on multiunit firms, we refine and extend existing work by providing a model that explains how the design of the internal (i.e., headquarters-subsidiary) governance mechanisms is influenced by subsidiary performance feedback. We argue that multiunit firms alter internal governance mechanisms to mitigate the potentially adverse effects of increased risk taking. Our argument is not that subsidiary managers are invariably less capable at assessing risk compared to corporate managers, but rather that internal governance mechanisms can be strategically used to reduce the likelihood of excessive risky resource allocation decisions. The corresponding governance changes are more likely to be observed when the extent of the performance-aspiration gap of the subsidiary is particularly large, because subsidiary managers are more likely to pursue high-risk projects as the size of this gap increases. In anticipation of that occurrence, the headquarters increases its oversight over subsidiary decisions (especially those that are costly to implement and costly to reverse) and more closely aligns subsidiary managers' personal risk exposure with that of the subsidiary.

Beyond aspiration-induced behavior at the subsidiary level, our model attributes two characteristics to the headquarters and the processes that we study. First, the headquarters' decisions to allocate resources across subsidiaries and make changes to internal governance involve significant trade-offs and ultimately reflect a cost-benefit assessment. Low performance of a subsidiary is likely to signal problems at the subsidiary level, increasing the relative appeal of investment opportunities outside the focal subsidiary to channel firm resources (Collis & Montgomery, 2005; Maksimovic & Phillips, 2007). Similarly, when considering changes to the organization design, the headquarters takes into account the direct costs of implementation of the change and the uncertainty ensuing from such changes (Kaplan & Henderson, 2005). Second, the headquarters has an incentive to curb suboptimal subsidiary choices, as well as any decision not aligned with overall firm-level objectives (Vroom & Gimeno, 2007). It is hard to assess, for both corporate and subsidiary managers, where *ex ante* to draw the line between much-needed risk taking (associated with problemistic search) and excessive risk taking. We only assume that the headquarters is keen to avoid taking excessive risk (and thereby incurring associated financial costs) without suppressing organizational search for solutions to the performance problem at the subsidiary level. In other words, we assume that the headquarters would want to limit the potential downside of excessive risk without foregoing the upside of the problemistic search process.

In terms of the organization design parameters, we build on organizational economics and conceptualize internal governance along three principal dimensions: decision rights, incentives, and property rights (e.g., Holmstrom & Milgrom, 1994; Makadok & Coff, 2009). As property rights (ownership) tend to be invariant in the short run, we study (1) how decision rights are allocated between the headquarters and subsidiaries, and (2) how subsidiary managers are

incentivized. This conceptualization is in line with the managerial theories of the firm, which argue that two key parameters of planning in firms are the level of hierarchy at which decisions are made and the choice of decisions to be incentivized (Bower, 1970b).

Allocation of Decision Rights

In large and diversified organizations, efficiency considerations often imply significant decision-making autonomy to subsidiary managers who have superior knowledge of the local context (Jensen & Meckling, 1992; Prendergast, 2002; Williamson, 1975). At the same time, allocation of decision rights also crucially depends on the headquarters' intent to constrain or promote risk taking because investments cannot be made without the discretion to use the necessary resources (Cannella & Lubatkin, 1993; Stein, 2003). This is especially the case for resource allocation decisions that are costly to implement and reverse, as the riskiness of asset allocation is inversely related to its redeployability (Williamson, 1985).

Accordingly, we hypothesize that the headquarters is more likely to have oversight over a subsidiary's investment decisions when this unit's performance trails aspirations. Capital budgeting and concomitant investment decisions frequently involve turning liquid assets (typically, financial resources) into illiquid ones, such as buildings or machines (Stinchcombe, 2001). The most commonly studied proxies for problemistic searches, like capacity expansions or change in fixed assets, are precisely outcomes of such investments (see Shinkle, 2012 for a review). Once these investments are made, their reversal (e.g., spinning off, closure) would be costly and post-investment interventions can only partially offset the cost of such decisions. Therefore, it is important to control resources before they are allocated to specific investments (Sengul & Gimeno, 2013). Increased oversight, therefore, serves as an additional level of scrutiny over subsidiary investment decisions and reduces the likelihood of excessive risk taking.

To be sure, our contention is not that the investment decisions would necessarily be different as a result of increased oversight, nor that increased oversight would result in abandonment of all high-risk projects. Rather, we argue that holding everything else constant, the need for oversight increases with the anticipated (performance-feedback driven) increase in the riskiness of subsidiary investments. Therefore:

> *Hypothesis 1. A subsidiary's performance-aspiration gap (below aspirations) is negatively associated with its discretion in investment decisions.*

Provision of Incentives

Incentive design specifies how and under what conditions decision makers are compensated and hence has important behavioral consequences, especially in terms of effort allocation and propensity to take risks (Lim, 2015; Prendergast, 1999; Ross, 2004). Consequently, the link between incentive structures and risk taking continues to be a vibrant area of research (Devers, Cannella, Reilly, & Yoder, 2007). One of the most widespread incentive instruments in modern corporations is pay-for-performance in the form of year-end cash bonuses (Kelly Services, 2013; Oyer, 2000). Given that such bonuses are asymmetric in the sense of imposing no downside, organizational actors who are compensated based on such a variable component may be inclined to maximize the upside by taking on more risk (Larraza-Kintana, Wiseman, Gomez-Mejia, & Welbourne, 2007). This is because bearing more of the uncertainty associated with future performance may induce managers of a focal subsidiary to pursue potentially profitable yet high-variance investment projects (Dushnitsky & Shapira, 2010).

Accordingly, we hypothesize that the headquarters is less likely to incentivize a subsidiary performing below aspirations with cash bonuses.[2] Lower than aspired to performance increases risk tolerance of managers and activates problemistic search (Cyert & March, 1963; Greve,

2003b), and, as noted above, incentivizing managers with cash bonuses has the same amplifying effect on their propensity to take risk. Therefore, when managers of a subsidiary performing below aspirations are compensated with cash bonuses, both the incentive and feedback mechanisms increase the likelihood of pursuing risky investment projects, potentially leading to excessive risk taking in resource allocation decisions. The headquarters may hence curb the use of cash bonuses as an incentive instrument for managers of underperforming subsidiaries. Therefore:

Hypothesis 2. A subsidiary's performance-aspiration gap (below aspirations) is negatively associated with the provision of cash bonuses to the managers of that subsidiary.

METHODS

Setting

To test our predictions, we studied subsidiaries of multiunit firms in France between 1998 and 2004, inclusive, the time period for which we were able to acquire reliable data on allocation of decision rights and provision of incentives. During this time, France was the fifth largest developed economy in the world and home to a large number of leading multinationals (e.g., Carrefour, L'Oréal, Total). Like the United States, other countries in Europe, and developing countries (cf. Collis, Young, & Goold, 2007), the French economy has been primarily dominated by large multiunit firms. Importantly for our study, and allowing for rare data on internal governance mechanisms, subsidiaries of these firms have historically been separate legal entities with their own publishing requirements (Dyas & Thanheiser, 1976; Encaoua & Jacquemin, 1982).

The resource allocation process in multiunit firms in our setting is similar to that in other developed economies.[3] In capital budgeting, the headquarters typically engage in a process of

year-end review of subsidiaries and subsequently determine their budgets. The headquarters allocate resources across businesses mainly according to their growth and profit potential (Sengul & Gimeno, 2013; see Maksimovic & Phillips, 2007 and Stein, 2003 for literature reviews), despite the fact that a number of factors (such as power dynamics) can distort the efficiency of the allocation (e.g., Duchin & Sosyura, 2013; Glaser, Lopez-de-Silanes, & Sautner, 2013). Thus, in France, too, the main contribution of internal capital markets is to relax the financing constraints of units (Boutin, Cestone, Fumagalli, Pica, & Serrano-Velarde, 2013). Once the budget is allocated, subsidiary managers allocate resources to different uses, including projects. Some projects are taken into account in the capital budgeting process, as unit managers pitch investment opportunities to the headquarters for approval. Still, not all the budget is earmarked to specific projects at the time of the capital budgeting process, and subsidiary managers have considerable discretion in allocating their resources. This is mainly because they are best positioned to make efficient choices, have the most market-specific knowledge, and can react most rapidly to changing conditions. Small expenditures seldom, if ever, require headquarters' approval, but sometimes the headquarters require the subsidiary to consult for larger projects. But even then, barring day-to-day monitoring of subsidiary activities, subsidiary managers typically have latitude in execution.

In terms of internal governance mechanisms, too, French firms are similar to firms in other countries. The average level of autonomy of plant managers over hiring, investment, products, and prices in France is slightly lower than in Anglo-Saxon and northern European countries but similar to other European countries and the worldwide average (Bloom, Sadun, & Van Reenen, 2012). In parallel, the average propensity to compensate employees based on clear targets and achieved performance is lower for French firms compared to U.S.-based firms, but it

is very similar to the world average and to typical practices in, for example, Sweden or the U.K. (Bloom, Genakos, Sadun, & Van Reenen, 2012).

Data

We obtained data on allocation of decision rights and provision of incentives from two separate surveys: SESAME and ER. SESAME (La base de données sur le comportement stratégique des entreprises) is administered by professional interviewers of the French central bank, Banque de France, to standalone firms and subsidiaries operating in the manufacturing sector. These entities were randomly selected in the initial years of the survey and subsequently, SESAME was administered to these entities as a three-year rotating panel. Banque de France provided us data with a randomized transformation due to confidentiality requirements.[4] The second survey, the ER (L'enquête REPONSE: Relations Professionnelles et Négociations d'Entreprise), is administered by DARES' (the Ministry of Labor's research and statistics unit) representatives, who visit randomly selected establishments and interview senior managers. For subsidiaries with multiple establishments, we aggregated the ER data to the subsidiary level by using the mode of the survey item of interest as the value of our variable. When the mode was not available, we used the value for the largest establishment or, in the final step, the rounded-to-integer average value across the subsidiary's establishments.

The complementary data that we used to construct our independent and control variables came from three additional sources. First, we drew on filings (the EAE: Enquête Annuelle d'Entreprise) that are mandatory for all French private (i.e., not state-owned) entities. These filings gave us access to information such as investments, assets, sales, and employment. Second, we obtained data on capital linkages between private entities (for firms with over 500 employees, sales over €30 million, or equity stakes in other firms over €1.2 million) from LIFI (La base de

données sur les liaisons financiers), which is also mandatory and compiled on an annual basis by INSEE, the National Institute of Statistics and Economic Studies. Third, we used the value of the goods and services exchanged between sectors of the economy to construct some of our control variables. These data were available annually at the 41-sector level in the form of input-output tables from INSEE.

Armed with these data, we then constructed our working sample with which we tested our hypotheses. First, we focused exclusively on majority-owned subsidiaries. This criterion was important to capture the mechanisms that we hypothesized because majority ownership is legally required to have control rights over the day-to-day management of another legal entity in France (Mercadal, Janin, Charvériat, & Couret, 2004). Furthermore, majority ownership ensures a clear-cut identification of parent firms of subsidiaries covered in SESAME and the ER: if a firm owns, directly or indirectly, more than 50% of another entity, INSEE considers the former as the parent firm of the latter. Second, we excluded from our sample all subsidiaries and firms that had fewer than 50 and 500 employees, respectively, throughout the observation period. This was because the corresponding data below these thresholds were either unreliable or unavailable in EAE and LIFI due to varying reporting requirements. Third, we excluded industries with invariant data and/or with a single competitor, yielding calculation of social aspiration impossible.[5] Finally, we limited our sample to agriculture and food, construction, manufacturing, and transportation. We excluded the two remaining sectors, commerce and service, because INSEE alternated data collection across industries in them. Applying these criteria, and taking into account the lagged structure of our models, we obtained a working sample of 1,206 subsidiary-year observations (corresponding to 862 subsidiaries of 456 firms), with a varying number of observations for survey items that were used to construct our dependent variables.

Dependent Variables

Subsidiary discretion in investment decisions. We coded *subsidiary discretion in investment decisions* as 1 if the subsidiary had significant decision-making autonomy in investment decisions ("large autonomy" in SESAME; "total" or "important" in the ER), and 0 otherwise. We coded subsidiary discretion in investment decisions as a dichotomous variable because the data on provision of cash bonuses were available at this level, and the uniform coding of the dependent variables increases comparability across specifications. Further, ER and SESAME use different scales, making the use of dichotomous coding more conservative. As discussed in detail in the robustness tests section below, our results were robust to using the alternative specifications that use the full ordinal scale for subsidiary discretion in investment decisions. Although we cannot link discretion to specific capital allocation types (such as R&D investments or capacity expansions), our measure is standard in this respect and follows best practices in the related literature studying internal capital markets.

Provision of cash bonuses to subsidiary managers. We coded *provision of cash bonuses* as 1 if the subsidiary managers were incentivized with cash bonuses (binary item in ER), and 0 otherwise. It is important to note that this survey item captures the structure of the incentive instruments used to motivate managers of the focal subsidiary, but it does not necessarily correspond to the actual level of compensation these managers receive. Our measure, therefore, in accordance with our theoretical argument, is independent of whether the focal subsidiary managers were actually awarded bonuses and solely varies with the presence of bonuses as an incentivizing instrument. Although we cannot calculate the sensitivity of pay to performance with our data, this binary approach is consistent with prior practice in the literature linking performance pay and risk taking (e.g., Dushnitsky & Shapira, 2010).

Independent Variable

Following prior studies investigating the impact of aspiration levels on firm behavior (e.g., Audia & Greve, 2006), we measured subsidiary performance using return on sales. We then juxtaposed each subsidiary's performance against its past performance (which serves as a proxy for its historical aspiration level) and against average performance in its industry (which serves as a proxy for its social aspiration level). This is in line with the extant performance-feedback literature as well as reference-dependent utility models (e.g., Koszegi & Rabin, 2006). Formally, following Chen and Miller (2007), we specified subsidiary *i*'s historical aspiration level (HAL_{it}) as its performance in the previous year ($P_{i, t-1}$), and following Greve (2003a; see also Bromiley & Harris, 2014) its social aspiration level (SAL_{it}) as average industry performance ($\Sigma_{j \in R} P_{jt} / N$, where *N* is a total number of firms operating in the focal subsidiary's industry *R*, and *j* includes all firms operating in the industry *R* excluding the focal subsidiary *i*).

We then calculated each subsidiary's performance-aspiration gap as the difference between its current and past performance ($P_t - HAL_{it}$) and between its current performance and average performance of all other firms in its industry ($P_t - SAL_{it}$), respectively. In line with the empirical performance-feedback literature, in our analysis we used a spline design separately accounting for performance below and above aspiration levels. Accordingly, *subsidiary performance below historical (social) aspirations* equaled the absolute value of the performance-aspiration gap for all observations in which the performance of the focal subsidiary was lower than its historical (social) aspirations, and 0 otherwise. Defined symmetrically, *subsidiary performance above historical (social) aspirations* equaled to the absolute value of the performance-aspiration gap when subsidiary performance was higher than the historical (social)

aspirations, and 0 otherwise. In all regressions, performance below and above aspirations are lagged one year with respect to the dependent variables.

Control Variables

There are other explanations, beyond the performance-aspiration gap, that we study in this paper, that are important drivers of allocation of decision rights and provision of incentives. Accordingly, to account for these alternative explanations we included a set of control variables in the regressions (for empirical consistency we maintained the same set of controls in all models and to attenuate the potential issue of simultaneity lagged them, like our independent variables, by one year). At the subsidiary level, we controlled for *subsidiary size* (measured by logged number of employees) and for *parent's ownership* (measured by the share of the parent firm's total ownership stake at the focal subsidiary). Although we exclusively studied majority-owned subsidiaries, the latter control was necessary because in France (as opposed to, say, the U.S.) minority shareholder rights decrease with the extent of ownership by the majority shareholder (Mercadal et al., 2004). Thus, the extent of the parent's ownership may affect its propensity and ability to exercise control over the subsidiary.

Because firms often coordinate their choices across subsidiaries operating in the same industry, we controlled for segment (i.e., the aggregate operations of a firm in an industry) level factors as well. We controlled for the focal firm's *relative market share* (measured by the log of the ratio of the firm's sales in a focal industry to the sales of the largest competitor) to account for the firm's market power and competitive stance (Chen & Hambrick, 1995); *relatedness* of the focal subsidiary's segment to the rest of the firm (measured by the sales-weighted average intrafirm industrial complementarity, in other words, the correlation of input flows across industries with data from industry input-output tables) to account for potential coordination and

sharing of common inputs and operations (Lemelin, 1982); *multimarket contact* (measured by the sales-weighted extent of market overlaps, adjusted for the number of firms operating in overlapping markets and the total number of firms in each market) to account for the need of strategic coordination across businesses of the firm (Sengul & Gimeno, 2013); and *strategic importance* of the focal subsidiary's segment to the firm (measured by the firm's total sales in the industry of the subsidiary as a percentage of the firm's total sales) to account for the greater corporate attention and resource flow to businesses that make up a larger proportion of the firm's sales (Gaba & Joseph, 2013).

At the firm level, we controlled for *firm size* (measured by the log of the total number of employees). Size affects the likelihood of the use of formal control mechanisms and the power of incentives within firms (Jennergren, 1981; Zenger, 1994). Additionally, we controlled for *firm diversity*, which we measured by an entropy measure based on a firm's sale by industry: $\Sigma\ S_i \times \ln (1/S_i)$, where S_i refers to the sales of the firm in industry *i* as a percentage of its total sales. The span of a firm's operations across different industries is an important control because coordination and supervision challenges are likely to increase with the number and diversity of industries in focal firms' portfolio (Hill, Hitt, & Hoskisson, 1992). Jointly with our control for *relatedness,* this variable accounts for persistent differences in the link between corporate strategy and governance choices. We also controlled for the performance-aspiration gap at the firm level: *firm performance below aspirations* and *firm performance above aspirations* (constructed like our independent variables, using the weighted average return on sales values across all subsidiaries of the firm, excluding the focal one).[6] Performance problems at the firm level can trigger organizational change and affect how the headquarters allocate resources (Gaba & Joseph, 2013; Haveman, 1992).

At the industry level (measured at the NAF700 level, roughly equivalent to four-digit SIC codes), we controlled for *industry concentration*, which we measured by the total market share (in %) jointly held by the four largest players. We also controlled for *industry growth*, which we measured by the average annual growth rate in the previous seven years (the results were robust across different specifications). Industry level factors can affect perceived risk as well as the extent of managerial discretion in firms (Hambrick & Abrahamson, 1995).

Insert Table 1 about here

We report the summary statistics and bivariate zero-order correlations in Table 1. In our sample, an average subsidiary had about 255 employees, was majority (95%) owned by a firm with a total of nearly 6,770 employees in France, and operated in a segment that was highly related to other businesses of the firm (with a correlation of input flows over 0.6). Subsidiaries, on average, operated in industries with low to moderate concentration (C4=30%) and showing modest annual growth (3.56%). There are no critically collinear variables. Nevertheless, we reran all regressions by dropping moderately correlated control variables (e.g., strategic importance, firm size, and firm diversity), one-by-one and in combinations. Regression results were qualitatively insensitive to inclusion/exclusion of these variables. Hence, we are confident that the reported results are robust to our model specification.

Methods and Estimation

In choosing our estimation method, we took into consideration two attributes of our data. First, all our dependent variables are binary variables, which took the value of 1 in the presence of the concerned organization design parameters (namely, significant decision-making autonomy in

investment decisions or use of cash bonuses as an incentivizing mechanism), and 0 otherwise. Second, we examined allocation of decision rights and provision of incentives only for subsidiaries that were covered in SESAME and/or ER. Therefore, there were many majority-owned subsidiaries that were not surveyed and included in our data set, but which could have been. In these situations, the recommended methodology is Heckman-corrected probit regressions, which take into account both the dichotomous nature of the dependent variable and the potential sample selection bias. In essence, this methodology assumes an underlying latent relationship between the explanatory variables and the outcome under consideration (y*), conditional on the fact that we observe only a binary outcome (y^D) and only for a subsample of the population (Van de Ven & Van Praag, 1981: 235-241; see also Dubin & Rivers, 1989). We observed the binary outcome if

$$y^{select} = Z_j \gamma + u_{1j} > 0$$

where Z_j is the vector of covariates predicting selection into the sample and y^{select} is an indicator variable that takes the value of 1 if a (binary) outcome is observed (and hence the observation is in the final sample), and 0 otherwise. In order to be able to identify the model, we included subsidiary capital intensity, industry capital intensity, industry size, and industry turbulence as additional predictors in this selection regression. Then, a binary outcome y^D (e.g., a subsidiary has discretion in investment decisions or not), which is an observable manifestation of the underlying latent variable y*, was estimated in the following model:

$$(y^D \mid y^{select} = 1) = \alpha_1 |P - AL| I_{P\text{-}AL>0} + \alpha_2 |P - AL| I_{P\text{-}AL<0} + X_j \gamma + u_{2j}$$

where *P* is subsidiary performance, *AL* refers to historical aspiration level (*HAL*) or social aspiration level (*SAL*) in respective models, *I* is an indicator variable that allows us to specify a spline function and estimate separate slopes for performance above and below aspiration levels,

and X_j is a vector of control variables. All right-hand side variables, including measures of performance against aspirations, were lagged one year. Both equations were estimated using a probit and hence error terms u_1 and u_2 are both assumed to be normally distributed. The maximum likelihood estimates of the corresponding parameters are consistent and asymptotically efficient.

We'd like to note that the results were robust to using a Heckman two-step estimation (which takes the potential sample selection bias into account but treats the y^D as a continuous variable, implying a linear probability model in the second stage) or to directly using a probit or logit (which takes into account the dichotomous nature of y^D but ignores any potential sample selection bias). These results are not surprising given that these more standard estimations yield biased results only when the correlation between the error terms u_1 and u_2 ("rho") is not equal to zero and, in our sample, rho was not significantly different from zero in any of the models we estimated. Furthermore, alternative methods impose fewer assumptions and are, in general, more efficient. Still, we take a conservative approach and report Heckman-corrected probit regression estimates. We included year, industry, and data source dummies to account for unobserved heterogeneity in these dimensions and clustered standard errors by firm (i.e., we let observations be independent across firms but not necessarily across the subsidiaries of the same firm) in all models.

RESULTS

Subsidiary Discretion in Investment Decisions

We hypothesized that a subsidiary's performance-aspiration gap (below aspirations) is associated with lower subsidiary discretion in investment decisions. The regression results reported in Table 2 support this hypothesis (H1): Performance below aspirations is negatively associated with

subsidiary discretion in investment decisions (models 2 and 3). In terms of the economic size of the coefficient, for an average subsidiary, a 10-percentage-point drop in performance below historical aspirations decreases the probability that the subsidiary will be granted discretion in investment decisions by about 14% (8 percentage points) and a 10-percentage-point drop in performance below social aspirations decreases the probability that the subsidiary will be granted discretion in investment decisions by about 12% (7 percentage points).

Insert Table 2 about here

Even though our study focuses on the performance-aspiration gap below aspirations, due to the spline design our regressions report the performance-aspiration gap above aspirations as well. In these regressions, consistent with prior empirical evidence (e.g., Audia & Greve, 2006; Chen & Miller, 2007; Gaba & Joseph, 2013), the coefficient of performance above aspirations is insignificant in all but one of our models. This pattern is, at least in part, attributable to the tendency to stick with the strategies that worked in the past (Audia, Locke, & Smith, 2000; Miller & Chen, 1994). The sole notable result was the negative association between performance above aspirations and subsidiary discretion in investment decisions, which was borderline significant at 10% level ($p = 0.097$) for historical aspirations only. One possible explanation is that high-performing subsidiaries generate the financial resources used in the parent firm's internal capital market and hence the parent firm is likely keep tabs on these subsidiaries' investment decisions. If subsidiaries reinvest their excess cash locally without the parent firm's oversight, the parent firm will have very limited latitude of action in channeling financial resources across its businesses. To check the validity of this alternative explanation, we reran the

regression, splitting the sample into subsidiaries that have high market share in low-growth markets (i.e., the so-called cash cows in the portfolio theory) vs. others, because high market share units in mature markets are the main providers of financial resources in multibusiness firms and the headquarters tend to channel resources from them to businesses with high future growth and profit potential (Haspeslagh, 1982). The supplementary regressions did not support this alternative explanation. Therefore, the results seem to be aligned with the performance feedback models' prediction that performance above aspirations reinforces structural inertia and lead to an increase in the propensity to forego attractive investment opportunities that carry risks but have a positive net present value (Greve, 1999; Lant, 1992). If that's the case, the parent firm is likely to intervene in investment decisions of high-performing subsidiaries to ensure that attractive investment opportunities are not lost.

Provision of Cash Bonuses

We also hypothesized that performance below social and historical aspirations is negatively associated with the provision of cash bonuses.[7] Consistent with Hypothesis 2, we find that the probability that subsidiary managers will be incentivized with cash bonuses decreases with the extent to which subsidiary performance is below aspirations (models 5 and 6). In terms of the economic size of the coefficients, for an average subsidiary, a 10-percentage-point drop in performance below historical aspirations decreases the probability that the subsidiary will be compensated with cash bonuses by 6% (5 percentage points) and a 10-percentage-point drop in performance below social aspirations decreases the probability that the subsidiary will be compensated with cash bonuses by 5.5% (4.7 percentage points).

An alternative explanation for these results is that the reduced propensity to incentivize subsidiary managers with cash bonuses reflects punishment by headquarters for the lower than

expected performance of the subsidiary, and not a desire to regulate risk-taking behavior as we hypothesized. To check the validity of this alternative explanation, we estimated a model using provision of stock options (coded 1 if the subsidiary managers were incentivized with stock options or restricted stock in a given year, and 0 otherwise, using data from SESAME and ER surveys) as the dependent variable instead of provision of cash bonuses: if punishment was a mechanism, provision of stock options would be less likely as well.[8] The results reported in Table 3 show that the subsidiary's performance-aspiration gap (below aspirations) is positively associated with the provision of stock options to the managers of that subsidiary.[9] These results imply that the link between performance below aspirations and the subsequent structure of incentives does not simply reflect headquarters' punishment of subsidiaries for low performance, and increase our confidence in the results reported in Table 2.

Insert Table 3 about here

Control Variables

Some brief observations are in order with respect to the control variables. Managers of larger subsidiaries were less likely to be incentivized with year-end bonuses, consistent with Zenger (1994), who showed a negative relationship between size and the use of high-powered short-term incentives. Subsidiaries that were owned by larger firms were less likely to be given discretion in investment decisions and more likely to use year-end cash bonuses (significant at 10% level in one-tailed tests in all models, except model 4). These effects are in line with the prior research that documented a negative correlation with delegation and firm size (McElheran, 2014). Relatedness was positively related to both subsidiary discretion in investment decisions and

provision of cash bonuses (significant at 10% level in one-tailed tests in all models), indicating differential governance choices for core vs. non-core businesses. Firm diversity did not, however, have a significant effect on the governance choices we studied. Consistent with the line of research emphasizing the importance of strategic coordination of multimarket operations in explaining allocation of decision rights in multiunit firms (Sengul & Gimeno, 2013), multimarket contact was negatively associated with subsidiary discretion in investment decisions. Furthermore, in line with Gaba and Joseph (2013), firm-level performance below aspirations (significant at one-tailed tests) took the opposite sign compared to subsidiary performance below aspirations for design elements that were likely to promote risk taking, that is, subsidiary investment discretion and provision of cash bonuses. None of the industry-level controls (unlike industry fixed effects) had a statistically significant effect on the subsidiary autonomy in investment decisions or provision of year-end cash bonuses.

Robustness Checks and Supplementary Analyses

We conducted a set of supplementary empirical analyses using available data to explore the robustness of the regression results to a number of potential concerns. We first checked the robustness of the results to the proximity of subsidiary performance to bankruptcy. The risk switching models originating from pioneering work of March and Shapira (1987) posit that the relationship between below-aspiration performance and organizational choices may be distorted for exceptionally low performance levels. This is because a firm on the verge of bankruptcy may diverge from the standard expectations and, instead of engaging in a problemistic search, may take less risk just to stay afloat (Miller & Chen, 2004; Staw, Sandelands, & Dutton, 1981).[10] Borenstein and Rose (1995) show, for example, that airline carriers in financial distress decrease their prices by a small margin (a finding the authors attribute to a rational response to reduced

expected demand) but do not exacerbate this behavior subsequent to entering Chapter 11 bankruptcy. Therefore, inclusion of the proximity to the survival point might provide a more refined understanding of when managers can or cannot be expected to take on more risk than is advisable. Accordingly, as a robustness check, we included a "survival at risk" dummy (which is equal to 1 if the subsidiary was among the bottom 5% of its industry in terms of absolute levels of performance in the year preceding our analysis) as a rough proxy for bankruptcy risk (we lack balance sheet data to calculate standard measures of bankruptcy risk, such as the Altman Z) in the regressions. The results were robust to inclusion of this control (and alternative cut-off points).

Furthermore, one might be concerned that the headquarters only respond to very significant departures from aspirations (and not to small deviations) and our spline regressions (which capture the linear distance from aspirations) would be masking such effects. To verify the robustness of our results to this concern, we have created a set of dummy variables that take a value of 1 if a subsidiary's performance above historical (social) aspiration exceeded the conditional sample mean (i.e., the sample average value of performance above historical [social] aspirations), and 0 otherwise (and similarly for performance below aspirations). These measures would therefore only capture the impact of significant departures from historical and social aspirations on our dependent variables. We then reran all our regressions using these alternative specifications of our independent variables. As before, performance-aspiration gap below aspirations (now confined only to large gaps) was negatively associated with autonomy in investment decisions and provision of cash bonuses (all hypothesized effects were significant at $p < 0.05$ across specifications).

Third, recent research suggests that the performance feedback mechanisms span multiple organizational levels, including within- and across-firm comparisons (Kacperczyk et al., 2015). In our study, in line with much of the performance feedback literature, we focus on the behavioral effects of comparison of current performance to own performance in the past (historical aspiration levels) as well as to the performance of industry peers (social aspiration levels). However, in multiunit firms, social comparisons within firms (across subsidiaries) can also affect aspiration-driven behavior (Vissa et al., 2010). Accordingly, to deepen our analysis we constructed measures of performance below and above aspiration levels for each subsidiary compared to the average performance of all other subsidiaries belonging to the same firm (hence, in this supplementary analysis we dropped all subsidiaries for which we have no data on the relevant peers from our sample). While the statistical power of the resulting models is severely limited due to decreased degrees of freedom, all estimated effects are in the predicted direction: performance-aspiration gap below within-firm aspirations, too, was negatively associated with our dependent variables ($p = 0.016$ and $p = 0.053$ for discretion in investment decisions and provision of cash bonuses, respectively).

Fourth, we reran all our discretion regressions taking advantage of the full range of the discretion variable as measured in our data sources ER and SESAME (recall that we use a binary measure of discretion for comparison with provision of incentives, available only as a dichotomous variable). More specifically, we reran OLS, ordered-logit, and Heckman two-step models using both raw scales of ER and SESAME and adjusted scales collapsing raw scales to a 3-point scale comparable across ER and SESAME.[11] As with our main regressions, we ran all models for both historical and social aspirations. As reported in Table 4, the main results remain stable and strong when analyzed using the full range of the discretion variable.

Insert Table 4 about here

Fifth, our model implies, consistent with the contingency theory, that a fit between policy choices and subsidiary past performance feedback should result in higher performance (Donaldson, 2001). This echoes the stream of research that studies the performance-enhancing effects of transactional governance alignment, showing that firms that are more capable at governing transactions in accordance with the predictions of transaction costs economics are more likely to survive and enjoy superior financial performance (Nickerson & Silverman, 2003; Silverman, Nickerson, & Freeman, 1997). To verify this link within the confines of our data, we assess if, indeed, firms that are characterized by policy choices consistent with our theoretical prediction benefit from superior performance. To do so, we estimated the following model:

$$Y_{i,t} = \alpha_0 + \alpha_1 | G_{i,t-1} - \hat{G}_{i,t-1} | + \alpha_2 X_{i,t} + \varepsilon_{i,t}$$

where, $Y_{i,t}$ is the year-end subsidiary-level performance and *X* is a vector of control variables identical to those used in estimating models testing hypothesis 1 and hypothesis 2. $| G_i - \hat{G}_i |$ is our measure of misalignment of governance choices with our theoretical model. G_i is an indicator variable for the observed choice of governance dimension (for example, 1 if a given subsidiary has high autonomy in investment decisions, and 0 otherwise). $\hat{G}_i$ is the model-estimated probability that a given subsidiary's $G_i = 1$. Hence, the absolute value of the difference between the observed and predicted governance choice represents misalignment, i.e., the discrepancy between our theoretical model and observed choices. In these regressions, the

misalignment measure was negatively and significantly ($p < 0.05$ for all models) associated with subsidiary performance for both governance choices (investment autonomy and cash bonuses), in line with our model. Even though these results, based on our crude measure of alignment and sparse specification should be interpreted with caution, they nevertheless foreshadow normative implications of the performance feedback for organization design in multiunit firms.

Finally, we checked the sensitivity of results to the inclusion of additional control variables: subsidiary export orientation (the ratio of a subsidiary's exports to its total sales), firm subsidiary count (the total number of subsidiaries of the firm), and industry capital intensity (the ratio of fixed assets to sales). The inclusion of these variables did not change the results. A particularly salient control in the specification of our main models, however, is the total amount of resources that a focal subsidiary receives from the headquarters. The amount of resources received in and of itself may be an important lever of control exercised by the headquarters. Accordingly, we followed the finance and accounting studies using the income statements to create a proxy for amount of resources that a subsidiary gets from the internal capital market (Berger & Hann, 2003; Billett & Mauer, 2003). More specifically, we calculated the net difference between a subsidiary's capital expenditure in a given year (its total investment in tangible and intangible fixed assets) and its gross funds that were available at the end of the financial year before dividends were paid. The logic of inference from this metric is that a subsidiary's expenditures that exceed internally generated cash flows must be financed through internal or external capital market, and hence are likely to be strongly correlated with the capital allocation from the headquarters. When included in our regressions, the coefficient of this variable was negative and significant only at 10% level in one-tailed tests ($p = 0.187$ and $p = 0.197$ for historical and social aspirations, respectively) for discretion in investment decisions,

and positive and insignificant ($p = 0.637$ and $p = 0.405$ for historical and social aspirations, respectively) for provision of cash bonuses. Importantly, the inclusion of this additional control variable did not change the hypothesized effects. If anything, the results were slightly more significant in our models by including this additional control variable.

SUBSIDIARY PERFORMANCE FEEDBACK AND STRUCTURAL ADAPTATION

We argued, and showed empirically, that subsidiary performance against social and historical aspiration levels is associated with governance choices on the side of the headquarters aimed at curbing subsidiaries' propensity to take excessive risks: discretion in investment decisions and provision of cash bonuses are both less likely when performance is below aspirations. This approach is consistent (and constrained by) the largely cross-sectional nature of our data.

A theoretically salient extension of our study would be to document a dynamic process of *structural adaptation*—exploring changes in governance choices by the headquarters in response to changes in performance feedback at the subsidiary level. This test would closely correspond to the causal model underlying the structural contingency theory (Lawrence & Lorsch, 1967). The neo-contingency perspective argues that when performance levels are unsatisfactory, the firm makes adaptive changes to its structure to regain fit, which, if attained, has a positive effect on subsequent performance (Donaldson, 1999, 2001). Such "structural adaptation" is also implied by our theory: from the perspective of the headquarters, a subsidiary performance-aspiration gap represents a contingency variable, which triggers adjustment to internal governance mechanisms in the form of changes to discretion of subsidiary managers and the structure of incentives given to them.

Due to data constraints, we cannot test a complete model structural adaptation. We simply do not have enough lags in our data to investigate the performance consequences of

structural adaptation. Instead, in this section we focus on a subsample of subsidiaries for which we observe decision-making autonomy in investment decisions more than once.[12] Using this sample, we test an instance of structural adaptation: the effect of a drop in subsidiary performance to below aspirations (treatment) on subsequent subsidiary discretion. Accordingly, we assessed whether subsidiaries that experienced a drop in performance to below social aspirations (the treatment group) have lower propensity to have discretion in investment decisions as a result, in the posttreatment period, vis-à-vis subsidiaries that did not experience such a drop in performance (the control group). The results of these analyses, reported in Table 5, are consistent with our theory: the coefficients on the treatment group (i.e., those subsidiaries that experienced a drop in performance to below aspirations) in the posttreatment period are negative and significant, as expected.[13] In multiunit firms, performance problems at the subsidiary level trigger structural adaptation in the internal governance mechanisms (more specifically, in the authority structure) in pursuit of regaining fit.

Insert Table 5 about here

DISCUSSION AND CONCLUSION

We hypothesized, and found support in regression analyses, that in multiunit firms the design of internal governance mechanisms is influenced by subsidiary performance feedback: when a subsidiary performs below aspirations, the headquarters increases its oversight over the subsidiary's resource allocation decisions and more closely aligns subsidiary managers' personal risk exposure with that of the subsidiary. More specifically, the performance-aspiration gap (below aspirations) is negatively associated with subsidiary discretion in investment decisions

and provision of cash bonuses to subsidiary managers. In the supplementary analyses we also provided suggestive evidence that in multiunit firms, subsidiary performance problems trigger structural adaptation in the internal governance mechanisms in pursuit of regaining fit.

Contributions

Our study contributes to the literature on performance feedback models, which has emerged to explain how managers use the evaluation of performance against aspirations as a diagnostic tool to discover problems in an organization (Greve, 2003a). These models have become more prominent over time as a growing body of empirical work provided robust support for the salience of performance feedback on a large spectrum of firm behavior (e.g., Anand & Singh, 1997; Greve, 1998; Miller & Chen, 1994). Recent empirical work provided additional clarity with respect to the multilevel and multidimensional nature of performance feedback (Gaba & Joseph, 2013; Joseph & Gaba, 2015; Kacperczyk et al., 2015*).* The existing theoretical and empirical work documenting performance-feedback-driven behavior, however, abstracts away from organizational levers that could explain heterogeneity in observed behavioral patterns (cf. Blettner, He, Hu, & Bettis, 2015). We address this gap by exploring the link between subsidiary performance feedback and internal governance mechanisms in multiunit firms. Thus, our theory and findings substantiate the intuition of Greve (2003a: 148), who speculated in the conclusion of his book on performance feedback models that top managers might manage performance-feedback-induced behavior inside their firm by manipulating organization design parameters, such as goal variables, reporting systems, organizational structure and routines, and reward systems. Our study spotlights two organization design parameters to this end: the allocation of decision rights and the provision of incentives.

In parallel, our study provides suggestive evidence for aspiration-driven structural adaptation in multiunit firms. The results based on a subsample of our data are in line with the theoretical predictions of the neo-contingency perspective: when performance is below aspirations, the firm makes adaptive changes to its structure to regain fit (Donaldson, 1999, 2001; also see McKinley & Mone, 2003 for a discussion). As such, our study provides an important bridge between the contingency theory and performance-feedback literatures.

As our work explores internal governance systems, its contribution is particularly salient to the emerging literature on performance feedback in multiunit firms (e.g., Arrfelt et al., 2012; Gaba & Joseph, 2013; Rhee et al., 2014). This body of work brings the organizational hierarchy into the study of performance feedback to argue that aspiration-driven behavior can be at play at multiple levels of the corporate hierarchy in multiunit organizations, such as multidivisional firms or business groups (see also Vissa et al. [2010], who compare and contrast performance-feedback driven behavior across business-group-affiliated and unaffiliated firms). We contribute to this emerging body of work by unpacking the link between subsidiary performance feedback and the design of internal governance mechanisms.

We further contribute to the empirical literature by examining the allocation of decision rights in firms (e.g., Colombo & Delmastro, 2008; Guadalupe & Wulf, 2010; Gupta & Govindarajan, 1984). To our knowledge, our study is the first one that demonstrates the influence of subsidiary performance feedback on allocation of decision rights. In particular, we focused on the salience of the performance-aspiration gap in influencing the allocation of decision rights pertaining to resource allocation, that is, investment. It is not a coincidence that these are precisely the outcomes of these types of decisions that a majority of empirical support

for behavior consistent with the aspiration levels theory comes from (e.g., Audia & Greve, 2006; Chrisman & Patel, 2012; Greve, 1998).

Our contribution also extends to the theory of incentives. Incentives serve an important role of focusing attention and aligning organizational goals across hierarchical levels in organizations, between managers and owners, and across firms in productive relationships. As a result, they affect organizational processes and outcomes, such as effort allocation (Holmstrom & Milgrom, 1991), learning (Obloj & Sengul, 2012), and mobility (Gray & Cannella, 1997). However, the studies drawing on the behavioral tradition and the theory of incentives have remained largely disjointed (Kaplan & Henderson, 2005). Many authors leave the link between incentive type and strength and risk seeking as an empirical question (cf. Coles, Daniel, & Naveen, 2006) because, absent risk-bearing considerations, the theoretical link between incentives and risk preferences is highly contingent (see, for example, Ju, Leland, & Senbet, 2002; Ross, 2004). Our study brings forward the risk-bearing considerations, and innovates by establishing a link between subsidiary performance feedback and provision of incentives in multiunit firms.

Finally, in this paper we contribute to the growing body of work on the drivers of changes to organization design elements in organizations. Indeed, such changes to incentive structures or decision rights appear to be more frequent than predicted by the standard economic frameworks (Nickerson & Zenger, 2002; WorldatWork, 2016; Zoltners, Sinha, & Zoltners, 2001). Eccles and Nohria (1992), for example, report the cyclical nature of centralized and decentralized decision making. In our prior work (Obloj & Sengul, 2012), we show patterns for incentives and provide evidence of incentive life-cycles, wherein firms periodically change their structures to reset the adverse learning mechanisms. Similarly, the structural adaptation

framework presented in this paper (while in need of stronger empirical tests than the ones we can provide here) implies that the headquarters of multiunit organizations may change the allocation of decision rights and provision of incentives to their subsidiaries as a response to risk-taking considerations arising from performance feedback.

Future Research Directions

Future research could benefit from incorporating the characteristics of individual decision makers (especially their propensity to take risk) into the model that we developed. This is because top management plays a key role in the resource allocation process (Finkelstein et al., 2008; Hambrick & Finkelstein, 1987; Maritan, 2001). Individuals' characteristics (such as personality, values, and experience) and incentives jointly influence strategic decisions in firms (Wowak & Hambrick, 2010). Of particular relevance to our study is self-enhancement of decision makers, i.e., their need to see themselves in a positive light. Jordan and Audia (2012) argue that, to the extent outside assessment of performance (such as those benchmarked against historical or social aspirations) and decision maker's own assessment diverge, low performance is less likely to trigger a problemistic search than performance feedback models predict. Such divergence is exacerbated by a multitude of factors, such as decision maker's narcissism, his or her accountability to performance outcomes, or task complexity. Taken together, these considerations imply, echoing the strategic delegation models (Sengul, Gimeno, & Dial, 2012), that selection of managers is an important design tool with significant consequences for how firms take on risk.

Future research should tease out the mechanisms linking low performance and internal governance choices. In this paper, we anchored our reasoning on performance-feedback models. We supplemented our arguments with reference-dependent utility models, wherein "a person's

reference point is her rational expectations held in the recent past about outcomes" (Koszegi & Rabin, 2006: 1133) and with internal capital markets literature, wherein headquarters allocate resources across subsidiaries and business opportunities based on their relative expected returns (see Maksimovic & Phillips, 2007 for a review). Yet, our reduced form regressions capture aggregate association between performance feedback and our dependent variables and do not (and given data restrictions cannot) tease out specific mechanisms. It will be helpful to disentangle the underlying drivers, in particular, the relative salience of "satisficing around aspirations" and "maximizing around expectations" (Sakhartov & Folta, 2012).

Another helpful extension of our study will be the incorporation of other instruments of internal governance mechanisms. In this study, we explored the link between performance-aspiration gaps and two dimensions of organization design, decision rights and incentives. Still, organization design encompasses other elements as well, such as organizational culture or structure (Collis & Montgomery, 2005; Colombo & Delmastro, 2008). We acknowledge that multiunit firms can deploy these instruments instead of, or in parallel to, the ones we explored in this paper.

We conclude by speculating about the managerial implications of our study. In a practitioner article, Kaplan and Mikes (2012: 51) argue that strategic risks (i.e., risks taken in order to generate superior returns from the firm's strategy, such as credit risk or R&D investment) are best managed by risk management systems "designed to reduce the probability that the assumed risks actually materialize and to improve the company's ability to manage or contain the risk events should they occur." These arguments resonate with the enterprise risk management literature (e.g., Hoyt & Liebenberg, 2011) and are fully in line with our theory. Hence, a practical implication of our study is that, once a risk management system is put in place

in a multiunit firm, it should embrace heterogeneity across the subsidiaries in setting the design parameters and take into account subsidiaries' performance feedback. Even though social comparison dynamics are likely to champion more uniform governance choices across subsidiaries (e.g., Nickerson & Zenger, 2008), we believe an optimal design should reflect the inherent heterogeneity that we highlighted in this study. This is an intriguing empirical question with important implications for corporate strategy and corporate governance.

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FOOTNOTES

[1] Prospect theory emphasizes loss aversion—a tendency of individuals to be more sensitive to losses than to gains of the same magnitude—as the principal mechanism leading decision makers to take more risks when in the loss region (Thaler & Johnson, 1990; Tversky & Kahneman, 1991). See Barberis (2013) for a recent review of the prospect theory and Holmes and his colleagues (2011) for a discussion pertaining to similarities and differences in the predictions of prospect theory and aspiration levels theory.

[2] Note that we do not argue that the level of pay will necessarily be lower for managers of subsidiaries performing below aspirations (i.e., that they would receive less compensation compared to their better performing counterparts). While this may or may not be the case, our core argument is about the heterogeneity in the structure of the compensation package (i.e., they are less likely to be incentivized with a performance-contingent bonus).

[3] The similarity of the resource allocation process in France to other countries is not surprising. Although the institutional (legal, cultural, social) context creates some differences, economic logic is fundamentally the same across countries (consider, for example, agency problems, scarcity of resources, etc.). Over time, the processes became even more similar as firms (including those in our sample) face international competition both in the product market and in the market for managerial talent. France has the third largest stock of outward forward direct investment (FDI) and the seventh largest stock of inward FDI. The largest publicly traded French firms have long been listed both in the U.S. and in France.

[4] Random or randomized response models are a well-established method that can be used to ensure confidentiality of data (see Chaudhuri & Mukerjee, 1988, for a review). The method involves replacing the survey item values for a randomly selected subset of observations (in our case corresponding to 10% of the entities surveyed) with random values (in our case using a uniform distribution: e.g., a survey item that was originally coded on a 4-point scale was recoded randomly taking, with equal 25% probability, one of the four values). Given that Banque de France did not inform us which observations were randomized, we are not able to distinguish true versus randomized responses. This ensures the confidentiality of the data, in line with the agreement that Banque de France had with the survey respondents. The randomized transformation process, however, comes at a cost: it introduces additional noise into the original data, inflating the variance of the estimates and thereby reducing the significance. Still, randomization keeps the mean (i.e., the expected value of the coefficients) unchanged and the estimates themselves are unbiased.

[5] We dropped three industries, corresponding to a total of only 47 subsidiary-year observations. The results were insensitive to their inclusion/exclusion.

[6] As it is not straightforward to construct a reference set for diversified firms (as it is the case in our sample), we use historical firm aspiration levels in construction of these control variables.

[7] Note that this assertion is also consistent with the behavioral agency theory's emphasis on the link between incentive structures and decision makers' risk bearing (i.e., perceived risk to wealth that can result from the endowment effect, employment risk, or other threats) (Wiseman & Gomez-Mejia, 1998). As managers' risk bearing is negatively associated with organizational risk taking, incentivizing managers with pay-for-performance bonuses can decrease aversion to uncertain performance outcomes (Beatty & Zajac, 1994).

[8] Indeed, under some conditions provision of options and restricted stock may even result in an increased aversion to risk (e.g., Lim, 2015; Martin, Gomez-Mejia, & Wiseman, 2013). Stock options are likely to increase risk bearing through an endowment effect when these instruments are in the money and their accumulated value is substantial—leading subsequently to a lower propensity to make risky organizational decisions (Devers, McNamara, Wiseman, & Arrfelt, 2008). Yet, our data on the provision of stock options is only very coarse and does not allow us reliably to link this incentive instrument to risk-taking properties. In particular, we observe no accumulated managers' wealth, no vesting conditions, and cannot differentiate if managers of the focal subsidiaries receive stock options or restricted stock. Therefore, we can make no unambiguous claim with respect to risk implications of this remuneration component in our data.

[9] One may expect that the effect of subsidiary performance-aspiration gap (below aspirations) on the likelihood of the provision of stock options would be more pronounced if the focal subsidiary accounts for a significant portion of the firm's overall sales. This is because stock options reflect the overall performance of the firm, not only that of the focal subsidiary. To check, we executed a split-sample analysis estimating models reported in Table 3 for subsidiaries that account for a large portion of their firms' total sales and for subsidiaries that do not (those above and below the sample mean, respectively) separately. The results were consistent with the expectation: the likelihood of provision of stock options was positively associated with performance below aspiration for

subsidiaries that account for a significant portion of their firm's sales and the effect size was significantly larger than those for less salient subsidiaries and the overall sample.

[10] See also Boyle and Shapira (2012), who show that in a contest the followers' attention shifts between their aspirations and survival point. In parallel, Audia and Greve (2006) show that small and large firms may react differently to low performance: diverging from the standard predictions, managers of small firms with limited resources decrease risk taking in response to performance decreases because they consider low performance as getting closer to bankruptcy. Our size controls are meant, in part, to account for this effect. Furthermore, recall that we exclude from our sample all subsidiaries that have less than 50 employees and all firms that employ less than 500 employees. Although the exclusion of small subsidiaries and small firms from our sample is mainly driven by data constraints, it is also beneficial to alleviate the concern of theoretical heterogeneity in patterns (and not only levels) of responses to performance feedback in our data.

[11] The adjusted scale takes the value of 1 if "Limited" in SESAME or "Limited" or "Null" in ER, 2 if "Concertation" in SESAME or "Important" in ER, and 3 if "Large autonomy" in SESAME or "Total" in ER. In terms of the average values, our binary measure has a mean value of 0.54 and a standard deviation of 0.50. The average discretion value using full available scale for SESAME (3-point scale) is 1.87 (s.d. = 0.76), and for ER (4-point scale) is 2.48 (s.d. = 0.73).

[12] Unfortunately, we do not have sufficient data coverage and variance to test this dynamic relationship for the provision of incentives.

[13] In supplementary analyses, we also estimated within-subjects (i.e., difference) models looking only at the subsidiaries that experienced a drop in performance to below social aspirations and tested if their propensity to have discretion was reduced after the drop. The results of these analyses were qualitatively identical to the difference-in-differences analyses reported in Table 5.

Table 1

Means, Standard Deviations, and Bivariate Zero-order Correlations

Variable		*Mean*	*SD*	1	2	3	4	5	6
1.	Subsidiary discretion in investment decisions	0.54	0.50						
2.	Provision of cash bonuses to subsidiary managers	0.85	0.30	-0.01					
3.	Subsidiary performance above historical aspirations	0.01	0.03	-0.03	-0.02				
4.	Subsidiary performance below historical aspirations	0.01	0.03	-0.04	-0.04	-0.15			
5.	Subsidiary performance above social aspirations	0.02	0.04	0.03	0.06	0.17	-0.09		
6.	Subsidiary performance below social aspirations	0.02	0.05	-0.07	-0.12	-0.04	0.46	-0.28	
7.	Subsidiary size	5.54	0.98	-0.13	0.05	-0.04	0.00	0.00	-0.01
8.	Parent's ownership	0.95	0.13	-0.06	0.03	0.03	0.01	0.02	0.00
9.	Relative market share	-0.87	1.30	-0.03	0.03	0.01	-0.02	-0.02	-0.06
10.	Relatedness	0.64	0.29	0.06	0.06	0.00	-0.02	-0.05	-0.03
11.	Strategic importance	0.37	0.31	0.01	-0.04	-0.02	-0.01	0.00	-0.01
12.	Multimarket contact	0.28	0.23	-0.02	-0.05	-0.02	-0.04	-0.10	-0.04
13.	Firm size	8.82	1.59	-0.06	0.12	0.02	-0.02	-0.05	-0.05
14.	Firm diversity	1.50	0.81	-0.02	0.04	0.01	-0.02	-0.04	-0.05
15.	Firm performance above aspirations	0.01	0.01	0.03	-0.01	0.11	0.05	0.02	0.02
16.	Firm performance below aspirations	0.01	0.01	0.04	0.05	0.05	0.14	0.03	0.05
17.	Industry concentration	0.30	0.21	-0.08	0.05	0.01	0.03	0.06	0.04
18.	Industry growth	3.56	2.35	0.05	0.10	0.04	0.09	0.04	0.04

Variable		7	8	9	10	11	12	13	14	15	16	17
7.	Subsidiary size											
8.	Parent's ownership	-0.01										
9.	Relative market share	0.16	0.03									
10.	Relatedness	-0.21	0.01	0.14								
11.	Strategic importance	0.21	-0.08	0.09	0.32							
12.	Multimarket contact	-0.11	-0.03	-0.03	0.32	0.10						
13.	Firm size	-0.05	0.08	0.36	-0.16	-0.57	0.04					
14.	Firm diversity	-0.14	0.07	0.17	-0.29	-0.56	-0.01	0.68				
15.	Firm performance above aspirations	-0.04	0.04	0.01	0.05	-0.02	-0.05	-0.02	-0.03			
16.	Firm performance below aspirations	-0.02	0.02	-0.02	0.07	0.03	-0.04	-0.07	-0.08	-0.15		
17.	Industry concentration	0.28	0.00	0.02	-0.16	0.03	-0.41	-0.06	-0.07	0.01	0.03	
18.	Industry growth	0.13	0.04	-0.07	0.00	0.08	-0.18	-0.06	-0.16	0.06	0.10	0.09

Table 2

Heckman-corrected Probit Regressions Explaining Subsidiary Discretion in Investment Decision and Provision of Cash Bonuses to Subsidiary Managers

	Subsidiary discretion in investment decisions			Provision of cash bonuses to subsidiary managers		
		Historical aspirations	Social aspirations		Historical aspirations	Social aspirations
	1	2	3	4	5	6
Subsidiary size	0.08	0.07	0.09	-0.24 **	-0.25 ***	-0.28 ***
	(0.07)	(0.07)	(0.07)	(0.08)	(0.07)	(0.05)
Parent's ownership	-0.02	-0.07	-0.03	-0.37	-0.39	-0.47
	(0.33)	(0.33)	(0.32)	(0.40)	(0.40)	(0.40)
Relative market share	0.01	0.01	0.01	-0.05	-0.05	-0.02
	(0.04)	(0.04)	(0.03)	(0.06)	(0.06)	(0.05)
Relatedness	0.27	0.27	0.26	0.39 *	0.36 †	0.23
	(0.17)	(0.17)	(0.17)	(0.19)	(0.19)	(0.15)
Multimarket contact	-0.55 *	-0.56 *	-0.55 *	-0.22	-0.19	-0.04
	(0.26)	(0.26)	(0.26)	(0.29)	(0.27)	(0.25)
Strategic importance	0.02	0.00	-0.02	-0.24	-0.24	-0.26
	(0.21)	(0.21)	(0.20)	(0.30)	(0.30)	(0.29)
Firm size	-0.11 †	-0.11 †	-0.11 †	0.08	0.09	0.07
	(0.06)	(0.07)	(0.06)	(0.07)	(0.07)	(0.06)
Firm diversity	0.14	0.13	0.13	-0.09	-0.09	-0.09
	(0.13)	(0.13)	(0.13)	(0.13)	(0.13)	(0.12)
Firm performance above aspirations	1.98	2.36	2.16	-2.99	-2.46	-2.12
	(2.69)	(2.73)	(2.66)	(4.30)	(4.31)	(3.95)
Firm performance below aspirations	2.85	3.78	3.12	3.83	5.29	5.62 †
	(2.25)	(2.42)	(2.34)	(3.43)	(3.51)	(3.02)
Industry concentration	-0.17	-0.15	-0.13	0.28	0.30	0.39
	(0.23)	(0.23)	(0.23)	(0.29)	(0.31)	(0.31)
Industry growth	-0.04	-0.04	-0.04	0.03	0.04	0.04
	(0.03)	(0.03)	(0.03)	(0.05)	(0.05)	(0.04)
Subsidiary performance above aspirations		-2.57 †	0.19		-3.10	0.81
		(1.55)	(0.94)		(2.57)	(1.40)
Subsidiary performance below aspirations		-3.22 *	-2.25 **		-3.02 *	-2.99 ***
		(1.38)	(0.90)		(1.37)	(0.86)
N	1,100	1,100	1,100	702	702	702
Wald χ^2	86.25 ***	87.22 ***	92.60 ***	142.22 ***	154.55 ***	202.90 ***

Robust standard errors clustered by firm, in parentheses; constant, year, industry, and data source dummies included in all models. Two-tailed tests; one-tailed, when hypothesized:

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 3

Heckman-corrected Probit Regressions Explaining Provision of Stock Options to Subsidiary Managers

		Historical aspirations	Social aspirations
	1	2	3
Subsidiary size	-0.21 **	-0.23 **	-0.24 **
	(0.08)	(0.08)	(0.08)
Parent's ownership	0.77	0.78	1.01
	(0.56)	(0.57)	(0.67)
Relative market share	0.12 *	0.13 *	0.13 *
	(0.06)	(0.06)	(0.06)
Relatedness	-0.48	-0.46	-0.39
	(0.29)	(0.30)	(0.32)
Multimarket contact	-0.18	-0.21	-0.08
	(0.42)	(0.43)	(0.44)
Strategic importance	-0.76 †	-0.75 †	-0.91 *
	(0.40)	(0.39)	(0.39)
Firm size	0.03	0.03	0.01
	(0.08)	(0.08)	(0.09)
Firm diversity	-0.43 **	-0.41 **	-0.38 *
	(0.16)	(0.16)	(0.16)
Firm performance above aspirations	2.18	1.07	1.81
	(5.24)	(5.20)	(5.34)
Firm performance below aspirations	6.45	4.78	5.94
	(3.93)	(3.38)	(3.98)
Industry concentration	0.67	0.60	0.31
	(0.42)	(0.44)	(0.46)
Industry growth	0.14 *	0.15 *	0.16 *
	(0.06)	(0.06)	(0.06)
Subsidiary performance above aspirations		2.39	1.83
		(2.85)	(1.40)
Subsidiary performance below aspirations		3.86 *	2.31 †
		(2.16)	(1.45)
N	773	773	773
Wald χ^2	382.03 ***	475.16 ***	918.04 ***

Robust standard errors clustered by firm, in parentheses; constant, year, industry, and data source dummies included in all models. Two-tailed tests; one-tailed, when hypothesized:

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 4

Regressions with Alternative Measurements of Subsidiary Discretion in Investment Decision

Estimation :	Heckman probit	OLS		Ordered logit		Heckman two-step	
Measurement of DV:	Binary	Ordinal	Ordinal (adjusted)	Ordinal	Ordinal (adjusted)	Ordinal	Ordinal (adjusted)
Historical aspirations							
Subsidiary performance above aspirations	-2.57 †	-1.91 *	-1.69 *	-5.20 *	-5.32 †	-1.80 *	-1.48 †
	(1.65)	(0.86)	(0.78)	(2.43)	(2.85)	(0.86)	(0.80)
Subsidiary performance below aspirations	-3.22 *	-1.45 *	-1.55 *	-4.25 *	-5.16 *	-1.50 *	-1.61 **
	(1.38)	(1.38)	(0.71)	(2.12)	(2.34)	(0.77)	(0.69)
Wald χ^2 / F-test / LR χ^2	87.22 ***	4.37 ***	4.31 ***	145.73 ***	143.17 ***	138.93 ***	92.60 ***
Social aspirations							
Subsidiary performance above aspirations	0.19	0.55	0.47	1.33	1.18	0.57	0.45
	(0.94)	(0.65)	(0.62)	(1.84)	(1.85)	(0.63)	(0.61)
Subsidiary performance below aspirations	-2.25 **	-1.18 **	-1.30 **	-3.38 **	-4.09 **	-1.26 **	-1.42 ***
	(0.90)	(0.50)	(0.47)	(1.33)	(1.51)	(0.48)	(0.44)
Wald χ^2 / F-test / LR χ^2	92.60 ***	4.47 ***	4.45 ***	144.08 ***	142.55 ***	148.71 ***	174.21 ***

N=1100; Robust standard errors clustered by firm, in parentheses; constant, year, industry, data source dummies, and all control variables from Table 2 are included in all models. Two-tailed tests; one-tailed, when hypothesized:

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$

Table 5

Probit and Heckman Probit Regressions Explaining Change in Subsidiary Discretion in Investment Decision

Estimation:	Probit	Heckman Probit
Experienced a drop in performance from above to below aspirations	0.11	0.11
	(0.15)	(0.14)
After drop in performance from above to below aspirations	-0.42 *	-0.35 †
	(0.21)	(0.25)
Wald χ^2	36.67 **	31.98 **

N=398; Based on the subsample of subsidiaries with at least two years of investment discretion data; robust standard errors clustered by firm, in parentheses; constant, year, industry, data source dummies, and all control variables, except fixed effects, from Table 2 are included in all models. Two-tailed tests; one-tailed for "after":

† $p < .10$
* $p < .05$
** $p < .01$
*** $p < .001$