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What do multiple objectives really mean for performance? Empirical evidence from the French manufacturing sector

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Abstract

Research Summary: We explore the performance consequences of the simultaneous pursuit of multiple objectives in organizations. Taking advantage of a unique dataset covering both the objectives pursued and performance outcomes, we test the hypothesis that is the cornerstone of multiple objectives theory: performance on a given metric increases when it is pursued as an objective but decreases with the number of other objectives pursued simultaneously. We find overall support for this hypothesis, which holds for most, but not all, objectives. We further unpack the link between multiplicity of objectives and performance, investigating the moderating effects of organization design choices. This study suggests that multiple objectives impose a cost on organizations, but also provide a benefit of alleviating tradeoffs in achieving higher performance in multiple dimensions.

Managerial Summary: Most organizations simultaneously follow multiple goals, rather than focus on a single, well-defined objective. For example, manufacturing firms often concurrently strive to decrease costs, increase revenues, and enhance margins. We study the consequences of such pursuit for firm performance. We show that explicitly setting objectives plays an important role in driving performance improvements. We also show that performance on any given dimension decreases with the number of other, simultaneously,

followed goals. This regularity holds across different types of organizations, from simple to complex. Finally, we show that setting goals in multiple dimensions can play a beneficial role in forcing firms to actively manage tradeoffs inherent in their strategic choices. Our findings point to how managers could balance the costs and benefits of multiple objectives.

KEYWORDS

behavioral strategy, multiple objectives, organization design, performance paradox

1 | INTRODUCTION

Most modern organizations simultaneously pursue multiple objectives rather than adhere to the normative prescription of single goal maximization.[1] Publicly traded firms are expected to demonstrate short-term profitability *and* act in the best long-term interest of shareholders *and* attend to other stakeholders *and* be good citizens (Margolis & Walsh, 2003). Hybrid organizations, which have witnessed an unprecedented increase in number over the past 30 years, pursue a social mission while engaging in economic activities to sustain their operations (Battilana, Sengul, Pache, & Model, 2015). Many research universities pursue an educational and scientific mission while simultaneously maximizing licensing revenues from inventions (Shane & Somaya, 2007). Even in small firms, the role of the CEO is "to manage multiple objectives simultaneously" (Gilovich & Ross, 2016: 54). Indeed, there is now abundant evidence indicating that the concurrent pursuit of several, and often conflicting, objectives is an organizational norm, rather than an exception (Hu & Bettis, 2018; Meyer & Gupta, 1994; Unsworth, Yeo, & Beck, 2014).

Interestingly, this empirical reality is in stark contrast to the normative prescriptions of single goal maximization and thus presents a challenge for organizational researchers. This is because the concurrent pursuit of more than one goal is theoretically intractable (Ethiraj & Levinthal, 2009). The difficulty stems from the technical impossibility of maximizing in more than one dimension. Unless objectives are perfectly correlated, the mapping from actions to performance can become ambiguous, as can the actual meaning of performance, hence leaving the decision criterion opaque. Jensen (2002: 238) firmly expressed reservations with theories and management tools implying multiple goals in his influential critique of stakeholder theory and the Balanced Scorecard approach, noting that simultaneous pursuit of multidimensional goals must lead to "confusion and a lack of purpose," leaving managers "with no way to make reasoned decisions." These arguments are echoed by Sundaram and Inkpen (2004) and others in earlier and subsequent work.

Yet despite the importance of this theoretical debate and its clear managerial implications, there is a remarkable dearth of empirical work linking the number and type of objectives

[1]Throughout this article, we use the terms "objectives" and "goals" interchangeably.

pursued by organizations to subsequent performance. Addressing this gap, and taking advantage of a unique dataset of a large sample of French manufacturing firms, in this article, we explore the link between multiplicity of organizational objectives and firm performance. A particularly appealing aspect of our data is that they allow us to directly observe objective(s) that are pursued by firms in our sample (and those that are not), as well as realized performance on those dimensions. In contrast, prior empirical studies on multiple objectives typically either assumed the presence of multiple objectives (such as financial performance and product safety in the airline industry (Gaba & Greve, 2019), or safety, efficiency, and reliability in the automotive sector (Hu & Bettis, 2018)) or inferred them from some visible organizational characteristic, such as ownership structure (McCann & Vroom, 2014).

Our point of departure is anchored on two basic premises. First, we argue that it is important to take into account the *number* of organizational objectives pursued, and not only whether the organization pursues a single objective or not. Indeed, Ethiraj and Levinthal (2009) developed a computational model, results of which suggest that performance may decrease with the number of objectives that a firm follows. This theoretical possibility is in contrast with the underlying theoretical problem, which is essentially that of *one-or-many*: as soon as the number of goals that organizations follow is strictly greater than one, the conceptual fallacy described by Jensen (2002) applies. The theory offers no predictions when the number of objectives increases beyond two. Second, we argue that the tradeoffs associated with multiple objectives can fruitfully be understood by studying performance outcomes in each dimension independently. This is because what performance actually means for a firm pursuing multiple objectives is problematic in its own right. Aggregation of performance to a single metric by averaging levels of performance across all goals as in Ethiraj and Levinthal (2009), for example, gives equal (or some assumed) weights to all pursued objectives in assessing the tradeoffs that the firm faces. It also assumes an existence of a common denominator that allows for compensatory tradeoffs to be made. Such an approach, as explicitly acknowledged by Ethiraj and Levinthal (2009), is at odds with the behavioral assumption that managers are not able to integrate across goals (Simon, 1972). Building on these premises, we first test two predictions that jointly constitute what we henceforth refer to as the "folk theorem" of multiple objectives: (1) performance increase on a given metric (e.g., market share) is more likely when it is pursued as an organizational objective, (2) but this probability decreases with the number of other objectives simultaneously pursued by the firm.

While these hypotheses are practically taken for granted, we are aware of no prior empirical evidence coming from the field to support them. We provide the first such evidence, although it is largely correlational in nature due to our data structure. We find overall support for both predictions: the positive association between the pursuit of a given metric as an objective and increased performance on this metric, and the negative association between the number of other objectives being followed and increased performance, are both strong in the data. However, at a more granular level the results were more mixed for some of the individual objectives that we studied. Hence, we find that performance metrics differ in the extent to which they produce these two regularities.

We then explore whether some firms are spared the penalty imposed by multiplicity of objectives, focusing on two possible sources of heterogeneity. We first checked variation across types of firms and found no significant differences when accounting for a range of proxies for organizational form and complexity. The results are thus suggestive of the universality of our predictions across a wide range of organizations. We next explored whether firms' sensitivity to multiple objectives varies by their organization design choices, independent of their type. In

particular, we focus on design elements that prior literature identified as particularly relevant in helping organizations deal with coordination costs. We found that both the frequency of face-to-face management meetings and the strength of performance-contingent incentives alleviate the cost of multiplicity of organizational objectives, but reliance on information and communications technology (which is often used as a substitute for face-to-face coordination meetings) exacerbates it. These results echo Battilana et al. (2015), who found that hybrid organizations are more effective in achieving both high productivity and high social performance when they actively manage potential tradeoffs across organizational levels rather than trying to do so in a top-down manner.

Finally, we turn to underlying mechanisms and explore whether firms can draw some benefit from pursuing multiple objectives, a second-best configuration given the costs associated with it. It is a common assumption in the literature on multiple objectives, analogous to a misalignment pattern documented extensively in the multi-tasking literature (Holmstrom & Milgrom, 1991), that the problems associated with pursuit of multiple objectives are exacerbated when the set objectives are unrelated to one another or conflicting. Yet, firms tend to pursue both positively and negatively correlated objectives—a pattern Meyer and Gupta (1994) called "the performance paradox." One possible explanation for why firms simultaneously set such conflicting or weakly-correlated objectives is that doing so allows them to actively influence and lessen the tradeoffs. The empirical patterns in our data were in line with this explanation. We found that the average performance levels on any two dimensions co-vary more strongly when the firm simultaneously pursues both as primary objectives, providing one possible benefit to the pursuit of multiple objectives. Thus, the results indicate that firms may learn how to manage multiple objectives and that tradeoffs across objectives may be endogenous to the goal structure of organizations.

Taken together, our study makes three contributions to the literature. First, it is the first to explore empirically the performance consequences of the simultaneous pursuit of multiple goals in organizations, using observational data on actual firms with information on the heterogeneity of the objectives being pursued. Expanding a small but influential empirical literature on multiple objectives (Gaba & Greve, 2019; Hu & Bettis, 2018; McCann & Vroom, 2014), our findings suggest that the pursuit of multiple goals imposes a cost on performance on individual dimensions, but also provides a benefit by alleviating tradeoffs in achieving higher performance on multiple dimensions. If an overarching performance measure consists of some (possibly non-integratable) combination of multiple metrics, a pursuit of numerous goals may actually serve an efficiency purpose.

Second, we actively explore the lack of alignment between theoretical models of multiple objectives and observed empirical patterns. Such fragility of the descriptive accuracy of normative theories is not new and has recently contributed to great progress, especially in the areas of behavioral economics and behavioral strategy (see Thaler, 2016; Levinthal, 2011; and Powell, Lovallo, & Fox, 2011 for overviews). We believe that the strategy literature would greatly benefit from a similar approach to the issue of multiple goals and that such enquiry offers an exciting research opportunity.

Finally, we deepen our understanding of underlying mechanisms. We find that setting multiple goals is associated with their alignment. Even if multiplicity comes at a cost to individual dimensions, an active management of tradeoffs is essential because such pursuit may be globally beneficial. This finding has broad implications for theories dealing with firms pursuing multiple objectives, including the study of dual-purpose organizations (see Battilana & Lee, 2014 for a review) or organizational ambidexterity (see Raisch & Birkinshaw, 2008 for a review). We also follow the developments in the literature linking behavioral theories with organization design elements (Csaszar, 2013; Joseph, Klingebiel, & Wilson, 2016; Sengul & Obloj, 2017) and

show that several structural choices—such as increased face-to-face coordination (as opposed to technology-driven communication) or incentive systems—may help organizations overcome the challenges associated with multiple goals.

2 | MULTIPLE OBJECTIVES IN ORGANIZATIONS

The literature dealing with multiplicity of objectives is diverse, as is the literature studying their implications for conceptualizing performance. We distinguish two main approaches: those that situate the origins of multiple goals at the level of the objective function, and those that situate it at the level of the decision maker.

A first approach to multiple goals, underlying much of the relevant research in economics and operations research, explicitly deals with multiple goals under conditions of imperfect measurement and contractibility. The locus of the "problem" in this approach is not the decision maker (who is largely assumed to hold a strong form of rationality) but the objective function: the nature of the objective function (such as non-contractibility or NP-completeness of the performance problem) implies that multiple subordinate goals exist. When this is the case, ideally some form of an aggregation mechanism (e.g., weighted average of multiple metrics) can be used to arrive at a higher-order, unidimensional compound metric (Arrow, 1951).

A similar approach dominates contemporary agency theory frameworks dealing with performance measurement and incentive design at an individual level. In early papers, Holmstrom (1979) and Shavell (1979) show that any metric that provides *some* signal about an agent's relevant work should be included in the incentive contract—thus leaving almost every agent in the organization facing rewards associated with a diverse set of performance goals. In other words, a corollary of this "informativeness principle" (which informed much of the early work on performance measurement and multi-tasking theory) is that multiple dimensions of performance (even those that are very noisy) should underlie an efficient incentive contract. The incentive theory therefore, in some sense, directly embraces multiple metrics and the multi-dimensional nature of objectives (see Holmstrom, 2017 for a review). Such value of weak signals has also been extensively studied in the accounting literature. For example, Feltham and Xie (1994: 447) show that "a second-best incentive contract requires that the (stock) price be supplemented with other measures, even though those measures are impounded in the price." Thus, one could conclude that if an additional objective at the organizational level provides additional information about the overall complex nature of organizational performance, it should be incorporated as an explicit goal to pursue.

Subsequent accounting and finance literatures provide ample evidence that most managers are compensated based on multiple, often weakly or negatively correlated, indicators (De Angelis & Grinstein, 2015; Ittner, Larcker, & Rajan, 1997). The Balanced Scorecard serves the purpose of integrating such divergent goals into an operationalizable metric and providing a roadmap to enhanced decision making (Kaplan & Norton, 1992). One of the core developments in these frameworks has been to acknowledge that the actual objective function is unobservable and noncontractible, thus formalizing Kerr's (1975) initial intuition that asymmetric measurability across multiple dimensions leads to potentially harmful effort substitution effects (Baker, 1992; Holmstrom & Milgrom, 1991). However, while the multitasking literature explicitly recognizes that tasks are multidimensional, it still assumes that multiple metrics can and should be aggregated to one overarching measure, thus following Arrow's (1951) early

integration postulate. The problem is caused by the difficulties with measurement and mapping from these dimensions of tasks, not the decision maker.

A second approach to multiple goals, underlying much of the relevant research in organizational theory, focuses more on the descriptive accuracy, rather than normative implications, of decision making in organizations. Accordingly, this line of work treats the pursuit of multiple goals as a property (and choice) of a decision maker rather than an inevitable consequence of the nature of the objective function. In order to reduce the decision space to a unidimensional metric, one must specify some aggregation rule, defining the compensatory tradeoffs. Such an integration, however, is inconsistent with basic patterns of decision making in organizations and requires unrealistic levels of rationality (Heath & Soll, 1996; Simon, 1972). The question posed by this literature, therefore, is how to "act with intelligence and efficacy in strategic contexts" (Levinthal, 2011: 1521) that are characterized by multiple goals. The key concern is not whether a single performance metric exists (or if it is possible to specify it and contract on it) but rather whether the decision maker is capable or willing to define it.

Departing from the assumption that multiple goals can be integrated, and acknowledging that goals often share no common denominator, the satisficing model of decision making emerged as a powerful framework to study such problems. It states that decision makers aim to reach a set of aspiration levels that are defined independently for each of the goals (Simon, 1955). Thus, setting organizational goals triggers a simultaneous process of generation and evaluation of alternatives where possible courses of action are mapped onto goals and benchmarked against satisfactory performance levels (Simon, 1964). Consider Carlos Ghosn's "We don't have a choice" revival plan for Nissan in 1999 as an example (Automotive News, 1999). The document explicitly stated cost reduction as a primary objective, but also set non-decreasing of product quality and reliability as binding aspiration levels in pursuing cost effectiveness. This is formalized by Ethiraj and Levinthal (2009) in the context of multiple goals—a new configuration on a multi-dimensional rugged landscape is only accepted if it weakly increases performance in all currently pursued objectives.

This approach is also widely echoed in less formalized branches of organizational theory where firms navigate multiple goals by, for example, sequential attention to objectives (Joseph & Wilson, 2018) or coalition forming and bargaining processes aimed at selecting one of multiple goals as primary (Cyert & March, 1963; Pfeffer & Salancik, 1978). Presumably, other goals could act as constraints (thus making this problem more similar to the one described above) but one objective still acts, even if temporarily, as a needle of the organizational compass, while other goals form an intricate network of subordinate objectives (Hu & Bettis, 2018). Similarly, early organizational theorists recognize that organizational members are inherently characterized by distinct and conflicting goals and the aggregation process must lead to a simultaneous focus on several objectives (Cyert & March, 1963). This inherent pursuit of multiple goals at the decision maker level is most pronounced in organizations whose existence presupposes such objective structure, such as hybrid organizations (Battilana et al., 2015).

In this article, we remain agnostic with respect to the actual cause behind the number of objectives that firms pursue. The origins of multiple goals can be situated at the level of the objective function and/or at the level of the decision maker. We concur that theoretically, and independent of the actual cause, "having more than one objective function will make governing difficult, if not impossible" (Sundaram & Inkpen, 2004: 353). Nevertheless, we also believe that "evidence relating to actual behavior should not be discounted purely on the basis that it falls

foul of conventional axioms of choice" (Starmer, 2000: 334) and it should be studied. Goal multiplicity and its impact on firm performance is one of the foremost examples of such tension.

2.1 | Multiple objectives and performance: The folk theorem

Setting an explicit objective should intuitively lead to increased outcomes related to that objective. This is the case for multiple reasons. Seeing goals as immediate regulators of human action, goal setting theory documented that specific and challenging goals lead to higher performance (Locke, Shaw, Saari, & Latham, 1981). In particular, greater performance resulting from setting an objective is an outcome of goals' directive and energizing functions, as well as their impact on decision makers' persistence in goal pursuit and relevant knowledge acquisition (Locke & Latham, 2002). Furthermore, an explicit organizational objective can serve as a coordinating mechanism, pulling people throughout the organization in the same direction. Having a common understanding of what is expected and valued by top management, organizational members are more likely to contribute, individually and collectively, to the attainment of that goal, even without direct supervision and control (Aguilar, 1985).

While the link between setting an explicit objective and outcomes related to that objective is obvious in the case of a single objective, this is not necessarily the case when one considers many simultaneous goals. Indeed, given that decision makers face opaque decision criteria under multiple goals (Jensen, 2002), setting multiple goals may theoretically not affect performance on any of them. Still, on the margin, our first empirical prediction is that setting an objective (even if it is one among many) increases the chances of higher outcomes on any given performance metric compared to an absence of an explicit goal.

Even though existing studies highlight that the pursuit of multiple goals is challenging and potentially costly for organizations, they offer no direct prediction about the comparative statics as the number of other goals increases. Indeed, the problem is often theorized as one-or-many and does not lend itself to an easy extension beyond two concurrent goals. However, we argue that decision making problems are likely to increase with the number of goals that organizations are pursuing. Hence, our second empirical prediction is that performance increase on an objective that is pursued by an organization becomes less likely as the number of other simultaneously pursued objectives increases.

There are several reasons why this is likely to be the case, reasons that also define the boundary conditions of our predictions. First, although the "challenge of multiple performance goals is independent of and distinct from the typical agency or team theory problems (and their solutions)" (Ethiraj & Levinthal, 2009: 5), managerial effort and attention structure influences the associated outcomes. Given a fixed amount of attention and effort, the addition of a new organizational objective results in the substitution of effort and attention from previously established objectives (Stevens, Moray, Bruneel, & Clarysse, 2015). A similar substitution effect is likely to be present when expected (albeit ambiguous) returns to effort and attention follow a typical diminishing trajectory, such that marginal returns (costs) to effort and attention increase at a decreasing (increasing) rate on each of the distinct objectives.

Second, decision making and coordination difficulties arising from a simultaneous pursuit of multiple objectives critically depend on the extent to which activities are non-separable. When a given set of activities that a firm undertakes only affects one objective but does not affect the other objectives (that is, when activities are separable in terms of their implications for different objectives), the presence of other objectives has little impact on constraining

managers. However, such cases are exceptions, rather than norms, in firms. In their critique of Milton Friedman's support of shareholder value maximization, Hart and Zingales (2017) develop this argument more fully and argue that it is rarely the case that, for example, money-making and ethical activities are separable. As firms grapple with objectives that are non-separable, the challenge of managing multiple goals grows. Furthermore, the level of non-separability is likely to increase with the number of goals pursued, along with the cost imposed by them.

Finally, organizational goals serve the purpose of both discovering possible courses of actions and evaluating the extent to which they are satisfactory. Simon (1964) refers to these two processes as alternative generation and alternative testing, respectively. Holding the set of possible courses of action constant, the process of alternative testing is more likely to lead to a status quo trap as the number of objectives that must be satisfactorily met increases (Ethiraj & Levinthal, 2009). As firms follow an increasing number of goals, each generated alternative is more likely to be rejected in favor of the status quo when evaluated against a larger set of metrics.[2] Accordingly, we expect the two following taken for granted empirical regularities to hold:

> *Folk theorem of multiple objectives: (1) Performance increase on a performance metric is more likely when it is pursued as an organizational objective, but (2) becomes less likely with the number of other simultaneously pursued objectives.*

3 | METHODS AND DATA

We studied French manufacturing firms between 1999 and 2004, inclusive. Both the focus on the manufacturing sector and the six-year time span of our study reflect the availability of the data on organizational objectives and associated performance outcomes, as we elaborate below. An inadvertent benefit of focusing on one sector (i.e., manufacturing) for our study is that organizational objectives and performance metrics are more comparable within than between sectors. As Meyer and Gupta (1994: 310) underlined, "performance measures require comparability and variability in order to discriminate good from bad performance" and focusing on a single sector increases the validity of our findings in this respect.

Our source of data for identifying the number and type of organizational objectives is the "SESAME" (*La base de données sur le comportement stratégique des entreprises*) survey of the Central Bank of France. The survey was administered by professional interviewers to randomly selected small and mid-size manufacturing firms (20–500 employees) in France on a three-year rotating basis. In each rotation, firms representing roughly 20% of total number of employees of all small and mid-size manufacturing firms were surveyed. The Central Bank provided us with the data (which we randomly transformed due to confidentiality requirements) for the 1999–2004 period, inclusive. The data was not reliable before 1999, according to the bank, and the survey was discontinued after 2006 (we were unable to obtain access to the 2005–2006 data).

We complement the SESAME data with two additional data sources. The data used for the measurement of performance outcomes and most of our control variables come from *Enquête Annuelle d'Entreprise* (*EAE*) *Industrie*, which is administered by the industrial studies and statistics unit (SESSI, *Service des études et des statistiques industrielles*) of the French Ministry of Economy and Industry. SESSI collects detailed firm-level information, including employment,

[2]New goals may also affect the process of generation of alternative courses of action. We come back to this possibility in the later sections of the article.

investments, and income statements based on mandatory and confidential filings of all non-state-owned firms operating in the manufacturing sector. In this data, the manufacturing sector corresponds to all industries covered under NAF (*Nomenclature d'Activités Française*) categories NAF10 to NAF41, inclusive, except food (NAF15), tobacco (NAF16), fabrication of matches (NAF36.63.6), and sawmills (NAF201A). Supporting Information for some of our control variables come from LIFI (*La base de données sur les liaisons financiers*) and the industry input–output tables, both gathered on an annual basis by INSEE, the National Institute of Statistics and Economic Studies of France.

Merging these datasets and eliminating (a) firms with less than 20 employees (for which corresponding *EAE Industrie* data were not reliable) and (b) observations with incomplete or missing information for one or more key variables, we obtained a final working sample of 6,324 firm-year observations, spanning 4,823 unique firms, with complete information. In 2004, these firms collectively accounted for approximately 18% of the total employment in the manufacturing sector.

Three features of our dataset make it particularly well suited for this study. First, we can directly observe organizational objectives, as managers were asked to report whether or not their organization had set specific objectives, such as to increase market share or to reduce costs. Second, there is a great deal of variation across firms in terms of the number and type of objectives they pursue. This contrasts, for example, with work on social enterprises, all of which pursue both social and economic objectives (like the work integration social enterprises in Battilana et al., 2015) or with work that assumes a homogenous goal structure (Gaba & Greve, 2019; Hu & Bettis, 2018). Third, we not only directly observe organizational objectives but also can measure corresponding performance for (most of) them with precision, such as the exact level and changes in market share or margins. This allows us to map multiplicity of objectives to performance outcomes, akin to Ethiraj and Levinthal's (2009) computational experiment, but using observational data on actual firms.

3.1 | Organizational objectives and the measurement of the independent variables

The SESAME survey directly solicits answers about the main objectives of the firm. Specifically, it asks the surveyed managers: "Over the last two years, what were the primary objectives in the management of your company?" along eight dimensions: (a) increasing market share, (b) increasing revenues, (c) increasing margins, (d) decreasing costs, (e) increasing return on capital, (f) increasing exports, (g) developing internal competencies, and (h) developing new products. Although these pre-specified objectives inevitably constitute a partial list of the range of objectives an organization may pursue, they cover the most common objectives in for-profit firms and form the basis of our analyses. Furthermore, the questions about whether increasing (or decreasing) performance in a given metric was a primary objective of the firm, squarely map onto the predictions that we set to examine in this study.

The density distribution of a number of organizational objectives over the observation period is depicted in Figure 1. In our working sample, less than 0.5% pursued a single objective (and 0.35% had no objectives). The most frequently pursued number of objectives was three. Although there was variation across time and firms, the sample mean, median, and mode, remained largely stable over the observation period. The most commonly pursued objectives were reducing costs and increasing margins, and the least commonly pursued objectives were

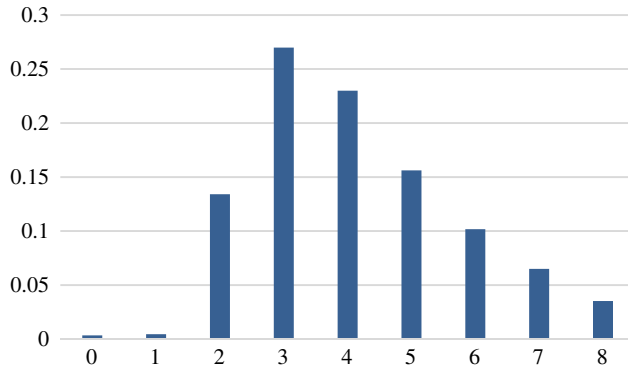

FIGURE 1 The number of organizational objectives in French manufacturing firms, 1999–2004.
Notes: Small and mid-size manufacturing firms based on data from SESAME. Eight surveyed objectives include increasing market share, increasing revenues, increasing margins, decreasing costs, increasing return on capital, increasing exports, developing internal competencies, and developing new products. The vertical axis corresponds to the frequency (as a percentage of observations) over the entire observation period between 1999 and 2004, inclusive. [Color figure can be viewed at wileyonlinelibrary.com]

increasing return on capital and increasing exports. The most common objective configuration was increasing margins and reducing costs, followed by increasing revenues, increasing margins, and reducing costs (see Table 1 for a list of most frequent configurations). Simultaneously pursued objectives included both positively correlated ones (e.g., increasing revenues and increasing margins) and negatively correlated ones (e.g., increasing market share and decreasing costs).

Using these data, we constructed two independent variables corresponding to the two explanatory factors in Prediction 1 and Prediction 2 of the folk theorem, respectively. *Pursued as a primary objective* takes the value of 1 if the firm pursued a given dimension (e.g., increasing market share) as a primary objective, and 0 otherwise. In parallel, *number of other objectives* corresponds to the total number of objectives of the firm in a given year, excluding the focal dimension. As SESAME records objectives in the eight dimensions mentioned above, *number of other objectives* can take an integer value between zero and seven, inclusive.[3]

3.2 | Dependent variables: Performance improvement

As our theory maps the presence of an explicit primary objective in a given dimension (or lack thereof) to performance improvement in that particular dimension, it is necessary to identify corresponding performance metrics and measure them accurately. Fortunately, our data allows us to measure performance in six out of the eight dimensions mentioned above (the two dimensions for which we lack the necessary data are: developing internal competencies and

[3]As we mentioned above, by construction our measurement could underestimate the actual *number of other objectives* pursued by firm. This is because some firms may pursue objectives that are not covered by the eight pre-specified survey items, such as social or environmental objectives. Note that this constitutes a conservative bias because it systematically works against finding support for our prediction.

TABLE 1 Most common objective configurations in French manufacturing firms

Increase market share	Increase revenues	Increase margins	Reduce costs	Increase return on capital	Increase exports	Frequency
		●	●			8.8%
	●	●	●			7.7%
●	●	●	●			6.4%
●	●	●	●		●	4.6%
	●	●				4.0%
●	●	●	●	●	●	4.0%
	●		●			3.9%
●		●	●			3.4%

Notes: The table focuses on six objectives used in the regression analyses and omits two objectives (developing competencies and new products) for which performance outcomes were not measurable by our data. Percentages of firms using a specific configuration are reported in the "Frequency" column.

developing new products). For example, we can measure market share and market share changes with precision because we have the data for both sales decompositions of individual firms and sales in a given industry by all manufacturing firms.

The six performance metrics on which we have relevant data are as follows: market share (measured by focal firm's share of the total industry sales in the core business of the firm), revenues (measured by total pre-tax sales revenue), margins (measured by gross operating margin, calculated as the ratio of gross operating surplus to sales),[4] costs (measured by total operating costs), return on capital (measured by return on invested capital [ROIC], calculated as the ratio of net income to total fixed assets), and exports (measured by export intensity, calculated as the ratio of export revenues to total sales).

Throughout our study, we define markets at the industry level and treat each NAF700 category (roughly equivalent to 4-digit SIC codes) as a separate market. Given that objectives were stated in terms of improvement in SESAME (e.g., "increasing market share"), our performance measures are constructed as a dummy variable, which takes the value of 1 if performance in the focal metric increases compared to the previous year, and 0 otherwise.[5] The binary coding also allows for a meaningful inference in pooled regressions, as metrics significantly differ in their scale and distribution across firms, but an increase from year to year is comparable across organizations.

3.3 | Control variables

We treated as control variables and included in our regressions several conventional factors that can explain heterogeneity in firms' performance and attainment of goals in several dimensions. At the firm-level, we control for *firm size* (measured by the number of employees; scaled by

[4]Gross operating surplus (*excédent brut d'exploitation*) is equal to pre-tax value-added plus subsidies, minus dues and taxes, wages, and social charges. Pre-tax value-added, in return, is calculated as the sum of pre-tax sales revenues, change in stocks of finished goods, and capitalized production, minus the sum of purchase and change in stocks of goods, purchase and change in stocks of raw materials, and other purchases and external expenses.

[5]Note that performance improvement for "decreasing costs" is achieved when there is a decrease compared to the previous year, unlike the other dimensions. We hence coded the variable accordingly.

/1,000 for demonstration of coefficients). Firm size may affect firm performance because larger firms typically have more resources available for allocation (Huber, Sutcliffe, Miller, & Glick, 1993). We also controlled for firm diversity (measured by an entropy of the 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 the total sales of the firm) as well. Broader scope of operations of a firm may hinder the firm's ability to optimize industry specific decisions, but may also help performance when there are potential positive spillovers (such as efficiency gains) across businesses (see Maksimovic & Phillips, 2007). Additionally, we controlled for *firm capital intensity* (measured by fixed-assets-to-sales ratio). Capital intensity represents a firm's operating leverage and is associated with firm risk and performance (Lubatkin & Chatterjee, 1994). Finally, we included a *group affiliated* dummy (which takes the value of 1 if the firm is a member of a group, and 0 otherwise) in all regressions. Group affiliated firms have access to resources beyond those they directly possess though internal capital and labor markets, which may affect their performance (Sengul, Almeida Costa, & Gimeno, 2019). At the industry level, we control for *industry concentration* (measured by four-firm sales concentration) and *industry growth* (measured by the average annual percentage change in industry size, captured by the slope of a three-year log-linear growth model).

We report the summary statistics and bivariate zero-order correlations for the pooled-data in Table 2. In our sample, a typical (median) firm had 75 employees, nearly all of its sales in its core business, low capital intensity (2%), and was affiliated with a group. It operated in a moderately concentrated industry (c4 = 23%) with moderate growth (2.6%). There were no critically collinear variables. Nevertheless, we reran all regressions by dropping moderately correlated control variables (e.g., firm size, group affiliation), one-by-one and in combinations. Regression results were qualitatively insensitive to inclusion/exclusion of these variables.

3.4 | Empirical approach and estimation

In the empirical tests, we proceeded in a stepwise fashion. Our first prediction was that the probability of meeting an organizational objective on any given performance metric is higher when such enhancement is explicitly stated as an organizational goal. To test this, we estimated a pooled regression model with firm-year-objective as the unit of analysis:

$$\Pr(\pi_{i,k,t+1} - \pi_{i,k,t} > 0) = f(G_{i,k,t}, Z_{i,k,t}) \quad (1)$$

where the dependent variable is a binary measure of a firm k realizing an increase on a given performance metric i in year $t + 1$. G is an indicator variable taking a value of 1 if increasing the focal metric level was stated as an organizational goal, and 0 otherwise; and Z is a vector of control variables, including firm- and industry-level covariates, along with year and performance-metric fixed-effects. Note that our data captures the presence of objectives in the 2 years ($t - 1$ and t) preceding the measurement of the performance improvement (from t to $t + 1$). This is ideal because the impact of objectives on performance is unlikely to be contemporaneous.

Although levels of performance metrics are not directly comparable across dimensions, the binary specification of our dependent variable (corresponding to the way objectives are framed in our data) allows such a pooled model to be interpretable. Given the nature of our dependent variable, we estimate the probability of meeting the focal objective using random effects logit

TABLE 2 Means, *SD*, and zero-order correlations

Variable		Mean	*SD*	1	2	3	4	5	6
	Performance increased:								
1.	• Market share	.521	.500						
2.	• Revenues	.481	.500	.456					
3.	• Margins	.469	.499	.184	.195				
4.	• Costs	.501	.500	−.356	−.751	−.034			
5.	• Return on capital	.454	.498	.241	.245	.602	−.076		
6.	• Exports	.449	.497	.047	.040	.015	−.021	.027	
7.	Pursued as a primary objective	.528	.499	.000	.008	.004	−.007	−.001	.001
8.	Number of other objectives	3.602	1.508	−.002	.020	.010	−.025	−.005	−.006
9.	Firm size	.129	.189	.009	.045	−.022	−.038	−.006	.038
10.	Firm diversity	.247	.334	−.061	.029	.022	−.019	.019	.027
11.	Firm capital intensity	.035	.045	.035	.038	−.044	−.049	−.123	−.004
12.	Group affiliation	.642	.480	.007	.028	.009	−.008	−.017	.071
13.	Industry concentration	.286	.185	.004	−.017	.009	.026	−.002	.048
14.	Industry growth	.024	.074	−.150	−.010	.030	.012	.008	−.024

Variable				7	8	9	10	11	12	13
7.	Pursued as a primary objective	.528	.499							
8.	Number of other objectives	3.602	1.508	.049						
9.	Firm size	.129	.189	.017	.027					
10.	Firm diversity	.247	.334	.002	−.003	.177				
11.	Firm capital intensity	.035	.045	.001	.002	.057	−.049			
12.	Group affiliation	.642	.480	.013	.012	.247	.105	.017		
13.	Industry concentration	.286	.185	.014	.038	.177	.093	−.006	.117	
14.	Industry growth	.024	.074	.001	−.001	.044	.028	.058	.040	−.075

models with robust *SE* clustered on firms (see Hoetker, 2007).[6] To explore heterogeneity in the impact of pursuit of multiple objectives on performance, we also estimate metric-specific effects and run separate regressions for each of the performance metrics. In these regressions, we use the same set of control variables as in the pooled one with an exception of metric fixed-effects.

In order to test the second prediction, that the probability of meeting an organizational objective on any given performance metric decreases with the number of *other* simultaneously pursued objectives, we estimate the following model:

[6]Given that our data on objectives is largely cross-sectional, estimating models with firm fixed effects severely reduces the number of degrees of freedom. We hence do not report such models as main specifications. However, as we report in the online Appendix, Supporting Information, the pooled regressions using fixed effects logit models and linear probability models (with unconditional fixed effects) yield consistent results.

$$\Pr(\pi_{i,k,t+1} - \pi_{i,k,t} > 0 \mid G_{i,k,t} = 1) = f\left(\sum_{j \neq i} G_{j,k,t}, Z_{i,k,t}\right) \quad (2)$$

Here, our dependent variable is the probability of increasing a given performance metric, conditional on the objective being observed. Our core independent variable is the count on all *other* (compared to *i*) simultaneously followed objectives. As before, we first run a pooled random effects logit model with all six objective-firm-year observations entered in the same regression, then estimate the same linear probability model for each performance dimension separately. Note that we could have simply included the number of other objectives alongside $G_{i,\,k,\,t}$ in the model (1) above. Although the results of those models support our prediction, such an econometric structure would make it impossible to reliably interpret the estimated effect. This is because the coefficient on the number of other objectives would represent an average effect, independent of whether the focal metric was set as an objective or not, thus confounding the interpretation of results. We have no theoretical prediction about the independent effect of the number of other objectives on any performance measure in the absence of a focal objective, nor do we predict the relative effect under situations of the objective being set or not being set. We are therefore careful to explore the effect of goal multidimensionality by restricting our data to cases when the objective on a focal metric is in place.

4 | RESULTS

The regression results reported in Table 3 are in line with our first prediction: the coefficient of pursuing a focal objective (model 2) is positive ($z = 4.1$). As predicted, the probability of meeting an organizational objective on any given performance metric is higher when such enhancement is explicitly stated as an organizational goal. The results are substantively significant as well. Holding all other variables at their mean values, pursuing a given dimension as a primary objective is associated with a 9.5 percentage-point increase in the probability of increasing performance in that dimension. Benchmarked against the average probability of 32.5%, this effect is substantial.

As these average effects could mask important objective-level differences, we then estimated the main model for each objective separately to check whether this relationship holds across all objectives. As in model 2, the coefficient of pursuing a given dimension as a primary objective was positive in all regressions (models 3–8). Furthermore, this coefficient, with the exception of increasing return on capital (model 7, $z = 0.78$), had relatively high z-values ranging from 1.42 to 4.84. Increasing market share, revenues, and exports had the highest z-statistic values. Our interpretation of these results is that the link between explicit objectives and performance is relatively universal, but weaker for objectives that are inherently complex and more closely associated with overall (global) performance, hence less precise as a standalone metric. This finding echoes similar patterns documented for individuals in goal setting theory (see Locke & Latham, 2002).

In Table 4, we turn to a test of our second prediction, that the probability of meeting an organizational objective on any given performance metric decreases with the number of *other* simultaneously pursued goals. We found support for this association as well: the coefficient on the variable *number of other objectives* (model 2) is negative ($z = -1.83$), as predicted. In other words, a firm is less likely to meet an increasing-revenues objective, for example, when

TABLE 3 Regressions explaining the probability of performance increase in French manufacturing firms

			By individual performance metric:					
			Increasing market share	Increasing revenues	Increasing margins	Reducing costs	Increasing return on capital	Increasing exports
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Pursued as a primary objective		.095	.098	.138	.081	.114	.045	.279
		(.023)	(.051)	(.060)	(.057)	(.070)	(.061)	(.058)
Firm size	.006	.009	.224	.274	−.363	−.283	−.066	.162
	(.065)	(.065)	(.139)	(.167)	(.145)	(.165)	(.151)	(.146)
Firm diversity	−.003	−.002	−.361	.185	.136	−.128	.072	.100
	(.035)	(.035)	(.082)	(.090)	(.078)	(.091)	(.077)	(.086)
Firm capital intensity	−1.093	−1.093	1.686	2.604	−1.993	−3.445	−6.318	−.172
	(.252)	(.253)	(.595)	(.707)	(.590)	(.760)	(.747)	(.609)
Group affiliation	.083	.082	.056	.072	.040	.031	.063	.269
	(.025)	(.025)	(.055)	(.063)	(.055)	(.065)	(.055)	(.060)
Industry concentration	.073	.071	−.092	−.264	.145	.357	−.054	.360
	(.062)	(.062)	(.142)	(.160)	(.134)	(.165)	(.139)	(.151)
Industry growth	−.755	−.758	−5.697	2.591	.751	−2.633	.274	−.862
	(.186)	(.187)	(.650)	(.479)	(.393)	(.496)	(.380)	(.432)
Objective fixed-effects	Yes	Yes	No	No	No	No	No	No
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	37,994	37,994	6,324	6,324	6,324	6,324	6,324	6,324
Wald χ^2	187.74	201.31	118.10	200.53	37.72	359.39	86.77	71.15

Notes: Robust *SE* clustered by firm, in parentheses; constant included in all models.

TABLE 4 Regressions explaining the probability of performance increase in French manufacturing firms, conditional on pursuing an objective

			By individual performance metric:					
			Increasing market share	Increasing revenues	Increasing margins	Reducing costs	Increasing return on capital	Increasing exports
Variable	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
Number of other objectives		−.015	−.035	.013	.003	−.043	−.003	−.078
		(.008)	(.023)	(.022)	(.018)	(.021)	(.030)	(.027)
Firm size	.005	.009	.310	.376	−.355	−.384	−.374	.514
	(.068)	(.068)	(.193)	(.211)	(.163)	(.195)	(.225)	(.259)
Firm diversity	−.030	−.031	−.378	.200	.103	−.100	.116	−.088
	(.043)	(.043)	(.122)	(.113)	(.094)	(.105)	(.157)	(.132)
Firm capital intensity	−1.204	−1.199	.084	2.170	−2.495	−3.267	−6.177	−.569
	(.303)	(.302)	(.872)	(.866)	(.721)	(.857)	(1.499)	(.942)
Group affiliation	.067	.067	.118	.057	.082	−.006	.081	.117
	(.030)	(.030)	(.083)	(.080)	(.064)	(.075)	(.121)	(.096)
Industry concentration	.052	.058	−.244	−.173	.201	.379	.234	.038
	(.076)	(.076)	(.210)	(.201)	(.161)	(.189)	(.289)	(.238)
Industry growth	−.686	−.683	−5.293	2.078	.632	−2.320	−.603	−.436
	(.237)	(.236)	(1.056)	(.589)	(.456)	(.595)	(.818)	(.623)
Objective fixed-effects	Yes	Yes	No	No	No	No	No	No
Year fixed-effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	20,017	20,017	3,049	3,977	4,582	4,801	1,456	2,152
Wald χ^2	79.56	82.48	49.38	127.87	30.41	258.37	22.47	21.49

Notes: Robust *SE* clustered by firm, in parentheses; constant included in all models.

increasing revenues *and* market share *and* exports are all pursued as objectives, compared to a situation where increasing revenues *and* market share are the sole objectives pursued. In terms of substantial significance, holding all other variables at their mean values, the probability of increasing performance on a focal dimension decreases by 1.5 percentage-points with each additional objective. For an average firm in our data, the cumulative loss was about 5 percentage-points. This implies that an average firm loses about half of its gain in setting an objective in a given dimension due to multiplicity of objectives.

Similar to the procedure used in testing Prediction 1, we then estimated the main model for each objective separately to check whether this relationship holds across performance metrics. We found more heterogeneity across objectives in testing our second prediction, compared to the first one. The coefficient of *number of other objectives* was negative for increasing market share, decreasing costs, and increasing exports (models 3, 6, and 8, smallest absolute value of *z*-statistic = 1.52). For the other three goals—increasing ROIC, revenues, and margins—the effect of the number of other simultaneously pursued objectives was negligible (largest absolute value of z-statistic = 0.59).

Overall, the results provide general support for both predictions, but also show a significant level of heterogeneity across different types of organizational goals. At the aggregate level, the likelihood of increased performance on any given performance dimension increases when it is set as a goal but decreases with the number of other concurrently pursued goals. At an individual metric level, we find that both of these predictions hold for organizations striving to build market share, decrease costs, and increase their exports. Increasing revenues and margins seem to be affected by goal setting but do not suffer from the multiplicity of objectives. Finally, return on capital does not follow either of our predictions—an interesting data pattern to which we return in our analysis of mechanisms below.

We acknowledge that given our data structure and the feasible models of estimation described above, the results are correlational in nature and our ability to establish a causal relationship is very limited. In general, the link between organizational objectives and outcomes is notoriously difficult to identify outside a lab as firms are likely to select objectives strategically, and contingent on their current and expected performance. To alleviate these concerns, we executed a number of supplementary analyses. Among others, we test the robustness of our results (a) in a subsample of firms for which we observe repeated observations over time, (b) to alternative lag structures of our models, and (c) to alternative empirical specifications including a conditional logit and unconditional linear probability models. Finally, we also rule out an alternative explanation that managers may set goals strategically when they expect performance improvements on these dimensions. A full description of these tests is reported in an online Appendix, Supporting Information.

5 | HETEROGENEITY ACROSS FIRMS

In the previous section we show an overall support for the prediction that firms suffer from the penalty imposed by multiplicity objectives: as the number of other objectives increases, the probability of meeting the focal goal diminishes. A natural follow-up question to ask is if some firms are spared this penalty? Such heterogeneity could arise as a result of at least two mechanisms. First, some types of firms—for example, simple versus complex ones—may be, by their very nature, comparatively less affected by multiple goals. This would mean that firm type could act as a buffer against "confusion and lack of purpose." Second, independent of their type,

firms' sensitivity to multiple objectives may vary by their organization design choices. This would mean that firms may strategically design their structures and processes in order to lessen the penalty that we document above. In this section we explore these two mechanisms in turn.

5.1 | Organization types and multiple goals

It is possible that the problem of multiple objectives may be particularly pronounced for some types of firms, while other firms may be comparatively less affected. For example, if multiplicity of objectives complicates coordination in firms, "it is intuitive that the challenges will be amplified in complex organizations" (Ethiraj & Levinthal, 2009: 11). Accordingly, we investigate the differential performance impact of pursuit of multiple goals across firms with different organizational forms and structures.

Our approach resonates with Ethiraj and Levinthal's (2009) analyses of behavioral strategies. However, as directly mapping NK model parameters onto empirical measures can be prohibitively difficult, we rely on proxies that should correlate with constructs of interest within the confines of our data. One can argue that the coordination problems (related to coupling structure) and interdependence of activities (related to complexity of organizations) are likely to increase with the dispersion, diversity, and control over organizational activities (Srikanth & Puranam, 2014). To account for these factors, we leverage firm-level information on the level of operational dispersion, diversity, and outsourcing capacity to third parties, respectively, from our data.

Empirically, we re-estimate Model 2 reported in Table 4 by including the *number of establishments* (measured as a count of independent units that constitute the focal firm, ranging from 1 to 92 with a mean of 2 and a modal firm being a single-establishment entity), *diversity* (measured with the entropy score defined earlier), and *outsourcing* (measured as the percentage of production capacity not coming from wholly-owned establishments, ranging from 0 to 100% with a mean of 20%) independently, as well as interaction terms with the *number of other objectives*. In these regressions, coefficients of all three interaction terms were negative — indicating a possibly increasing penalty of goal multiplicity as organizations grow more complex — but had absolute levels of z-values all smaller than 0.5. These results are aligned with Ethiraj and Levinthal's (2009) computational experiments that also predict a surprising insensitivity of the relationship between goal multiplicity and performance outcomes to organizational types. We too conclude that multiple objectives pose a persistent challenge across a wide range of organizational forms and structures.

5.2 | Organization design choices and multiple goals

It is also possible that, independent of their type, firms may vary in their ability to manage the problem associated with multiple objectives. It would be naïve to assume that all multi-objective firms (i.e., virtually all firms from our sample) are condemned to failure resulting from a lack of purpose and that organizations cannot strategically act on this problem. Given that multiple performance goals present challenges in coordination and goal alignment, firms' organization design choices are likely to be particularly consequential (Cyert & March, 1963; Kerr, 1975; Rivkin & Siggelkow, 2003). Accordingly, we ask if firms can

alleviate some of the penalty associated with a simultaneous pursuit of multiple objectives through their organization design.[7]

We hence explore design choices that may affect the willingness and ability of organizational members to resolve tradeoffs associated with goal multiplicity for a subset of our firms for which the necessary data is available. We focus on the design elements corresponding to two relevant challenges: coordination and interest alignment. We proxy for coordination efforts with the frequency of face-to-face meetings at the C-suit level and the adoption of information and communication technology (ICT). For interest alignment, we investigate structure of individual-level incentives for the top management team of the focal firm.

Direct coordination efforts are important because when different departments or individuals independently focus on often-conflicting goals and there is no coordinated action to resolve the resulting tradeoffs, the organization can more readily stall and fall victim to the "confusion and lack of purpose" that Jensen (2002) predicts. This implies that as firms seek to more effectively meet an increasing number of objectives, they may actively pursue design choices that facilitate coordination. For example, research focusing on dual-purpose firms—organizations that simultaneously pursue social and financial goals—indicates that coordination challenges resulting from the need to attain both of these goals may be lessened through creation of "spaces of negotiation" where employees can discuss economic/social tensions and tradeoffs and work together to understand and resolve them (Battilana et al., 2015). Similarly, the need for coordination also increases with organizational complexity (Zhou, 2013) and an increasing number of goals makes the structure of interdependencies more complex. All in all, organization design choices that increase the level and effectiveness of direct coordination should be beneficial for firms that deal with multiple objectives. Empirically, we explore the level of direct coordination by looking at the frequency of face-to-face meetings of the executive board of the focal company, as reported in SESAME. On average, these meetings take place two to three times a year in our sample, but the frequency (in very rare cases) reaches a weekly level. We expect that more frequent meetings of high-level decision makers in organizations resolve some of the coordination issues and hence reduce the negative impact of goal multiplicity on the probability of meeting organizational objectives.

The second factor that could affect coordination efforts within firms pursuing multiple objectives is ICT. Paradoxically, we expect that ICT investments would exacerbate the negative impact of the number of other objectives on the probability of meeting the focal goal. This is because increased reliance on ICT can often be used as a means of increasing the centralization of decision-making, thus inhibiting creation of spaces of negotiations and other forms of socialized coordination. A major reason for delegation of decision making down the organizational hierarchy is to enable decisions to be taken by those with better information, even if their preferences may differ from those of the top management (Jensen & Meckling, 1992). By implication, greater information flow to the top management through ICT may result in more centralization of decision making (cf. Bloom, Garicano, Sadun, & Van Reenen, 2004). Consequently, increased reliance on ICT is likely to cement rather than help resolve tradeoffs.[8] We

[7]Taking a different approach, Ethiraj and Levinthal (2009) study three behavioral strategies that firms can employ in dealing with coordination problems imposed by multiple goals: spatial differentiation, temporal differentiation, and goal myopia. We cannot explore these strategies in our data.

[8]ICT influences both coordination and control within and between firms (see Rangan & Sengul, 2009 for an overview). When ICT reduces transaction costs, it enables more decentralized value creation (i.e., arms-length exchange) and leads to smaller firms (Brynjolfsson, Malone, Gurbaxani, & Kambil, 1994). When ICT makes internal monitoring more feasible, it enables better asset utilization, favoring intrafirm transactions, and leads to larger firms (Baker &

measure ICT investment as the total telecommunications and software expenditures per employee. In our sample, an average firm was spending €480/employee/year in this domain.

The third and final factor that we consider is the structure of organizational incentives. The theoretical impact of the incentive structure on managing multiple goals is not straightforward. On the one hand, the multitask principal-agent literature shows that when goals are weakly (or negatively) correlated, or unevenly measurable, high-powered incentives may actually prove detrimental to the organization (Holmstrom & Milgrom, 1991). Indeed, one of the key insights from this line of work is that firms may want to mute the strength of incentives when employees can strategically allocate effort across multiple tasks. On the other hand, excluding a given metric from the incentive system (by, for example, offering rewards on only one dimension) or entirely abandoning performance-contingent incentive contracts is likely to lead to an even greater effort substitution effect at an individual level. At an organizational level, explicit performance incentives are likely to align actions of multiple decision makers, motivate employees to resolve tradeoffs, and as a result, decrease the probability of stalemates in decision making. Consistent with this notion, Flammer, Hong, and Minor (2019) show that including explicit CSR-related incentives in executive compensation packages can help organizations achieve both higher levels of compliance and greater long-term financial firm value. We thus expect organizations using performance-contingent incentive contracts to suffer less from the penalty associated with goal multiplicity. Unfortunately, in our data we cannot observe a direct match between variable compensation and each of the studied objectives. We therefore rely on a dummy variable taking the value of 1 if the focal firm uses pay-for-performance incentives for the top management team, and 0 otherwise, as a crude proxy. 42% of firms for which we have the incentives data employ pay that is conditional on goal achievement.[9]

Our empirical approach to investigating the moderating effect of organizational design choices on the link between goal multiplicity and performance mirrors that of the previous section. In other words, we re-ran all analyses by introducing our focal design measure, as well as its interaction effect, with the number of other objectives that the focal firm pursues. We present the analyses of the marginal effects (holding all other variables at their means) of the mechanisms of interest in a graphical form in Figure 2.

With respect to the design choices that we explore, three observations are in order. First, we find that the frequency of executive committee meetings decreases the negative effect of the number of other objectives on the probability of meeting the focal objective. A typical firm no longer suffers from a performance discount associated with goal multiplicity if such meetings

Hubbard, 2004). Thus, it is also theoretically feasible that greater investments in ICT could be associated with increased decentralization, rather than increased centralization, of decision making. When this effect dominates, we would predict the ICT intensity to alleviate the problems associated with goal multiplicity. Our data cannot distinguish between different types of technologies (unlike, for example, Bloom et al., 2004); by the structure of our data we capture the net effect of ICT investment inside the firm.

[9]Such binary measurement of pay-for-performance is not uncommon in studies using survey data (cf. Hong et al., 2019). Within the confines of our data, our prediction is that firms' use of explicit pay-for-performance incentives will be negatively correlated with the penalty for multiplicity of objectives. However, if more fine-grained data were available, consistent with the multi-tasking literature and Battilana, Obloj, Pache, and Sengul (2020) we would have expected moderate-powered (rather than high-powered) incentives to be most efficient in helping alleviate this penalty.

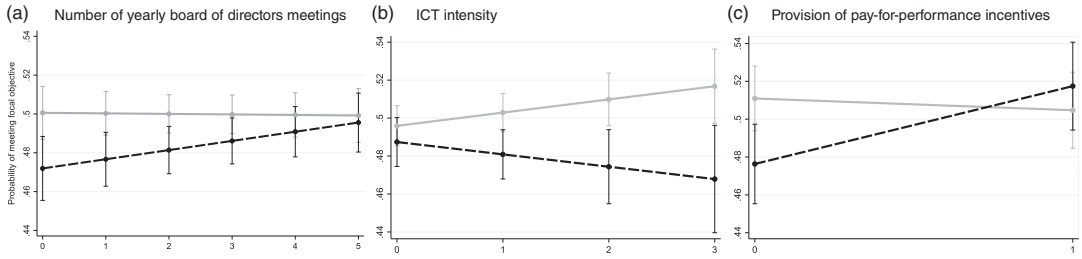

FIGURE 2 Mitigating influence of organization design elements.

Notes: Panel (a): Results based on a logit that adds *Number of (yearly board of directors) meetings* and its interaction with *Number of other objectives* as independent variables to Model 2 in Table 4; $N = 20{,}013$; *Number of meetings* had a mean of 2.46, median of 2, and s.d. of 2.76. Panel (b): Results based on a logit that adds *ICT* (*ln*) and its interaction with *Number of other objectives* as independent variables to Model 2 in Table 4; $N = 20{,}017$; *ICT* (*ln*) had a mean of 0.53, median of 0.04, and *SD* of 1.36. Panel (c): Results based on a logit that adds *Pay-for-performance incentives* and its interaction with *Number of other objectives* as independent variables to Model 2 in Table 4; $N = 11{,}880$; *Pay-for-performance incentives* had a mean of 0.44, median of 0, and *SD* of 0.50. In all models, robust *SE* were clustered by firm. Predictive margins with 95% confidence intervals are plotted. Solid line: Number of other objectives = 2. Dashed line: Number of other objectives = 6.

happen at least 6 times per year. This condition, however, is met by only roughly 7% of firms in our sample. In a supplementary analysis, we explored the contingent value of such meetings: it is possible that bringing together people who manage distinct activities (with no or low interdependence) and attend to different goals is likely of little help in solving coordination issues associated with management of multiple-goals, whereas bringing people who manage interdependent activities and attend to overlapping set of objectives is likely to be highly beneficial. To check this possibility within the confines of our data, we ran split-sample regressions comparing standalone companies that operate in a single business with diversified subsidiaries of groups. We simply assume that, on average, organizational separation of the pursuit of multiple goals is more likely present in the latter group than the former. Giving indirect support to these expectations, the mitigating effect of the coordination meeting was supported for both groups of firms, but the effect size was more than twice as large for the standalone companies that operate in a single business compared to diversified subsidiaries of groups.

Second, we find that investments in ICT exacerbate the problems with goal multiplicity. Although the main effect of ICT is positive, indicating that the probability of meeting the focal goal increases with those investments, interaction with the number of other objectives is negative. We interpret this result as showing that although centralization due to technology is beneficial for tracking and meeting goals, reliance on this technology and the associated top-down decision making process may exacerbate the problem when multiple objectives are followed.

Finally, as expected, the presence of pay-for-performance incentives for the top management team is associated with a lower penalty of goal multiplicity. Our results indicate that such a pay structure is particularly beneficial for organizations pursuing a large number of goals. However, the results have to be treated with caution, as our measure of performance-based incentives does not allow us to capture the actual sensitivity of pay to performance or to map from incentives to a particular set of goals.

6 | TRADEOFFS: CAN TWO OBJECTIVES BE BETTER THAN ONE (OR NONE)?

Given the intuitive difficulty caused by following multiple (often weakly or negatively correlated) objectives and our findings, a natural subsequent question to ask is: why do we observe virtually no single-objective firms in the French manufacturing sector? One possible explanation is that the pursuit of multiple goals provides organizations with some benefits that could offset or alleviate "confusion and lack of purpose." While a full investigation of such benefits is well beyond the scope of this article, in this section we focus on one channel through which such an advantage can be manifested.

Our conjecture is that firms, independent of the actual performance levels, may benefit from increasing alignment in performance across multiple metrics—an outcome of decision makers being encouraged to consciously evaluate tradeoffs as they pursue more than one goal. Take a firm that tries to simultaneously do well, both financially and socially, as an example. By focusing on resolving a possible tradeoff between these two objectives the focal firm may discover a *modus operandi* that allows aligning its social initiatives with financial health of the firm (Flammer, 2015). Such a path may not be discovered unless managers have been forced to maximize over both of these performance dimensions. In other words, and following our earlier discussion about the role of goals in both structuring evaluation and affecting the generation of alternatives (Simon, 1964), the role of multiple goals may manifest itself via discovery of new courses of action that, at least partially, alleviate the tradeoffs.

This would mean that we should study the impact of the simultaneous pursuit of multiple objectives, not only on the performance levels of particular metrics but also on the extent to which performance levels co-vary across these various objectives. Of course, if we were in the first-best world, then this question would make little sense, as in equilibrium we would observe only one goal being followed. Given that this is not descriptively the case, we seek to understand if the correlation between performance metrics, independent of the actual levels of achieved performance, increases for those firms that explicitly follow them as objectives.

Intuitively, there may be several reasons why we should empirically observe this pattern. For example, imagine that at any given point in time, a manager can choose either of the three alternative courses of action denoted by: e_1, e_2, or e_3. e_1 aims primarily at enhancing performance metric A while having a detrimental effect on performance metric B; e_2 positively contributes to B but has a negative impact on A; and finally e_3 has a small but positive impact on both A and B. The observed correlation between A and B is likely to be negative when A or B are the single maximand of managers. The decision rule will unambiguously lead to either e_1 or e_2 being implemented. However, when both A and B are being pursued, a likely more frequent choice of e_3 as a course of action would result in increasing the correlation between these two metrics. This is not to say that a manager pursuing both A and B will always choose e_3. Indeed, such structure of objectives leads to an opaque decision rule, but most certainly increases the chances that e_3 will be implemented. Similarly, if a manager chooses to do nothing—as Jensen (2002) implies—the observed correlation between A and B is likely to be higher compared to the situation when either e_1 or e_2 were chosen. Finally, the process of discovery of viable solutions may be sequential. In this case, managers that were pursuing either A *or* B as goals would not have considered action e_3 at all. In contrast, managers simultaneously pursuing A *and* B would have discovered e_3 in the process.

To make this example more concrete, consider a work integration social enterprise—a firm that offers temporary work opportunities to the structurally unemployed to enhance their human capital and, ultimately and help them find long-term employment (Battilana

et al., 2015). Assume that this organization faces a choice among three activities: increasing automation at the expense of hiring more beneficiaries (e_1); providing general human capital training, such as crafting CVs or job application materials (e_2); and providing hands-on job training related to the operations of the focal organization, such as dismantling and fixing refrigerators (e_3). Consider also that the performance metrics correspond to financial performance (A) and social performance (B). Our argument is that e_3 would be more likely to be considered and followed by this organization when it simultaneously pursues A and B instead of either A or B.

Taken together, these stylized examples highlight a salient point: the presence of multiple objectives prompts managers to actively consider compensatory tradeoffs and act accordingly, although such tradeoffs are often impossible to specify with precision. This intuition leads us to formulate our third prediction:

Observed correlation between performance outcomes in metrics A and B will be greater for firms simultaneously pursuing both A and B as objectives, compared to other firms.

To provide some corroborating evidence, we checked whether the pairwise correlations between any two performance metrics are greater (i.e., more positive or less negative) when these two performance dimensions are pursued as priority objectives, compared to a situation when either one or none of the objectives are pursued. As should be expected, there is a great deal of variation across pairs of objectives in terms of their co-occurrence as explicit objectives in French manufacturing firms. For example, the most frequent pair-wise coupling (reducing costs and increasing margins) was jointly pursued by half of the firms in our sample. The least frequent pair-wise coupling (increasing return on capital and increasing exports) was pursued in less than 8% of the firms. Consistent with prior work, firms in our sample simultaneously pursued both positively and negatively correlated goals (cf. Meyer & Gupta, 1994). For example, increasing market share and decreasing costs—a negatively correlated pair of goals—was jointly pursued by over 30% of firms in our sample while almost 40% of firms simultaneously pursued a highly positively correlated pair of objectives: increasing revenues and margins.

Our dependent variable in this set of analyses is the firm-specific Pearson's correlation coefficient between all possible pairs of objectives in a five-year window (from −2 years to +2 years) surrounding the focal year. Given prohibitively high correlation levels between costs and revenues in our cross-section, we excluded increasing revenues from these analyses. The remaining five objectives gave us a total of 10 unique pairs of metrics for which we calculated the correlation values. We then regressed this dependent variable on the same set of control variables discussed earlier, as well as an indicator variable taking on a value of 1 if both of the focal objectives were concurrently pursued and 0 otherwise. Fixed effects include dummies for pairs of objectives, in addition to those for year, industry (model 1) and firm (model 2).

Table 5 reports abbreviated results of these analyses. In line with our prediction, we find that, on average, the firm-specific correlation coefficient between two performance metrics increases by 0.028 when both are pursued as organizational goals. This represents a 38% increase compared to the baseline correlation level. Table 6 reports the main regression coefficients of interest from the same regression as in Model 1 but estimated separately for each pair of objectives in our sample. For most pairs of objectives, we find that correlation increases when both metrics correspond to the pursued goals. This effect is especially pronounced for the combination of simultaneous

TABLE 5 Regressions explaining firm-specific pairwise correlations between pairs of performance metrics in French manufacturing firms (abbreviated results)

Variable	1	2
Both objectives pursued	.028	.031
	(.008)	(.008)
Controls	Yes	Yes
Objectives pair fixed-effects	Yes	Yes
Industry fixed-effects	Yes	No
Firm fixed-effects	No	Yes
Year fixed-effects	Yes	Yes
N	33,902	33,902
R^2	.16	.11

Notes: Total number of pairs of performance metrics = 10; OLS estimates, robust *SE* clustered by firm in parentheses.

TABLE 6 Coefficients from regressions explaining firm-specific pairwise correlations between pairs of performance metrics in French manufacturing firms (by objective pair)

Increasing market share	Increasing margins	Reducing costs	Increasing return on capital	Increasing exports	
—	.05	.00	-.01	.06	**Increasing market share**
	(.02)	(.02)	(.03)	(.03)	
	—	.05	.02	.05	**Increasing margins**
		(.02)	(.03)	(.02)	
		—	.00	.02	**Reducing costs**
			(.01)	(.02)	
			—	-.05	**Increasing return on capital**
				(.04)	
				—	**Increasing exports**

Notes: The table reports coefficients on variable "both objectives pursued" in individual regressions ran for pairs of performance metrics; specification and control variables as in Table 5, objective pair fixed-effects omitted; robust *SE* in parentheses.

pursuit of market share and margins, cost efficiency and margins, market share and exports, and margins and exports. The only objective where we see no correlational patterns when coupled with any of the other goals is return on capital. This, again, is consistent with our earlier analyses, as return on capital was the only metric that was insensitive to setting an objective and to the number of other objectives being followed simultaneously.[10] Jointly, these results imply that

[10]We also checked if the cosine similarity between vectorial representations of performance metrics increases when both metrics are jointly pursued as goals. The results are, again, aligned with prior analyses.

the objectives of a firm are indeed "a series of more-or-less independent constraints imposed on the organization" (Cyert & March, 1963: 50) and that presence of multiple explicit objectives forces firms to resolve compensatory tradeoffs between varying goals. The results also indicate that some objectives (such as return on capital) may be too complex to escape these general patterns and should be studied more in depth in their own right.

These findings have important implications for at least two strands of literature and could potentially be used to fruitfully bridge them. First, the work on ambidextrous organizations has explored when firms are apt at reconciling "internal tensions and conflicting demands in their task environments" (Raisch & Birkinshaw, 2008: 375). This literature recognizes three distinct paths to ambidexterity: sequential, structural, and contextual (O'Reilly & Tushman, 2013). In particular, both sequential and structural approaches suggest an exclusive focus on one of the goals either in a given period of time or by autonomous decision makers. This theoretical approach is echoed in Ethiraj and Levinthal's (2009) three behavioral strategies (spatial, temporal, myopia) that could be used to cope with the problem of multiple objectives. Our findings suggest an alternative path: simultaneous attention to conflicting goals may result in the tensions themselves being reduced over time. If true, then our results imply that the problem of multiple goals is likely to be highly influenced by past choices of goals and should be treated by managers as a dynamic process rather than an engineering exercise. In parallel, our findings can also inform the growing debate on the simultaneous attention to societal and economic objectives in firms (see Battilana & Lee, 2014 for a review). One of the distinguishing features of this work is that it tends to assume that tradeoffs are either inherently present or focus on the (rare) cases when win-win strategies are available. Again, our study suggests a more dynamic approach to concurrent pursuit of these goals and indicates that tradeoffs may be endogenous to organizational goal setting choices.

7 | DISCUSSION AND CONCLUSIONS

In this study, we provide a first empirical test of the performance consequences of a simultaneous pursuit of multiple organizational objectives using observational data on actual firms. The results give support to what we call "the folk theorem of multiple objectives" in a sample of French manufacturing firms: performance increase on any given metric is more likely when it is pursued as an organizational objective, but it becomes less likely with the higher number of other simultaneously pursued performance objectives. We also found that the average performance on any two dimensions co-vary more closely when the firm simultaneously pursues both as primary objectives, providing one possible justification to the pursuit of multiple objectives.

Interestingly, our predictions were not fully supported for all objectives. Revenues and margins benefit from being pursued as explicit objectives (prediction 1) but do not seem to suffer from the penalty imposed by the number of other objectives (prediction 2). Our interpretation is that these two goals have a comparatively lower level of interdependence with other goals. For such objectives, managerial "confusion" is likely to be least concerning. In parallel, neither prediction 1 nor prediction 2 was supported for return on capital. Setting an objective for increasing return on capital imposed, however, a cost on other performance dimensions by increasing the total number of other objectives pursued. Our interpretation of this result is that return on capital is possibly too general to give resource allocation decisions a clear direction

and too complicated to be directly influenced by managerial action.[11] Indeed, increase in global performance (i.e., average over all metrics) was most highly correlated with increase in return on capital. Although we are not able to assess it empirically within the confines of our data, this result raises some questions about the effectiveness of total value maximization proposed by Jensen (2002) as *the* organizational objective.

There was heterogeneity across firms as well. Although the differences in terms of organizational interdependencies—at least, in terms of proxies we used; namely, operational dispersion, diversity, and outsourcing—were inconsequential, the differences in terms of organization design had a substantial impact. Firms that emphasized coordination meetings of executives and pay-for-performance incentives were more capable of navigating goal multiplicity. It is also possible that, pending further investigation, some firms are more capable of managing compensatory tradeoffs than others across the board.

7.1 | Implications for research

Taken together, these results have important implications for students of organizations. First, the solution to the "performance problem" may be that of separation rather than aggregation. One of the core difficulties faced by a researcher is that "coordination and control in organizations are best achieved through multiple, uncorrelated, and changing performance indicators that render it difficult to know exactly what performance is" (Meyer & Gupta, 1994: 311). One approach is to look at average performance across all pursued objectives. A drawback of this approach is that it imposes an aggregation rule and compensatory tradeoffs and hence, as Ethiraj and Levinthal (2009) acknowledge, is at odds with the behavioral assumption that managers are not able to integrate across goals. In this article, we took an alternative approach and treated performance on each of the objectives as independent objects of interest. Therefore, we studied how performance is affected by the fact that focal metric is an organizational goal and how it is affected by the nature and number of other simultaneously pursued objectives. We believe that the results point to an important avenue for future research that could fruitfully focus more on directly embracing objective-level heterogeneity as an important factor in predicting firm actions and subsequent outcomes.

Second, the examination of organizational responses to multiplicity of objectives needs to be more nuanced. A number of theoretical studies (Cohen, 1984; Ethiraj & Levinthal, 2009; also see Siggelkow & Rivkin, 2009) argue that firms may benefit from temporal changes to their structures, focus on objectives, or search patterns. This is also echoed in the literature on ambidextrous organizations, which advocates temporal and structural separation of the pursuit of

[11]There are two objectives that we were not able to measure performance outcomes for: development of internal competencies and development of new products. The effort-reward link is likely to be weaker (or more uncertain) for these two objectives, as it would be for complex objectives (e.g., return on capital). However, the underlying reasons differ. Whereas complex objectives suffer from "manageability" (i.e., the cause-effect relationship) but the relevant outcomes are easily quantifiable, development objectives are relatively more manageable (e.g., allocation of more resources to training is likely to help in the process of development of new capabilities) but relatively harder to quantify (e.g., it is hard to measure the effectiveness of capability development). As a result, we would expect a large measurement error associated with the development objectives. Thus, we expect that they would continue to behave in line with our predictions but relatively weakly so. However, whether this is true is ultimately an empirical question that we unfortunately cannot address here and hence we can only speculate.

alternative learning goals (O'Reilly & Tushman, 2013). In parallel, Meyer and Gupta (1994) argue that new performance measures are routinely required because performance outcomes lose their variance (due to convergence or isomorphism) and/or effectiveness (due to perverse learning and gaming by organizational members) over time. Obloj and Sengul (2012) found that such temporal dynamics also apply to the structure of organizational incentives. It remains to be explored whether and to what extent these two parallel intertemporal mechanisms overlap in firms pursuing multiple objectives. As Meyer and Gupta (1994: 363) highlight, "no organizational design is permanent, given the close tie between organizational design and performance measurement."

Third, and related, the examination of organizational responses to multiplicity of objectives needs to be more multifaceted. We highlight that coordination meetings and incentives may foster active discussion on compensatory tradeoffs, echoing Battilana et al.'s (2015) spaces of negotiation: arenas of interaction that allow organizational members to discuss the tradeoffs they face. Separately, Ethiraj and Levinthal (2009) explore computationally the beneficial role of three strategies that could be employed by firms managing multiple objectives: spatial separation, temporal separation, and myopic focus on a subset of goals. We were not able to incorporate such responses to our study due to data restrictions and cannot comment on whether they are complements or substitutes to the organizational responses we studied. Future research should directly embrace these questions.

Finally, what goal multiplicity implies for strategic choices needs to be scrutinized. The traditional approach is to examine whether the likelihood or magnitude of certain strategic choices changes in the presence (or absence) of objectives. McCann and Vroom (2014), for example, show that firms with non-financial objectives along with financial objectives (captured by the ownership structure) tend to be less responsive to profit potential in their entry, exit, and pricing decisions. A possible extension is to examine performance dynamics instead. We speculate that firms that set explicit objectives on a number of dimensions are less likely to suffer from mishaps in those dimensions, as they keep closer tabs on more dimensions, and hence have more stable performance over time (that is, less likely to over-perform but also to under-perform, akin to firms using an increased consensus threshold in their decision making structures (Csaszar, 2012)).

The "problem" of multiple objectives is ubiquitous—from large multinationals to social enterprises to small firms. Our study contributes to the understanding of performance consequences of simultaneous pursuit of multiple objectives in organizations. Further research in this area will have profound implications for the study of contemporary organizations.

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