

Research Summary:

“Essays on the effects of organizational form on organizational performance”

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There is a growing concern that the Strategy literature needs a better understanding of how organizational structure and decision-making affect organizational performance. This concern has been present in the literature at least since Cyert and March (1963, p. 21), who used the following questions in motivating their theoretical enterprise: “What happens to information as it is processed through the organization? What predictable screening biases are there in an organization? [...] How do hierarchical groups make decisions?” But except for a few notable exceptions (e.g., Cohen, March, and Olsen, 1972), questions of this sort remain mostly unexplored. This lack of knowledge regarding how decision-making structure affects organizational performance continually resurfaces in different areas of Management—for example, in the context of balancing exploration and exploitation, Siggelkow and Levinthal (2003, p. 650) note that “little is known about how different organizational structures moderate this balance,” in the context of ambidextrous organizations, Raisch and Birkinshaw (2008, p. 380) mention that “far less research has traditionally been devoted to *how* organizations achieve organizational ambidexterity,” and in the context of R&D organization, Argyres and Silverman (2004, p. 929) show surprise “that so little research has addressed the issue of how internal R&D organization affects the directions and impact of technological innovation by multidivisional firms.” These observations are congruent with the view that Organization Design—the field specifically devoted to studying the linkages between environment, organizational structure, and organizational outcomes—is in many respects an emerging field (Daft and Lewin, 1993; Zenger and Hesterly, 1997; Foss, 2003).

My thesis tackles the question of how organizational structure affects organizational performance from both a theoretical and empirical perspective. From the theoretical standpoint, I develop a closed-form mathematical model that builds on prior work by Sah and Stiglitz (1986) on organizational forms. I extend their original formulation and explore a broad range of decision-making organizational forms that lie between the extreme forms of hierarchy and polyarchy (essentially a flat organizational form) that Sah and Stiglitz considered. The model adds realism to the work of Sah and Stiglitz by extending it from two to N individuals, allowing for more complex reporting relationships, and predicting not only Type I and II errors (omission and commission errors, respectively), but innovativeness, speed, and expected profits. The model has far reaching implications, as all organizations have to decide which organizational form they will adopt. One important result is that not all organizations are efficient; some organizational forms should always be preferred over others, leading to the existence of “an efficient frontier in organization design.” Some implications of the model are discussed in light of the organization design and the innovation literature.

The empirical part of my thesis tests the predictions of the model using 150,000 stock-picking decisions made by 609 mutual funds during two and a half years. Mutual funds offer an ideal and rare setting to test the theory because, as funds are heavily scrutinized, very detailed records exist on the projects they face (possible investments), the decisions they make or do not make (buying or not buying each of these possible investments), and the outcomes of these decisions (the ex-post return of having bought or missed a given investment). The independent variable of the study, the organizational form of each mutual fund, is coded from textual descriptions of the fund management made by Morningstar. The main dependent variables of the study, omission and commission errors made by each fund, are computed as probabilities by a novel technique that uses bootstrapping to determine, in a way which is comparable across funds, if a fund buys fewer good assets (omission error) or more bad assets (commission error) than average. The empirical tests show strong and robust support for the model, suggesting that organizational form has relevant and predictable effects on a wide range of organizations.

Because the costs of omission and commission errors are defining characteristics of every organization—for example, juries are more concerned with commission errors (not convicting the innocent), while the typical R&D lab is more concerned with omissions (not missing the next technological breakthrough)—decomposing performance into omission and commission errors sheds light on phenomena that gets obscured when performance is only observed through more aggregated measures of performance such as profits. One important insight that becomes evident when looking at performance through omissions and commissions is that these two errors are intrinsically connected to exploration and exploitation (Garud et al., 1997, p. 33; Garicano and Posner, 2005, p. 157). On the one hand, firms in unstable or fermenting environments must try to avoid omissions because these curtail the extent of exploration of new high-fitness positions; illustrations of this behavior are Bill Gates saying that “the real sin is if we [Microsoft’s R&D] miss something” (Hawn, 2004), or Andy Grove’s quip “miss the moment [for change in a high-tech firm such as Intel] and you start to decline” (Stratford, 1993). On the other hand, firms facing stable or incrementally-changing environments try to avoid commission errors, as these may disrupt their currently efficient exploitative operations; examples here are Procter and Gamble, where new product proposals are often reviewed more than 40 times before reaching the CEO (Herbold, 2002, p. 74), or the IBM’s mainframe-era inspired “non-concur policy,” which enabled any department to veto projects initiated anywhere in the firm (Gerstner, 2003, pp. 192–199). Hence, given that organizational form can control the errors that organizations make, and that these errors control the degree to which the organization can explore and exploit, this thesis exposes a process by which organizational form determines exploration and exploitation.

By describing a pervasive mechanism by which individual decision-making aggregates into organizational level outcomes, this research contributes to understanding how micro decisions turn into macro behaviors. By doing so, it improves the connection between Strategy and the behavioral aspects of decision-making (Zajac and Bazerman, 1991), and speaks to one of

the fundamental issues in Management: how to create reliable organizations out of unreliable individuals.

At the practical level, this research sheds light on how to use organizations to compensate for shortcomings of individuals, and allows addressing several managerial concerns such as: What organization is needed to avoid exceeding such error levels? Is organization *A* faster, cheaper, or more accurate than organization *B*? Under what circumstances is it possible to increase one measure of performance (e.g., omission error) without increasing another (e.g., cost)? Is it true that hierarchy hampers innovation? What organizational forms can lead to more innovation?

This thesis aims at advancing a small step toward an “organizational engineering,” which could be used similarly to how architects use structural engineering to design buildings.

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