STRATEGIES IN DYNAMIC ENVIRONMENTS: A COMPUTATIONAL INVESTIGATION

A dissertation submitted

By

SASANKA SEKHAR CHANDA

In partial fulfillment of the requirements for the

Fellow Program in Management

INDIAN INSTITUTE OF MANAGEMENT CALCUTTA
DECEMBER, 2012

Abstract

In this dissertation, I develop theory regarding strategies in dynamic environments by computational simulation. I overcome key limitations in the dominant research tradition in strategic management that arise from verbal theorizing leading to issues regarding precision and logical consistency, and neglect of what-if questions. I have attempted to provide answers to three distinct sets of questions regarding causes of heterogeneity of firm-level outcomes under environmental dynamism. These are presented as standalone essays.

The first essay suggests a resolution to a long-standing debate- does comprehensiveness in making strategic decisions improve organizational outcomes in a dynamic environment? In the literature, one view suggests that it is all the more imperative that, in a changing environment, managers pursue more information in order to make better decisions- implying that higher comprehensiveness will lead to better firm performance. The rival view, citing Simon's work on bounded rationality, holds that higher comprehensiveness in a changing environment will merely overload the managers with information they do not have ability to process, increase costs and ultimately lead to lower performance. In my study, I build a model incorporating considerations of bounded rationality, to observe outcomes under a range of conditions. I find that, in a changing environment, while the quality of decisions made indeed improves with decision comprehensiveness, firm performance can be observed to be positively or negatively impacted by comprehensiveness, depending on costs of decision rationality, environmental complexity and other factors.

In the second essay, I address a developing debate in the literature concerning what is the right action to respond to a situation where an environment changes from stable to dynamic- increasing or lowering exploration. The proponents for increasing exploration suggest that exploration helps uncover salient aspects in which the environment changed, thereby enabling a firm to adapt to change. The opposing view holds that since rewards from generating new knowledge quickly get eroded in a changing environment, exploration should not be increased: rather, the appropriate course of action is exploiting existing knowledge and opportunities. I use March's seminal model of organizational learning to investigate whether there indeed exists ideal prescriptions to react to environmental change, given that there exists managerial intentionality that shapes a firm to be more an exploiter or more an explorer. I find that, since multiple exploration-exploitation optima exist, promotion of managerial intentionality in a firm does not put it at a

disadvantage relative to firms that do not display such intentionality. Moreover, increasing exploration in indeed beneficial when the environment changes from stable to dynamic, but other optima also exist at combinations of very high levels of exploration and exploitation.

The Upper Echelon theory suggests that characteristics of the Top Management Team (TMT) in a firm influence organizational outcomes. This literature, has, however, failed to give cognizance to contradictory recommendations from the organizational learning literature that states that having some slow learners improves outcomes, and the Strategic Human Resource Management (SHRM) literature that holds that increased level of socialization lead to formation of better human capital, which, in turn leads to better firm performance. I examine this conundrum in the third Essay. I find that heterogeneity in learning rates may be strategically used to obtain better firm outcomes only when such action is taken in joint consideration of the TMT's knowledge capital endowment or latent knowledge in the TMT. Further, while slow learning and infusion of heterogeneity from outside the firm are both effective measures to foster diversity that results in higher level of organizational knowledge, in a changing environment, the latter mechanism outperforms the former.

I wish to emphasize that, by virtue of addressing a range of theoretical questions over a broad canvass of concerns in Strategic Management, I demonstrate the power of computational methods in suggesting plausible answers where dominant theorizing approaches have fallen short.