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Success in High-Technology Markets: Is Marketing Capability Critical?

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Abstract

We propose a conceptual framework—with the resource-based view (RBV) of the firm as its theoretical underpinning—to explain interfirm differences in firms' profitability in high-technology markets in terms of differences in their functional capabilities. Specifically, we suggest that marketing, R&D, and operations capabilities, along with interactions among these capabilities, are important determinants of relative financial performance within the industry. This paper contributes to the RBV literature by proposing the input-output perspective to conceptualize the notion of capabilities. Specifically, this approach entails modeling a firm's functional activities—viz., marketing, R&D and operations—as transformation functions that relate the productive factors/resources to its functional objectives, if the firm were to deploy these resources most efficiently. Any underattainment of the functional objective, then, is attributable to functional inefficiency, or equivalently, to a lower functional capability of the firm. The input-output conceptualization of a firm's capabilities is then estimated using the stochastic frontier estimation (SFE) methodology. SFE provides the appropriate econometric technique to empirically estimate the efficient frontier and hence the level of efficiency achieved by the various firms.

Our study contributes to a number of literatures, both methodologically and substantively. First, it contributes both conceptually and methodologically to the RBV literature. Conceptually, our study suggests that firm capabilities can be viewed in an input–output framework. Methodologically, the study suggests the use of stochastic frontier estimation to operationalize and estimate firm capabilities. This methodology is, to the best of our knowledge, the first to allow the researcher/manager to *infer* capabilities from archival data. Substantively, our study contributes to the literature on market orientation by suggesting that a stronger market orientation of a firm should be reflected in a higher marketing capability. It also adds to the literature on "design for manufacturability" by explicating the complementarity among the various functional capabilities and offering empirical evidence on their relative importance in influencing a firm's performance. Finally, our study builds on prior literature that has highlighted the importance of marketing–R&D coordination as important determinants of new product development and success. We highlight below some of our main findings.

• A strong base of innovative technologies enhances a firm's sales by favorably influencing consumers' expectations about the externality benefits associated with its product. This suggests that a past track record of consistent innovation is a credible signal to current and potential customers of the firm's continued excellence in a technologically evolving market. Given the importance of influencing customers, managers need to tailor their marketing activities around the need to inform customers of the technological excellence of their firm. Thus, customers need to be informed of the innovative technologies that the firm possesses and of the future R&D initiatives undertaken by it. Similarly, any potential applications of innovative technology developed by the firm, and of technologies under development, should be emphasized.

• Marketing capability has its greatest impact on the (quality-adjusted) innovative output for firms that have a strong technological base. In other words, firms with a strong R&D base are the ones with the most to gain from a strong marketing capability.

• Marketing capability strongly influences the width of applicability of innovations, i.e., a firm's marketing capability enhances its ability to generate innovative technologies that have applications across a range of industries. This result carries a strong message for managers: A strong market orientation is one of the most fertile sources of ideas for innovation. Thus, marketing needs to be involved from the beginning of the innovation process—namely, right at the stage when technological ideas are being generated.

• The most important determinant of a firm's performance is the interaction of marketing and R&D capabilities. This supports the assertion that firms in high-technology markets need to excel at two things: the ability to come up with innovations constantly, and the ability to commercialize these innovations into the kinds of products that capture consumer needs and preferences. This finding offers further evidence on the importance of coordination between R&D and marketing, as suggested in the extant marketing literature.

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