Comment on "Investment in R&D and Corporate Governance"

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The novelty of this paper is that "R&D" and "Innovation" are formally separated. R&D here is defined as "creative work undertaken on a systematic basis" whereas the firm is said to be undertaking innovation "if they either have introduced new technology or have improved production processes or products or have unsuccessful projects aiming at introducing new or improved production processes or products."

Probably there are many firms introducing (or aiming to introduce) new products/processes without reporting any systematic R&D, for example with the managers and workers working on development besides their regular works (e.g., supervision, routine design, and manufacturing). The statistics confirm this fact: The mean of R&D dummy equals 0.30 implying that 30% of sample firms undertook R&D whereas the mean of Innovation dummy equals 0.84 implying that 84 % of sample firms undertook innovation. That is, more than a half of the firms reported to have undertaken innovation but not R&D. How much of this difference between the two technology-related activities is a real one and how much was caused by accounting convention, is not known.

In view of this fact, the authors' assumption of a one-way relationship from R&D to innovation appears dubious. It is not just R&D-conducting firms that undertook innovation. In fact, as discussed above, more firms undertook innovation without formal R&D than with it. For these firms, the decision to innovate may have been made in response to the needs from manufacturing and other departments.

One of the authors' major findings is that ownership patterns affected R&D but not innovation. I suspect that this finding may reflect the difference in accounting and reporting practices between those firms with disperse share ownership and those with a concentrated one. That is, under disperse share ownership, firms may pay more attention to the transparency in accounting, for example, by separating R&D expenses from other costs. This is only a speculation but I suggest the authors to pay more attention to the different accounting and reporting practices among firms.

The different characteristics (e.g., size, ownership, technological properties of the industry) of four groups of firms — R&D, Innovation; no R&D, Innovation; R&D, no Innovation; and no R&D, no Innovation — should be investigated. For instance, the no R&D, Innovation group may be more common in assembly industries, such as machinery, electrical equipment, and transportation equipment, because innovation at the shopfloor level is more important in these industries. By contrast, innovation is virtually impossible without R&D in more science-based industries, especially, pharmaceuticals.

In view of the arguments by Schumpeter and his followers, I feel uneasy with the use of market structure as an independent variable. Clearly, the dynamic competition caused by innovation changes market structure in an evolutionary fashion (Nelson, Winter, 1982). Behind this dynamic competition, technological characteristics of the industry are probably more fundamental than market structure. Although technological characteristics are difficult to measure, a series of industry dummies may be better suited than the concentration ratio.

A few more specific comments follow. First, export share is assumed to be a determinant of R&D or innovation. To me, it appears more likely to be a consequence of the competitiveness of the firm which is enhanced by R&D and innovation.

Second, more careful discussion of correlation among variables is useful. In particular, firm size and the number of owners may be correlated because dispersed ownership is often necessary to finance a large firm. Ownership and financial solvency may be also correlated.

Finally, I want to ask if there is any justification for the "5 percent" criterion used for the ownership variable. In Japan, the Anti-Monopoly Law prohibits the holding by financial institutions (excluding insurance companies) of non-financial firms in excess of 5 percent. Therefore, if there is a shareholder who owns more than 5 percent, the top shareholder cannot be a bank. I do not think there is such a restriction in Denmark but I want to know why the authors have chosen 5 percent as the threshold level.

Reference

Nelson, Richard R., Sidney G. *Winter* (1982): An Evolutionary Theory of Economic Change, Cambridge, MA.

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