



RESEARCH Newsletter

of the Research & Publications Committee, IIMA

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Chairperson
Research & Publications
Jayanth R. Varma

Chairperson's Message

Dear Readers

We are glad to bring out the first issue of the **Research Newsletter** of the Research and Publications of Indian Institute of Management, Ahmedabad. The primary objective of research at the Institute is to identify and examine those segments of research opportunities which will have maximum long run impact on the community of management practitioners and scholars. We encourage both theoretical and applied research because we believe that the two are complementary and mutually supportive. Sound theoretical work should have its practical use, just as practical work should have a sound theoretical foundation.

It is in this context that we have decided to bring out a Newsletter that makes our research accessible to practitioners and policy makers. This is very different from the collection of abstracts that we publish on a regular basis. The goal here is to communicate the potential applicability and relevance of our research to problems that practitioners and policy makers are grappling with. As such, there is less stress on the technical details of the research.

If you think that any of the research reported here might be useful to you in your professional work, do write to us. We will be glad to forward your request to the faculty concerned.

We look forward to your feedback on this Newsletter so that we can improve upon it . . .

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The Problem of Plant Location

Prof. Diptesh Ghosh

Most businesses that supply goods to customers need to address the question of where to locate their warehouses, so that their long-term costs are minimized. These decisions usually incorporate several trade-offs; i.e. one has to look into aspects of costs related to locating a warehouse at a certain location, as well as the cost related to supplying customers from the warehouse. Since the cost of land near the customer's location is higher than the cost of locations that are farther away, the problem of deciding the number of warehouses required and their locations becomes a strategic issue.

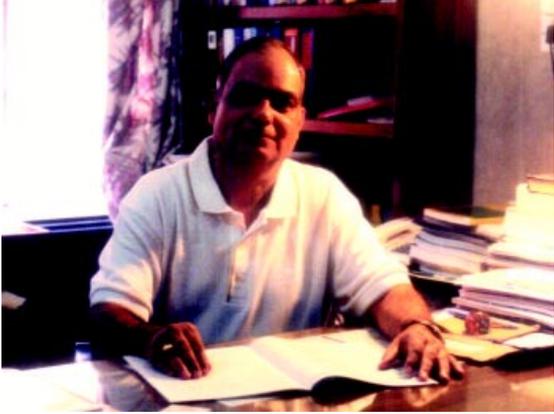
A fair amount of operations research literature exists on the decision problem under the title of "plant" or "facility" location problems. Typically, the literature deals with two cases, one in which warehouses are small, and their storage capacity makes a difference, and another in which capacities are large enough to be considered virtually infinite. The latter problems (called uncapacitated facility location, or simple plant location) are also important in the case of knowledge dissemination over electronic networks, where the amount of data that can be stored at a location is not critical. Operation research literature has conclusively proved that there are no methods to solve all instances of these problems to optimality within reasonable time, given the current model of performing computations.



Prof. Diptesh Ghosh has been looking into the ways by which we can obtain good approximate solutions to uncapacitated facility location problems. He has recently applied several algorithms to the problem and presented a few techniques that enhance the performance of branch and bound algorithms. The new algorithms are called branch and peg algorithms, where pegging refers to assigning values to variables outside the branching process. Computational experiments showed that the new algorithms generate less than 60% of the number of subproblems generated by branch and bound algorithms, and in certain cases require less than 10% of the execution time required by branch and bound algorithms.

The cumulative contribution of such researches is a step towards solving complex real life plant location problems in particular, and hard optimization problems in general. The general form of the algorithms has been developed by a group where Prof. Ghosh was a key member. One of the papers based on his research will be appearing in the *Computers and Operations Research*. 

Goldengorin, B.; Ghosh, D. and Sierksma, G. (forthcoming), "Branch and Peg Algorithms for the Simple Plant Location problem," *Computers and Operations Research*.



Is Beta the Lone Predictor?

Prof. I.M. Pandey

According to the capital asset pricing model (CAPM), there is always a return-risk trade-off; higher risk begs higher return and vice versa. The model uses beta as a measure of risk that shows the sensitivity of one share's returns to market returns. Shares with beta of greater than one are more risky than market returns and those with beta less than one are less risky. The CAPM is quite valuable for investors since it shows the relationship between return and risk (beta). It predicts that beta is the sole guide for return expectations. The implication is that shares with higher risk (beta) should yield higher expected return and shares with lower risk (beta) should yield lower expected return. Further, beta is useful to determine the cost of capital of an investment.

The earlier empirical research, carried out about two-three decades ago, suggested that the CAPM worked fairly well, and that beta was able to predict returns. However, recent research by Fama and French has showed that beta is a weak predictor of returns and that there is a significant negative relationship between the firm's price-equity (P/E) ratio and the book value-to-market value. This evidence, inconsistent with the CAPM, has led many in the popular press to ask questions such as: "Is beta dead?" "Is beta beaten?" It is in this perspective that Prof. I.M. Pandey and Chee carried out a study using data from an emerging capital market. The question was: What factors, including beta, predict the returns on shares in an emerging market? They used seven year data of 247 Malaysian companies. The research methodology used was different from what most researchers have followed. They combined both

cross-section and time-series data (called panel data), and regressions were controlled for individual firms and time (temporal) effect. The fixed effect regression models were used as they perform statistically better than the random effect and pooled OLS models. The main findings have been as follows: Beta is important, but is not the only factor that can predict returns. Size (market capitalization), the book value to market value (B/M) ratio, the earnings-price (E/P) ratio, dividend yield, and leverage jointly with beta play a significant role in explaining the expected share returns. It is revealing that size (market capitalization) is the most dominant and has a persistent role as the inclusion of other variables adds marginally to the explanation of variations in returns on shares. The inclusion of size with other variables dampens the influence of the B/M ratio. In the Fama-French study the B/M ratio was the most important predictor of returns.

Pandey and Chee have shown that beta is important, but it is not the only guide for the expected returns. In the emerging capital market (like the Malaysian capital market), risk is a multidimensional phenomenon. Besides beta, other dimensions of risk include size, the B/M ratio, the E/P ratio, dividend yields, and leverage. Security analysts and investors, therefore, may not base their decisions solely on beta; rather they may consider multiple risk factors in their decisions of which size has the most dominant influence. ✶

Pandey, I. M. and Chee, H. K., (2002). "Predictors of Variation in Stock Returns: Evidence from Malaysian Company Panel Data," *Global Business and Finance Review*, Vol 7, No. 1.

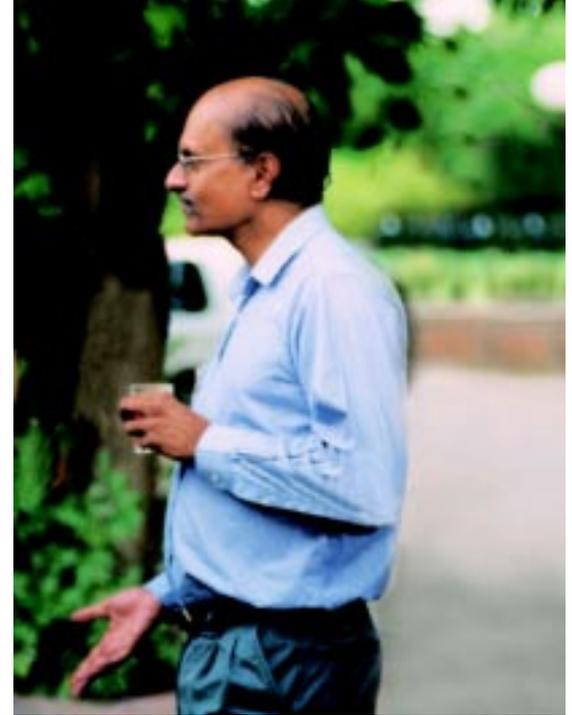


Strategic Response of Family Businesses to Liberalization

Prof. S. Manikutty

Indian industry is characterized by a sizable proportion of family-run businesses. With the advent of economic liberalization, it was imperative that these businesses would have to adopt a strategic response to the changing environment. Was there a strategic response from these businesses? What was the nature of this response? Industry stakeholders were interested in knowing answers to these questions.

Prof. Manikutty, following the lead of Habbershon and Williams (1999), has the resource-based view of firms to understand the strategic responses of nine Indian family groups to the liberalized environment. Using the concepts and empirical findings in the resource-based view stream of literature, he has offered six hypotheses related to the restructure of business portfolios, structural changes within organizations, and the induction of professional family and nonfamily members. Five emerging trends in the responses have been identified and used to test the hypotheses. Data from published sources indicate a high degree of support for the hypotheses. He also indicates how the resource-based view of the firm provides an excellent theoretical framework for understanding and interpreting these responses and suggests directions for further research. His main findings are as follows:



1. Firms tend to divest businesses that are either unrelated or unprofitable depending on the nature of the resources they have or are needed; they do not seem to be blindly guided by the core competence model.
2. The extent of divestment of unrelated business is higher in the case of business groups that require tangible and less flexible resources, and lower in the case of groups that require intangible and more flexible resources.
3. After divestment, groups build strengths in the remaining businesses and raise entry/mobility barriers.
4. Family businesses are forming holding company and other top level integrating mechanisms to formulate strategies for the group as a whole.
5. Family businesses tend to be headed increasingly by professionally qualified persons (they may be family members).
6. They tend to recruit more outside professionals at the top level.

Thus, family businesses are moving towards (i) greater concentration in their business portfolios and (ii) greater professionalization of top management. 

Manikutty, S., "Family Business Groups in India: A Resource-Based View of the Emerging Trends," *Family Business Review*, Vol. 13 (4), December 2000.

