Win-Win Capacity Allocation Contracts in Co-Production and Co-Distribution Alliance

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Abstract: In some strategic alliances, a firm shares its manufacturing capacity with another, and the latter shares its distribution capacity with the former. Even though such bidirectional alliances have become more common, they remain challenging to manage due to the frequent disputes over capacity allocation especially when demand is uncertain. In this paper, we investigate whether there exists a contractual mechanism that can mitigate the extent of these disputes while improving the profits of all participating firms. We consider two types of bidirectional contracts, namely, the ex-post transfer payment contract and the ex-ante capacity reservation contract. By modeling the capacity allocation and the bidirectional contract design as a non-cooperative game between two firms with non-competing product lines, we show that, relative to a situation where capacity allocation is freely negotiated, either contract can improve the alliance’s total profit in equilibrium. In terms of distribution of the total surplus, we find that capacity reservation contracts always make both firms better off, whereas ex-post transfer payment contracts may make one firm worse off. Hence, capacity reservation contracts are more likely to be implemented in practice in such bidirectional alliances. [This is joint work with Guillaume Roels.]

Bio: Dr. Tang is University Distinguished Professor and the holder of the Edward W. Carter Chair in Business Administration at the UCLA Anderson School.

Chris has published 5 books and over 100 research articles in various leading academic journals, and he has written articles for Wall Street Journal, Financial Times, and The Guardian. He is the recipient of numerous teaching and research awards including UCLA (university-wide) Distinguished Teaching Award in 2012. In 2011, he received the Institute of Operations and Management Sciences (INFORMS) lifetime fellow award and the Production and Operations Management Society (POMS) lifetime fellow award. In 2015, he received the Manufacturing & Service Operations Management Society (M&SOM) lifetime fellow award. He served as President of Production and Operations Management Society (POMS) in 2014, and now serves as Editor-in-Chief of Manufacturing & Service Operations Management (M&SOM).

Chris received his B.Sc. (First class honours) from King’s College, University of London, M.A., M.Phil, and PhD from Yale University.