

Synergy Quantification in Mergers of Petrochemical Companies

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The synergy created by the merger of petrochemical companies has rarely been studied, although it is the primary goal of a merger. This study deals with the merger of petrochemical companies located within one complex. Synergy considerations resulting from process network integration and market power increase in upstream market and downstream market are included. A novel mathematical model is formulated that represents the operation of a process network aiming at increasing the profitability of merged companies. The resource purchasing advantage and product selling advantage options are considered by means of various scenarios. The proposed model is applied to Korean Naphtha Cracking Center, NCC, companies in one complex. The results, presented in three case studies, demonstrate that a merger creates synergy primarily from the purchasing advantage and selling advantage options, while the process network integration which simply collects various processes can create little synergy.

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