

The Value and Synergies of Pharmaceutical Alliances in FDA Approvals: Estimating A Semi-parametric Two-Sided Matching Model of Alliance Formation and Innovation*

Ahmed Khwaja[†]

Rebeca Mendez-Duron[‡]

Liang Zhao[§]

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Abstract

We estimate the value and synergies of pharmaceutical alliances for FDA approvals using a two-sided matching model of endogenous alliance formation in equilibrium using a semi-parametric maximum score estimator framework. We extend the literature by: (1) allowing firms to choose to “go-it-alone,” thereby recovering the value of partner-specific characteristics necessary to compute an alliance’s (total) value, and (2) estimating an alliance’s value for an outcome, i.e., new product development. Using data on 2,915 clinical trials between 2002 and 2010 by 272 firms, we find that more valuable alliances (*ceteris paribus*) comprise a firm with a partner that has: (i) greater experience working in alliances, with synergies from such experience, (ii) broader (narrower) scope of experience with diseases, the narrower (broader) the primary firm’s such experience, and (iii) narrower scope of experience with drug classes (e.g., organic compounds), with synergies from such experience. A critical consideration in forming an alliance should be a potential partner’s experience with alliances. Consequently, alliance experience *per se* can be a strategic investment that confers a competitive advantage for firms seeking alliances. Our procedure has a microfoundation interpretation in the Heckman (1979) selection framework, and wider applicability to other two-sided settings (e.g., digital platforms, co-branding, etc.).

Keywords: Firm Alliances, Two-sided Matching Models, Maximum Score Estimator, New Product Development, Pharmaceutical Innovation, FDA Trials.

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[†]Judge Business School, University of Cambridge. Email: a.khwaja@jbs.cam.ac.uk.

[‡]Departament d’Economia de l’Empresa, Universitat de les Illes Balears. Email: rebeca.mendez@uib.es.

[§]Judge Business School, University of Cambridge. Email: lz415@jbs.cam.ac.uk.