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Publications:

Licensing Foreign Technology and the Moderating Role of Local R&D Collaboration: Extending the Relational View

The relational resource-based view posits that performance differences among firms can be explained not only by the possession of internal resources but also by maintaining and developing relationships with external partners. However, studies in the extant literature usually address the separated roles of various external relationships of focal firms, but the literature has not addressed how relationships with different sets of knowledge partners are related to each other and influence focal firms' performance. Therefore, to fill this research gap, this study focuses on how technological resources acquired from one set of partners (licensing foreign technologies) may generate subsequent internal and relational rents in terms of technological innovation in the context of collaboration with an entirely different set of knowledge partners (local R&D partners). Specifically, we propose that local R&D collaborations need to be large in scale and broad in scope. The empirics are based on the analysis of a sample of 160 high-tech Chinese firms observed from 2000 to 2011. Consistent with our predictions, our findings contribute to extending the relational view by addressing the relations among the relationships of focal firms.

General information

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Organisations: Department of Management Engineering, Technology and Innovation Management

Authors: Wang, Y. (Intern), Li-Ying, J. (Intern)

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Does external technology acquisition determine export performance? Evidence from Chinese manufacturing firms

Although technology profile has been one of the key determinants of firms' export performance in the international business literature, most research has focused on only the role of internal technology efforts rather than the role of external technology. This study thus aims to extend our understanding of the determinants of export performance by examining the impact of the inter-organizational dimension of innovation strategy to export performance, which has been ignored in the prevailing "strategy tripod" perspective of exporting research. This study is based on a sample of 141 Chinese indigenous manufacturing firms that engaged in inward technology licensing between 2000 and 2003. The empirical results indicate that external technology acquisitions positively influence Chinese firms' export performance. Moreover the exporting performance of using external technology varies depending on the their sources (domestic and foreign). The exporting firms that acquired technology from foreign countries outperformed those relied on domestically developed technology.

General information

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Organisations: DTU Executive School of Business, China University of Mining and Technology, Leiden University, Queen Mary University of London

Authors: Wang, Y. (Intern), Cao, W. (Ekstern), Zhou, Z. (Ekstern), Ning, L. (Ekstern)

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Scopus rating (2004): 0.472 0.983
Scopus rating (2003): 0.287 0.826
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The dual role of local sites in assisting firms with developing technological capabilities: Evidence from China

As strong local knowledge bases emerge in some developing countries and regions, more research efforts are devoted to examine the role of local sites in technological-capability development of firms from developing countries. However, most of these studies illuminate the direct input (e.g., knowledge, human capital) and the role of motivating multinational companies (MNCs) to upgrade their local operations in developing countries so as to perform more innovation activities. Few articles are presented that examine the role of local sites in the learning and technological-capability building processes that take place during technology import activities. This study investigates how local sites in developing countries help their firms benefit from the spillovers of international technology diffusion, by empirically scrutinizing Chinese licensee firms. The empirical results support the hypothesis that Chinese local sites assist with their firms' technological-capacity building, driven by international technology licensing-in activities, in three indirect ways. That is, the enrollments of sufficient R&D personnel from local sites, the collaborations with local universities and research institutes, and the collaborations with local industrial community firms positively influence the relationship between firms' international inward technology licensing and technological capabilities. (C) 2012 Elsevier Ltd. All rights reserved.

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Authors: Wang, Y. (Intern), Zhou, Z. (Ekstern)

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The impact of licensed-knowledge attributes on the innovation performance of licensee firms: evidence from the Chinese electronic industry

In this article, we provide a compelling case for demonstrating “learning-by-licensing,” and we further investigate the moderating effect of specific licensed-knowledge attributes on the innovation performance of licensee firms. This case is based on a unique dataset from the China State of Intellectual Property Office regarding technology-licensing activities and spanning the years 2000–2010. Using this dataset we make a longitudinal analysis of the lagging learning effect that transferee firms experience when they in-license technology. The empirical results from 71 Chinese electronic-industry firms reconfirm the concept of “learning-by-licensing.” Moreover, the results also indicate that both technology complexity and technology generality, which are attributes of licensed knowledge, have positive moderating effects on the relationship between technology in-licensing and the subsequent innovation performance of licensee firms. However, such a positive moderating effect was not found for the newness of technology.

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ISI indexed (2013): ISI indexed yes
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BFI (2009): BFI-level 1
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Scopus rating (2006): 1.184 0.734
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Scopus rating (2002): 0.397 0.372
Scopus rating (2001): 0.242 0.248
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External Knowledge Acquisition Needs a Hand? The Dual Effects of Industry-University Collaborations on High-Tech Firms' Innovation Capability in China

Purpose Firms have been increasingly investing in external knowledge acquisition to enhance their competitiveness and innovative performance. Among different external partners, universities have become one of the most important ones (Cohen et al., 2002). Collaborating with universities is especially imperative for firms innovating in the technology frontier (Baba et al., 2009). However, the rapid development of industry-university collaboration in some developing countries (e.g., China) has demonstrated some unique characteristics that are different to those presented in developed countries. These unique characteristics urge scholars to re-exam the role of industry-university collaboration for firms' innovation in developing countries. We propose that industry-university collaboration in developing countries has dual roles with regard to firms' innovation capability: 1) to serve as a direct source of knowledge input, i.e. some indigenous technological inventions, and, 2) to facilitate firms' technological learning with respect to absorbing, adapting and diffusing acquired foreign technologies to local market. The purpose of this paper is to test the effect of these two roles on firms' innovation.

Research question How can Chinese industrial firms' collaboration with universities directly contribute knowledge inputs and at the same time effectively facilitate innovation through external technology acquisition?

Methodology Our study uses patent counts to measure innovation capability. In line with prior research, we use negative binomial regression model together with a Hausman specification test to determine whether a random- or fixed-effects model should be employed.

Data We employ a unique dataset on technology in-license from the Chinese Intellectual Property Office (SIPO) in this study. According to the 'Administration of Record Filing of Technology Licensing', the SIPO is authorized to fill the records of technology licensing in China. A record contains more valuable information: names of licensor, licensee, and licensed patents, contracting number, date, and license type. So far, the available licensing data to public starts from 2000 to 2009. We limit our sample to those firms who engaged in foreign technology licensing-in activities during 2000 to 2003, which resulted in a sample of 91 Chinese licensee firms in high-tech sector. This period is chosen in order to obtain an appropriate duration that allows learning to take effect. In other words, a 5-year moving window is used to observe the

effect of licensing and industry-university collaboration on firms' innovation capability.

25The results show that industry-university collaboration not only has a direct positive effect on but also positively moderate the effect of inward foreign technology licensing on firms' technology capability.

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Organisations: DTU Executive School of Business, Department of Management Engineering

Authors: Li-Ying, J. (Intern), Wang, Y. (Intern), Salomo, S. (Intern)

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Foreign vs. domestic: What determines the origin of Chinese firms' inward technology licensing?

The increasing prominence of cross-border technology sourcing urges us to ask a question: what factors and conditions may influence firms' decisions of sourcing technology domestically or internationally? Research on this topic is scattered in the literature but a comprehensive understanding of these factors and conditions on this issue is still lacking. The aim of this paper thus is to establish a comprehensive framework that integrates factors affecting a firm's propensity to make technology sourcing decisions regarding foreign or domestic origins of technologies. We identify four distinct categories of factors that are relevant in this respect: (1) technology supplier's characteristics; (2) technology seeker's characteristics; (3) features of technology itself; and (4) external contextual factors. We test our hypotheses based on Chinese firms' inward technology licensing. We found well-established incumbent firms that are export-, and high-tech-oriented with strong absorptive capacity are more likely to in-license foreign technology rather than domestic ones if the in-sourced technology is mature, the technology suppliers have strong desorptive capacity, and the external knowledge environment is innovative.

General information

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Have Chinese firms learnt from their prior technology in-licensing?

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How Chinese firms employ open innovation to strengthen their innovative performance

China became the second-largest economy behind the USA in 2010. While there is quite some macroeconomic research documenting the technological catching-up of China as a nation, there is only little research studying how individual Chinese firms are catching up. This paper draws on the open innovation perspective to explore how Chinese firms improve their innovative performance. Our empirical analysis is based on a sample of 91 native Chinese firms in high-tech industries. The results indicate that Chinese firms widely implement an open innovation approach to strengthen their innovative performance. These firms use: 1 technology in-licensing agreements to obtain access to technologies 2 long-term alliances with foreign partners to access state-of-the-art technologies 3 collaboration with local universities and R&D institutes to broaden their technological strengths 4 collaboration with the local industrial community to deepen their technological skills.

General information

State: Published

Organisations: DTU Executive School of Business, Hasselt University, Zhejiang University

Authors: Wang, Y. (Intern), Roijackers, N. (Ekstern), Vanhaverbeke, W. (Ekstern), Chen, J. (Ekstern)

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BFI (2010): BFI-level 2

Scopus rating (2010): 0.31 0.633

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Scopus rating (2009): 0.35 0.569

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Scopus rating (2007): 0.554 0.662

Scopus rating (2006): 0.334 0.458

Scopus rating (2005): 0.264 0.38

Scopus rating (2004): 0.272 0.357

Scopus rating (2003): 0.301 0.516

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Learning-by-Licensing: How Chinese Firms Benefit From Licensing-In Technologies

This paper explores how interfirm variations in their in-licensed technology portfolios influence subsequent innovation performance. Existing studies mainly assume licensed technologies are homogeneously accessible to firms, and a prevailing explanation as to why firms vary in their innovation performance lies in differences of absorptive capacity. In this study, we intend to relax this assumption and use data about 186 Chinese indigenous firms to investigate how differences in in-licensing portfolios lead to different effects on innovation performance. We find that firms benefit from prior in-licensing technologies and the result is related to four dimensions of their licensing portfolios. We find that 1) the scale of firms' technology in-licensing has an inverted-U relationship with their subsequent innovation performance; 2) firms that license-in foreign technologies tend to outperform those that predominantly license-in technologies from domestic sources; 3) the newness of firms' technology in-licensing yields a positive effect on subsequent innovation performance; and 4) a diverse portfolio of licensors from whom technologies are licensed-in has an inverted-U relationship with firms' subsequent technological diversity.

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Authors: Wang, Y. (Intern), Roijackers, N. (Ekstern), Vanhaverbeke, W. (Ekstern)

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Scopus rating (2010): 1.248 1.79

BFI (2009): BFI-level 2

Scopus rating (2009): 1.307 1.539

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Scopus rating (2008): 1.388 1.977

Scopus rating (2007): 1.139 1.542

Scopus rating (2006): 1.03 1.6

Scopus rating (2005): 0.871 1.591

Scopus rating (2004): 0.902 1.81

Scopus rating (2003): 0.749 1.372

Scopus rating (2002): 0.838 0.939

Scopus rating (2001): 0.546 0.733

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Building an integrative framework for national systems of innovation

Purpose – This paper proposes a way to integrate three different analytical approaches into a consistent framework of national systems of innovation that can benefit academia and policy makers. The approaches include the traditional structural method of national systems of innovation, the new development of functional view of national systems of innovation, and the effective approach. **Design/methodology/approach** – As a theoretical research paper, the paper reviews and analyses intensive literature on national system of innovation from the perspectives of functional, structural, and effectiveness approaches. **Findings** – The paper argues that these three approaches reflect different perspectives of national systems of innovation. Instead of contradicting each other, they could be integrated into a coherent framework. **Originality/value** – The paper builds an integrative framework to bring different methods of national systems of innovation together. It provides an integrative framework for academy and policy makers to more comprehensively understand the concept of national systems of innovation and further policy design and implementation. **Keywords** - National systems of innovation, Structure, Function, Effectiveness, Framework, Policymaking, Innovation, Integration Paper type - Literature review

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