

Sourcing technological knowledge through corporate acquisition: Evidence from an international sample of high technology firms[☆]

Panos Desyllas^{a,*}, Alan Hughes^{b,1}

^a *Saïd Business School, University of Oxford, Park End Street, Oxford OX1 1HP UK*

^b *Centre for Business Research, Judge Business School, University of Cambridge, Trumpington Street, Cambridge CB2 1AG UK*

Available online 14 February 2008

Abstract

We investigate the prevalence of the motive to source technological knowledge externally through corporate acquisition. Drawing on make-or-buy and organizational learning theories, we infer the implications of this explanation for the acquirers' pre-acquisition innovative characteristics. Using an international sample of 6106 high technology acquisitions during 1984–2000, we assess the contribution of innovative characteristics to the acquisition likelihood. For firms acquiring small private firms and former subsidiaries—but not public targets—the evidence is consistent with three propositions: (1) A firm's commitment to internal R&D is negatively affected by the decision to acquire; (2) Low R&D productivity increases the likelihood of acquisition; (3) A large knowledge stock predisposes firms to acquire because they perceive they are capable of selecting and absorbing targets. We conclude that acquisitions of small private firms and former subsidiaries are a viable R&D strategy to explore a range of potential future innovation trajectories for large public firms.

© 2008 Elsevier Inc. All rights reserved.

Keywords: Acquisitions; R&D; Patents

1. Introduction

Acquisition activity in the high technology industries of the global economy rose dramatically in the last two decades of the 20th century. An impression of the order of the magnitude of this activity is provided by [Inkpen, Sundaram, and Rockwood \(2000\)](#), who report that acquisitions by firms in computer- and communication-related industries alone accounted for over one-fifth of all US acquisition activity by number, and two-fifths by value during the 1990s. They also report an accelerated trend towards such acquisitions, with their share accounting for nearly 57% of the \$1.75 trillion in total assets acquired in the US between January 1998 and June 1999. Almost every multinational corporation engaged in some acquisition activity in recent years, with Siemens and General Electric acquiring as many as 166 and 110 targets respectively during the period from 1984 to 2000.

[☆] The authors gratefully acknowledge financial support from the ESRC/EPSRC under the AIM initiative, and the CBR core grant. They are grateful to the JHTMR anonymous referees for helpful comments. They also thank Mari Sako, Julian Birkinshaw, Michael Hitt, Paul Kattuman, Dennis Mueller, Thomas Powell, Jaideep Prabhu, Phanish Puranam, Marc Ventresca the referees for the 2005 Academy of Management Conference and the CBR paper series and the seminar participants at the Oxford Intellectual Property Research Centre for their suggestions.

* Corresponding author. Tel.: +44 1865 278805; fax: +44 1865 288805.

E-mail addresses: pdesyllas@gmail.com (P. Desyllas), alan.hughes@cbr.cam.ac.uk (A. Hughes).

¹ Tel.: +44 1223 765335; fax: +44 1223 765336.

This wave of acquisition activity has engendered greater research focus on acquisitions in the high technology sector of the economy. Empirical research to date has focused on the impact of high technology acquisitions on the subsequent innovation performance (Hitt, Hoskisson, Ireland, & Harrison, 1991; Ahuja & Katila, 2001; Cassiman, Colombo, Garonne, & Veugelers, 2005; Prabhu, Chandy, & Ellis, 2005) or market value (Kohers & Kohers, 2000, 2001; Benou & Madura, 2005; Ragozzino, 2006) of the acquirer. The acquisition impact on performance has been conditioned on factors such as the business, organizational and technological fit between the acquirer and the acquired firms (Ahuja & Katila, 2001; Cassiman et al., 2005; Prabhu et al., 2005), the nature of knowledge that is to be transferred (Bresman, Birkinshaw, & Nobel, 1999), the retention of key personnel (Ernst & Vitt, 2000; Ranft & Lord, 2000) and the acquisition implementation process (Capron & Mitchell, 1998; Ranft & Lord, 2002; Puranam, Singh, & Zollo, 2006). In many of these studies, it is implicitly or explicitly assumed that the key acquisition driver is the motive to learn from knowledge sources beyond the boundaries of the firm.

However, there has been limited research on the prevalence of this motive among the thousands of acquisition deals that occur each year compared with alternative explanations, such as the realization of synergies arising from economies of scale and scope and market power or the elimination of inefficiencies in the market for corporate control. There are a few notable exceptions that have touched on this issue. Chakrabarti, Hauschildt, and Suverkrup (1994) report evidence from a survey that 24 of the 86 sample acquirers that made an acquisition during the period 1978–1987 had been primarily motivated by the desire to access new technological knowledge. Blonigen and Taylor (2000) find, using regression analysis and a sample of 531 US electronic and electrical equipment acquisitions during the period 1985–1993, that acquirers had a significantly lower R&D-intensity compared with non-acquirers. They argue that firms in this industry choose between organic growth by internal R&D and external growth through acquisitions. A recent study on the importance of the motive to source knowledge in pursuing equity investment suggests that this motive is particularly present in industries with weak intellectual property protection, with high technological ferment and where complementary distribution capability is important (Dushnitsky & Lenox, 2005).

The present study attempts to enhance our understanding of the incidence of high technology acquisitions by assessing empirically the prevalence of the motive to source technological knowledge externally through corporate acquisition. We argue that, to the extent that high technology firms rely on corporate acquisitions as an external sourcing strategy of technological knowledge, this will be reflected in the pre-acquisition innovative characteristics of the acquirers. Drawing on make-or-buy and organizational learning theories, we develop three complementary hypotheses about the acquirers' innovative characteristics. These characteristics involve a firm's commitment to internal R&D (measured by the ratio of R&D expenditure to total assets), the R&D productivity of the firm's assets (measured by successful patent applications per \$million of total assets), and the firm's accumulated stock of knowledge (measured by a firm's patent stock).

Our first hypothesis is based on a particular interpretation of the make-or-buy approach, which views managers of high technology firms as choosing between either investing in in-house R&D, or sourcing technological knowledge externally through the acquisition of innovative firms (e.g. Blonigen & Taylor, 2000). Hence, a negative relationship is hypothesized between a firm's commitment to internal R&D and the acquisition likelihood. The second hypothesis is rooted in the distinction between explorative and exploitative learning (March, 1991). It is argued that acquisitions can be used as a remedy to the inertia and rigidity resulted in by the ongoing exploitation of a firm's existing knowledge base (Vermeulen & Barkema, 2001). Hence, a negative relationship is hypothesized between the R&D productivity of a firm's assets and the acquisition likelihood. The third hypothesis is based on the notion of absorptive capacity which implies that the accumulated stock of knowledge of a firm enables it to identify, assimilate and exploit knowledge from the environment (Cohen & Levinthal, 1989; Makadok, 2001). It is argued that a large stock of knowledge will predispose firms to undertake acquisition because they perceive that they have the necessary absorptive capacity to identify appropriate targets and to fully exploit their innovative potential. Hence, a positive relationship is hypothesized between a firm's knowledge stock and the acquisition likelihood.

These hypotheses are tested using a unique dataset covering a maximum of 6106 acquisitions of public or private firms and former subsidiaries by publicly traded firms in the major industrial economies during the period 1984–2000. The dataset is rich in geographical and industrial diversity and compares favorably with the samples of previous studies (e.g. Hall, 1988, 1999; Blonigen & Taylor, 2000). By focusing on high technology acquiring firms, we ensure that the generation and commercial exploitation of technological knowledge is an important element in a firm's strategy. In this way, we avoid problems that often arise in studies that use aggregate data from a wide cross-section of industries, since there might exist a differing relationship between acquisitions and innovation activity for high-tech and non-high-tech

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات