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UNIVERSITY EDUCATION:

University of California, Berkeley, CA

- Ph.D. Candidate in Business Administration, Haas Business School (Expected May 2007)
 Topic: "Contracting & Intellectual Property Issues in Technology Commercialization Alliances"
 Committee: David Teece (chair), David Mowery, Robert Merges, Bronwyn Hall
- M.A. in Economics (Completed Aug 2004)
 Fields: Industrial Organization and Economics of Contracts & Institutions
- Education Abroad Program exchange in Department of Economics graduate program (1996-97)

University of Otago, Dunedin, New Zealand

- B.A. (Hons) in Economics with First Class Honours (Completed June 1997)
- L.L.B. (Hons) in Law with First Class Honours (Completed June 1996)

RESEARCH INTERESTS:

- Business Strategy & Policy
- Technology & Innovation Management
- Entrepreneurship
- Economic Analysis of Law
- Economics of Organization & Contracting

RESEARCH & TEACHING EXPERIENCE:

Research Fellow

Center for Law & Biosciences, Stanford Law School, Stanford University, Fall 2006 – Spring 2007

Research Assistant

- Professor David Mowery, Haas Business School, UC Berkeley, Summer 2005
- Professor Pablo Spiller, Haas Business School, UC Berkeley, Spring 2005
- Professor David Teece, Haas Business School, UC Berkeley, Fall 2003 Spring 2004
- Professor Aaron Edlin, Boalt Law School, UC Berkeley, Fall 2002 Spring 2004
- Professor Oliver Williamson, Haas Business School, UC Berkeley, Summer Fall 2002

Graduate Student Instructor

- International Business, Haas Business School, UC Berkeley, Summer 2006
- Microeconomics for Business Decision Making, Haas Business School, UC Berkeley, Fall 2004-5
- Introductory Economics, Dept of Economics, UC Berkeley, Spring 1997
- Intermediate Microeconomics, Dept of Economics, University of Otago, Fall 1996
- Introduction to the Legal System, Faculty of Law, University of Otago, Fall 1995 Fall 1996

Teaching Assistant

- Competitive Strategy, Haas Business School, UC Berkeley, Fall 2006
- Economics of Innovation, Dept of Economics, UC Berkeley, Fall 2006

PROFESSIONAL EXPERIENCE:

Law & Economics Consulting Group (now LECG LLC), California & New Zealand

- Senior Associate in Emeryville, CA office, Mar 2001 July 2001
- Associate in Wellington, New Zealand office, July 1998 July 1999
- Research Analyst in Antitrust Group, Emeryville, CA office, Sept 1997 May 1998

Network Economics Consulting Group (now part of CRA International), Canberra, Australia

• Senior Consultant (working remotely in Wellington, New Zealand), July 1999 – Oct 2000

New Zealand Treasury, Wellington, New Zealand

• Summer Intern in Social Policy and Government Services Branch, Nov 1995 – Feb 1996

Russell McVeagh McKenzie Bartleet & Co., Barristers & Solicitors, Auckland, New Zealand

• Summer Law Clerk, Litigation Department, Nov 1994 – Feb 1995

PUBLICATIONS:

"The Value of Patent Protection in Technology Development Alliances", Chapter 18 in Arino, A. & J. Reuer (eds), *Strategic Alliances: Governance and Contracts*, Palgrave: London, 2006.

INVITED PRESENTATIONS:

- "Start-Up Firm Licensing Strategies for Commercializing Technology Through Alliances: Evidence from Biotechnology".
 - Roundtable for Engineering Entrepreneurship Research, to be held at Georgia Tech, Atlanta, GA, December 1-3, 2006
 - International Society for New Institutional Economics Conference, Boulder, CO, Sept 23, 2006
 - Academy of Management Conference, Honolulu, HI, August 8, 2005

"The Value of Patent Protection in Technology Development Alliances: Evidence from Biotechnology".

- Doctoral Colloquium on Competition & Cooperation, held at Haas Business School, Berkeley, CA, April 16, 2005
- Strategic Alliances: Governance and Contracts Conference, held at IESE Business School, Barcelona, Spain, June 18, 2005.

"Bargaining for Interconnection in a Light-Handed Regulatory Regime"

 Management Strategy in its Business Environment Conference, held at Harvard Business School, MA, March 22, 2003.

"Competition Law & Sports" (with Henry Ergas)

• Australasian Sports Law Association Conference, Sydney, 5 August 1999.

GRANTS AND AWARDS:

- Nominated for Best Student Paper Award at REER conference (to be awarded December 2006)
- Research fellowship under Kauffman Foundation Grant to Professor Robert Merges, 2005-6.
- Bradley Fellowship, Haas Business School, UC Berkeley, 2002-3 & 2004-5.
- California Management Review Fellowship, Haas Business School, UC Berkeley, 2003-4.
- John M. Olin Foundation Fellowship, School of Law, UC Berkeley, 2002-5.
- Haas Business School PhD Fellowship, UC Berkeley, 2001-2.
- Tower Corporation Scholarship in Economics, University of Otago, 1992-1995.
- Beverly Undergraduate Scholarship in Mathematics, University of Otago, 1992.

WORKING PAPERS:

"Have your cake and eat it too: Hybrid strategies for technology commercialization" (Job market paper)

A popular strategy for a start-up technology firm seeking to commercialize an innovation is to enter an alliance with an established product firm but retain some rights to market the alliance product alongside the product firm. This choice of hybrid strategy between exclusive licensing and self-development (known as co-promotion) is puzzling for two reasons. Firstly, since the established product firm has a comparative advantage in marketing & distribution, this arrangement potentially increases the risk and the cost associated with commercializing the innovation. Secondly, since marketing rights are the primary currency in these alliances, by retaining product rights the technology firm foregoes financial payments that could be used to finance further research and development of its own products. Drawing on the transaction-cost and dynamic capabilities (or resource-based) theories of organization, this paper proposes two alternative explanations for why a start-up firm retains copromotion rights in a technology commercialization alliance: (1) by retaining some control over the commercialization process, the technology firm seeks to mitigate the risk that the product firm will 'shelve' the alliance product; and (2) by learning from the product firm during the alliance, the technology firm seeks to acquire the knowledge necessary to commercialize future products alone. The paper then tests these two propositions on a large dataset of alliance contracts from the biotech industry. The empirical analysis reveals that the dynamic capabilities theory is more helpful than the static transaction-cost theory in explaining the allocation of marketing rights in an alliance contract. Nevertheless, firms which retain co-promotion rights do not appear to experience the stronger financial market performance claimed by the industry practitioners. The paper demonstrates that a dynamic framework considering both governance and learning is needed to understand the design of contractual arrangements.

"Patents, Licensing, & Entrepreneurship: Effectuating Innovation in Multi-Invention Contexts" (with Deepak Somaya & David Teece), revisions requested by *California Management Review*.

In recent years, patents have become more valuable as tools to capture value from innovation. Simultaneously, the innovation context has become more complicated, not only because many patents are implicated in "multi-invention" or "systemic" innovation, but also because there is greater dispersal in the ownership of patents. Accordingly, many new products require the use of patents owned by several different entities. This creates both challenges and opportunities for entrepreneurs. Sometimes these challenges are easily worked through; on other occasions it requires "new combinations" not just of patents, but of tangible assets, components, and technologies in order to enable innovations to proceed to market. This paper maps opportunities and challenges, identifies solutions, and discusses how (entrepreneurial) firms have responded to opportunities and challenges.

"The Role of Patent Rights in Supporting Technology Development Alliances: Evidence from Biotechnology"

An alliance between a start-up technology firm and an established product firm is a common arrangement for commercializing a technological innovation. However, if the firms engage in joint research and development, the technology firm must share its technology with its alliance partner and exposes itself to the risk that the alliance partner will expropriate its new knowledge for use outside the alliance. Given the amorphous nature of technological innovation, it is very difficult for the parties to write a contract that completely describes the technology firm's assets and how they may be used. Patent rights provide an alternative, property-based mechanism for delineating the technology firm's contribution and for punishing unauthorized use. In order to analyze how the issue of patent rights affects the timing and structure of technology commercialization alliances, I combine the full dataset of patents granted to all U.S. biotech firms over the period of 1980-2002 with information on all the alliances those firms entered into to develop their technology during that time. A complication in measuring the effect of patent rights on alliance contracting decisions in this industry is that, since a large proportion of patent rights are licensed (rather than assigned) to the technology firm, it is not possible to construct the biotech's portfolio of patent rights from the publicly available patent data. Hence, for a sample of 100 firms I supplement this with a unique dataset of alliance contracts which contains information on all the patents (both licensed and assigned to the technology firm) that were relevant to the alliance. I use this information to construct a panel dataset of alliance entry and contract structure choices for the technology firms over the life cycle of their technology. The results suggest that a technology firm is likely to enter into alliances earlier and to secure more favourable contract terms when it has stronger patent rights.

"Negotiate or Litigate? Strategies for Contracting in a Regulated Industry"

This paper examines a firm's optimal strategy in a situation where it is has the simultaneous options to negotiate an agreement and to litigate for a regulated outcome. The scenario is based on the New Zealand telecommunications market in the 1990s, where the New Zealand Government encouraged the two telecommunications firms to negotiate an interconnection agreement for joining their networks but left open the possibility that it would impose prescriptive regulation if the negotiations broke down. The paper presents a model of two firms negotiating an agreement while simultaneously bidding in an "all-pay" auction for the regulatory agency to set the terms in its favor. The model predicts that firms will negotiate when the potential gain in profits from cooperation is small, but litigate when the potential gain is large.

"Navigating through a congested patent landscape: Strategies for incumbents and entrepreneurs" (with David Mitchell)

The recent 'patent explosion' has triggered a great debate in legal, academic, and policy circles about whether the patent system is broken and how to fix it. Much attention has been focused on whether the proliferation of patents inhibits subsequent inventors from using basic technology (the "anti-commons problem") and how to stop "patent trolls" from using the threat of patent infringement actions to frustrate subsequent innovators without exploiting the patented technology themselves. We argue that these phenomena are temporary side effects of the increasingly important role that IP plays in the modern economy, and will disappear as the markets for IP develop. We examine the way that incumbent technology firms and entrepreneurial "market makers" are adapting to this congested patent landscape, and draw the implications for firm strategy and technology policy.

REFERENCES:

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