

MATTHEW J. HIGGINS

Associate Professor of Strategy & Innovation

September 2016

Scheller College of Business
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ACADEMIC APPOINTMENTS

- 2013 - **Scheller College of Business, Georgia Institute of Technology**
Associate Professor of Strategy & Innovation (with tenure)
- 2007 - 2013 **Scheller College of Business, Georgia Institute of Technology**
The Imlay Assistant Professor of Strategic Management
- 2005 - 2007 **College of Management, Georgia Institute of Technology**
Assistant Professor of Strategic Management
- 2004 – 2005 **J. Mack Robinson College of Business, Georgia State University**
Visiting Assistant Professor of Finance

RESEARCH APPOINTMENTS

- 2012 - **National Bureau of Economic Research**
Research Associate, 2015 –
Faculty Research Fellow, 2012 - 2015

EDUCATION

- Ph.D. Economics, Emory University, Atlanta, GA, December 2004
Dissertation: The impact of research productivity on corporate finance decisions
in the pharmaceutical industry
Dissertation funding: National Science Foundation IGERT Fellowship
Dissertation advisors: Jerry Thursby, George Benston, Marie Thursby
- M.A. Economics, University of Akron, Akron, Ohio
B.A. Economics, University of Akron, Akron, Ohio, *cum laude*
B.A. Political Science, University of Akron, Akron, Ohio, *cum laude*
Brandeis University, Waltham, Massachusetts

AREAS OF INTEREST

- Pharmaceutical economics
Economics of innovation
Corporate strategy
Applied econometrics

RESEARCH

SSRN: <http://ssrn.com/author=85850>

Google Scholar: <http://scholar.google.com/citations?user=4XHZ6-UAAAAJ>

REFERRED PUBLICATIONS:

- [1] Higgins, M.J., Rodriguez, D., 2006. The outsourcing of R&D through acquisition in the pharmaceutical industry, **Journal of Financial Economics** 80, 351-383.
- [2] Higgins, M.J., Levy, D., Young, A.T., 2006. Growth and convergence across the U.S.: Evidence from county-level data. **Review of Economics and Statistics** 88(4), 671-681.
- [3] Higgins, M.J., 2007. The allocation of control rights in pharmaceutical alliances. **Journal of Corporate Finance** 13, 58-75.
- [4] Young, A.T., Higgins, M.J., Levy, D., 2008. Sigma convergence versus beta convergence: Evidence from U.S. county-level data. **Journal of Money, Credit and Banking** 40(5), 1083-1093.
- [5] Higgins, M.J., Levy, D., Young, A.T., 2008. Robust correlates of county-level growth in the U.S. **Applied Economic Letters**, 1-4.
- [6] Higgins, M., Young, A., Levy, D., 2009. Federal, state and local governments: Evaluating their separate roles in US growth? **Public Choice** 139, 493-507.
- [7] Higgins, M.J., Graham, S., 2009. Balancing innovation and access: Patent challenges tip the scales. **Science** 326, 370-372.
- [8] Ceccagnoli, M., Graham, S, Higgins, M.J., Lee, J., 2010. Productivity and the role of complementary assets in firms' demand for technology innovations. **Industrial and Corporate Change** 19(3), 839-869.
- [9] Adegbesan, T., Higgins, M.J., 2011. The intra-alliance division of value created through collaboration. **Strategic Management Journal** 32(2), 187-211.
- [10] Higgins, M.J., Stephan, P., Thursby, J., 2011. Conveying quality and value in emerging industries: Star scientists and the role of learning in biotechnology. (NBER working paper 14602). **Research Policy** 40(4), 605-617.
- [11] Young, A., Higgins, M.J., Levy, D., 2013. Heterogeneous converge. **Economic Letters** 120, 238-241.
- [12] Khelifa, A., Garrow, L., Higgins, M.J., Meyer, M., 2013. The impacts of climate change on scour-vulnerable bridges: an assessment of HYRISK. **ASCE Journal of Infrastructure Systems** 19(2): 138-146.

[13] Haeussler, C., Higgins, M.J., 2014. Strategic alliances: Trading ownership for capabilities. (NBER working paper 18364). **Journal of Economics and Management Strategy** 23(1), 178-203.

[14] Ceccagnoli, M., Higgins, M.J., Palermo, V., 2014. Behind the scenes: Sources of complementarity in R&D. (NBER working paper 18795). **Journal of Economics and Management Strategy** 23(1), 145-178. (Recognized as the second most cited JEMS article in 2015.)

[15] Mumbower, S., Garrow, L., Higgins, M.J., 2014. Estimating flight-level price elasticities using online airline data: A first step towards integrating price, demand and revenue optimization. **Transportation Research Part A** 66, 196-212.

[16] Higgins, M.J., Thursby, J., Thursby, M., 2014. Bench-to-bench: New results on bottlenecks in translational research. **Science Translational Medicine** 6, 250fs32.

[17] Hotle, S., Garrow, L., Higgins, M.J., 2015. The effect of advance purchase deadlines on airline customer behavior. **Transportation Research Part A** 82, 1-16 (Lead article).

[18] Branstetter, L., Chatterjee, C., Higgins, M.J., 2016. Regulation and welfare: Evidence from Paragraph-IV generic entry in the pharmaceutical industry. NBER working paper 17188. *Forthcoming* **RAND Journal of Economics**.

NON-REFERRED & PRACTITIONER PUBLICATIONS:

[1] Knowles, S., Higgins, M., 2011. Vertical disintegration in the pharma industry and the role of IP. **Intellectual Asset Management** 45, 10-15.

[2] Knowles, S., Bellows, B., Higgins, M., 2012. Robin Hood, the Magna Carta and the European convention on human rights. **Intellectual Asset Management** 52, 24-30.

[3] Haeussler, C., Higgins, M.J., 2013. Preferences for control rights in strategic alliances: A property rights and capabilities perspective approach. **Academy of Management Best Paper Proceedings** 1, 12294.

[4] Palermo, V., Higgins, M.J., Ceccagnoli, M., 2014. How reliable is the market for technology? **Academy of Management Best Paper Proceedings** 1, 17031.

PUBLISHED BOOKS AND CHAPTERS:

[1] Higgins, M.J., 2007. Introduction to finance and the valuation of early stage technologies. In G. Libecap (Ed.), *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, Volume 18, Elsevier.

PAPERS UNDER REVIEW:

[1] Ceccagnoli, M., Higgins, M.J., Kang, H., 2016. Corporate venture capital as a real option in the market for technology. NBER working paper 21424. (Third round revise and resubmit: **Strategic Management Journal**)

[2] Palermo, V., Higgins, M.J., Ceccagnoli, M., 2016. Assets with ‘warts’: How reliable is the market for technology? NBER working paper 21103. (Second round revise and resubmit, **Review of Economics and Statistics**)

[3] Branstetter, L., Chatterjee, C., Higgins, M.J., 2016. Starving (or fattening) the golden goose: Generic entry and incentives for early-stage pharmaceutical innovation. NBER working paper 20532. **Under review.**

[4] Young, A., Higgins, M.J., Lacombe, D., Sell, B., 2015. The direct and indirect effects of SBA lending on growth: Evidence from U.S. county-level data. NBER working paper 20543. (Revise and resubmit: **Contemporary Economic Policy**)

[5] Lurkin, V., Garrow, L., Higgins, M.J., Newman, J., Schyns, M., 2016. Accounting for price endogeneity in airline itinerary choice models: An application to continental US markets. (Revise and resubmit: **Transportation Research Part A**)

[6] Lurkin, V., Garrow, L., Higgins, M.J., Newman, J., Schyns, M., 2016. A comparison of departure time of day formulations. (Revise and resubmit: **Journal of Air Transport Management**)

WORKING PAPERS:

[1] Arora, A., Branstetter, L., Chatterjee, C., Higgins, M.J., 2016. Strong medicine? TRIPs, Hatch-Waxman and the evolution of the Indian pharmaceutical industry.

[2] Haeussler, C., Higgins, M.J., Hochhold, S., 2016. Early or first?: Financial and technological returns to corporate venture capital investing.

[3] Hamilton, B., Higgins, M.J., Papageorge, N., White, M., 2016. How venture capital markets affect innovation: Evidence from biotech funding.

[4] Ceccagnoli, M., Higgins, M.J., 2016. Enhancing research productivity and firm performance through acquisitions.

[5] Higgins, M.J., Robertson, B., 2015. What does the market *really* think about your acquisition?: Evidence from the CDS market.

WORKS IN PROGRESS:

[1] Is the rising tide of generic entry changing the nature of drug innovation? (with Lee Branstetter and Chirantan Chatterjee)

[2] Assessing risk-adjusted pharmaceutical productivity

[3] Reaching the efficient frontier: Are pharmaceutical firms dynamically optimizing risk-adjusted R&D portfolios?

[4] Does the market for technology *really* enhance risk-adjusted productivity? (with Marco Ceccagnoli)

[5] Probing in Europe, attacking in the U.S.: Are European patent oppositions precursors to Paragraph IV challenges? (with Carolin Haeussler and Stuart Graham)

[6] Firm response to indirect competition: Evidence from the pharmaceutical industry (with Chirantan Chatterjee and Lee Branstetter)

[7] The ripple effect: Exploring the impact of vertical acquisitions on rival firms (with Vikram Nanda and Hyunsung Kang)

[8] Fair trade or a raw deal?: Examining the outcomes from strategic alliance contract negotiation (with Carolin Haeussler)

SPECIAL REPORTS:

[1] *Biotechnology Industry Public and Private Alliance Characteristics* (with Jerry Thursby and Marie Thursby), 2008. Prepared for the Office of Science Policy Analysis, Office of the Director, National Institutes of Health, and included in the “NIH Competitiveness Project” workshop.

[2] *The Nexus of NIH Funding for University Science and Biopharmaceutical Applications* (with Jerry Thursby and Marie Thursby), 2010. Prepared for the Office of Science Policy Analysis, Office of the Director, National Institutes of Health, and included in the “Why Invest In Biomedical Research?: How to Frame Return on Investment Analyses” workshop.

[3] *Commercialization of University Inventions: Peeking Inside the Black Box* (with Jerry Thursby and Marie Thursby), 2011. Prepared for the Office of Science Policy Analysis, Office of the Director, National Institutes of Health.

TEACHING MATERIALS:

[1] Teaching note for chapter “Introduction to finance and the valuation of early stage technologies” In G. Libecap (Ed.), *Advances in the Study of Entrepreneurship, Innovation, and Economic Growth*, Volume 18, Elsevier, proceedings of the Kauffman Workshop on “Graduate Education in Technology Commercialization: From Research to Pedagogy,” Georgia Institute of Technology, April 2009.

GRANTS AND EXTERNAL FUNDING (TOTAL FUNDING TO DATE: \$3,533,722.10)

[1] National Science Foundation IGERT Fellowship
2003-2004 (\$60,000)

- [2] Greater Atlanta Regional Grants for the Study of Entrepreneurship and Productivity
2007 (\$25,520)
- [3] National Institutes of Health
2007 (\$30,000)
- [4] Greater Atlanta Regional Grants for the Study of Entrepreneurship and Productivity
2008 (\$16,202.10)
- [5] Center for International Business Education and Research (GT CIBER)
2008 (\$3,000)
- [6] IMS Health, Inc.
2008 (\$2.4 million)
- [7] National Institutes of Health
2009 (\$60,000)
- [8] Rich Foundation
2009 (\$7,100)
- [9] Center for International Business Education and Research (GT CIBER)
2010 (\$1,400)
- [10] Pfizer, Inc.
2010 (\$22,500)
- [11] National Science Foundation, Science of Science and Innovation Policy
2011 (\$100,000)
- [12] IMS Health, Inc.
2011 (\$400,000)
- [13] National Institutes of Health
2011 (\$100,000)
- [14] National Science Foundation, Science of Science and Innovation Policy
2014 (\$306,000)
- [15] Rich Foundation
2015 (\$2,000)

AREAS OF TEACHING EXPERIENCE:

GEORGIA INSTITUTE OF TECHNOLOGY

UNDERGRADUATE

- Managerial Economics
- Strategic Management
- Managerial Statistics

MASTERS (MBA)

- Competing in the Health Sciences
- Managerial Economics I & II
- Macroeconomics of the Business Environment

MULTIDISCIPLINARY: Ph.D. (Science, Engineering)/M.B.A. (Business)/ JD (Law)

- Technological Innovation and Entrepreneurship (Sessions: Valuation of New Technologies)

GRADUATE (PHD)

- Strategic Management Research I

EXECUTIVE EDUCATION

- Managerial Economics

PRIOR TEACHING EXPERIENCE

UNDERGRADUATE

- Principles of Microeconomics
- Financial Analysis and Introduction to Loan Structuring

MASTERS (MBA)

- Valuation of Financial Assets

SERVICE

Activities:

1. Georgia Institute of Technology Summer Reading Program, 2006
2. Georgia Institute of Technology, College of Management, Business Law Hiring Committee, 2007-2008
3. Georgia Institute of Technology, Office of Assessment, International Plan Assessment Committee, 2008
4. Georgia Institute of Technology, College of Management, Undergraduate Task Force, 2008-2009
5. Georgia Institute of Technology, Institute Undergraduate Curriculum Committee, 2008-2014
6. Georgia Institute of Technology, Scheller College of Business, Business Analytics Hiring Committee 2013-2014
7. Georgia Institute of Technology, Scheller College of Business, Strategy & Innovation undergraduate concentration development, 2014-2016.
8. Georgia Institute of Technology, Scheller College of Business, Undergraduate Curriculum Committee, 2005 –

Directed studies:

1. Vitor Kamada (Spring 2015)
2. Eirini Christodoulaki (Summer/Fall 2014; Spring 2015)
3. Yash Kolambkar (Spring 2009)
4. Hyunsung Kang (Fall, 2008)
5. Darryl Richard (Summer, 2008)
6. Salma Habib, Presidential Undergraduate Research Award (Summer 2007)
7. Jason Kosmann (Summer, 2007)
8. Nick Sarkisian (Spring, 2007)

Doctoral Thesis Committees: (Student, school, graduation year, initial placement.)

1. Virginie Lurkin (University of Liege, *current*)
2. Xin Yang (Emory University, Economics, *current*)
3. Briana Sell (Georgia Tech, SCoB, 2015): Mercer University
4. Susan Hotle (Georgia Tech, CoE, 2015): Virginia Tech
5. Vincenzo Palermo (Georgia Tech, SCoB, 2013): University of Toronto
6. Stacey Mumbower (Georgia Tech, CoE, 2013): University of South Carolina
7. Donald Katz (Georgia Tech, CoE, 2012): Delta Airlines (Atlanta)
8. Handie Peng (Emory University, 2012): KPMG (New York)
9. Hyungsung Kang (Georgia Tech, CoB, 2012): Adelphi University
10. Chirantan Chatterjee (Carnegie Mellon, 2011): IIM, Bangalore
11. Andrew Hess (Georgia Tech, CoB, 2008): University of Virginia

NEWS MENTIONS

The Innovation Files, 8 January 2015
Washington Post, 14 October 2014
OpenHealthNews, 6 October 2014
Biotech Week, 3 September 2014
Fierce Biotech Research, 25 August 2014
Outsourcing-Pharma.com, 21 August 2014
Science Daily, 20 August 2014
The Australian, 3 October 2011
South China Morning Post, 3 October 2011
Fortune, 11 March 2011
Atlanta Business Chronicle, 23 October 2009
PharmaTech.com, 23 October 2009
The Economist, 1 January 2009
Thedeal.com, 13 January 2008
Thedeal.com, 10 January 2008
Atlanta Business Chronicle, 3 November 2006
Jerusalem Post, 16 February 2006

AD HOC REVIEWER

Science; National Institute of Health; Journal of Corporate Finance; Journal of Economic Behavior and Organization; Journal of Finance; Journal of Financial Economics; Management Science; Managerial and Decision Economics; Research Policy; Economics

of Education Review; Journal of Financial Research; Journal of Law, Economics and Organization; BEP – Forum for Health Economics and Policy; Strategic Management Journal; Review of Industrial Organization; Social Sciences and Humanities Research Council of Canada (SSHRC); Academy of Management Perspectives; Economic Inquiry; National Science Foundation; Oxford University Press.

TEACHING AWARDS

Class of 1940 Course Survey Teaching Effectiveness Award, 2016 (Institute-wide)
Full-time MBA Core Professor of the Year, 2015
Georgia Institute of Technology, Thank a Teacher Program Award, 2014
Professor of the Year, 2013: Global Executive MBA
Professor of the Year, 2012: Global Executive MBA

HONORS

Academy of Management, Best Paper Proceedings, 2013, 2014
The Imlay Professorship, 2007 - 2012
National Science Foundation IGERT Fellowship 2003-2004 (Grant: 0221600)
University Fellowship, Emory University, 1999-2003
University Fellowship, University of Akron, 1996-1998
Dean's List: 1992-1996
Gold Key National Honor Society
Omicron Delta Epsilon

ASSOCIATIONS

American Economic Association (AEA)
Academy of Management (AoM)

COMMUNITY

1. United States Selective Service Region II Local Board Member (Appointed by Governor), 2010 – 2016
2. Member, Board of Directors, Ainsley Paige Higgins Dare-to-Hope Foundation, 501C(3), 2010 – 2015
3. Member, Board of Directors, Georgians for Fair Taxation, 501C(4), 2014
4. Children's Healthcare of Atlanta, Circle of Courage (2014)

PRESENTATIONS/DISCUSSIONS:

2016: Northwestern University, Chicago, IL

2015: National Bureau of Economic Research, Boston, MA
University of Passau, Passau, Germany
Boston University, Boston, MA

2014: UCLA, Los Angeles, CA
Tulane University, New Orleans, LA
Academy of Management, Philadelphia, PA

- 2013:** Washington University, St. Louis, MO
 Emory University, Department of Economics, Atlanta, GA
 Industry Studies Conference, Kansas City, MO
 DRUID, Barcelona, Spain
 Academy of Management, Orlando, FL
 University of Passau, Passau, Germany
- 2012:** University of Illinois, Champagne-Urbana, IL
 National Academy of Sciences, Washington, D.C.
 Ludwig-Maximilians Universitat, Munich, Germany
 University of Passau, Passau, Germany
 Academy of Management, Boston, MA
 USPTO Conference on Patents, Innovation and Entrepreneurship,
 Washington, DC.
- 2011:** University of Passau, Passau, Germany
 National Bureau of Economic Research Summer Institute, Boston, MA
 West Virginia University, College of Business & Economics, Morgantown, WV
 Emory University, Department of Economics, Atlanta, GA
- 2010:** Academy of Management, Montreal, Canada
 National Institutes of Health, Bethesda, MD
- 2009:** Ludwig-Maximilians Universitat, Munich, Germany
 Academy of Management, Chicago, IL
- 2008:** Ludwig-Maximilians Universitat, Munich, Germany
 The Institut D'Economie Industrielle (IDEI) Toulouse, France
 American Economic Association, New Orleans, LA
 National Bureau of Economic Research Biopharmaceutical Conference,
 Savannah, GA
- 2007:** National Institutes of Health, Bethesda, MD
 University of California, Berkley, CA
 Academy of Management, Philadelphia, PA
 Roundtable for Engineering Entrepreneurship Research (REER),
 Georgia Tech, Atlanta, GA
- 2002-2006:** Georgia Institute of Technology, College of Management, Atlanta, GA
 Roundtable for Engineering Entrepreneurship Research (REER),
 Georgia Tech, Atlanta, GA
 University of Georgia, Terry College of Business, Athens, GA
 Southern Economic Association, San Antonio, TX
 Emory University, Department of Economics, Atlanta, GA
 Southern Economic Association, New Orleans, LA