

By Glenda Vosburgh

DISSERTATIONS SHOWCASE **PHD PROGRAMS'** QUALITY AND RELEVANCE



This issue of **MANAGEMENT** celebrates the magazine's 20th anniversary. Ten years ago, to commemorate the 10th anniversary, a new feature was launched, **Management Research Frontiers**. Though the forerunner of **JSOM Research Ventures**, it had the same goals:

- To showcase the impact and volume of faculty research.
- To share Jindal School research that has significant and practical applications to current business problems.
- To demonstrate that research is a fundamental building block of higher education.
- To give readers something in each issue that has significant implications for the practice of business.

Management Research Frontiers initially showcased papers and studies of the school's senior research professors, but over the years, a variety of work — including that of graduate and undergraduate students — has been highlighted.

This issue introduces some recent Jindal School PhD graduates and the research they undertook to earn their doctorates and their positions in academia. Their work underscores the successful efforts of the Jindal School's PhD programs in management science and international management studies to ready highly trained graduates prepared for careers in academic, research and industry positions.

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PAUL MASON, PhD in Management Science with a concentration in finance, 2015



CURRENT POSITION: Assistant Professor of Accounting, Baylor University

PREVIOUS EXPERIENCE: Certified public accountant for five years with PricewaterhouseCoopers and EKS&H

DISSERTATION DETAILS: My experience as a tax CPA led me to focus on things in my research during my time at JSOM that had been concerns for my clients. That research became two chapters in my dissertation. I used the Taxpayer Relief Act of 1997 and the Jobs and Growth Tax Relief Reconciliation Act of 2003, both of which reduced the tax rate on capital gains income, to identify the capital gains tax

effect on acquisition activity and the price an acquiring firm is willing to pay for a target. Both papers have important tax-policy implications. As the debate in Congress continues over the appropriate

capital gains and dividend tax rates, my research informs this debate by showing how capital gains taxes affect the acquiring firm's tax incentives.

RESEARCH RESULTS: My findings were a bit surprising, as I was unsure whether acquiring firms would immediately respond to capital gains tax-rate changes, if at all. We knew these tax rates affect the target firm (the one being purchased), but we didn't know if the acquiring firm was impacted. I was surprised to see that acquiring firms, specifically private-equity firms, pay significantly higher prices in response to the capital gains tax-rate reduction. This sug-

gests that these firms extract significant tax benefits and, in part, pass this on to the target firm by way of higher purchase prices. From the perspective of target-firm shareholders, my findings provide understanding as to how acquiring firms evaluate acquisitions and may help during negotiations.

Currently, my dissertation chapters are under review at *The Journal of Finance* and *The Journal of the American Tax Association*.

The research I did at JSOM, which I used in my dissertation, was directly responsible for my current teaching position at Baylor University. The research also provides a foundation for the tax classes that I teach.

RESEARCH INTERESTS: Taxes and capital markets, financial-statement disclosure, organizational structure and private equity

DISSERTATION CHAIRS' COMMENTS:

Dr. Harold Zhang, professor of finance and coordinator of the Finance and Managerial Economics Area, and Dr. Suresh Radhakrishnan, Constantine Konstans Distinguished Professor of Corporate Governance and Accounting, co-chaired Mason's dissertation committee.

Zhang described his former student's research topic as being very important. "Experts will tell you that, for any investor, this is a complicated area and people haven't had a good grasp of who gets what in these situations," he said. "What Paul did was see how tax law changes would affect mergers and acquisitions, and his findings were important from that perspective."

"Paul's dissertation was innovative and creative in the topic of both accounting and finance," Radhakrishnan said. "His topic is important at a policy level and an upper-management level."

"Paul got interviews with five top universities, including Duke University and New York University, and I'm sure he would have gotten offers from at least two more schools based on his research and his personality. He's a very intelligent and well-rounded person. While he was attending school here, he also participated in a bike race and a triathlon, and he took up wine-making as a hobby."



Harold Zhang



Suresh Radhakrishnan

ABHIJEET GHOSHAL, PhD in Management Science with a concentration in information systems, 2011

CURRENT POSITION: Assistant Professor, University of Louisville

PREVIOUS EXPERIENCE: Two years with a large manufacturing company, then two years in a software development company.

Right from day one in the first company, I saw how central IT systems are to the day-to-day functioning of a large organization. There, I learned the importance of data analysis in improving process efficiency; we used reports pulled from SAP every month to determine what drove shortfalls in the production schedules. This exposure, coupled with subsequent software development and project management experience at the second company, motivated my interests in analytics and that is how I ended up choosing my dissertation topic.

DISSERTATION DETAILS: My dissertation was about the development and deployment of recommender systems, which are playing a crucial role in the rapid growth of online businesses. These systems track purchases and other interactions of customers with a firm’s website and recommend products that the customers may be interested in purchasing. Often such

recommendations are recognized by the catchphrase “Customers who purchased this also purchased...” that many of us have encountered at such sites as Amazon.com. Developing sophisticated algorithms for these systems is a hot and exciting area of research, and my goal was to do research that crossed science and business.

Everything about my research was a learning experience for me. After maybe two months of scratching my head because I couldn’t figure things out, then to suddenly unearth a solution was very exciting.

RESEARCH RESULTS: My dissertation consisted of three essays, two of which proposed new algorithms to improve recommendations in different contexts. In one essay, I developed an algorithm to mine association rules that maximize the probability of cross-selling by considering the best set of items to recommend. In the other essay, I showed how information contained in different mined rules could be elegantly combined using information theoretic approaches. The underlying problem can blow up combinatorially, and is computationally difficult in theory.

I develop heuristics that are not only very fast — because customers expect online recommendations in a few seconds at most — but also



are shown to find optimal solutions in the vast majority of instances. These algorithms achieve improvements in predictions ranging from 3 percent to 18 percent on various real-world datasets, as compared to existing methods.

Improvements of this scale can add many millions of dollars to the bottom lines of companies that deploy these systems.

My experience at the Jindal School and the support and guidance of the faculty there have changed my life. In addition to my professional development, I met my wife, Mili, who also was doing a PhD at the Jindal School. We are now proud parents of a 2-year-old son.

RESEARCH INTERESTS: Recommender system design, data analytics, data privacy and the economics of information systems

PUBLICATIONS FROM DISSERTATION

RESEARCH: Ghoshal, Abhijeet, S. Menon and S. Sarkar, “Recommendations Using Information from Multiple Association Rules: A Probabilistic Approach,” *Information Systems Research*, Vol. 26, Issue 3, September 2015: 532-551.

Ghoshal, Abhijeet and S. Sarkar, “Association Rules for Recommendations with Multiple Items,” *INFORMS Journal on Computing*, Vol. 26, Issue 3, Summer 2014: 433-448.

DISSERTATION CHAIR’S COMMENTS:

“Algorithms are increasingly shaping many aspects of our lives, and recommendation systems are another fertile area for businesses to exploit,” said Ghoshal’s advisor, Dr. Sumit Sarkar, Charles and Nancy Davidson Chair of Information Systems and director of the Jindal School PhD programs. “The challenge is to develop algorithms that are not only able to accurately predict customers’ preferences but also to do so in fractions of a second. As part of his dissertation, Abhijeet has developed clever machine-learning techniques to tackle such problems. These algorithms not only outperform state-of-the art approaches but also have strong theoretical grounding, a hallmark of good research.”



Sumit Sarkar

YANG BO, PhD, Management Science with a concentration in operations management, 2017

CURRENT POSITION: Assistant Professor, Decision Sciences and Managerial Economics, The Chinese University of Hong Kong

DISSERTATION DETAILS: Since I started my PhD study immediately after completing my undergraduate education, I was inexperienced in the process of research when I started working on my dissertation. Working closely with my advisors on the first paper, which analyzed a problem in supply chain distribution, greatly helped me learn the necessary skills to do scientific work. I also learned a lot about how to write a paper to disseminate my research; rigor and expository clarity are both important. Through the process of submitting and eventually publishing this paper, I learned the importance of responding comprehensively and clearly to reviewers.

With the experience gained through the first paper, I was able to confidently embark on and

successfully execute my second and third papers much more independently. One was a study of resource-sharing using a non-monetary currency referred to as scrips. Another focused on one of the most fundamental topics in our area, namely, "process capacity," which is a measure of how many units per hour or customers per hour a process can produce or serve. The topics I studied in my dissertation, particularly process capacity, are important to operations management. So, I am hoping to introduce some ideas from my dissertation to undergraduate and master's students when I teach.

A good project always takes a tremendous amount of time and energy, but an intense interest in a project provides the energy for persevering on it. I also believe that good collaborations can have a tremendous positive impact on one's research success. I have had good collaborations with my advisors at Jindal, and my discussions with them have provided me with invaluable insights about research.



RESEARCH INTERESTS:

Studying problems that are of interest to the OM research community and are mathematically challenging. For example, the on-demand economy, which gives rise to fundamental supply-demand matching problems.

PUBLICATIONS FROM DISSERTATION

RESEARCH: Bo, Yang, M. Dawande, G. Janakiraman and S.T. McCormick, "On Integral Policies in Deterministic and Stochastic Distribution Systems," *Operations Research*, Vol. 65, Issue 3, May-June 2017: 703-711.

Bo, Yang, M. Dawande and G. Janakiraman, "Analysis of Scrip Systems: On an Open Question in Johnson et al. (2014)," *Operations Research*, forthcoming.

Bo, Yang, M. Dawande, T. Huh, G. Janakiraman and M. Nagarajan, "On Finding Process Capacity," *Manufacturing & Service Operations Management*, forthcoming.

DISSERTATION CHAIRS' COMMENTS:

"Professor Milind Dawande (Ashbel Smith Professor and coordinator of the Operations Management Area) and I had the privilege of jointly advising Yang on his doctoral dissertation," said Dr. Ganesh Janakiraman, Ashbel Smith Professor of Operations Management. "He is an extremely talented scholar – very bright, creative, hardworking and independent. Yang's dissertation focused on some of the most fundamental concepts in operations management and is useful for understanding how much a process can produce or serve over any period of time."



Milind Dawande



Ganesh Janakiraman

WEICHIEH SU, PhD in International Management Studies with a concentration in international business, 2013

CURRENT POSITION: Associate Professor, International Business, National Chengchi University, Taiwan

PREVIOUS EXPERIENCE: NCCU was my first placement after I graduated in 2013. I was promoted from an assistant professor to an associate professor this year.

DISSERTATION DETAILS: My dissertation explores how corporate nonmarket behaviors — that is, corporate philanthropy and corporate social responsibility — affect corporate financial performance. Corporate social responsibility — CSR — was not a mainstream topic when I was a doctoral student at UT Dallas. Even the concept of CSR is quite controversial in business school nowadays. I like the uniqueness of this topic.

RESEARCH RESULTS: My dissertation consisted of two studies that demonstrated the relevance of corporate social responsibility to busi-

ness performance and operations.

In the first study, I was able to show that firms with a high level of product diversification can earn a profit by having good relationships with their business-related nonprofits, in accordance with their product scope.

My second study examined the signaling value of firms that are socially responsible in emerging economies. I was able to show that firms may provide a quality signal to their stakeholders by being “good” in emerging economies, where there is often a lack of well-established institutions to evaluate the capability of the firm. This signaling effect may diminish when the institutional environment becomes better, or when information is well-circulated in the market.

In my current position, my research in this area definitely helps me a lot when I lecture. I feel lucky that now several major business schools in Taiwan emphasize business ethics and corporate social responsibility. In my school, business ethics is a required course for all business school students. I am able to teach my students, not just from a normative perspective



— that is, as a manager, what you should or should not do — but also from an instrumental viewpoint — that is, how you can do something in order to benefit your company more.

RESEARCH INTERESTS: My research interests are social issues in management. I believe that companies are not — or cannot be — organizations that only care for economic actions. Companies are also actors embedded in society that may influence people’s lives.

PUBLICATIONS FROM DISSERTATION

RESEARCH: Su, Weichieh and E.W.K. Tsang, “Product Diversification and Financial Performance: The Moderating Role of Secondary Stakeholders,” *Academy of Management Journal*, Vol. 58, Issue 4, August 2015: 1128-1148.
Su, Weichieh, M.W. Peng, W. Tan and Y.L. Cheung, “The Signaling Effect of Corporate Social Responsibility in Emerging Economies,” *Journal of Business Ethics*, Vol. 134, Issue 3, March 2016: 479-491.

DISSERTATION CHAIR’S COMMENTS:

“When Weichieh asked me to be his advisor, social responsibility was not my research area,” Dr. Eric W. K. Tsang, Dallas World Salute Distinguished Professor of Global Strategy, said. “But I want students to explore areas that they have a passion for, and he had a strong interest in social responsibility from the beginning.”

Tsang was impressed by the fact that Su came up with the core ideas of his dissertation on his own, and that he was able to identify research topics that have theoretical significance and important practical implications.

“Moreover, he is a meticulous researcher, paying close attention to details,” Tsang said. “For example, to ensure accuracy he personally entered on an Excel spreadsheet extensive data available in hard copies although he could have paid an assistant to do that for him. He also continues to upgrade his statistical modeling skills.

“His genuine interest in doing research is an essential attribute that we expect from students in our doctoral program.” 20



Eric Tsang