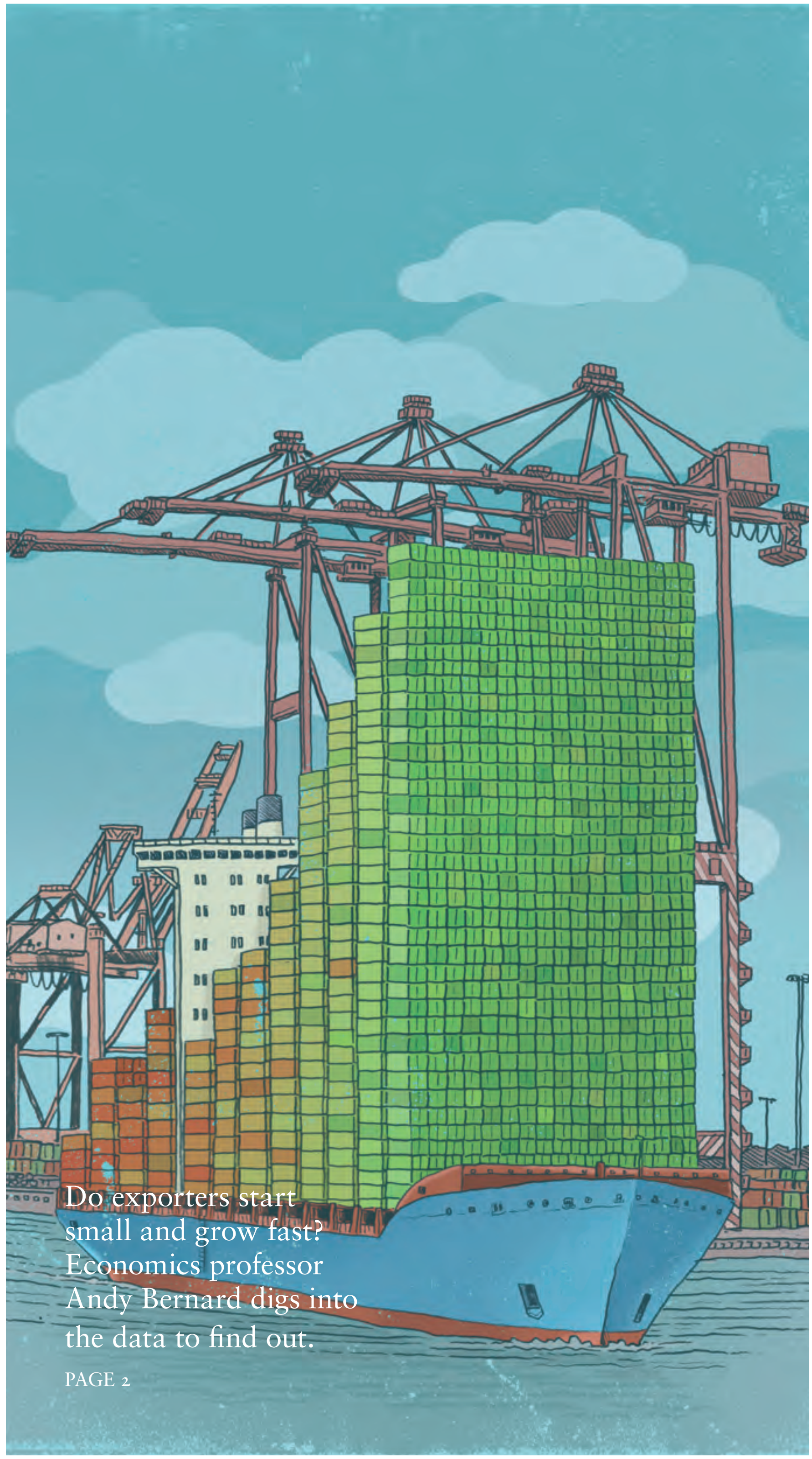
A REPORT ON NEW RESEARCH FROM THE TUCK SCHOOL OF BUSINESS AT DARTMOUTH | FALL 2014

Tuck Forum



Do exporters start small and grow fast? Economics professor Andy Bernard digs into the data to find out.

PAGE 2

What Really Grows Exports

Andrew Bernard fact-checks a common trade narrative.

In 2012, the World Bank released a document called the "Trade Competitiveness Diagnostic Toolkit," which was written to help developing nations increase their exports and thereby grow their economies. The link between exports and economic growth is well established. Studies have shown, for example, that exporting firms are on average more productive, more capital intensive, and pay better wages than non-exporters. As the document notes, "the richer countries become, the more they tend to trade; and countries that are most open to trade grow richer more quickly." It's no wonder, then, that advising countries about export-boosting policies falls squarely within the World Bank's mission to end extreme poverty by 2030.

For years, the World Bank and other similar organizations have looked to academic research to understand the microeconomic factors that increase exports. The stories told in that research suggest that new exporters tend to start small and, if they survive their first year of exporting, grow extremely rapidly. Those conclusions have in turn generated many papers that attempt to explain the start-small-grow-fast phenomenon, attributing it to the benefits of learning, experimentation, and understanding the reliability of partners.

But Andrew Bernard, the Jack Byrne Professor of International Economics at Tuck, has seen a problem with this narrative: it's based on export data that has been aggregated and then annualized, rendering it easily expressible but also misleading. Bernard and co-authors Renzo Massari, Jose-Daniel Reyes, and Daria

Taglioni lay out their corrective analysis in "Exporter Dynamics, Firm Size and Growth, and Partial Year Effects," a new working paper for the National Bureau of Economic Research.

The problem they describe is surprisingly simple. Say two firms enter the export market in 2012, one in January and the other in November. Assume their monthly performance is identical. The annualized data will show 12 months of sales for the firm that entered in January, and just two months of sales for the firm that started in November. Therefore, the January firm will appear six times bigger for 2012. If the November firm lasts through the end of 2013, the annualized data will show a huge increase in its sales from 2012 (where there were only two months of transactions) to 2013 (where there were 12 months of transactions).

Both conclusions run counter to the reality of exporting. "The idea that exporters start especially small is not consistent with an existing body of work that says there are big costs to enter the market," Bernard says. "And the rapid growth doesn't align with the fact that if you start at the correct (larger) level, you will grow at a normal rate."

Bernard and his co-authors show the perils of annualized data by adjusting for partial-year effects in Peruvian customs data from 1993-2009. They chose Peru because it is a relatively big, middle-income nation that has emphasized exports as a source of economic growth. In all, the data covers 2,352 firms who exported for at least four consecutive years.

The authors first report on export levels of new firms. The annualized data shows that 75 percent of new entrants are smaller than their within-sample average. When adjusted for partial-year effects, however, the new exporters look much like other firms: just 46 percent are smaller than average. "Adjusting for the month of entry and allowing first-year exports to represent 12 months for each firm raises the size of entrants substantially," they write.

The partial-year effect on firm growth rates is even larger. The calendar-year data paints quite an optimistic picture for firms who survive their first year of exporting: 146 percent growth from Year 1 to Year 2. For the next two years, growth evens out at about 30 percent per year. But adjusting for the starting month of exporting has profound repercussions. Firms no longer skyrocket in their first year, but grow at a reasonable pace of 25 percent, which then becomes 20 and 23 percent in years two and three respectively. "That's a phenomenal difference," Bernard says. "It's almost unbelievably big."

How has this discrepancy managed to evade academics? In part, because researchers often received data from governments in annualized form, and they didn't think to question it. But it's also due to human nature. "We are heavily conditioned to think in calendar years," Bernard says. "We want to know who sold the most in 2012, not from July 2011 to June 2012. We just don't respond naturally to that."

For organizations like the World Bank, the implications of the partial-year effect are wide-ranging. New exporters are probably more important for economic growth than was previously thought. That means policy experts will need to reassess the determinants of exporter success, shifting the focus away from learning and experimentation to reducing the barriers that prevent small and medium firms from entering export markets—things like expensive export licenses and onerous incorporation rules.

"I argued for a long time that if you wanted to grow exports in the first two years, you needed to focus on the big firms," Bernard says. "That's still true, but this research suggests it's a little less true. And that's good news because it means the dynamism in the market is robust."

—Kirk Kardashian

A. Bernard, R. Massari, J.D. Reyes, and D. Taglioni, "Exporter Dynamics, Firm Size and Growth, and Partial Year Effects," working paper.

Renzo Massari is a consultant in poverty reduction and economic management at the World Bank. **Jose-Daniel Reyes** is a trade economist at the International Trade Unit of the World Bank. **Daria Taglioni** is a senior economist at the International Trade Unit of the World Bank.

Bringing It All Back Home

Leslie Robinson shines some light into the black box of foreign earnings.

By the end of 2010, 90 percent of firms in the S&P 500 owned and operated a subsidiary in a foreign country. Globalization in full flower, right? Yes, but it might not be so pretty for America's tax revenue. With the increase in foreign business has come fears that offshore earnings will never return to the U.S.—as with the recent controversy over Apple's use of foreign entities to avoid paying taxes on $100 billion in profits and sales.

When overseas earnings are expected to be subject to U.S. tax, accounting rules require companies to include this tax as a liability on their balance sheets, decreasing their near-term profits. However, these rules provide an exception for earnings deemed by a company to be "permanently reinvested" abroad. "The intuition is that the actual tax will be paid so far out in the future that it's too complicated to determine the appropriate amount of the expected liability today," says Leslie Robinson, associate professor of business administration at Tuck.

This exemption has industry observers worrying that companies may be tempted to overstate their permanently reinvested earnings (PREs) to make their profits look better. Robinson addresses that concern in a new working paper, "The Location, Composition, and Investment Implications of Permanently Reinvested Earnings," written with Linda Krull of the University of Oregon and Jennifer Blouin of the University of Pennsylvania.

"The notion of PREs is a bit of a black box to people," says Robinson. "One firm may say earnings are PRE because they don't want to accrue the tax liability, while another firm may have genuine long-term reinvestment plans." Enforcement, therefore, is difficult.

Recently, however, the Securities and Exchange Commission has begun demanding PRE-heavy companies disclose the amount of cash they hold abroad. "They appear to believe, without having any evidence for it, that most companies are not genuine about the PRE assertion," says Robinson. "The purpose of our paper was to try to provide evidence on this issue and state an opinion on whether the SEC's action was warranted."

Toward that end, the researchers studied a dataset from the Bureau of Economic Analysis that lists assets and earnings by companies in countries across the world. By comparing these numbers to a company's PRE, they could tell more about how and where these earnings were actually being reinvested. They found that only 25 percent of PREs were invested in countries with tax havens. They also learned that just 55 percent of PREs were held in cash—a far cry from assertions of critics who assumed the percentage was much higher. In fact, only 14 percent of funds, on average, were being stashed as cash in countries with tax havens. Moreover, more than a third of PREs is being reinvested in high-growth divisions of companies, where presumably it is growing a firm's overseas business. Some companies may still be misreporting those earnings, but the majority seems to be reporting them accurately. "Some firms have the wrong motivation, but I don't think it's quite as bad as some people think," concludes Robinson.

But another problem looms. When the researchers looked at firms' internal capital markets, they found that companies with higher PREs were less able to fund domestic investment with foreign assets. "That suggests that the concern that cash is trapped abroad is somewhat warranted," Robinson says, raising the worry that some of those earnings may be inappropriately identified.

So, Robinson and her colleagues conclude that the SEC is justified in requesting more information about firms' foreign cash. "We think that not only should they be disclosing the amount of foreign cash," she says, "but they should also be disclosing the amount of foreign cash with the PRE distinction applied to it. That's the only way for investors to distinguish between firms that have great liquidity even though they have a lot of PREs, and those that don't."

Companies have complained that the new disclosure requirements are costly infringements on their business. But by providing evidence to support the SEC's actions, Robinson and her colleagues make the disclosures more justifiable. Meanwhile, their findings push back against the criticisms of those who have painted all PREs as illegitimate "trapped cash." "People who work in this area have fairly strong prior assumptions—thinking that firms are behaving so badly," says Robinson. "Our findings weaken that assertion. Some firms may be behaving badly—but on average they are not."

—Michael Blanding

J. Blouin, L. Krull, and L. Robinson, "The Location, Composition, and Investment Implications of Permanently Reinvested Earnings," working paper, 2014.

Jennifer Blouin is an associate professor of accounting at the University of Pennsylvania. **Linda Krull** is an associate professor of accounting at the University of Oregon.

Should We Be Afraid of Accruals?

Jonathan Lewellen and **Robert Resutek** debunk a corporate accounting myth.

When a firm manufactures a large quantity of products that fail to sell—say, Microsoft's Surface RT tablet, which was intended to unseat Apple's iPad—it has several options for how to report the bad news. The legal and ethical route is to write-down the increased inventory to reflect the firm's lower value. This is what Microsoft did, posting a loss of nearly $1 billion. A less scrupulous firm or manager, however, might opt not to write down the inventory that is no longer valuable. Instead, it becomes a curious species of the accounting world: an accrual. Accruals create a wedge between the earnings a firm reports and the cash flows it actually receives, and they present an opportunity to manipulate earnings. Many academics and analysts believe that managers use accruals to game the system on such a pervasive basis that firms' overall earnings quality has worsened over time.

But Tuck professors Jonathan Lewellen (above) and Robert J. Resutek don't see it that way. In a new working paper titled "Why Do Accruals Predict Earnings?" they argue that the accrual problem may be much less severe than people think, and "that things that look like manipulation may actually have lots of other causes." In the paper, the authors review the claims of the cynics—those who believe managerial manipulation is behind most accruals—and offer their own alternative hypotheses.

Lewellen calls one of these "the Apple hypothesis," basing it loosely on that corporation's massive success. In this scenario, a firm's rapid growth and global popularity lead to high earnings and high accruals. Basic economics holds that this success cannot persist indefinitely, mostly because the firm will attract competition—the hypothetical equivalents of Google, Samsung, and Microsoft—who will push profits down. "If that occurs on a systematic basis across lots of firms and industries, it would provide an explanation for the low persistence of accruals that has nothing to do with manipulation," Lewellen says.

Then there's the "canary in the coal mine." This is when a firm's increasing costs—due to rising oil prices, for example—show up in inventory more rapidly than in earnings, which wouldn't hit until the firm actually sells the goods. "That would have the similar type effect: high inventory accruals today preceding lower earnings in the future, having nothing to do with manipulation," Lewellen says.

A third explanation is the "time-to-build" hypothesis, which describes a scenario where profits are reduced in the short run but with an eye to longer-term profitability. For instance, a new production facility may incur negative margins at first, despite the fact that it is projected to become profitable once it's up and running.

To apply their more nuanced analysis to earnings quality, the authors examined a sample from the Compustat annual file of publicly traded, nonfinancial firms that have data from 1970 to 2012. By constructing empirical tests projecting firm performance for up to seven years in the future, Lewellen and Resutek analyzed the data through the lens of several commonly used measures of discretionary accruals.

They found that if a firm reports an extra $1 of accruals, only about $0.04 cents of that, on average, might be earnings management, while the other $0.96 behaves in a way inconsistent with manipulation. "We're saying that the models of discretion or manipulation that people use in the literature at the moment seem really bad. Just because something appears abnormal and looks, at face value, like discretion or manipulation, most of the time it doesn't actually show up in the data in a way that supports that," Lewellen says.

The authors hope their call for more holistic analyses will have far-reaching implications for policy makers such as the Financial Accounting Standards Boards (FASB) and other standard-bearers for generally accepted accounting principles (GAAP), who spend a lot of time and resources investigating the quality of earnings. "In a perfect world, accounting rules would be flexible," says Lewellen. "Since they know what's going on with the firm better than anyone else, managers would be given lots of discretion into how they report earnings."

The danger is that managers don't always behave well, and they do have an incentive to manipulate. Even so, Lewellen and Resutek's findings suggest that manipulation is not as widespread as is commonly thought, and some of that discretion may actually be used wisely.

—Jonathan Riggs

J. Lewellen, R. Resutek, "Why Do Accruals Predict Earnings?", under review at the Journal of Accounting and Economics.

Products of Their Environment

Competition has a surprising effect on quality, says **Praveen Kopalle**.

Between 1995 and 2002, the Federal Trade Commission investigated 627 cases of deceptive advertising practices. All but one were found to be in violation of the law. The popular press has reported on scores of instances—in industries ranging from toys to pharmaceuticals—where a product's advertised quality was far worse than its actual performance. Is the world just full of hucksters preying on gullible consumers, or is there some deeper force at work?

That's the question Praveen Kopalle, a professor of marketing at Tuck, investigates in "The Impact of Competition, Brand Equity, and the Cost of Overstating Advertised Quality, Quality, and Price of New Products," a working paper he co-authored with Columbia Business School professor Donald Lehmann.

Kopalle has been investigating truth-in-advertising since his days as a Ph.D. student at Columbia. Later, in 2006, he and Lehmann wrote a paper that examined the dynamics of truthful advertising in the case of a monopoly. They found that monopolists can't say whatever they want about their products—eventually, consumers will be irredeemably disappointed and demand a better product. "We showed that if the future is sufficiently important, they wouldn't overstate quality," Kopalle says.

In their latest paper, Kopalle and Lehmann add the complicating factor of competition into the mix, studying how two firms introducing a new product—say, tires—would impact each other's price, quality, and advertised quality. "We thought, 'Maybe there's something about competition that changes the dynamic,' " Kopalle says. It turns out, there is. Competition actually encourages a firm to overstate the quality of new products, as a defensive mechanism against the inflated quality claim of its competition.

Kopalle and Lehmann reached this conclusion by building a game-theoretical model that assumes a given cost function for production. In the absence of collusion, the firms will produce a $60 tire with a life of 50,000 miles, but an advertised life of 60,000 miles—an overstatement of quality. But if the firms could somehow agree to advertise truthfully (a violation of antitrust law), they would actually make more money. This is because being truthful about quality prevents the customer from being disappointed and results in more return business.

The authors also created a model that predicts firms' decisions when there are legal costs to overstating quality (such as fines from the FTC). Here, they found that as potential legal costs increased, the gap between advertised quality and actual quality shrunk. This makes intuitive sense. Firms that are fearful of expensive fines or litigation from false advertising will be more truthful about their products. Yet there is a twist. The specter of legal costs also encouraged the firms to produce a slightly lower-quality product. "In effect, legal pressure designed to help customers by forcing honest disclosure of quality may produce a reason for competitors to implicitly cooperate by competing less strongly on quality," they write.

Kopalle and Lehmann tested these models in two ways. In one exercise, they asked MBA students to decide the quality, price and advertised quality of new tires, given certain parameters on costs, competition, and likelihood of legal action for false advertising. The responses showed a general tendency to overstate quality, but that tendency decreased with a higher risk of legal costs. The existence of competition improved quality, increased quality claims, and decreased price. Departing from the model, the presence of legal costs and competition did not lead managers to reduce quality. In another test, the authors studied data from FTC cases on deceptive advertising. They found that the highest fines went to the most egregious violations, and that there is a significant positive correlation between the level of competition and the overstatement of quality.

Kopalle draws some interesting conclusions from his findings. "For regulators, it seems to make sense to focus on situations where there is more competition, because that's where deceptive advertising is most likely," he says. Businesses are faced with a trickier takeaway: being truthful is only good if your competition is truthful as well, but cooperating with them is against the law. Perhaps managers should simply pledge to follow what they learned in kindergarten: don't lie.

—Kirk Kardashian

P. Kopalle, D. Lehmann, "The Impact of Competition, Brand Equity, and the Cost of Overstating Advertised Quality, Quality, and the Price of New Products," working paper.

Donald Lehmann is the George E. Warren Professor of Business at Columbia University Business School and a distinguished visiting scholar at Tuck.

In Brief

clear eyes, no bias, good science

Under pressure to locate scientific patterns and to publish their results, researchers are especially vulnerable to the inherently human desire to find—or impose—patterns in everything.

Unless they rise above this innate tendency, however, their results may be inconclusive or even false, write Tuck professor Andrew King and his colleague Brent Goldfarb of the Robert H. Smith School of Business in "Scientific Apophenia in Strategic Management Research."

Defining "scientific apophenia" as "the assigning of inferential meaning when limited statistical power should prevent such a conclusion or when the data are actually random," the authors use simulations to demonstrate the risk of false findings. They then analyzed a random sample of articles from five top strategy research journals to estimate just how many of the reported findings are likely to be false. They estimate that between 12 and 40 percent of reported effects are either false or vastly overstated.

King and Goldfarb suggest a number ways to solve the problem, including researchers randomly splitting their data into two samples before conducting their statistical analyses, and journals accepting a larger number of studies that replicate previous work.

The authors conclude by stating that "further evaluation and increased caution will benefit both strategy scholars and the field," but that the biggest obstacle to eliminating scientific apophenia will always be, well, ourselves. "It is a human tendency to find order in the world," they write. "As scholars, we must be careful to ensure that the order we perceive is indeed real."

B. Goldfarb and A. King, "Scientific Apophenia in Strategic Management Research," Robert H. Smith School research paper.

redefining 21st-century business

Apple is a distinctly American company that takes credit for creating or supporting nearly 600,000 American jobs, but it makes just one product in its home country—the niche Mac Pro desktop.

Like a lot of firms these days, Apple is mostly a wholesaler that dabbles in manufacturing. Unfortunately, the U.S. Census doesn't yet account for this nuance, and the result is a misleading portrait of the economy.

In their working paper "Factoryless Goods Producers in the U.S.," Tuck assistant professor Teresa C. Fort and Tuck professor Andrew B. Bernard show the importance of classifying and economically quantifying what they call factoryless goods producers (FGPs): "establishments outside of the manufacturing sector, but that perform pre-production activities such as design and engineering themselves and are involved in production activities either by doing (some of) them at the establishment or through purchases of contract manufacturing services."

For now, the U.S. Census Bureau classifies some FGPs as wholesalers, but starting in 2017 many of these plants will instead be included in the manufacturing sector. According to Bernard and Fort, this change will have a significant impact on how we analyze economic activity. For example, if that change had been enacted already, the authors estimate that it would have shifted from the wholesale to manufacturing sectors anywhere from 595,000 to 1,311,000 workers in 2002 and anywhere from 431,000 to 1,934,000 workers in 2007.

"We want the correct numbers because design and innovation activities have potentially big implications for what the economy will look like tomorrow and the next day," Fort says.

T. Fort and A. Bernard, "Factoryless Goods Producers in the U.S.," a National Bureau of Economic Research (NBER) working paper.

a clearer portrait of the informal economy

Are "informal firms"—businesses that exist outside of taxation and governmental regulation—"an untapped reservoir of tremendous entrepreneurial energy" or "parasites competing unfairly with law-abiding formal firms?" In a new research paper, Noble Foundation Professor of Finance Rafael La Porta and Harvard's Andrei Shleifer attempt to find out.

The optimistic view is "grossly overstated," La Porta says. "It's really the 21st century against something really primitive. And yet, they represent a stage in the development process and need to be tolerated. However, true growth comes from the growth of formal firms and so efforts should be directed at creating conditions so that they can develop."

Why does true growth only come from formal firms? In La Porta's view, it's because they have better educated entrepreneurs at the helm, who are able to create and run productive, competitive modern businesses. "From this perspective," conclude the authors, "the policy message for how to grow the formal economy and shrink the informal one is somewhat elitist: through immigration or education, increase the supply of educated entrepreneurs."

R. La Porta and A. Schleifer, "Informality," forthcoming in the Journal of Economic Perspectives.

on the web | WWW.TUCK.DARTMOUTH.EDU/RESEARCH

Corporations Change, But Networks Say How Fast

New research from **Adam Kleinbaum** examines the role of network responsiveness in dynamic capabilities.

Flying High

Richard Townsend finds that venture capitalists can play an important role in innovation and growth.

TUCK SCHOOL OF BUSINESS
AT DARTMOUTH

100 Tuck Hall
Hanover, NH 03755-9000
USA

PRESORTED
FIRST-CLASS MAIL
U.S. POSTAGE PAID
HANOVER, NH
PERMIT 131

FIRST CLASS

TUCK CENTERS
& INITIATIVES
HIGHLIGHTS

Initiative for Women

A desire to empower women, cultivate diverse voices, and create a more enlightened corporate and academic culture inspired the creation of Tuck's newest initiative. The Initiative for Women came about through the efforts of outgoing Women in Business (WIB) president Stephanie O'Brien T'14, outgoing WIB Board alumni chair Maureen "Mo" Gardner T'14, assistant dean Sally Jaeger, and executive director of development Erin Tunnicliffe T'97. Elizabeth Winslow, MBA program senior associate director, will serve as executive director of the initiative, which will provide an unprecedented level of support for gender equality at Tuck, including bringing in alumnae to participate in a "Women's Voices" speaker series, hosting a series of women's career advice seminars, and connecting students and alumnae in small-group settings. The initiative launched officially with May's first annual Symposium for Women, which included a keynote address from Elyse Allan D'79, T'84, president and CEO of GE Canada.

Tuck Forum, Fall 2014
Tuck School of Business at Dartmouth

Please address comments or requests for copies of original papers to:

Professor Matthew Slaughter, Editor
Tuck School of Business at Dartmouth
603-646-2801
www.tuck.dartmouth.edu/faculty

Update your address:
Email: tuck.alumni.services@dartmouth.edu
Online: log in to mytuck.dartmouth.edu
Cover illustration: Mario Zucca