Stanford Business

SUMMER 2013



BALANCE



BUSINESS STANFORD STA



A LETTER FROM DEAN GARTH SALONER

A Legacy of Balanced Excellence

A few months ago, I had the honor of moderating a panel discussion among the five living deans of Stanford GSB, an event organized as part of the school's Oral History Project. It was an extraordinary evening. Never before had we assembled so many former deans to talk about the legacy each had inherited and the impact they had made on the school.

One recurring theme was how each dean stood on the shoulders of his predecessors, building upon one another's efforts to develop an outstanding faculty that balances deep research, extraordinary

teaching ability, and the application of management principles to real-world business situations. The foundation for this approach, which we have come to refer to as "balanced excellence," dates back to Ernie Arbuckle's vision of hiring faculty who could balance these skills in a way no other business school had been able to do.

We started out the evening with Ariav Miller, dean from 1969 to 1979. His view was that the key to implementing the strategy behind balanced excellence was the ability to attract and retain great faculty who exemplify that approach. One of Arjay's most important contributions that enabled us to do this was an agreement with the university allowing the GSB to operate with relative financial independence. We keep the funds we raise and make an annual payment to the university in exchange for shared services. Thanks to Arjay's foresight, annual giving and the payout from the GSB's endowment now represent half the school's annual budget, with the remainder coming mainly from student tuition and executive education.

No less transformational was Bob Jaedicke, who served as associate dean under Arjay, and as dean from 1983 to 1989. In both roles he strove to support balanced excellence, hiring many of the faculty who built the GSB into what it is today, and bringing new prestige to our faculty and preeminence to the MBA program.

In the 30 years that followed, balanced excellence evolved to reflect changing trends in business and society. Mike Spence, who succeeded Jaedicke as dean in 1990, established the school's first center, the Center for Entrepreneurial Studies, which has been led by Irv Grousbeck and Chuck Holloway since its inception. In addition, he significantly expanded upon Jaedicke's efforts to support co-teaching and to infuse practitioners like Andy Grove and Peter Wendell into the classroom, often alongside tenure-line faculty. In so doing, he solidified a model that is now one of the hallmarks of the GSB experience.

When Bob Joss became dean in 1999, the GSB's priorities of curriculum, campus, and collaboration became driving forces in our evolution. The Bass Seminars, initiated in 2005, promoted faculty-student collaboration in small classes that allowed faculty to bring their research to life for students. Two years later, we introduced a new MBA curriculum that tailors each student's education to their personal background and experience. The facilities at the Knight Management Center, conceptualized under Joss, have further enriched that learning experience and have facilitated community-building.

The five deans panel served as a powerful reminder that balanced excellence continues to be at the core of who we are as an institution. Each year, we seek out and recruit brilliant, discipline-based scholars and provide them with the resources and support to advance their scholarship and their careers as leaders in management education and research. Our faculty equip our students with specialized skills, broad leadership abilities, and a lifechanging experience that allow them to achieve their professional ambitions.

As we support and encourage our faculty to pursue a path of balance and excellence, it is the impact we make on our students and the impact they make on the world that will provide us with the inspiration for what we can accomplish together in the next half century.



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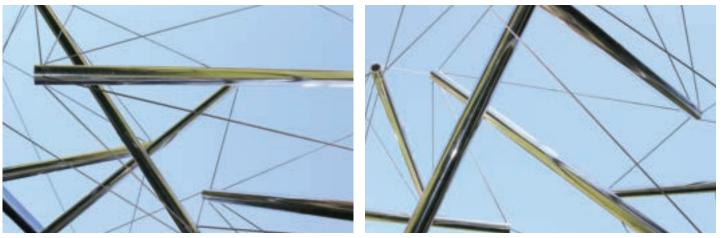
Cover illustration by Owen Gildersleeve



INTRODUCTION

Balance

It's remarkable how often the theme of balance comes up at Stanford GSB — but not always where you might think. When Tony Blair visited last year, he described how he learned to weigh the day's must-dos with the need to take time to think strategically. He got that advice, he said, from Bill Clinton, which suggests that the quest for balance in life challenges even those in the highest echelons of power. (You can find a video of the former prime minister discussing this, and many other videos, at *youtube.com/stanfordbusiness*.) Other people, including those at much earlier stages in their careers, think balance is a waste. Better, they say, to drive forward at top speed in the direction in which they feel they can make the biggest difference. ▶ In this issue of *Stanford Business*, we take a broad view of the theme. In our Lives section, Myra Strober



Mozart I, a stainless steel sculpture by artist Kenneth Snelson, south of Stanford University's Meyer Library

shares her perspective on work-life balance, a subject on which she taught a class for decades before retiring last year. In our Organizations section, we explore why companies need to balance innovation with tradition. We also talk to the founder of an outfit that's trying to redress the imbalance in employee diversity at technology firms. In our World section, we look at ecological imbalances, bringing you up close to climate change in Antarctica. We hope you find these pieces useful and engaging. If you do, we invite you to share them with colleagues and friends, and to sign up for *Stanford Business Re:Think* (*gsb.stanford.edu/rethink/signup*). This twice-monthly email newsletter offers insights and ideas on balance and the other big themes that are relevant to you and your life, whether you're a head of government or just starting out. — THE EDITORS

IN THE MAGAZINE



Erika Brown Ekiel interviewed the four entrepreneurs in the package that begins on page 11, and many others for our Entrepreneurial Intelligence series, which you can find at gsb.stanford.edu. She is the founder of Storyboard, a brand, messaging, and content marketing consultancy specializing in venture capital and emerging technology. Earlier, she ran marketing at Greylock Partners and spent a decade at Forbes as an editor and writer covering Silicon Valley. Follow her on Twitter @ebekiel



Edmund L. Andrews is the author of "The Multitrillion-Dollar Plumbing Problem," a look at the risks still lurking in the financial system (page 41). He was a business and economics correspondent at the *New York Times* for two decades, and is now a writer and consultant in Lake Tahoe, Nev.



Susan H. Greenberg interviewed Myra Strober for a discussion of work-life balance that begins on page 8. Greenberg spent 22 years at *Newsweek* magazine. She currently lives in Andover, Mass., where she is a freelance writer, teacher, and author of the blog *The Unvarnished Mom*. Follow her on Twitter @UnvarnishedMom



Marina Krakovsky interviewed Mandy O'Neill for a story (on page 39) about why even some of the most ambitious women don't realize their full workforce potential. She also spoke to O'Neill's dissertation advisor, Charles O'Reilly, to find out the answer to a very different question: Why do some companies survive for decades, while others struggle and fold? That story begins on page 28. A frequent contributor to Stanford Business, Krakovsky has also had her work published in the New York Times Magazine, Scientific American, and Slate. Follow her on Twitter @MarinaKrakovsky

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ON THE WEB



You See how Erin Sprague ran a marathon on all seven continents — and more at YouTube.com/

"It takes guts and courage to be an entrepreneur who wants to impact the country & change the world." Follow us @StanfordBiz



"Why don't we create new structures where people

work less

than 40 hours a week when they have kids, and then let older people work part time until they're 75 or 80?"

-Myra Strober, PAGE 8

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LIVES

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FAMILY

Can You Have It All?

Myra Strober has studied work-life balance for 40 years. Here's what's changed — and what hasn't.

BY SUSAN H. GREENBERG

One of the first female faculty members at Stanford Graduate School of Business, labor economist Myra Strober focused attention on gender issues in the workplace and the economics of child care — subjects that still confound families and spark impassioned debate. A professor of education as well as economics, she began teaching Work and Family — then titled Women and Work in 1972. In 1974, she became the founding director of Stanford University's Center for Research on Women, which is now known as the Clayman Institute for Gender Research. She retired last year after 40 years, receiving a standing ovation at her last lecture. Strober recently spoke with Stanford Business about what has changed in the workplace, and what hasn't.

What, if anything, is new for women trying to balance work and family today?

The availability of child care is a big change. There was no such thing as a child care center when I was starting out. Either you had a family member you could call on, or you had to hire somebody. I didn't even know the term "nanny" when I was looking for someone to care for my child. The other big change is social norms. When I first had my child, I was unusual. There were only two other women on the block who worked; one was a single mom and the other was a physician. Otherwise, women stayed home. Now if you're a working mom, unless you live in an extremely wealthy community, you're the norm. The norm has also changed with regard to dads. They're supposed to diaper babies, take care of young children, do housework. This was not the case when I first had my children.

How are these changes reflected in the workplace? When I had my child, there was no such thing as maternity leave, let alone paternity leave. The workplace now is familiar with new moms and new dads and makes provisions for that. Your job is held for you for some period of time. Now, we certainly don't have the kind of parental leave they have in Europe or other industrialized countries, but there are employee benefits that can be used. I don't want to say that things are where they should be, because I think we could do a lot better. But they're certainly improved.

Sheryl Sandberg's book, Lean In, is a best-seller. What did you think of it?

I'm so happy she wrote it! We need to keep bringing this topic up. You can't make progress here unless women do the kinds of things Sheryl suggests, and work organizations support them. The students I see start off very much leaning in, and they work for a while but then they have a child — or more often, a second child — and the workplace is not supportive, so they give up.

So despite improved child care and changes in social norms, it's still too hard for many to pull it off. Most women stay in the workplace because their families need two incomes — unless there's so much money coming in that it's possible for one person to leave. We know that a lot of women with MBAs do leave the workforce after they become moms.



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But that's a very small percentage of women — those who can afford to quit.

It is a small percentage. The problem is that the very women who are leaving are the ones who could move up and be role models for everybody else. For a mom of young children, the decision to stay in the workforce or leave has to be personal, and I am really opposed to anybody judging those decisions. But even though it's an individual decision, it has enormous societal repercussions. If you are a highly trained, highly educated woman and you leave, then you don't provide a role model for other women. And you provide those people [in the workplace] who don't want women to succeed with a negative role model and a mindset that says, "Well, next time I'm not going to be so supportive because look what happens!"

What's the solution? There needs to be a more flexible attitude for dads and moms in the workplace and a sense in society that young parents need to be supported. Schools shouldn't be able to just set vacations for any time they want. Schools need to recognize that not only are they educating young children, they're also making it possible for parents to work. Maybe we need summer programs, and funds for parents to take paid leave before their child goes to child care at, say, six months. Without paternity and maternity leave, very few parents can do that.

Is there an underlying insecurity or fear among men that drives any of this?

I used to see a lot more of that than I do now, especially among young men. But a lot of young men today have had working

"I always tell women, 'You can do this. If you want to have a family, you can also be very successful in the workplace."

moms, so that changes things. And a lot of older men see their own daughters and sons in marriages where there's more equality, and they see their own grandchildren in child care.

I think the views on this have really changed. Often when I have men in my class from countries where there's been less change than here, they remind me of some of my male students in the 1970s who stood up and said they didn't want to take macroeconomics from me. It's also interesting that when I have men in my class from European countries, they can't believe we don't have paid maternity and paternity care.

What are today's female MBA candidates

like? They're fabulous. They're so thoughtful about these issues. They want so much to make the right decisions. It's interesting: When I ask them if they want to marry a man who is willing to be the primary parent — because a lot of these women are extremely ambitious — rarely do I find a woman who says, "Yes." They want an equal relationship at home, and they want both themselves and their husbands to be successful financially. And some of them still want their husbands to be more successful than they are. Some of them are very optimistic that they can both be an engaged parent and have a satisfying career — especially those who have seen their own mothers do it. The African American women are very sure that they can do it because they've seen so many women from their own community do it. The women whose moms were stay-at-home moms, and whose older sisters are stay-at-home moms, are worried. They don't see how they're going to be as excellent at being a mother if they also have a demanding career.

What one bit of advice would you give women leaving your class? I always tell them: "You can do this. If you want to have a family, you can also be a very successful woman in the workplace." One of the key decisions is who you marry. And I have to say, every year I get emails from students who say, "One of the results of your class is that I broke up with the man I was seeing." And I always write back and say: "I'm sure it's very sad. But better to find out now."

Do you feel disappointed when students tell you they're leaving the workforce?

I do, but not in them. I feel disappointed that the system is such that they can't make it work.

What other kinds of work arrangements should we be exploring? Part-time?

Part-time doesn't usually work out very well, unless it's temporary and unless it's with the employer that you've been with for a while. I think we have to experiment more with job-sharing and work-at-home days, but it's very counterproductive if only women do it. Laura Carstensen, a colleague of mine, has written a great book [A Long Bright Future] about the fact that we're all living so much longer, and yet our societal structures haven't changed. We're still cramming education into the first few years, and then we're saying everybody has to work hard, and then at some age retire. And so now you have a lot of leisure at age 70, when you really needed that leisure at 35. Why don't we create new structures where people work less than 40 hours a week when they have kids, and then let older people work part time until they're 75 or 80?

That would help solve the Social Security problem, too. Indeed. We're kind of stuck in the old arrangements, and we haven't had a lot of good thinking about the new arrangements. That's partly because we're so involved in the economic downturn, and the sequester and immigration and whatever else, we're not thinking about these even larger problems

I imagine that if you and I were talking 100 years from now, the situation would be quite different. The world is changing so fast that it doesn't make sense to cram everybody's education into the first 20 years. Jobs are changing all the time, people are living longer, and so we have to change all our structures. And I think we will.

I wish we could meet in 100 years and celebrate. Maybe we'll look down from above and have a toast. Δ

Myra Strober is a professor emerita at Stanford School of Education. She was also professor, by courtesy, at Stanford GSB until her retirement in 2012.

INNOVATION

Four entrepreneurs discuss how they find balance in the workplace—and in their lives.

BY ERIKA BROWN EKIEL

"Value Truth for Its Own Sake."

lan Kazi Shakil is cofounder of Augmedix, a company building an app for medical doctors on Google's Glass eyewear computing device. He received his MBA from Stanford GSB in 2012. Last summer, a friend who works at Google let him try on the Google Glass. He was instantly inspired and decided to drop everything to start a company that took advantage of this emerging technology.

What is the best advice you've ever received? Most recently, I've been inspired by a quote from Stanford GSB's Irv Grousbeck. He said: "Regrets for what you have done can be tempered by time. Regrets for what you have not done are inconsolable." He encourages young people to take huge risks. There is no better time than now. It drove me to drop everything to do what I'm doing now. It helps that I come from a family of entrepreneurs. My mom has a design business, and my dad runs a steel mill in Bangladesh. It's in my blood to take risks and go my own way.

What advice would you give other entrepreneurs on how to build a great

business? A lot of entrepreneurs get hung up on finding the right product at the right time, but it is more important to look for cofounders you can spar with productively. You cannot recruit cofounders, but you find them in unpredictable ways. You need to put yourself out there. Whenever you are working on a group project, give it your all and treat everyone with respect. Build relationships so that when opportunities arise, you can go back to the well of human capital. It's like getting married. You want to find someone who brings to the table skills you don't have, but who is not so different

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that you have different core values. You have to be able to be brutally honest with each other and then heal from it.

What values are important to you in business? I value truth for its own sake — even if it's painful, even if it ruins everything, even if it brings about the end. Also, I am not happy with the status quo and want to be around other people who desire radical change and have a quest for improvement and progress.

What impact would you like to have on the world? I think we have the potential to play a huge role in fixing health care, which is terribly broken. Patients are not able to afford the care they need. Providers hate their jobs and are leaving. I also want to help usher in augmented reality and wearable tech. I would like to show that these can be forces for positive change, and not things that should be feared.

What was your first paying job? When I was 15, I stood on a corner of a busy intersection dressed up as a giant lotto ball and held a sign that said, "We sell lotto

tickets." It was for a video rental store in Florida called Tapes 'n More. I had that job for a year until the company went under. My next job was as a cashier at a Whole Foods in high school. I emailed the CEO of the company and told him that I didn't think it was fair that part-time employees didn't get a discount. We couldn't afford to eat what we sold, so we were eating McDonald's in the break room. Soon after, he implemented a national policy change.

How do you achieve balance in your life?

I don't believe in balance in the sense of separating work life and professional life. I work when I feel inspired, and sometimes that means I work in the middle of the night. It also means I might take the day off to do something personal.

What do you think is the greatest innovation in the past decade? I don't believe there are isolated innovations, and I don't worship the singular invention. It misses the point and is irrelevant to technological progress. The advent of the internet, which was brought about by many people, is the single most meaningful thing in human history since the printing press or the steam engine.



Trae Vassallo is a venture capitalist and a former entrepreneur. She is currently a general partner at Kleiner Perkins Caufield & Byers, one of Silicon Valley's most successful venture capital firms. Prior to joining the firm in 2003, Vassallo was a cofounder of Good Technology, a mobile device company sold to Motorola in 2007. A mechanical engineer, Vassallo started her career at IDEO, a design and innovation consulting firm, designing products for Palm and Dell. She earned bachelor's and master's degrees in mechanical engineering from Stanford and an MBA from Stanford GSB in 2000.

In 10 words or fewer, what is the big idea behind your business? Partnering with the best entrepreneurs to build world-changing businesses.

What was the most difficult lesson you have learned on the job? At the end of 2002, it was nuclear winter from the economy perspective. As a cofounder at Good and a hardware product designer, I was leading strategy on the hardware side of the business. It became clear to me and the management team that in order to survive, we had to make the tough decision to focus on software and stop making hardware. That meant I was out of a job. Going from being a founder to being let go is really humbling. You are left reeling.

It was a lesson in resilience. I decided to turn the experience into a catalyst for personal change. One day, John Doerr, who was on our board, asked me what I was going to do next. I stepped out of my comfort zone. I said, "I don't know, but I'm sure I could figure something out if I helped you at KPCB for a while." I started



Ian Kazi Shakil



Trae Vassallo

by helping with some due diligence, and the next thing I knew, I fell into a role as entrepreneur in residence, and eventually a partner, at KPCB.

What advice would you give other entrepreneurs? Get the culture right, and do it early. It's like putting the wrong engine in a car: If you don't do it right the first time, everything else will be wrong. Secondly, you should always be thinking about the customer point of view. It should manifest itself in every decision you make. Literally everything you talk about as you build the company needs to be considered in terms of how it will impact the customer.

Also, entrepreneurs need to be great storytellers. In the end, it is not about the best technology, but how does it solve a problem for a customer? How will it be lifechanging? If I look at the most successful companies in our portfolio, the ones that break out are the ones who can get inside the customer's head and tell a powerful customer story.

What inspires you? I come up with my best ideas by engaging and talking with best ideas by engage other people. Great things. Feedback the best catalyst. other people. Great ideas are not solitary things. Feedback from other people is

What is your greatest achievement?

First and foremost, I have done a great job in picking a life partner who is incredibly supportive of having a wife and mother with a crazy job. I love having a family and being a parent, and I also really love my job. Figuring out how to juggle everything requires a fantastic partner.

What values are important to you in **business?** The most important thing for me is to have some level of emotional connection with the people I work with, whether that means my partners or entrepreneurs. It embodies the ability to trust that person, push that person, and get feedback from that person. I don't want to have a transaction job, but one that allows

"Great ideas are not solitary things. Feedback from other people is the best catalyst."

me to genuinely connect with people who are on a mission.

What impact would you like to have on the world? I want to raise children who really care about technology. I'm privileged to have two daughters and a son. I am intrigued by how we can inspire more girls to get into technology. Of course, you can never force kids to do what they don't want to do, but you can model good things. I try to understand why we are losing girls so young in engineering. I want my daughters to embrace technology and use that to change the world.

The same thing drives me at work. Every day, I meet with entrepreneurs who want to build world-changing businesses. This is why I focus on digital energy. It is an incredible business opportunity, but it is also an incredibly beneficial thing for the world. It is the practice of leveraging all the amazing things we are doing in info tech and applying that to how we use energy.

How do you achieve balance in your life?

I ruthlessly prioritize. At work, if things won't move the needle, I might not focus on them. At home, I focus on the things that matter to me: face time with my kids; making sure I have good one-on-one time with my husband. It requires being creative.

I want to raise children who are forwardleaning and empowered. One way to do this while balancing work and family is that I now take my daughter with me on business trips. On one trip I took her to New York City. On the first day, she came with me to visit a company, and she sat in the lobby while I took meetings. The following day, we did and saw everything we could pack into one day in the city. At first, I felt weird bringing my kid with me to business trips, but I've since done it several times, and I always get positive feedback. It is incredible exposure for my daughter, and she loves it. When I give talks, she sits in the front row. She thinks what I get to do is awesome. She is on top of the world.

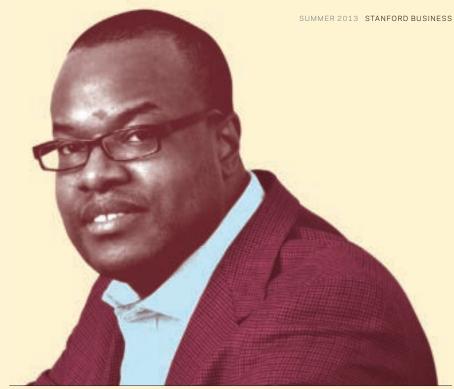
What is the best business book you have read? Lean In by Sheryl Sandberg. It doesn't speak to everybody, but if you are a professional woman in my generation or younger, I think you would enjoy the book. The most valuable thing I took from it was the validation. No one is as confident as they come across.

What businessperson do you most admire? My grandmother. She was way ahead of her time. She went to college and was self-employed. She did people's taxes and ran for mayor. She was witty and smart and professional, and it shaped my view of how I wanted to be when I grew up. I hope to provide the same example to my children.

What do you think is the greatest innovation in the past decade?

The smartphone has forever changed our lives and will continue to evolve in ways that are hard to imagine. There are a couple of new movements I think are fascinating: the maker movement and the rise of the connected device. That can mean smart infrastructure for homes, but also new watch platforms, 3-D printers, or Google Glass. The catalyst for all this change is the proliferation of smartphones. People are coming up with ways to create a seamless experience between physical and digital worlds.

"He told me
if I focused
on 'The three
H's' — <u>humility,</u>
hard work, and
honesty — I
would have no
shortage of
opportunities."



Jay Alabraba

"Keep Pushing."

Jay Alabraba is cofounder of Lagos, Nigeria-based Pagatech, operator of the country's largest mobile-payments service, Paga. Born and raised in Nigeria, Alabraba immigrated to the United States at the age of 16. He received his MBA from Stanford GSB in 2007.

What is the best advice you've ever

received? Early on at Paga, I questioned whether I should keep going and stay with the company. Building a business from the ground up is hard to do anywhere, but is especially difficult in an environment that lacks basic infrastructure and government programs that support startups. Cash was tight. I felt lost at times.

I reached out to someone who had many years of experience building businesses in Nigeria. He told me if I focused on "The Three H's" — humility, hard work, and honesty — that the right things would happen and I would have no shortage of business opportunities.

Humility: In Nigeria, it does not matter how much education or experience or intellect you think you have; it doesn't serve you well to appear arrogant because reputations are set quickly. Also, in African culture, one is expected to show some amount of deference to one's elders, even in business settings.

Hard work: Nothing good comes easily. Keep pushing. You are not on break most of the time you are at work.

Honesty: This is a survival-of-the-fittest environment. Someone is always trying to relieve you of your money. In Nigeria, people say, "Shine your eye." It means keep your eyes wide open, because anything can happen. There is a great deal of mistrust, and it has served me well to be honest and straightforward.

What inspires you? I have always felt a deep affinity for Nigeria, and I believe I have a role to play in making it a better place to live. I am passionate about improving education and developing real estate for lower-income families. For me, moving back here was always a matter of fact. I didn't have an alternative. I believe I am required to make an impact here, and that is what keeps me going.

How do you achieve balance between your heritage as a Nigerian and the cultural influences of the United States?

The tension is always there, but one learns to make them all blend together. The experience day to day of living in Nigeria is starkly different than what the average person would experience in the U.S.; however, the ambition and desires of people are similar and really quite basic, all around the world. Take, for example,

the idea of getting 360-degree feedback, or flat organization structures and open-door policies. These are not part of the typical Nigerian business culture. In the U.S., your level, age, gender, or race doesn't matter; you are who you are, and a basic amount of fairness and respect is expected. In Nigeria, the way things usually work is that almost anything goes if the boss says so. Still, I have found that when you adopt some of these typically Western business cultures here and show consistency, team members eventually take to it.

What businessperson do you most admire? My dad. He trained as a quantity surveyor in the U.K. in the 1960s. He came back to Nigeria when the country had just achieved independence, and over the years, he has developed a reputation as a person who can be trusted. I have a strong image from childhood: my dad at the dining table with a pencil and paper doing work. I would see him there when I was heading to bed, and when I woke up, he was still there with a cup of tea, having worked through the night. Even while being such a hard worker, he was still a loving father. He spoiled us silly - still does, actually.



Beth Gerstein

"Test Early, Test Often."

Beth Gerstein started out as a biomedical/ electrical engineer and satellite architect, and now spends her days selling the romance of sparkly baubles. She offers and runs a profitable online business.

Gerstein and her cofounder, Eric Gross met as students at Stanford GSB (later Earth-friendly, ethically sourced jewelry Gerstein and her cofounder, Eric Grossberg, receiving their MBAs in 2003 and 2004, respectively) and launched Brilliant Earth in 2005. They bootstrapped the business, which has been profitable since its first year of operations, and now donate 5% of profits to improve African communities harmed by the diamond industry.

In 10 words or fewer, what is the big idea behind your business? Transforming the jewelry industry by demonstrating transparency, responsibility, and compassion.

What was the most difficult lesson you have learned on the job? Persevere when encountering unexpected adversity. It is always a challenge to keep perspective when hurdles appear. Early on, we pegged all of our hopes to one diamond supplier. The company ended up being completely unreliable and went bankrupt. Without this supplier, we had no way of sourcing diamonds. We didn't have any other relationships. I remember thinking, "This is it; we are done for." There were times we considered giving up, but we got so much positive feedback from customers that we wanted to exhaust all possibilities. Eventually, we figured out that we needed to change the pitch. We started out calling people and telling them we wanted to sell their diamonds online. They would just hang up. After some iteration, the pitch became, "We want to buy your diamonds." After a few early sales, we could transition into a deeper relationship.

What advice would you give other entrepreneurs on how to build a great business? Test early and test often. Start on a small scale, iterate, and coursecorrect. This is how we were able to bootstrap the company.

The first thing we started to do before almost anything else was to sell. We didn't have a website. We worked out of my apartment. We asked friends what they were looking for, and then we would go find it. We wanted to understand what consumers wanted before spending a lot of money building the business.

The first thing we launched was a \$5,000 splash page. It said we sold ethically sourced diamonds and recycled gold. We started advertising on a small scale and

eventually got some responses. We slowly built our diamond inventory, then added search, then allowed people to pick their own settings, then built in e-commerce functionality. We didn't spend a lot of money on an expensive website, then wait six months before our first sale. We got immediate feedback.

What do you consider your biggest failure? It took me a long time to transition from my bootstrap mentality. As we have grown, I have been too focused on mitigating the downside. That can be a challenge when you reach a certain scale. I tend to be too conservative and try to be more aggressive in pursuing new opportunities.

What values are important to you in business? Accountability. We believe at every level, people have to own their mistakes along with their successes.

Authenticity and integrity. Our mission is based on transparency, traceability, and responsible sourcing. We need to maintain that integrity all along the supply chain. We want consumers to be aware of the issues surrounding diamonds and gold and to care about the impact their purchases have on the world.

You are one of two CEOs in your company. How do you achieve balance between the two leaders? For us, being co-CEOs is not a challenge to overcome but more of a fallback. I have had two small children since starting this company in 2005. Taking off for maternity leave is a huge challenge for anyone, but it is a lot easier when you have a trusted business partner.

Finding balance has come naturally. We support each other and help each other gain perspective. We tend to agree on the vision of the company at a high level, and we have worked out a way to make decisions in each of our domains. The process was organic. We saw each other's strengths, and it naturally fell into place. It helps that we are committed to doing what is right for the business versus focusing on our personal pride, ego, and goals. A

For the full-length versions of these interviews, and for more insights and ideas from entrepreneurs, go to http://stnfd.biz/hpWK1

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PERSONAL FINANCE

How to Invest in a Turbulent Market

William Sharpe describes the four pillars of investing. BY BILL SNYDER

"Ten thousand baby boomers are retiring every day, and every part of the financial industry is lusting after their money — offering products and services of all kinds," says Stanford GSB's William Sharpe. "In the old days," he says, "you got a pension, a Social Security check, or both and had no investment decisions to make. Your choices were pretty clear-cut. Now they're not, and people saving and investing for retirement are begging for answers."

Sensing an opportunity to supply those answers, Sharpe in 1990 cofounded Financial Engines Inc., which provides advisory services to the retirement plans of Fortune 500 companies. Now retired from his company and the university, Sharpe still writes and lectures frequently on what he calls "retirement economics." He recently

published an article titled "The Arithmetic of Investment Expenses" in the *Financial Analysts Journal* that shows retirees how much more money they could have in retirement by avoiding actively managed funds in favor of index-oriented funds.

Sharpe spoke to *Stanford Business* about retirement strategies and lessons learned (or not learned) from the financial meltdown. Excerpts:

What did we learn from the crash and subsequent recovery that's useful for investors and future retirees to know?

One answer is that investments in stocks really can be very risky and that an investor had better recognize this in advance. On the other hand, we don't have centuries of relevant experience to know the precise

future likelihood of a repeat of such a severe meltdown. The best we can do is to estimate the range of possible future returns, using both history and sensible economics.

If that's the case, why do so many large pensions assume that they will make returns of 7% or 8% a year? I wrote a piece called "Financial Planning in Fantasyland" [in 1997] in which I railed about software models provided for people saving for retirement that assumed, as some pension actuaries still do, that stocks would provide the same return every single year. That's crazy. Anyone who tells you the exact amount you can earn investing in the stock market for the next 20 years or 30 years is either crazy or misleading you.

Hasn't there been any improvement in the models that are out there? Yes. Fortunately we're seeing [much better] models in online retirement-planning software. Many people in the investment industry have accepted the fact that individual investors need to understand that with investment risk comes

uncertainty about retirement income.

In some of your earlier writings, you talk about the four pillars of investing: Diversify, economize, personalize, and contextualize. Most people know it's a good idea to diversify. How diversified should you get? We teach in beginning finance classes that in an efficient market. the only kind of risk that's rewarded with higher expected long-term returns is risk you can't get rid of by diversification. We call this market risk. A sensible proxy for this overall market is a portfolio of all the traded bonds and stocks in the world, held in proportion to their outstanding shares or bond issues. If you own all these securities, you have diversified as much as you can. And that portfolio did not fall 50% from 2007 to 2009; it fell considerably less than 40%. Not pretty, but it shows that diversification would have helped.

How does owning a portfolio of index funds compare with a portfolio built by stock and bond picking — which is to say, passively managed portfolios versus actively managed? In 1991 I published a paper called "The Arithmetic of Active Management." It made a very simple argument: In any time period, the average actively managed dollar and the average passively managed dollar will get the same returns before costs. And since actively

To take an example: The Vanguard Total Stock Market Index Fund costs you 6 basis points a year if you have more than \$10,000 invested. That's 6 cents per hundred dollars. The average actively managed, broadly diversified U.S. stock fund costs 112 basis points, or \$1.12 per hundred dollars.

Many people say, "What's an extra 1% or so?" They forget that the average return on such a fund is likely to be 7 or 8 %. The relevant ratio is 1 out of 7 or 8%. Over the long term, the hit is likely to be profound. Under plausible conditions, a person saving for retirement who chooses low-cost investments instead of higher-cost ones could have a standard of living throughout retirement that's more than 20% higher.

So you're better off spending less? Right. That's what I mean by economize.

Can you give me an example of personalization? Suppose an investor works and owns a home in Silicon Valley. Personalizing her portfolio might mean underweighting technology stocks, since a downturn in the Valley could cost her her job and knock a big percentage off the value of her home. Why risk having the retirement portfolio go down as rapidly as the other ships? To take another example: When IBM tanked some years ago, many people lost their jobs. Worse, a number of them had invested their retirement funds largely in IBM stock, and their retirement accounts plummeted as well. I advise people not to invest heavily in their own companies, either in their retirement accounts or elsewhere.

Let's talk about spending. You read about things like the 4% rule, which generally counsels spending a constant amount in purchasing power each year in retirement. Is it a good rule? The classic 4% rule, which is a favorite of financial planners, says to spend the same real dollar amount every year even though the portfolio may be going up and down like crazy; then just hope you'll die before you run out of money. Pernaps uncy if the market has gone down, it will feel run out of money. Perhaps they think that



William Sharpe: Diversify, economize, personalize, and contextualize

sorry for you and be more likely to go up in the future. The "V" we had in the recent crash probably made the situation worse; it encouraged people to say, "Don't worry about it going down; it will come back up within a year or two." It might, but financial economics says you shouldn't count on it.

Are there better approaches?

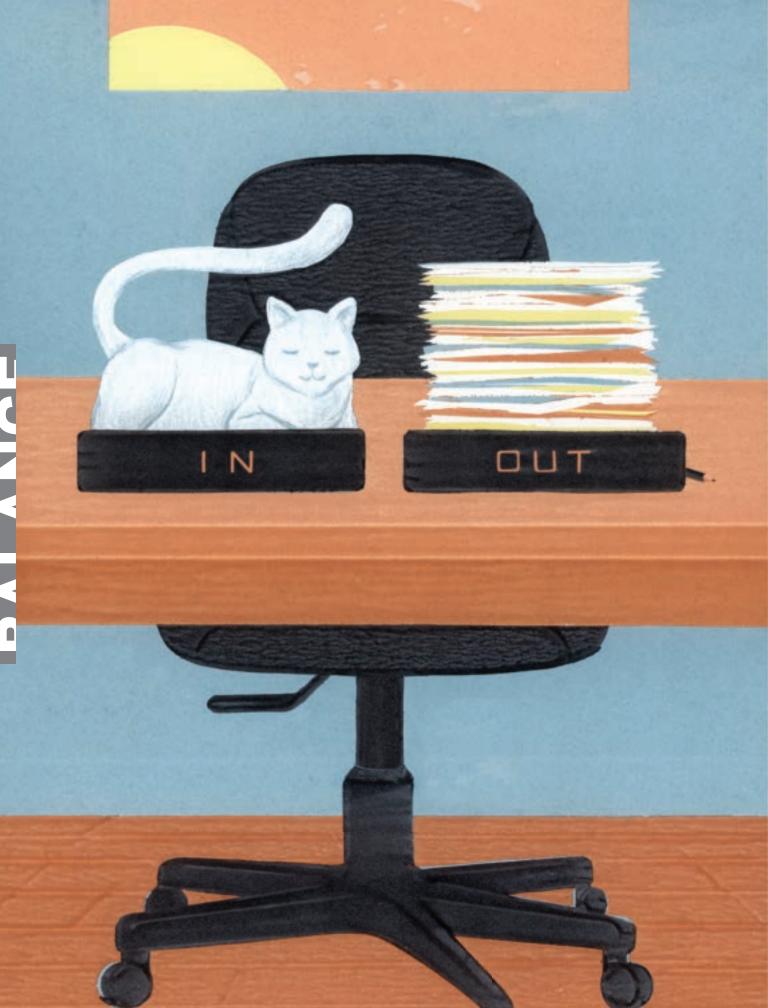
Undoubtedly. But this is a complex subject. In my current research, I'm trying to understand the characteristics of the many different solutions being offered by the financial industry. At this point, all I can say for certain is that it is unlikely that one approach will be best for everyone.

What about the other pillar:

Contextualize? Simply put, when you think about securities markets, remember that the prices of securities are set by human beings trying to assess the range of future prospects for companies, governments, and other issuers. In a sense, the price of a security reflects the average opinion of investors about its future. You may think your opinion is superior, but it pays to be humble, investing in the market rather than trying to beat it.

As we speak, the equities market is around an all-time high. Should future retirees buy in now or wait for it to get **cheaper?** I wish I knew whether in a year we will look back and say that the current level of the market was an all-time high. But I don't, and would warrant that few, if any, do. Better to assume the equities market is somewhat more likely to go up than down and act accordingly. A

William Sharpe is the STANCO 25 Professor of Finance, Emeritus, at Stanford GSB. In 1990 he won the Nobel Memorial Prize in economics.



PRODUCTIVITY

Should Your Boss Send You Home?

Research says providing workplace flexibility can benefit employees, companies, and maybe even society. BY KATHLEEN O'TOOLE

Across the industrialized world and across employers, there are huge variations in what Stanford economics professor Nick Bloom calls being-nice-to-people practices. These are policies that try to address the fact that men and women in today's workforce are often struggling to balance their work and family responsibilities.

The French reduced the legal work week to 35 hours. The Australians added paid parental leave of 18 weeks for the primary caregiver of newborns. The United States requires larger employers to offer unpaid leave to employees with seriously ill family members. Some companies allow some workers to decide when and where to work, but flexibility is not generally the case, according to a 2010 report on work-life balance by the U.S. President's Council of Economic Advisors

What many employers would like to know, says Bloom, is whether more flexibility in working arrangements would hurt or help the company's profitability and competitiveness. In a new study with three colleagues, he found solid evidence at one company that allowing workers to work from home produced a large productivity boost as well as happier workers.

The study was conducted over 10 months at CTrip.com, a billion-dollar NASDAQ-listed company based in Shanghai. Bloom and coauthors — Stanford GSB economics professor John Roberts; economics department graduate student Zhichun Jenny Ying; and business school doctoral alumnus James Liang, a cofounder of the company — compared the productivity of call-center workers who worked from home four days a week with workers performing the same work from rows of office cubicles.

CTrip's home workers were more productive. The analysis showed they answered more calls and worked more hours because they took shorter breaks and used less sick leave. The home workers also reported being happier than the office workers, and fewer of them quit. Retention of quality workers is important to keeping company recruitment and training costs down, so Bloom calls it a "no brainer" for CTrip to offer a working-fromhome alternative to other workers. In this case, the average home worker saved the company about \$2,000, nearly as much as his or her annual salary.

Bloom cautions managers and policy makers who would substitute flexibility with requiring workers to work from home. The home workers in the study were randomly selected from a larger group that wanted to work from home. While the mean productivity and happiness of those who worked from home was greater than for their office-based counterparts, the home workers' productivity varied substantially, with a few not doing as well from home. And when the experiment was over, almost half of the workers who had worked from home chose to go back to the office despite the added cost of commuting. In interviews with researcher Ying, these mostly young workers on the low end of the wage scale indicated they were lonely. At least in this case, Bloom says, flexibility for workers to work where they prefer to work is critical to retention.

There are many potential implications from this experiment, say Bloom and Roberts. By positioning the company to roll out remote working to far-flung regional offices, the experiment shows how the advent of mobile computing might lead to more regional income equality and less pollution and traffic in crowded cities, as well as better family and community life. "If people can work where they live, they are going to live in different places," Roberts says. "The CTrip employees, many of whom come from rural China and have come to Shanghai to find work, would much rather be at home in the villages and working from there. We interviewed them and they want to do that." Flexible work, then, may not just be a gain for particular employees or companies, but potentially for society. A

Nick Bloom is a Stanford professor of economics. John Roberts is the John H. Scully Professor of Economics, Strategic Management, and International Business, Emeritus, at Stanford GSB.

BEHAVIOR

Technology You Can't Resist

Can you read this story without checking your email? Kelly McGonigal can help.

BY BILL SNYDER

Have you ever felt like you couldn't stop yourself from checking your email or sending a text message, even when it annoyed everyone around you? If so, <mark>you're ha</mark>rdly a<mark>lone, say</mark>s Kelly McGonigal, a PhD in psychology whose latest book is The Willpower Instinct: How S<mark>elf-Contr</mark>ol Works, Why It Matters, and What You Can Do to Get More of It. "Forget cigarettes and candy. We're becoming addicted to our devices - phones and email and our computers and our iPads," says McGonigal, a lecturer who teaches in several programs at Stanford, including the School of Medicine's Health Improvement Program, and the Stanford Center for Compassion and Altruism Research and Education (CCARE). McGonigal spoke to Stanford Business about compassion and addiction to technology devices. Here is an excerpt:

I noticed on your website that your personal motto is "where science and compassion meet." Tell me about this. I've always been interested in relieving people's suffering. I considered fields like medicine, physical therapy, and psychotherapy, but when I started to study psychological science and how the brain works, I started to feel like science itself was a tremendous source of compassion for others. I fell in love with science as a way to understand suffering.

It sounds like you've suffered. Yes. I suffered from chronic pain from the time I was very young; daily, debilitating headaches. I found my way into meditation and yoga, asking: How do I make peace with a body that produces pain every day? Over time, I've become just as interested in other kinds of suffering, including anxiety, depression, and addiction.

Where does the science come in? Science is a way to discover things that are true, but that you couldn't tell by observing in a casual way. Our intuitions often lead us astray, whether it's predicting what will make us happy, the effects technology will have on our brain, or understanding what really motivates people. Science is a great way to introduce people to new ideas, especially here in Silicon Valley and at Stanford. For example, when I teach about



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the benefits of meditation, people want to see the brain pictures first. Then they're willing to try a mindfulness practice.

Is addiction to technology really an issue? Yes.

We're talking about people feeling out of control in relation to some behavior or stimulus or substance, and compelled to use it more than is good for them. They recognize that it is interfering with the quality of their lives; that is a basic definition of an addiction.

What are some of the signs of techno-addiction?

There is a common feeling, whether it is a drug or food or shopping or technology. If you pay attention to what is happening in your mind and body, you notice a free-floating anxiety, and then a sense of urgency, especially when separated from the object of addiction: "I have to have it now," or "I have to keep clicking or checking." It's more like panic than a positive desire. It's that physical quality of being out of control. And importantly, no matter how much you give in, it never feels like enough. There's no satisfaction. Giving in just makes you want to do it again. What used to be fun becomes joyless compulsion. Many people feel that way about their phones, Facebook, email, Twitter, online celebrity gossip, internet porn, and so on.

Where in the brain does the mechanism of techno-addiction lie? The reward system (in the mid-brain) that underlies addiction evolved to make us consume food, so we don't starve to death. But our survival also depends on access to information, especially social information. So the brain's reward system has adapted, and is now just as interested in news and social relations as it is in dinner. We worry that there is something we need to know, and don't, or there is something we need to do, and haven't done it. We wonder about other people, what they are doing, and what they think about us. That's social media in a nutshell.

How can we cure ourselves of techno-addiction?

With any form of addiction, I recommend just paying attention to the process and how it works. Do you even know what the itch to check your phone feels like? Or do you only become aware that you're on your phone when you're sending your fifth text message?

Then I suggest two things: You need to set a support structure for yourself. In the same way you wouldn't keep junk food in your cabinet if you're trying to improve your health, you should think of ways to put the phone away. Put it in airplane mode

"It's more like panic than a positive desire. It's that physical quality of being <u>out of control</u>."

or recruit other people to remind you that you made a commitment to not text while driving.

Second: Surf the urge. Pay attention to what it feels like in your body and to your breathing. Think of the urge like a wave you are going to surf, and breathe through it. Like a wave, it will crash and dissolve. Cravings sustain themselves when your brain and body believe you are going to give in. As soon as you make a commitment not to, it begins to change how the brain is processing the craving. This approach has been shown to help people conquer all kinds of cravings, from food to cigarettes.

Do you raise this topic with tech executives here in Silicon Valley? It's not uncommon for a company

in Silicon Valley? It's not uncommon for a company to ask me to do an informational interview about the psychology of technology. All of the companies I talk to, whether they are creating games or designing apps, are very serious about wanting to contribute to people's wellbeing. It's not like tobacco companies trying to cover something up. They are responsive to science and in some cases doing their own research. I'm encouraged by the collaborations between Silicon Valley and psychologists and hopeful that technology will be a source of wellbeing, not just more stress and suffering. Δ

Kelly McGonigal, a lecturer at Stanford, co-taught Compassion and Leadership at Stanford GSB in spring quarter 2013.

Organizations

"There seems to be overwhelming evidence that organizational decisions have

profound effects

on employees' physical and mental health, and even people's life spans."

—Jeffrey Pfeffer, PAGE 34





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Safety first: In the control room of a crude oil rig outside Watford City, N.D.

Can a macho workplace shed its machismo? It happened on an oil rig, that most macho of work environments, say researchers who found that crew members on an offshore platform toned down their bluster and macho as they concentrated on a company program to improve workplace safety. The researchers — Harvard's Robin J. Ely and Stanford's Debra E. Meyerson — say based on the changes they saw on the oil rig, maybe the same can happen in any workplace. If so, companies could drastically alter their work environments and boost gender equity as well.

To study two offshore oil platforms, Ely and Meyerson conducted extensive interviews over 19 months with male employees of two rigs in the Gulf of Mexico, and sent a female member of their research team to work side by side with them for several weeks. Before Meyerson and Ely began their study, the corporate owner of the rig had launched an initiative to improve workplace safety to combat frequent on-the-job injuries. The safety program emphasized working together for the common good of the crew and taking personal responsibility. Although ratcheting down the machismo wasn't a goal of the safety program, that did become one observed effect.

Ely and Meyerson said there is nothing wrong with exhibiting typically masculine traits. Employees, including these platform workers, often need to be decisive, assertive, aggressive, or emotionally detached to be effective. But plenty of jobs, from police officer and coal

miner to litigator and Wall Street trader, encourage men to strut masculinity for its own sake and prove themselves as men — all the time. That behavior, known among organizational behavior researchers as "doing gender," is costly. It can lead to excessive risk taking and poor decision making, interfere in recruits' training, hurt men's relations with each other, and marginalize women workers, write Ely and Meyerson. "If you're taking risks just to prove your masculinity, you're likely taking some bad risks," says Ely.

The platform company that Ely and Meyerson studied launched a major safety initiative in the mid-1990s incorporating safety efforts in their day-to-day operations. The workforce was about 90% men with women employed primarily

in housekeeping and catering jobs. The researchers conducted interviews during five visits to each platform, while another member of their team received training and worked as an entry-level production operator for a month.

Many of the workers were company longtimers who remembered the old days. In interviews, workers said that traditionally, platform culture discouraged asking for help, admitting mistakes, or building a sense of community. A longtime manager told the researchers that "the field foremen were kind of like a pack of lions. The guy that was in charge was the one who could basically out-perform and outshout and out-intimidate all the others ... Intimidation was the name of the game." A production operator noted that "back then there was much more profanity, more posturing. If you didn't posture yourself in a position of power, then you set yourself up for ridicule."

To enhance worker safety, the company began to emphasize the notion of promoting the common good. It posted signs and symbols conveying ideas including "no one gets hurt" and "people supporting people." Each worker received instructions in shutting the platform down and was told to do so if he thought safety demanded it. "We surmise that by putting safety front and center, the company inspired among workers a positive sense of shared fate or humanity and a willingness to transcend personal image in favor of collective purposes," write Meyerson and Ely. As a result, because "demonstrating or protecting one's masculine image would have undermined safety, community, or the company's mission, men were willing to deviate from conventional masculine scripts."

The company also broke from the industry's traditions of equating competence with masculinity and rewarding "the biggest baddest roughnecks." Instead, it rewarded those who showed the skills and behaviors needed to get the job done. A production operator said the employee who was most respected "knows what he's doing, or if he doesn't, he'll take the time to do the research to understand what he's doing." Workers who behaved too aggressively didn't get promoted, because they discouraged others from speaking up. "If proving my image becomes more important than doing the job well, there's a potential problem," says Ely.

In addition, a new emphasis on the importance of continual learning normalized the idea that men have limitations and encouraged them to pursue their goals without worrying about appearing vulnerable or unmanly. Fallibility became acceptable; it became okay for a man to seek help for the sake of safety. One of the platforms, for instance, established a "Millionaire Club" to "honor" workers whose mistakes had cost the company \$1 million. Membership wasn't a source of shame but rather a mark of being human, Ely and Meyerson write. That recognition of fallibility likely increased men's willingness to let go of self-image concerns without fear of ostracism.

Ultimately, both platforms performed well in safety and productivity.
Companywide, the accident rate fell by 84% and production was at an all-time high. Workers and managers attributed the improvement to the safety initiative that conveyed that "macho behavior was unsafe and therefore simply unacceptable."

So what's the lesson learned about gender? Getting men to stop acting male all the time undermines the assumption that gender-related behavior is inevitable and opens the doors to more non-stereotyped views of women, too. That's good news for

Workers said platform culture had traditionally discouraged asking for help or admitting mistakes.

companies seeking greater gender equity. "We speculate that if you have a culture that doesn't hold men accountable to a masculine ideal, it stands to reason that women would benefit as well," says Ely.

But companies that want to discourage shows of masculinity can't be heavy-handed about it. After all, the platform company didn't set out to change what researchers call "the gender system" but just wanted to improve its safety record. If a company suspects that shows of masculinity are causing problems, it might, for instance, "think about becoming a learning organization because it requires people to admit mistakes, learn from failure, and ask for help — all behaviors that run counter to stereotypical masculinity," says Ely.

An initiative directly telling employees to tone down stereotypical gender traits "will be too easily misunderstood," Ely adds. "Gender is such a hot topic. People have knee-jerk reactions and might automatically resist without considering that the real point is not to be less masculine or more feminine but rather to let go of the need to prove oneself on these dimensions." Δ

Debra E. Meyerson is an associate professor, by courtesy, at Stanford GSB, and an associate professor of education at Stanford Graduate School of Education. She received her PhD from Stanford GSB in 1989. 28

ORGANIZATIONS

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LONGEVITY

Why Do Some Companies Seem to Last Forever?

The secret is managing your current business while simultaneously preparing for change.

BY MARINA KRAKOVSKY

All companies hit rough patches from time to time. But only a few manage to survive decade after decade — some of them in a form that bears little or no resemblance to the original organization. Nokia began in 1865 as a riverside paper mill along the Tammerkoski Rapids in southwestern Finland. In the late 1880s, Johnson & Johnson got its start by manufacturing the first commercial first-aid kits to help railroad workers. And in 1924, the founder of Toyota came out with his company's first invention, the Model G — an automatic loom.

What explains this longevity? Stanford's Charles O'Reilly calls it "organizational ambidexterity": the ability of a company to manage its current business while simultaneously preparing for changing conditions. "You often see successful organizations failing, and it's not obvious why they should fail," O'Reilly says.

The reason, he says, is that a strategy that had been successful within the context of a particular time and place may suddenly be all wrong once the world changes. Staying competitive, then, means changing what you're doing. But the change can't be an abrupt switch from old to new — from print to digital distribution, say, or from selling products to selling services — if that means abandoning a business that's still profitable. Hence the call for ambidexterity. You can't just choose between exploiting your current opportunities and exploring new ones; you have to do both. And the companies that last for decades are able to do so time and time again.

O'Reilly's work builds on that of other organizational scholars who have noted the value of a two-pronged survival strategy. In a seminal paper published in 1991, Stanford's James March wrote about the need for organizations to do two things at once and articulated the challenge. "Both exploration and exploitation are essential for organizations," March wrote, "but they compete for scarce resources." That means organizations that try to do both face difficult trade-offs, choosing one only at the expense of the other. Harvard's Clayton Christensen went a step further, pointing out in The Innovator's Dilemma in 2011 that the very things that make an organization successful today will actually work against it as conditions change. It's not just that resting on your laurels is tempting, or that managers



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are blind to the changes around them. Rather, innovation can easily seem like a threat to a business that is already working well.

When Christensen wrote *The Innovator's Dilemma*, he saw no way out, O'Reilly says, except to spin out the innovative part of the organization. According to that approach, the best way for Wal-Mart Stores Inc., for example, to cope with the advent of internet retailing was to continue to focus on its brick-and-mortar stores and to spin off website Walmart.com as a separate company, as it did in 2000. But a spinoff doesn't really solve the problem, O'Reilly says, because it doesn't help Wal-Mart make money in the long run. A better way, his research suggests, is to run the mature business alongside the newer business under the same organization — but, crucially, to do it in a way that makes smart use of the organization's resources.

A good model is the way in which Wal-Mart is rolling out its Express stores, the much smaller alternatives to the company's behemoth supercenters and among its best hopes for continued growth. This venture, which is moving in on the turf occupied by the likes of CVS and Walgreens, seems likely to pay off, O'Reilly says, because Wal-Mart's senior managers aren't merely moving into a new, related business; they're leveraging "the strengths of the mother ship" to do so. For Wal-Mart, those strengths are in real estate, purchasing, logistics, and information technology — all capabilities that will be useful in the drugstore business too.

CAN COMPANIES ADAPT?

Christensen, O'Reilly says, now sees ambidexterity as the solution to the innovator's dilemma, but not everybody does. The idea that organizations can reshape themselves to adapt to change runs counter to a decades-old tradition in organizational studies that says, in effect, that organizational survival is a matter of luck. That school of thought, influenced by evolutionary theory and known as organizational ecology, holds that the companies that survive today are products of natural selection. These organizations have the right features to thrive in their current environment, organizational ecologists say, but sooner or later, the environment is bound to change. And if it changes in ways that favor a different set of traits, the argument goes, an individual business can't adapt any more than a zebra can change its stripes.

That view is too fatalistic, O'Reilly believes, because it ignores managers' power to learn and

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The number of years Nokia has survived, thanks in part to ambidextrous thinking

change. If Wal-Mart is continuing to grow while Sears is in decline, it's because Wal-Mart's leaders are deliberately doing the right things.

O'Reilly and his colleagues, especially his close collaborator Michael Tushman, of Harvard Business School, have found what some of those things are. Above all, an ambidextrous organization needs a leader with an "overarching vision," or clarity about why different businesses within the organization are important. But their research also shows that problems arise when other senior managers disagree with that vision. Therefore, the leader must also "make sure that everybody is singing off the same hymnal," O'Reilly says.

Managers must make sure their organizations actually align with that vision, as well — a difficult feat, given that different business units' cultures and incentives might be tugging them in different directions. The best leaders manage to pull it off. One example is Glen Bradley, who in the early 1990s led Ciba Vision, a maker of contact lenses that was losing ground to Johnson & Johnson. Johnson & Johnson had the economies of scale to defeat Ciba Vision in the market for conventional lenses, so Bradley redirected his organization's resources toward developing innovations, such as contacts that people could wear while sleeping. At the time, the concept of extended-wear contact lenses was to conventional contacts what digital photography had been to Kodak's film business: If successful, many feared, the new product would kill the old one.

The idea that organizations can reshape themselves to adapt to change runs counter to a decades-old tradition.

To make clear why the old business should support the exploratory projects, Bradley crafted a new vision for the entire company: "Healthy Eyes for Life," a statement whose breadth conveys the idea that the company should pursue whatever technologies and opportunities they had to promote healthy eyes. To forestall conflicts over resources, he set up a separate organization for each project, each with its own research and development, marketing, and finance group, and each headed by a leader given free rein to create the right culture to meet that organization's goals.

Bradley also wanted to make sure the new projects benefited from the expertise of the old business, so he put all of them under the control of a single executive, who knew the old business and had the personal relationships to facilitate sharing across divisional boundaries. Bradley also revamped the company's incentive systems to reward managers mainly for the performance of Ciba Vision as a whole. Thanks to these efforts, the new project teams became remarkably productive: Besides new types of contact lenses, Ciba Vision successfully introduced a drug to fight eye disease and pioneered a manufacturing process that greatly reduced the cost of making lenses. In the first 10 years after Bradley's move to ambidexterity, the company's annual revenues grew from \$300 million to more than \$1 billion.

DAVID VS. GOLIATH

Ciba's experience shows that with deft ambidextrous leadership, an underdog can stand up to a powerful rival. But Johnson & Johnson could have done what Ciba did. We often think of large organizations as lumbering bureaucracies incapable of swift change, a notion perpetuated by highly visible David-and-Goliath stories in business. (Think Netflix trouncing Blockbuster, which had years to respond to the little company with the red mailers.) In fact, large companies are often better positioned for ambidexterity than small ones, O'Reilly says, because one bad bet won't wipe them out. "If you're a small company, you place all your chips on this one thing, whereas a large organization can do lots of experiments," he explains.

IBM, an organization that O'Reilly has studied extensively (and for which he and Tushman have consulted), is a case in point. In 2000, the company's leaders, acknowledging that running their existing businesses with incremental improvements wasn't enough to grow revenue, launched a project to foster more exploration. Called Emerging Business Opportunities, the initiative might sound like just another stuffy big-company acronym. But reading O'Reilly's descriptions of the EBOs makes them look almost like startups within Big Blue, with each reporting to a division head and to the head of new growth opportunities — somewhat the way entrepreneurs remain accountable to their funders. Like actual startups, some of these organizations

With some <u>deft</u> <u>ambidextrous</u> <u>leadership</u>, even an underdog can stand up to a powerful rival.

failed to bear fruit. But there were enough of them (seven in the beginning) that in the first five years alone, the EBOs added \$15.2 billion to IBM's top line, O'Reilly and his colleagues report, or more than twice as much as acquisitions did.

A recent study by O'Reilly and colleagues suggests that while IBM's experience was extraordinary, the company does have something in common with other thriving organizations. The researchers looked specifically at what type of corporate culture was associated with growth in revenue and net income, and found that more adaptive cultures, or ones that emphasized speed and experimentation, did much better. "A culture that says, 'We don't have all the answers; we've got to try these experiments' — that's the type of culture that promotes ambidexterity."

What determines the ideal balance between exploration and exploitation is one of the big open questions. It's safe to say, though, that the right amount of experimentation has much to do not only with a company's resources, but also with the pace of change in its industry. "If the industry isn't changing rapidly, doing 100 experiments is unproductive and expensive," O'Reilly says. "But if you don't do experiments, you're likely to be in trouble if the industry is changing." $\pmb{\Delta}$

Charles O'Reilly is the Frank E. Buck Professor of Management at Stanford GSB. James March is the Jack Steele Parker Professor of International Management, Emeritus. 32 ORGANIZATIONS SUMMER 2013 STANFORD BUSINESS

AGRICULTURE

'It All Flows from the Vineyard."

Each season presents Napa's oldest winery with a chance for spectacular success — and its own particular challenges.

BY JESSICA BATTILANA

When most people are slugging down coffee, Peter Mondavi Jr. is drinking wine. He and Stacy Clark, the winemaker at what is said to be Napa Valley's oldest winery — Charles Krug — spend many mornings sampling fermented grape juice at various stages of its evolution, blending it, and imagining the wine it might become.

Like all businesses, winemaking is a quest for excellence, and getting to that point is as great a struggle given the number of variables that are out of winemakers' control. Each season presents Mondavi and his team with an opportunity to create spectacular wine, but also presents its own unique set of conditions. "We are at the mercy of Mother Nature and what she throws at us throughout the growing and

harvest period, which in today's climate is becoming much more variable and less predictable," explains Peter, co-proprietor of Charles Krug, together with his father, Peter Mondavi Sr., and brother, Marc.

It's a challenge that Peter Jr. and his family have been tackling for decades. The winery was established in St. Helena, Calif., in 1861 by Charles Krug, purchased by Peter's grandparents, Cesare and Rosa Mondavi, in 1943, and taken over by Peter's father in 1965. (The other well-known Mondavi winery was founded by the late Robert Mondavi, Peter Sr.'s brother; their businesses are unrelated.)

The elder Peter Mondavi, a 1937 Stanford graduate who will turn 99 this autumn, is still part of the day-to-day operations at the winery. The younger earned three degrees from Stanford: a BS in 1980, a master's in engineering management in 1982, and an MBA in 1993. Wine has always coursed through his veins: "I started working here when I was 8 years old," he says, "and I never really left."

Their goal: a balanced wine. For the family, that subjective and relative term represents a wine whose characteristic elements — fruit, tannin, and acid — are in harmony. "It all flows from the vineyard," explains Mondavi Jr.

The winery produces seven wines today, from grapes cultivated over 500 acres in the Yountville, St. Helena, Howell Mountain, and Carneros American Viticultural Areas, or AVAs, growing largely Bordeauxstyle varietals. The specific climate and character of each plot help determine the character of the grapes grown there. The Howell Mountain plot, for example, is slightly warmer, with abundant afternoon sun, cooler nights, and limited rainfall, producing fruit that is more acidic. By contrast, the Page vineyard in southern Yountville can be dry-farmed much of the year, creating tenacious vines and imbuing the grapes with a wild characteristic that is a welcome addition to blends.

The Mondavis constantly monitor the vineyards. In response to environmental variables that cannot be controlled — early or late frosts, sweltering summer days, and dry spells that can last for months — they



Peter Mondavi Jr.: "We are at the mercy of Mother Nature and what she throws at us."

make tweaks to the growing process, such as adding irrigation or deleafing, which allows the grapes to receive more direct sunlight.

Properly managed, the differing environmental factors present in each plot can be to the winery's benefit, and the sheer amount of grapes grown by Charles Krug allows Mondavi and Clark, his winemaker, to be especially choosy when selecting the grapes they want to use in any given year. (The surplus is sold off to other winemakers for blending.)

Once the grapes have been harvested, the Krug team faces myriad decisions to help them zero in on perfection. From the morning-time blending experiments to the time and temperature of fermentation, to the type and age of barrels and the amount of time the wine spends in them, each step of the post-harvest process can be manipulated in response to the season's fruit. During the first stage of fermentation, the process during which yeasts convert the sugar present in the juice to ethanol and carbon dioxide, the goal is to extract the maximum amount of flavor from the grapes without pushing it too far, which can result in an overly tannic wine. Temperature is key to this process; at too low a temperature, the yeast may not be invigorated enough to begin fermentation. Too warm, and the yeast can be killed off, or the wine can develop an unpleasant flavor due to the presence of unwanted bacteria that thrive at higher temperatures.

The choice of aging the wine in stainless steel tanks versus oak barrels also has a significant impact on the finished character of the wine. Stainless steel tanks are neutral, contributing nothing to the flavor of the wine, which can be advantageous if a winemaker is hoping to preserve the flavor of a delicate white wine. By contrast, oak barrels impart distinct

characteristics to a wine, characteristics that are more pronounced if the barrel is new (that is, has never been used to store wine). Some winemakers choose a hybrid approach, aging a wine in both stainless tanks and oak barrels, in order to get the best of both worlds.

Though the staffers at Charles Krug keep notes about changing environmental conditions that affect each vintage, they seldom refer to them. "The interactions between all the variables, known and unknown, are so vast that discrete notes are only so helpful," says Mondavi Jr.

More helpful is their experience, which allows the team to take calculated risks, such as trying out new barrel suppliers or pressing the fruit in whole clusters (rather than destemming), which can contribute to a wine's tannic structure, aroma, and flavor.

"We try to make a consistent product and let tradition influence but not dominate our winemaking process," Mondavi Jr. says.

Given the complexity, it's almost impossible to become bored with the process, which explains his father's career longevity and, the younger Peter Mondavi predicts, his own. "I love this business. It's my legacy and my life experience," he says. And, of course, there are the perks: On a good day, he can bookend his day with a couple of tastes of great wine. Δ

Peter Mondavi Jr. received from Stanford his BS in 1980, a master's in engineering in 1982, and an MBA in 1993. Peter Mondavi Sr. is a 1937 Stanford graduate.





WELLBEING

Companies Put the Environment over Their Employees?

A scholar says businesses should prioritize "human sustainability."

BY JEFFREY PFEFFER

Eight years ago, Lee Scott, then CEO of Wal-Mart, made the first speech in the company's history broadcast to all of its associates. In that speech, Scott committed the company to the goals of being 100% supplied by renewable energy, creating zero waste, and selling products that sustain resources and the environment. Meanwhile, Wal-Mart paid its employees almost 15% less than other large retailers, and because of the lower pay, its employees made greater use of public health and welfare programs. In 2005, 46% of Wal-Mart employees' children were either uninsured or on Medicaid.

Wal-Mart's relative emphasis on the physical environment over its employees is far from unusual. BP, a company that touts its environmental credentials in its advertising and other presentations, was one of the first major oil companies to devote significant investment to alternative energy. Apparently less concerned about its people, the company paid a record fine of \$87 million for an explosion in its Texas City, Texas, refinery that killed 15 workers. Likewise, many other businesses have appointed "eco-managers" to oversee company efforts to become more energy-efficient and environmentally conscious, and companies track and publicly report carbon emissions from their activities. Yet one would be hard-pressed to find similar efforts focused on employees.

This lack of concern is puzzling given that health care costs, related in part to what companies do in the workplace, are an enormous problem in the United States and throughout the industrialized world. It is all the more surprising given the large epidemiological and public health literature that suggests there may be important organizational effects on human health and life span. For example, in the United States, employer decisions about offering health insurance and the cost to employees, which can affect access, are consequential because there is a great deal of

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29%

Additional cases of hypertension reported among those working 51 or more hours per week versus those working less than 40

evidence showing that having health insurance affects health status. One study, by Andrew Wilper and his colleagues at Harvard University, estimated that there were more than 44,000 excess deaths per year in the United States because of lack of health insurance. Having health insurance also affects economic wellbeing. In 2005, Harvard's David U. Himmelstein and others published a study on a sample of personal-bankruptcy filers in five federal courts. About half the people filing for bankruptcy cited medical causes.

The relationship between other organizational behaviors and health are also widely established. Research shows that layoffs are very harmful to the physical and mental health of those laid off. It increases the likelihood that an individual will engage in violent behavior by some 600%, according to a study by Ralph Catalano at the University of California, Berkeley. A study of plant closings conducted in Sweden, a country with a relatively generous social safety net, found that mortality risk increased 44% in the four years following job loss. A New Zealand study reported that unemployed 25- to 64-year-olds had more than twice the odds of committing suicide. And downsizing is associated with negative changes in work behavior, increased smoking, less spousal support, and twice the rate of absence from work because of sickness.

Why are polar bears, for instance, or even milk jugs more important than people as a focus of company initiatives?

Long hours also affect health. Haiou Yang, at the University of California, Irvine, found that compared with people who worked less than 40 hours a week, those who worked more than 51 hours were 29% more likely to report having hypertension, even after controlling for variables such as socioeconomic status, gender, age, diabetes, tobacco use, sedentary lifestyle, and body mass index. Long work hours also increase the likelihood that people will face a conflict between work and family responsibilities, which in turn is related to alcohol use, depression, and poor physical health, according to a 1996 study in the *Journal of Occupational Health Psychology*.

Job design also has important psychological consequences. High job demands that people cannot control, because they have little or no discretion over the pace and content of their work, coupled with work that is socially isolating, produce job stress. A series of studies of the British Civil Service showed that, even after controlling for numerous individual characteristics such as family background, serum cholesterol levels, blood pressure, and so forth, it was nevertheless the case that the higher someone's rank in the bureaucracy, the lower that person's risk of cardiovascular disease and death from heart attack.

PUTTING PEOPLE FIRST

There seems to be overwhelming evidence that organizational decisions have profound effects on employee physical and mental health and even people's life spans. Why, then does the human dimension of sustainability remain largely in the background? Why are polar bears, for instance, or even milk jugs more important than people, not only in terms of research attention, but also as a focus of company initiatives?

One possibility is that the consequences of organizational actions on the physical environment are frequently much more visible. You can see the icebergs melting, polar bears stranded, forests cut down, and mountaintops reshaped by mining, and experience firsthand the dirty air and water that can come from company economic activities that impose externalities. Workers' reduced life expectancy and poorer physical and mental health status are more

hidden from view. Even the occasional and well-publicized act of employee or ex-employee violence has multiple causes and is often seen as aberrant behavior outside of the control and responsibility of the employer.

Another explanation is the differential actions taken to make sustainability salient. Organizations and groups focused on improving the physical environment have taken steps to increase the visibility of what companies do — reporting on carbon emissions and measures of environmental compliance, for instance, and trying to ensure that these reports generate news coverage.

Another factor that may explain the difference between environmental and human sustainability derives from the different actors in the two systems and the presumption of choice. Few would argue that trees choose to be cut down, that the air or water decides to be dirty, or that polar bears make decisions that result in the disappearance of food and habitat. Therefore, there is an implicit assumption that people must act on behalf of the environment because these entities can't act to affect their own interests. Employees, however, have choices, and exercise their choices in a labor market in which they compete for jobs and employers compete for talent. Presumably, if they don't like the conditions of their jobs, including the degree of inequality, the amount of stress, or the absence of health insurance, employees can decide to work elsewhere. At the limit, if the conditions of work are really life-threatening, employees can choose unemployment over ill health or premature death.

DO HEALTH AND SAFETY PAY?

One of the major issues addressed by research on environmental sustainability has been whether adopting sustainability practices imposes net costs on companies, thereby eroding their competitiveness, or whether the benefits of being "green" more than outweigh any costs incurred. Completely parallel questions and issues confront a focus on human sustainability. First, just as in the case of environmental pollution, companies that do not provide health insurance, lay people off, pay inadequate wages, and have work arrangements that stress their employees also impose externalities that others pay for even as they save on their own costs. That's because some portion of the extra costs of increased illness fall on the broader health system through, for instance, increased use of public health and emergency room facilities. Second, just as green companies enjoy reputational benefits that help in brand building and product differentiation, so,

too, we might expect that companies with better records of human sustainability could enjoy benefits in attracting and retaining employees and also in building a reputation that could attract additional consumer demand.

Indeed, there are some data that suggest that human sustainability may pay off for companies. Each year, the Great Place to Work Institute, in conjunction with *Fortune*, publishes lists of the best places to work. Most of the places are noted for their provision of good working conditions and benefits, including vacations, sick days, health insurance, training, and jobs that provide people with autonomy and challenge. The institute's website shows data indicating that companies on the "best companies" list consistently outperform benchmark indices over varying periods of time, indicating that, at least as measured by stock market performance, it is good to be a great place to work. How and why these returns accrue remains to be explored in more detail. But it is quite likely that, just as in the case of environmental sustainability, human sustainability pays.

Why is it so difficult to get companies to adopt practices consistent with human sustainability? After all, there is no reason why building sustainable companies should focus just on the physical and not the social environment. It is not just the natural world that is at risk from harmful business practices. We should care as much about people as we do about polar bears — or the environmental savings from using better milk jugs — and also understand the causes and consequences of how we focus our attention. Δ

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LABOR

Why Do Ambitious Women Not Always Realize Their Workforce Potential?

Research says companies set up "tournaments," in which hours worked matters most.

BY MARINA KRAKOVSKY

When Olivia "Mandy" O'Neill entered the PhD program at Stanford GSB in 2000, the question she most wanted to answer was one that had been puzzling researchers and employers alike: Why were promising professional women failing to realize their potential in the workforce? Previous research into this question, which tried to disentangle people's biological sex from their gender identity, left everyone scratching their heads. For example, some studies looking at who succeeds had found that stereotypically masculine people of both sexes earn more than feminine people, while other research showed almost the opposite — that masculine women suffered a backlash for violating gender norms.

Even today, when her own investigations have given her much clearer answers, O'Neill sounds a note of frustration as she describes the confusion in the scholarly literature at the time. "The research wasn't coherent and really didn't explain the problem, which is: Why were women opting out, particularly the ones who looked like they should have the highest potential?"

O'Neill's dissertation advisor, Stanford's Charles O'Reilly, not only shared her interest, he also had a rich data set that held important clues. Back in 1987, when he was a professor at the University of California, Berkeley's Haas School of Business, he had surveyed MBA students there about their career plans and personalities. He then did follow-up surveys at four-year intervals to see, among other things, how much the women and men were earning. The Haas School provided an ideal sample, O'Neill explains, because its graduates in those days were embarking on a wide range of career paths, so their experiences could say something true about people's career paths in general.

In starting their work together, O'Neill and O'Reilly thought — just as past researchers had — that gender, apart from biological sex, would bear on people's income. But instead of looking at participants' answers to questions about their gender asked in stereotypical ways ("Do you like playing with children?"), the two tried to get at something they thought might be a better sign of people's career ambition: Would they rather work in so-called feminine organizations, meaning ones that are supportive and nurturing, or in masculine ones, which are competitive and aggressive?

In 1991, just four years after graduation from business school, women were earning at least as much as men — in fact, women who had expressed an interest in working in a masculine organization were out-earning men. And members of both sexes earned more if they had expressed a preference for a masculine organization. Put another way, gender mattered more than sex. But eight years after graduation, in the 1995 survey — by which time the MBAs' income ranged from \$15,000 to \$2 million per year — women had fallen behind men. To see why, O'Neill and O'Reilly



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dug deeper into the data, which revealed an interesting answer: The number of hours put in at their jobs made all the difference. Quite simply, eight years into their careers, women were working fewer hours than men on average, even when compared with men who had the same number of children.

That may sound like meritocracy at work: Rather than suggesting that qualified women were being passed up for promotions and raises, the relationship between hours worked and income earned seems both straightforward and equitable. But the situation isn't as simple as that. Many organizations set up workers' rise up the career ladder as a "tournament," the researchers note, borrowing an idea first described by Stanford GSB economist Edward Lazear. Rather than seeing their rewards accrue in direct proportion to their productivity, employees in a tournament vie for top rank at each stage, from department head to chief executive, with the winners at each tier earning the lion's share of raises and promotions to the next level.

A tournament system is sensible from the point of view of employers, who can't always easily measure professionals' output. But since workers' success depends on outperforming others in the organization, tournaments foster intense competition. More surprisingly, they also create changing incentives over time. Workers' raw potential matters a lot in the beginning, when they are getting job offers straight out of school, but as more and more people get winnowed out of the running over the years, the remaining contenders are increasingly similar in their ability.

That leaves only one way to get ahead of the pack. "As the tournament unfolds, what starts to matter more is effort, or hours put in," explains O'Neill, who received her PhD from Stanford GSB in 2005 and is now an assistant professor of management at the George Mason University School of Management in Fairfax, Va. "Working hard and being willing to make sacrifices make a bigger difference at later stages of the tournament."

It's at these later stages that women start to lag men, who eight years after graduation were not only working longer hours but also expressing a greater willingness to relocate for work.

Why do women work fewer hours than men do? Demands back home may play a role. O'Neill's

study shows that women were doing twice as much housework and child care as men. And, as she puts it, "Time is a zero-sum game, so hours they were spending doing that is hours they weren't spending gunning for the next promotion." Biology surely plays some role as well, since women's fertile years — unlike men's — are limited and, in many fields, coincide with peak promotion years.

Another intriguing possibility is that some women use family responsibilities as a convenient way to avoid facing possible career failure. Telling yourself you had no choice but to cut back when you had your baby, after all, is easier on the ego than going all in and losing the tournament anyway. The tendency to self-handicap, as psychologists call this form of self-deception, certainly isn't limited to women, and men might want an excuse to opt out, too — but they lack an alternative path as well-trod and socially acceptable as taking care of the home front. Still another possibility is that women sacrifice time at work for time at home without much thought, O'Neill says, perhaps in response to subtle messages from parents, spouses, and bosses.

In short, it's complicated: Sex, social expectations, and individual psychology intermingle in ways that can be hard to foresee at the start of one's career. At least part of the answer to the riddle of why highly capable women don't always realize their potential in the workforce, O'Neill concludes, is that people are more than their potential. What they value affects what they pursue, and values can change over time.

Executives who are serious about retaining talented women, the research suggests, need to understand the ways that mainstream systems for promotion — and organizations in general — aren't as gender-neutral as they might appear. Employees, for their part, would do well to think of their careers as tournaments and take the long view from the very start. Planning and patience can pay off in the form of work-life balance: A woman who becomes a boss and earns a high salary, O'Neill points out, is in a better position to set her own schedule, find good child care, and keep the career she wanted.

Members of both sexes can benefit from looking at their life as a whole. Though this particular study focused on income, O'Neill says we need to expand our definition of success to include overall happiness and good health. "If you're dead," she says, "you can't be the CEO." Δ

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Darrell Duffie: "We hadn't connected the dots."

BANKS

The Multitrillion-Dollar Plumbing Problem

A finance professor explores the big risks that still lie ahead.

BY EDMUND L. ANDREWS

It's hard to believe now, but top U.S. Treasury and Federal Reserve officials were remarkably sanguine in September 2008 about a possible collapse of Lehman Brothers Holdings Inc. "I never once considered it appropriate to put taxpayer money on the line," declared Treasury Secretary Henry Paulson at the time.

Privately, top officials had been predicting that a Lehman bankruptcy would hardly come as a surprise. Its trading partners and creditors had known for months that Lehman was in a death spiral. Everybody had had time to prepare.

Wrong. It turned out that a major money-market fund, Reserve Primary Fund, had been holding \$785 million in Lehman debt that suddenly became worthless. On Tuesday, Sept. 16, one day after Lehman filed for bankruptcy, the Reserve fund "broke the buck" — meaning that the value of its assets sank below \$1 a share — and it couldn't fully redeem clients' shares. That sparked an epic run on all money-market funds, with institutional investors withdrawing nearly \$450 billion in a matter of days. That threatened to cripple the huge "repo" market, which supplies trillions of dollars in overnight cash loans to Wall Street securities dealers. Before the week was out, the Treasury was guaranteeing money-market funds, and Paulson was asking Congress for an allpurpose \$700 billion bailout fund.

People still disagree about whether the government could or should have saved Lehman. But there is no debate that its collapse set off a catastrophic chain reaction that almost nobody had predicted. It also revealed hidden weaknesses in the financial "plumbing," the maze of institutions that move money between investors, savers, borrowers, and the "real economy."

Stanford's Darrell Duffie was shaken as well. Over more than two decades, he had analyzed many pillars of the system: credit risk, securitization, "dark markets," and financial derivatives, to name just a few. Yet the financial crisis showed how little he and other academics had looked at the system as a whole. "We academics hadn't connected the dots very well," he said recently. "You really needed to step way, way back and think broadly. You need

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to understand how everything connects together, but that in itself is far from sufficient. You need to understand the underlying forces."

Since then, Duffie has been on a mission. Though still a theorist and an educator, he has plunged into the nitty-gritty debates about fixing what he calls the "pipes and valves" of modern finance. He shuttles regularly to Washington and New York, advising (without charge) officials at the Treasury, the Federal Reserve, and other regulatory agencies. He writes prolifically, from academic papers to books. And as an active member of the Squam Lake Group, a nonpartisan group of finance academics, he has pushed for reforms in financial regulation.

It doesn't always go smoothly. Duffie infuriated some liberals last year by criticizing the "Volcker rule," which would prohibit banks from trading for their own accounts. More often, however, Duffie's ideas provoke heated opposition from the financial industry.

What makes Duffie influential is his grasp of both granular detail and the big picture. To read his papers is to get a lucid and jargon-free tour of the financial infrastructure and its most urgent problems. Duffie doesn't fire off broadside attacks on "Wall Street" or "big banks." He describes the system as it is and then zeroes in on the biggest sources of trouble. "I see each situation, and I try to disentangle it," he says. "It's very clinical, very dispassionate."

Much of Duffie's current focus is on financial "utilities": overnight repo markets, central clearing systems, and exchanges and swap facilities for financial derivatives. Like water systems and electrical grids, financial utilities operate in the background and attract little attention. But they can unleash havoc if they break down.

BIG RISKS AHEAD

Exhibit A on a Duffie tour of the plumbing is the \$2 trillion-per-month tri-party repo market, a huge source of short-term funding that attracted almost no public attention before the 2008 crisis.

A repo, or repurchase agreement, is essentially a very short-term loan, usually for one day and usually secured by a bundle of securities. The big Wall Street dealers use repos to finance their enormous inventories of securities, and the biggest dealers often borrow more than \$100 billion each on a single day

To institutional investors such as money-market funds, repo loans seemed ultrasafe before the crisis because they lasted for only a day. But the daily "unwinding" and "rewinding" became so routine that the giant Wall Street firms effectively used them to finance long-term needs. Repo transactions peaked at about \$2.8 trillion per month before the crisis. When the market froze in 2008, the Fed—and taxpayers—became Wall Street's lenders of last resort.

The repo market has since revived, but Duffie argues that it still poses big dangers. Two major banks, JPMorgan Chase & Co. and Bank of New York Mellon Corp., provide virtually all the clearing and settlement for repo transactions. The two clearing banks also provide vast amounts of interim credit to the dealers, mainly to cover the time between the expiration of one day's loans and the creation of new loans for the next day. This intra-day lending can easily top \$100 billion for a single dealer — a lot of money, even for JPMorgan. It can also create a serious conflict of interest: JPMorgan itself is the nation's biggest securities dealer, and has its own capital needs.

Duffie's attention to the risks was sharpened when he was engaged as a consultant to the Lehman estate, the legal entity that administers the liquidation of Lehman's assets. Lehman alleged that JPMorgan's aggressive actions as a tri-party repo clearing bank aggravated Lehman's troubles in its final days.

Putting Lehman aside, Duffie argues that the structure of the repo market poses a fundamental threat to financial stability. It's not just the volume of money involved. It's also the concentration of risk: Wall Street's three biggest broker-dealers — including JPMorgan — account for more than a third of all repo lending. "That is not a good situation," says Duffie. "If a dealer gets into trouble, the clearing bank might end up holding the bag."

In a crisis, then, cash investors might worry as much about the clearing banks as the borrowers, and flee the entire market. If a clearing bank were to cut off credit to a shaky dealer, it could force a fire sale

Duffie believes the structure of the repo market poses a fundamental threat to financial stability.

of securities that would aggravate the catastrophe.

The really bad news, according to both Duffie and Fed officials, is that some of these risks are increasing. Indeed, Fed officials recently echoed Duffie's warnings that repo markets may be more prone to "runs" today because the Dodd-Frank financial reform law of 2010 makes it much more difficult for the Fed to provide backup credit if a new crisis arises. Institutional investors, knowing this, may move faster than ever to pull their money out. "We have not come close to fixing all the institutional flaws in our wholesale funding markets," warned William C. Dudley, president of the New York Fed, in a speech this February. "One could argue that the risks have increased compared to prior to the crisis."

Duffie argues that the repo market is too important to be controlled by banks like JPMorgan and Bank of New York Mellon, given their big roles in many other markets. The more that a clearing system is entangled with major banks, he maintains, the harder it will be for the government to pull the plug on a bank that is "too big to fail." His solution: Create a tightly regulated, stand-alone clearing system with clear-cut rules and no room for discretion.

For the moment, that idea isn't getting much traction. But Duffie and his colleagues are having better luck on a closely related fight: the reform of moneymarket funds. Duffie is a key member of the Squam Lake Group, an informal group of top financial economists that hammers out recommendations for financial reform. In January 2011, the group warned that the design of money market funds leaves the

door open for destabilizing stampedes like the one after Lehman's bankruptcy.

The problem is that money-market funds, which offer slightly higher returns than insured bank accounts, create the false impression of being as safe as cash or money in the bank. Shares are normally priced at a "stable" net asset value of \$1, solidifying the idea that shares are interchangeable with cash. As the Lehman collapse made clear, however, moneymarket funds can sometimes lose money. If institutional investors fear that a moneymarket fund may actually break the buck, they have a powerful incentive to pull their money as fast as possible. That leaves retail investors holding the bag, and the giant overnight repo market in deep trouble.

To reduce flight risk, the Squam Lake Group proposed giving money-market funds a choice between two alternatives: They could establish capital buffers to protect against actual losses, or give up the illusion of a stable share price and let fund shares fluctuate with the market value of the holdings.

The idea attracted big support in Washington. Mary Schapiro, then chairman of the Securities and Exchange



The amount of pay top bank executives should be forced to defer for five years, according to one proposed regulation

Commission, championed regulations modeled closely on the Squam Lake plan. The Wall Street Journal, normally hostile to regulation, wrote multiple editorials in support. But the mutual fund industry blanketed Capitol Hill and individual SEC commissioners with protests. The proposed reforms, declared the Investment Company Institute, would "destroy money-market funds, at great cost to investors, state and local governments, business, and the economy." The campaign produced a stalemate among the SEC's five commissioners last August, with two Republicans and one Democrat declining to support the reforms.

PROSPECTS FOR REFORM

But today, at least some of Duffie's ideas are likely to be enacted. An overwhelming majority of top federal banking regulators pushed the SEC to reconsider. In June, the SEC commissioners essentially went along, proposing that all of the riskier moneymarket funds — those that hold short-term corporate debt — abandon the fixed price of \$1 per share. Duffie is pleased, but troubled by some of the fine print. "It's premature to declare this a victory for financial stability," he says.

Meanwhile, other issues beckon. Washington remains bogged down over reforms in trading financial derivatives, from plain-vanilla interest-rate swaps to the credit-default swaps that brought American International Group to its knees. Duffie would go further than the banks or even the Obama administration in requiring stronger collateral and centralized clearing systems for financial derivatives. Last year, Duffie staunchly opposed efforts by big banks to exempt the \$20 trillion market in foreign-exchange derivatives from new clearing rules. To his dismay, the Treasury sided with the banks.

On the other hand, Duffie angered many reformers last year by sharply criticizing the proposed implementation of the Volcker rule. Supporters of the restrictions, named after former Fed Chairman Paul Volcker, argue that proprietary trading by banks exposes taxpayers to undue risk because bank deposits are insured by the federal government and banks have access to emergency lending from the Fed.

Duffie, in a study commissioned by the securities industry, warned that the

proposed restrictions would do more harm than good. Prohibiting banks from trading for their own account, he argued, would reduce market liquidity, increase the cost of capital, and ultimately slow economic growth. The restrictions might also spur a migration of trading to comparatively less-regulated market-makers outside the banking system. A better approach, Duffie argued, would be to raise capital requirements for bank trading.

Critics, including economics professor Simon Johnson, of MIT's Sloan School of Management, implied that Duffie's arguments were tainted because the Securities Industry and Financial Markets Association had paid \$50,000 for the study. But as Johnson himself acknowledged, and as Duffie had prominently disclosed on the study's front page, Duffie had instructed the trade group to donate the money directly to Michael Fox's foundation for fighting Parkinson's disease. Johnson also attacked the idea that regulators could keep banks from being reckless. "Why would we want to bet the house again on this industry's special interest now being miraculously aligned with our broader social interest?" he wrote in a commentary for Bloomberg View. Duffie takes the criticism in stride. "I don't think you should determine the quality of an argument based on which side a person seems to be on."

As it happens, though, most of his proposals give the financial industry heartburn. In March, Duffie and the Squam Lake Group proposed a dramatic new restriction on executive pay at "systemically important" financial institutions. Duffie argues that top bank executives still have lopsided incentives to take excessive risks. The proposal: Force them to defer 20% of their pay for five years, and to forfeit that money entirely if the bank's capital sinks to unspecified but worrisome levels before the five years is up. "On most issues," Duffie says, "the banks would be glad to see me go away." A

Darrell Duffie is the Dean Witter Distinguished Professor of Finance at Stanford GSB. 44

ORGANIZATIONS

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DIVERSITY

Changing the Ratio

A small fraction of leaders of technology firms are from minority groups. Code2040 plans to fix that. BY BILL SNYDER

Silicon Valley thinks of itself as the cutting edge of more than just technology; it considers itself a force for social change. But in an era when the United States has elected and re-elected an African American president, only 1 in 18 leaders of technology firms is black or Latino, says Laura Weidman Powers. She is the cofounder, with her Stanford GSB classmate Tristan Walker, and executive director of Code2040, a nonprofit group that is working to open the doors in Silicon Valley for black and Latino engineers.

In its first year, the organization placed five fellows into paid internships at Silicon Valley companies, including Jawbone, Tumblr, Rockmelt, and Circle, and expects to place 15 this summer. Before they enter the fellowship, applicants need to pass a coding exam, a phone screen, and then a matching process with Code2040's host companies.

Just 30, Weidman Powers already has a resume stuffed with accomplishments: degrees from Harvard (AB in psychology) and Stanford (MBA and JD) along with stints as a product development executive and web producer at two technology



startups. She was a codirector of CityStep, a community service organization, while she was an undergraduate at Harvard. She was recently named a Social Innovation Fellow by Stanford GSB's Center for Social Innovation. Weidman Powers talked to *Stanford Business* about Code2040 and the path that led to it. Excerpts:

What's the significance of the name? Our country is undergoing a massive demographic shift. Census projections show that people of color will collectively be the majority in the U.S. in the year 2040. It's important to have that shift reflected in the ranks and the leadership of innovation hubs like Silicon Valley. We hope we'll have worked ourselves out of a job long before then.

How does the program work? We call it a fellowship program. We bring top-performing black and Latino computer-science students to our fellowship program. We place them in an internship with a top tech company. The students get mentors, we have a speakers series, we do skill-building workshops, leadership development, and coaching.

Silicon Valley fancies itself as the cutting edge not just in technology but also socially. But women and minorities are badly underrepresented.

I think it is the most entrepreneurial and innovative environment. But there's absolutely an underrepresentation, and that's what we are working to correct. The system is out of balance. Just 1 in 14 tech employees in Silicon Valley is black or Latino, just 1 in 18 is in leadership [according to a report by the Anita Borg Institute for Women and Technology].

Why is this still the case? It's a puzzle that a lot of people are trying to figure out right now. There's been a lot of conversation around pattern matching as a contributing factor. It ends up being kind of a closed loop or a self-fulfilling prophecy when you have entrepreneurs and executives who like to invest in people that remind them of themselves and those they've seen succeed in the past. So we're trying to introduce a new pattern: Here's a new group of students that are really sharp and successful, and it makes sense to invest in them in every sense of the word.

Are you optimistic about the course of race relations in this country? I am. I don't want to say [progress] is inevitable, in the sense that nobody has to work at it, but the number of people who care about these issues and how hard they are working makes me optimistic.

What inspired you to cofound the organization?

Tristan Walker and I were classmates at the business school. We met for coffee in late 2011 right after I left a job in product development at a startup. Tristan pitched his idea to convince me to be the point person in the project.

Why did you accept his pitch? I had never seen myself as an entrepreneur, but being in Silicon Valley for the first time I was surrounded by the huge potential you see here. But at the same time I wasn't seeing the level of diversity I saw growing up in New York or working in West Philly. So I had the realization that "hey, this is something I could do."

You've been around a number of nonprofits in the last 10 years. Is there something they, as a class, could do better? I felt the nonprofits I spent time in and around in the past were too risk averse, and their income was too divorced from their programmatic activities. I'm excited to create in Code2040 an organization that is nimble and responsive to the market, thoughtful and innovative about generating revenue, and yet still completely mission driven.

Women are poorly represented in Silicon Valley, yet Code2040 isn't focused on that issue. Why not? I like to point out that we do work with women all the time, a subset of women — minorities. We work with other organizations that work with women. It's not that I think one issue is more important than the other. But there aren't many groups focused on what Code2040 is working on, while there are a lot of amazing groups working on the underrepresentation of women in tech. Δ

Laura Weidman Powers, a 2013 Social Innovation Fellow, received her JD/MBA in 2010 from Stanford. She was an MBA classmate with Tristan Walker. 46 ORGANIZATIONS SUMMER 2013 STANFORD BUSINESS



ENGINEERING

"The Beauty of Flight"

As changes in aviation open the skies to more recreational pilots, Icon Aircraft takes a "textbook start-up opportunity" and flies with it. BY STEVE FYFFE

The iPad of the skies: Kirk Hawkins matches design with engineering to create the new A5



Icon Aircraft's A5 airplane is billed as "the perfect balance of design and performance": an easy-to-fly, highly maneuverable plane that its creators hope will revolutionize the aviation industry. The Los Angeles-based company was founded in 2006 by Kirk Hawkins, a former U.S. Air Force F-16 pilot with degrees in engineering and business from Stanford, and Steen Strand, a fellow graduate of the engineering program and a seasoned sports-product entrepreneur. We caught up with Hawkins to discuss what makes the A5 so unusual — and how it has brought us one step closer to the age of the Jetsons. Excerpts:

What makes the A5 different? The A5 designed unlike any other aircraft we know of: to be a pure consumer-focused person aircraft. If aircraft were computers, nearly all of them today, regardless of size are like sophisticated, highly technical What makes the A5 different? The A5 was designed unlike any other aircraft we know of: to be a pure consumer-focused personal nearly all of them today, regardless of size,

workstations that require a very advanced user to operate. The A5 is more like a Mac or a PC. The focus of the design is to make it very user-friendly and much more accessible, easy to fly, and forgiving for even a beginning flier. It is made of carbon fiber, is amphibious, has foldable wings so it can be transported over the road, carries two people, flies about 120 mph, lands at 45 mph, burns automobile gas or aviation fuel, and gets about 20 mpg. We're not anywhere near the Jetsons just yet, but to ever get there, this is the first step.



You've flown fighter jets. How would you compare that to flying the A5?

Both deliver a kind of flying that is a visceral, dynamic, interactive, and even social experience that has little to do with boring transportation. The windows are removable, so you feel the air while you're flying; you can land on the water and swim, fish, or camp straight from the plane; you can experience the world with a level of intimacy that you can never get in an airliner, transportation aircraft, or even in a jet fighter, for that matter. The stunning visibility you get when flying the A5 is also similar to that of the bubble canopy in a fighter jet.

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When most of us fly in a traditional aircraft, we're used to being inside of an aluminum tube with tiny windows that constrain our view of the world so much we forget — or perhaps never knew — how extraordinary that view actually is when you're flying. Even most small aircraft have impossibly high instrument panels that

"External constraints on the marketplace had changed, and existing entities were poorly positioned to take advantage."

make you feel like you're looking through a mail slot, and the focus is on managing a complex cockpit versus experiencing the beauty of flight. The A5's engine is behind the cockpit and the dash is very low to provide visibility that is truly breathtaking.

How did you get the idea for the A5?

This idea had been in my mind since I was a teenager. But the opportunity came as a result of dramatic Federal Aviation Administration regulatory changes that created a new category of consumer, recreationally focused personal aircraft that allow many more people to learn to fly and enjoy flying, and the creation of a new entrylevel FAA pilot certification for sport pilots.

We studied the long-term implications of these regulatory changes while at Stanford GSB without any commitment to start a company — only as a contextual, academic learning exercise. That analysis suggested two things: First, there was a huge pent-up demand for affordable, fun consumer aircraft, due to decades of excessive government regulations suppressing the industry. And second, this was a textbook start-up opportunity, where

the external constraints on the marketplace had changed so dramatically that existing entities were very poorly positioned to take advantage of it.

Usually, these kinds of disruptions occur in technology, and we have a very robust venture capital market in Silicon Valley that exists solely to harness technology disruptions. However, when highly regulated industries have major regulatory disruptions — which are very rare — those disruptions may model exactly like a tech startup where, if a new venture doesn't leverage them, it may never actually occur. Once we realized this, we felt a responsibility to start this company. Δ

Kirk Hawkins received an MS from Stanford GSB's Sloan Program in 2005 and an MS in engineering from Stanford in 1995.

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"The Adélie rookeries seemed full of life, as the

obstreperous birds

guarded nests of small stones, stole each other's pebbles, and raised their cacophonous mating calls."

—Eric Pooley, PAGE 54 stole each other's pebbles,

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ENERGY

China's Solar-Panel Boom and Bust

How a mad dash into a burgeoning sector turned into a scramble for help. BY JEFFREY BALL

If one city epitomizes China's role as cheap manufacturer for the world, it's Wuxi, a sprawling metropolis of more than 4.5 million people a short bullet-train ride northwest of Shanghai. Out beyond the old town, with its ancient temples and canals, much of modern Wuxi is a massive industrial park, a seemingly endless grid of wide, straight roads fronting squat factories bearing the names of international brands: Epson, Nikon, Panasonic.

Wuxi's industrial zone also is the epicenter of the global solar-energy industry, a sector now in the throes of convulsive growing pains. Specifically, the zone is home to the gleaming glass-fronted headquarters of Suntech Power Holdings Co., which over





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the last decade sprang from local startup to world's largest solar-panel maker — and then, this spring, declared that its main business unit was bankrupt.

Lesser versions of Suntech's bust are repeating themselves throughout China's solar sector, as other once-triumphant panel makers flirt with insolvency. They grew too fast, propelled by inefficient environmental subsidies in Europe and the United States and by billions of dollars in backing from governments and banks in Wuxi and across China. The Chinese solar stampede was a mad dash for easy money, and at first it seemed unstoppable. But then Western governments dialed back their solar largesse, demand for China's solar panels failed to keep pace with the industry's torrid production increases, and inventory began piling up. The result: Manufacturers' balance sheets began turning red.

In China, many powerful people — from officials in local governments to leaders of the biggest banks — helped fuel the

solar glut. Now, to save face as well as their investments, they are racing to rationalize the industry by consolidating companies and restructuring incentives. Leaders of solar companies in danger of being squeezed out of business are scrambling for continued support.

This is the latest in a long line of attempted economic corrections in China, a country where the boom-bust manufacturing cycle is an industrial rite. How it plays out will shape the global solar-panel industry, which China now dominates. More broadly, it's an early glimpse at the kind of shakeout that could hit other clean-energy sectors showing signs of overheating, from advanced batteries to energy-efficient light bulbs.

At issue: whether governments and private investors that helped fuel the go-go first stage of the global clean-energy drive can exercise enough discipline to put it on a more economically sustainable path. In the first stage, governments hungry for jobs, energy security, and environmental gain competed against each other to pour incentives into these new industries. But those subsidies — and the private investment that followed - caused the markets they stirred to boil over. Now, in the second stage, China and other countries are trying to devise more efficient financial and policy tools to keep an energy shift cooking along.



Work to do: A solar energy cell factory in Guangzhou

LESSONS LEARNED

Sitting in a soft chair in a large conference room in an office tower overlooking Wuxi's downtown, Jiang Guoxiong says he's gotten wiser about the solar industry. A wiry man with carefully groomed hair and a smartly tailored shirt and sport coat, Jiang is chairman of the Wuxi Industry Development Group Co., an economicdevelopment arm of the Wuxi municipal government. It provided tens of millions of dollars to Suntech through investments and loans to help bankroll the solar company's expansion. "The lesson learned is that government support needs to be very business-driven and rational," Jiang says, puffing on a cigarette as two aides look on.

In China, as in the rest of the world, solar is a tiny slice of the energy pie. It produced just 0.2% of China's electricity in 2012, Yuanta Financial Holdings, a Taiwan-based firm, estimated in a recent research note. Even if China meets aggressive targets it has set out for installing more solar panels over the next several years, it will generate only 1.3% of its electricity from solar in 2020, Yuanta said. But those minuscule numbers mask how important China's export-focused solar-panel industry is to the country. That importance is partly about image and partly about money.

For all the goods that China's factories crank out under foreign companies' names, China has produced precious few globally recognized brands. But China's solar-panel companies, including Suntech, sell their wares under their own names around the planet. It's a particular point of pride in China that the country, often criticized in the West as a polluter and a maker of inferior goods, has come to dominate an industry widely seen as green and futuristic. To be sure, the solarpanel industry uses a lot of coal-fired electricity, consumes huge quantities of chemicals, and cranks out what's basically a commodity product. But those details tend to be lost in the public discussion.

The Suntech saga illustrates the Chinese solar industry's rise and fall. The company was founded in 2001 by Shi Zhengrong, a Chinese scientist who studied solar technology at Australia's University of New South Wales, a leading solar-research center, and came back to China to start a business. Shi located the company in Wuxi, which, as Jiang points out, lacks much in the way of natural resources but makes

It's a point of pride in China that the country has come to dominate an industry widely seen as green and futuristic.

up for it in enthusiasm for cranking out product. The Wuxi Industry Development Group was an early investor in Suntech. "The Chinese government and the Wuxi government are very service-oriented," Jiang says. "If you are here, I will come to you and ask, 'Do you need any help?'"

Suntech went public on the New York Stock Exchange in 2005. Within months, its stock price more than doubled, spurring public offerings by other Chinese solar firms. In the next few years Suntech surpassed Japan's Sharp Corp. as the world's largest solar-panel maker. Shi graced magazine covers as China's richest man. And Suntech kept expanding its manufacturing capacity, using largely money it borrowed from governments and banks. Across China, the Suntech euphoria created a "herd effect," says Peter Xie, head of international solar-farm development for GCL-Poly Energy Holdings Ltd., a Chinese company that's one of the world's largest producers of polysilicon, used to make solar panels. As in Jiangsu, the province in which Wuxi sits, provincial officials around China gunned to build their own local solar-panel titans. They dangled tax breaks and other subsidies before their corporate targets. Xie recalls traveling around to various cities, all of which seemed to be developing competing solar-manufacturing parks.

"The government officials said, 'You come here, you deploy a factory, I'll give you loans; I'll give you no taxes,'" he remembers. Expansion was the religion, and Xie says he felt he had to adhere. Failing to grow as fast as other companies would mean "you just become not relevant," he explains. "So you have no choice. You just have to follow."

At the time, following the herd made sense. It wasn't uncommon for solar-panel

companies to rake in annual profits of 33%, Xie recalls. "There was no reason they should have made 33% margins. The technology is not that fancy," he says. "It's a commodity business." Banks fed the herd. Terry Wang, chief financial officer of Trina Solar Ltd., one of China's biggest panel makers, recalls banks competing against each other to back solar companies they thought could "become number one in a few years." Because the solar industry was young, banks typically loaned money to panel makers who put forth a plausible argument that they were on a path to dominating the industry, he recalls. The typical outcome: "They believe your analysis. And then, you get the money."

Investors in Chinese solar farms found cash similarly easy to come by. In 2009, China's central government rolled out an incentive called Golden Sun, designed to spur construction of solar farms. Under the program, the government pays half of solar-farm developers' costs. The program is based on a key inefficiency. It pays developers based on how much money they spend on a solar farm, not on how much electricity their solar farm produces. So the subsidy doesn't spur developers to install the most cost-efficient technology or to pick the most cost-effective sites. Wang says some Chinese solar developers have built solar farms, pocketed the Golden Sun subsidy, and then removed the solar panels and installed them elsewhere.

SOLAR CRASH?

In 2011, China's solar rush hit a wall. The expansion by Chinese manufacturers created an oversupply of panels that sent prices plummeting some 40% in that year. European governments cut back their solar subsidies; given the lower panel prices, they reasoned, they didn't have to give away so much money. Those subsidy cuts reduced investors' interest in building solar farms. And that erosion in demand further ate into solar-panel makers' margins. One result, announced this March, was the bankruptcy of Suntech's main operating unit, Wuxi Suntech Power Co. A Suntech spokesman declined to comment. On May 15, Suntech announced that holders of some Suntech bonds had agreed to give the company through late June to repay them.

The fallout in China from the global solar-panel meltdown extends far beyond Suntech. As of 2012, China's 10 largest solar-panel companies had a cumulative debt of \$27.7 billion, said Yuanta, the Taiwanese

financial firm, in a recent report. Their average debt ratio — debt as a percentage of total assets — was an eye-popping 75.8%, Yuanta calculated.

Soon after Suntech declared bankruptcy, the Bank of China, one of the country's largest lenders, reported that 21% of its solar loans were "nonperforming," meaning they were in or near default. The bank said it had set aside only enough money to cover 11% of those loans going bad, Religare Securities Ltd., an Indiabased firm, noted in a recent report. Now, scrambling to rationalize the solar industry, China's government and banks are pushing consolidations by cutting back on subsidies and loans. Dozens of small Chinese solarpanel makers — some of the hundreds that were cranking out panels at the height of the boom - have closed.

The Golden Sun program, widely panned for failing to produce much solar energy, is likely to be replaced by a subsidy that China's central government contends will be more efficient. That would follow a recent announcement from the government that it intends to scale back another solar subsidy: a so-called feed-in tariff, which guarantees solar-farm investors they can sell their power at a premium price.

Back in Wuxi, Jiang, the chairman of the Wuxi Industry Development Group, which invested in Suntech, remains bullish about solar's future. He believes Suntech will survive bankruptcy and emerge healthier. Still, he's hedging his bets. He's talking with new solar firms about locating in Wuxi — companies with cutting-edge technologies that he thinks could slash solar costs further. And one thing will be different, he vows: Wuxi will provide the solar industry with "support, but not unconditional support." Δ

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Astonishing images still crowd my mind: an endless field of jagged, broken sea ice glowing red at twilight; an aquamarine vista of iceberg, water, snow, and mountain, sparkling in the brightest sunshine I've ever seen. Penguins that morph as they move from sea to land — swimming like porpoises, paddling like ducks, wobbling upright onto the beach like drunken wedding guests. And a humpback whale, surrounded by a halo of seabirds, diving deep and then bumping gently against the underside of our vessel, as if to scratch an itchy back.

The otherness of this place, Antarctica, struck me from the moment I arrived, as it had so many before me. "Antarctica is monumental, an astonishment," the great naturalist Peter Matthiessen wrote a decade ago. "Its excruciating purity and vast healing silence ring with creation, ancient and yet new and fresh beyond imagining." Yet rising atmospheric concentrations of greenhouse gases are seeing to it that this ice fortress of a continent, which Matthiessen called "inviolable," was being violated before my eyes. Indeed, Northwestern Antarctica, which I visited last December with a group of Stanford Graduate School of Business students, business leaders, and faculty, is one of the fastest-warming places on earth.

Each year, Stanford MBA students organize overseas study trips opportunities to meet the tech leaders of Bangalore, say, or explore the supply chains of Shenzhen. Students who are building clean-energy careers had organized ours because they wanted to come face to face with global warming — an encouraging sign, since their generation will need to find the solutions that have so far eluded ours. As a journalist and environmental advocate who focuses on the politics of climate action, I'd been invited along to talk about some of those emerging solutions, as well as the policy tools that are beginning to accelerate them.

Our cruise departed from King George Island, a reassuringly frigid chunk of rock just north of the tip of the Antarctic Peninsula, which is like a crooked finger poking up from the northwestern corner of the continent. The Antarctic landmass — twice the size of Australia — remains impenetrable to tourists like us. So we cruised along the continent's edge in a 240-foot, ice-strengthened vessel called *Ocean Nova*, and explored the peninsula by climbing into rubber Zodiacs twice a day for expeditions ashore.

Guidebooks had warned us to wear multiple layers of down and fleece. But soon we found ourselves sweating and peeling away those layers as we hiked, because on most afternoons during our journey, the frigid south wasn't all that frigid. Average midwinter temperatures on the peninsula have increased by an astounding 11 degrees Fahrenheit over the past 60 years. In late December, which is in the austral summer, average highs can exceed 40 degrees Fahrenheit. On the day we headed home, a study in the journal Nature Geoscience reported that the Western Antarctic mainland has seen an average temperature increase of 4.3 degrees Fahrenheit since 1958 — not the extreme warming seen on the peninsula, but still three times the average global rise for that period. And in another Nature Geoscience paper, in April, researchers from the British Antarctic Survey analyzed a 1,194-foot-long ice core sample taken from James Ross Island, near the tip of the peninsula. They found that the amount of snow and ice melting in the summer and then refreezing is now almost 10 times greater than it was 550 years ago, with the most rapid melt occurring in the last 60 years. Rapid melting can lead to dramatic collapses of glacial ice, as when the vast Larsen B Ice Shelf - roughly the size of Rhode Island — disintegrated early in 2002.

MARCH OF THE PENGUINS

Unlike most of Antarctica, the peninsula has long been known to have a summer melting season. This produces a mix of snow-free land areas, open sea, and residual ice that makes the peninsula a fecund breeding ground for marine birds and mammals. Rapid melting in summer, however, is upsetting this delicate balance. As the extent of sea ice around the peninsula diminished over the past quarter century, it helped drive a decline in the

populations of Adélie penguins, Weddell seals, and crabeater seals — species that hunt from sea ice. On Torgersen Island, the number of Adélie breeding pairs has declined by more than 85% in the past 38 years, from 15,000 to just 2,000. As these species retreat south, away from manmade warming, they are being replaced in these waters by sub-Antarctic species from farther north — elephant seals, fur seals, and chinstrap and gentoo penguins, all of which prefer to hunt in open water.

The Adélie rookeries we visited certainly seemed full of life, as the obstreperous birds guarded nests built of small stones, stole each other's pebbles, and raised their cacophonous mating calls, but the science tells a sadder story: The colonies here are dwindling as the number of breeding pairs drops and the average weight of the fledglings falls. Many underweight fledglings go off to sea and never return. The Adélies of the Antarctic Peninsula, according to seabird ecologist Bill Fraser, who has spent his long career studying the birds, are "on a decline that has no recovery." In interviews with journalist Fen Montaigne, author of Fraser's Penguins, a heartbreaking book about the man and his birds, the scientist shared his frustration that "this unbelievably tough little animal, able to deal with anything, [is] succumbing to the large-scale effects of our activities. That's the one thing they can't deal with, and they're dying because of it."

The Adélie is not in danger of extinction, at least not yet. Several million of the birds are scattered about Antarctica, which is warming at different rates in different places and even has areas that have cooled as stratospheric ozone depletion has changed wind patterns. (The damaged ozone layer is slowly being repaired, thanks to a global ban on chlorofluorocarbons, so this local cooling likely won't last.) Adélie populations are shifting south, to bays that used to be too icy in summer but now have the right mix of ice, open water, and snow-free beach. But there is a limit to how far south the Adélie can move: They need winter light to hunt, and below the Antarctic Circle, it is just too dark for that. Sooner or later, unless humankind stops pumping carbon pollution into the air, climate change will chase the bird down.

world, they are helping people connect the dots to climate change. As a result, national polls show an increase in the percentage of Americans in favor of action.

For Mike Volpe, who received his Stanford MBA this year, communicating about climate change is difficult because burning fossil fuels creates costs for people and other living things that are not billed in the transaction. Known to business students as an example of "market failure," this problem requires cross-disciplinary solutions. The good news, Volpe says, is that "there are thousands of young minds on this campus eager to solve big problems like climate change. The right policies can help unleash these young minds."

I left Antarctica convinced that the students on our trip will help drive the innovations we need. Many will find work in California, since the state's clean-energy economy is already flourishing thanks to smart policy. California added more clean energy jobs last year than the next three states combined because it has developed a remarkable tool kit for the task at hand: helping to restore the climate system by decarbonizing its energy system without destabilizing the economy.

CALIFORNIA'S PLAN

Fossil fuels have reigned supreme for the last 200 years, providing the vast majority of the energy we need to make our homes, businesses, and vehicles work, and even powering the ship that took us to the Antarctic to observe the effects of combusting these fuels. These fuels are ubiquitous, so getting rid of them overnight isn't an option. As we limit their role in the near term, however, we accelerate the transformation of our energy system and create tremendous investment opportunities.

In 2006, California enacted the Global Warming Solutions Act, or AB 32, landmark legislation upheld by voters in a 2010 statewide referendum despite an attack by out-of-state oil companies. Under AB 32, California has implemented energyefficiency regulations and expanded renewable-energy targets, and this year launched the United States' first nearly economywide cap on carbon. The state places an absolute limit on the amount of pollution that can be released, then establishes a price for emissions through the trading of pollution allowances, which gives the regulated entities flexibility in meeting their reduction goals. Since

Antarctica is local if you're a penguin. But for Americans, other impacts hit closer to home.

2006, in anticipation of the cap, clean-tech investors have poured more than \$9 billion into the state. In April, Gov. Jerry Brown approved the trading of carbon allowances from California's program with Quebec's — a first step toward connecting the state with a broader carbon market that could grow to include other U.S. states and Canadian provinces, as well as existing and emerging programs around the world.

As part of AB 32, California has also developed a low-carbon-fuel standard, the subject of intense opposition from the oil industry. Currently, between 92% and 96% of the energy used for transportation in California is derived from crude oil. The standard places a cap on the carbon content of fuels used in the state, creating a market incentive to increase the production and use of cleaner fuel sources, such as ethanol, low-carbon gasoline, biodiesel, electricity, and hydrogen.

This also creates both opportunities and challenges for old-line energy companies learning to adapt. But the fossil fuel companies have a better shot at it than, say, the Adélie penguins. Both of their worlds are changing fast. Δ

Writer Eric Pooley, a senior vice president at Environmental Defense Fund and former managing editor of Fortune, is the author of The Climate War: True Believers, Power Brokers, and the Fight to Save the Earth. He visited Antarctica with 35 Stanford GSB students, faculty, and business leaders in 2012. Photographer Garth Saloner is Dean of Stanford GSB.

ALL CLIMATE IS LOCAL

As the students discussed these issues during and after the cruise, they recognized that observable impacts, which are primarily local, can have an enormous influence on public attitudes toward climate change, perhaps as much as or more than technological and financial factors. Antarctica is local if you're a penguin. But for Americans, other impacts hit closer to home. "It's hard to talk about climate change because you can't see it. If I'm going to talk about climate to people on the Eastern Seaboard, I'm not going to talk about penguins," says Jake Saper, who is studying toward a joint MS Environment & Resources/MBA and is spending the summer as a cleantech intern at venture capital firm Kleiner Perkins Caufield & Byers. "Penguins are cute, but people don't really care about penguins. I'm going to talk about how cataclysmic events like Hurricane Sandy happen more frequently and are more extreme as a result of climate change."

Indeed, as historic droughts, floods, wildfires, and ferocious storms, all made worse by warming, are felt around the

87%

The population of one Adélie penguin colony has dropped from 15,000 to 2,000 in the past 38 years.

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Making Nutrition Their Business

Project Healthy Children is bringing fortified foods to people at risk.

BY R.M. SCHNEIDERMAN

More than a decade ago, David Dodson was running an auto parts retailer in Massachusetts. Then a brief trip to Honduras with his wife, Stephanie, changed his career — and his life. While traveling through the country, they were shocked to find hundreds of children suffering from neural tube defects. In the United States, these defects are rare and preventable; women just need to consume small amounts of folic acid (vitamin B9) during the first few weeks of pregnancy. But in parts of Honduras, where this essential nutrient isn't always available in the food supply, neural tube defects are common and can lead to mental impairment or death. In fact, they're among the most prevalent birth defects in the world.

The Dodsons returned to the United States and started Project Healthy Children, a nonprofit originally targeted to help fortify food with folic acid to benefit Honduran children. The couple (both graduates of Stanford GSB, where he is a lecturer) have since split, but they continue to work for PHC together and have expanded the organization's reach and mission. Today, PHC's small staff is on the ground in five countries, where they conduct research, assist governments in passing foodfortification laws, help food manufacturers find financing, and offer advice on how to create reliable nutrient-monitoring systems.

These efforts have helped combat nutritional deficiencies in the urban locations where PHC operates. But conventional food fortification does not reach rural areas, leaving the populations there at risk. "You can pass all the laws you want, but you're not reaching the most vulnerable people," says Stephanie Dodson. So six years ago, PHC began developing technology that they hope will help reach the 1 billion people with no access to centrally processed foods. The new device, created in collaboration with students from Stanford's Design for Extreme Affordability class and currently being field-tested in Nepal and East Africa, is an automated, one-size-fits-all dosifier that dispenses iron, folic acid, and vitamin A into cereal grains, and fits into any type of mill hopper. It costs just \$500.

Thanks to a grant from FARM Fund, a social-entrepreneurship investment vehicle started by fellow Stanford GSB alum Thomas Bird, PHC is in the process of creating for-profit entity Sanku to commercialize the technology. If successful, it could fund PHC's food-fortification expenses — and the technology itself could reach more than 100 million people. "I know the number sounds incredible, but that's only 10% penetration," says David Dodson, who is president of PHC.

Ever since the 1920s, when a group of Michigan scientists persuaded the American sodium industry to add iodine to common table salt, a variety of foods in the United States have been fortified with small, tasteless traces of essential vitamins and minerals: zinc and folic acid, iron and vitamin A. But in the developing world, food fortification is less widespread. The average diet doesn't provide a sufficient amount of essential vitamins, and a number of nutritional deficiencies remain common — even in communities where people have enough to eat.

This phenomenon, known as hidden hunger, affects a staggering number of people. According to a 2009 study by the World Bank and UNICEF, among other organizations, roughly 18 million children a year are born mentally impaired because their mothers didn't consume enough iodine, a million people die annually due to lack of vitamin A, and nearly half a million children under the age of 5 die each year due to an insufficient amount of zinc in their diets.

People can get these nutrients from vitamins, but analysts say food fortification is a far more efficient way to prevent potentially deadly nutritional deficiencies. Not only is it safe, but depending on the nutrients in question, food fortification costs between 5 and 25 cents per person annually. In other words, the potential gains far outweigh the costs. According to the World Bank, nutritional deficiencies in vitamin A, folic acid, and iron cost Tanzania, for instance, more than \$500 million a year. That's nearly 3% of the country's gross domestic product. "The cost effectiveness is ridiculously low," says Stephanie Dodson, who is currently chair of the PHC board.

Efficiency is what initially attracted them to food-fortification efforts. It seemed that making a difference would be easy. David, Stephanie, and their colleagues experimented in Honduras with various lobbying strategies and researched which types of foods were the best to fortify with folic acid. They learned a lot, but decided the organization wasn't being effective enough. So in 2005, they shifted direction. David says they realized that when people donate money, it's coming out of their charity budget, which is generally finite. If other charities were being more effective than PHC, he decided, his organization should no longer solicit donations. "We had to be convinced that our charity was comfortably in the top third of charities,"



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Fortification: David Dodson (left) and Laura Rowe, Project Healthy Children chief operating officer, at a wheat flour factory in Kigali, Rwanda

he says. "And that meant it had to be sustainable, that our results could be measurable, scalable, and cost-effective."

This realization started taking shape when Dodson visited a pediatric intensive care unit at a small charity hospital in northern Honduras, filled with hundreds of children in metal cribs. There were no electronic monitors, and the hospital was desperately short of staff. Mothers functioned as makeshift nurses for their children. Many lived at the ICU for several months at a time, sleeping on the cold floor beneath the cribs. As he stood in this crowded room, Dodson noticed a man leaning over one of the cribs and asked him why he was there. The man pointed to a baby girl. "This is my daughter," he said. The man had been there for weeks, while his wife worked and cared for their three other children. He had lost his job because

Vowing that
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of the time he had spent at the hospital, but seemed remarkably composed. "This is just what fathers do," the man said. Dodson, who has three daughters of his own, began to cry. "It made me realize that moms and dads are the same no matter where you go," he says. "If I had been born where he was born, I would have been in that hospital, not him. The playing field is so horribly tilted, and I have just been on the lucky end of it."

Vowing that Project Healthy Children would no longer be just a hobby, Dodson started giving it a radical reboot. He and the team decided they needed to expand and become a cost-effective consultant and lobbyist dedicated to teaching government and industry how to fortify a variety of foods with a host of nutrients, and establish a way to monitor the results.

In 2008, PHC went into Rwanda, a nation where anemia affected nearly 50 percent of children and 30 percent of women of reproductive age. Despite widespread salt iodization, roughly 25 percent of school-aged kids were affected by goiter, a thyroid disease caused by a lack of iodine. Working with Rwanda's Ministry of Health and other government agencies, PHC quickly analyzed which foods were best to fortify, such as wheat, maize flour, sugar, salt, and cooking oil. It then figured out the right amount of nutrients to put in each and advised the Ministry of Health to issue a decree making food fortification mandatory for all products purchased by the government. Once that happened, the nonprofit began advising food manufacturers on how to comply with the law and set up a strong monitoring system, a process that is ongoing.

Elsewhere, things did not always go as smoothly. In the late 2000s, PHC lobbied the Honduran government to create a law that would give the Ministry of Health the power to make food fortification mandatory and set up a system to monitor changes in the population's diet. But in the summer of 2009, the country found itself in the grip of a constitutional crisis and a subsequent coup. Congress did pass a foodfortification bill in 2010, but the legislation, which was signed into law in 2011, wasn't comprehensive enough, according to David Dodson. As the country became increasingly mired in corruption and drugrelated violence, food fortification wasn't high enough on the political agenda, he says. "I think we had an impact there," he adds, "but not a huge impact."

One way to ensure that PHC will have a lasting impact, Dodson says, is having a plan to walk away. When the team retooled PHC, one goal was to make sure the organization goes into a country with a definitive goal and end date. "We thought it was a good idea to have a finish line to prevent what can often happen with nonprofits, which is that their unstated mission becomes just perpetuating themselves," he says.

By 2017, PHC hopes to have reached 70 million people in seven countries through conventional food fortification, and as many as 100 million through small-scale fortification. It is well on its way. By year's end, PHC will have completed its mission in Rwanda and Malawi, where its foodfortification efforts have reached 15 million people. "That's our biggest success yet," Dodson says. Δ

David Dodson received from Stanford his BA in 1983 and his MBA in 1987. He is now a lecturer in management at Stanford GSB. Stephanie Dodson received her MBA from Stanford GSB in 1988. Thomas Bird received his MBA from Stanford GSB in 1988.



Jim Kolbe

TRADE

"I Am More **Optimistic Than** I've Been in a Long Time."

A trade expert and former GOP congressman says exports have helped ease the recession's effects.

BY STEFAN THEIL

For much of this sputtering recovery, the unfailing bright spot in America's economy has been trade. U.S. exports of manufactured goods have seen a slow, steady, and entirely unexpected rise. Net energy imports are falling fast. Now, new trade agreements are in the works that could give the global economy another boost, argues Jim Kolbe, a former 11-term congressman (R-Arizona), expert on trade and development, and senior fellow at the German Marshall Fund of the United States. The Washington, D.C., organization promotes cooperation between Americans and Europeans on transatlantic and global policy issues. He spoke to Stanford Business recently. Excerpts:

Before the financial crisis, there were massive global imbalances in trade. Now, they are either shrinking or have disappeared. U.S. exports are growing. Japan's notorious surplus is gone. Even Europe's uncompetitive crisis countries, like Spain and Portugal, are revving up exports and eliminating trade deficits. Trade has definitely been one of the positive pieces in the puzzle, a good indication of its role in keeping the global economy stable, and evening out some of the bumps along the way. But the focus on trade balances has been more of a distraction than anything else. People are concerned that we're importing too much; they conclude that we're not creating jobs at home because we're buying things from overseas. The reality is that imports also create jobs at home, supply critical components for manufactured items, and

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increase our purchasing power. Those so-called imbalances are simply a way to correct capital flows. Maybe the greatest upside of these shrinking imbalances is that, psychologically, it makes it easier to gather support for new initiatives to liberalize trade.

The other surprise is that all this rapid adjustment happened without the protectionism and trade wars many of us expected in 2009. There was a lot of subtle protectionism like procurement restrictions and subsidies that followed in the wake of the 2008-09 recession. But on balance it turned out to be much less than any of us expected. This happened for several reasons. First, I'd like to think we learned something from the past and the incredible damage we did to the economies of the U.S. and the world in the 1930s with protectionist measures like

the Smoot-Hawley tariff and the retaliatory measures that followed in Europe and elsewhere. Second, we have institutions like the World Trade Organization in place that make it harder to violate trade agreements. Countries don't want to be hauled before a dispute settlement process and have to defend their actions. And third, the G8 and G20 served as a strong voice warning against these kinds of measures, with countries reluctant to fall out of line. Fourth, there were organizations that actually kept track of all the protectionist measures around the world and highlighted them in quarterly reports - and again, countries don't want to get called out on these things, and so they stayed mostly in line.

How is monetary policy impacting trade, from "quantitative easing" at the Fed to the new "Abenomics" at the Bank of Japan? Is this another version of currency wars? We really don't know. I thought that quantitative easing was going to lead very quickly to strong inflationary pressures, but so far I've been wrong. Now Japan is working to increase exports by lowering the yen. If everybody is trying to devalue their currency at the same time, one negates what the other one is doing. You can't all do the same thing.

Is there a healthy balance between the openness that promotes economic growth and the idea that workers should be protected? To me, the evidence is very clear that trade, and especially our exports, have helped equalize and ease the effects of the recession. It's been so obvious to everyone that we're seeing stronger support for trade than we've had in quite a while, as evidenced by the fact that the U.S. and Europe are starting trade talks. I'd even argue we should just disarm unilaterally and remove all our protections,



procurement restrictions, subsidies, and all of that, and watch consumers benefit from the most open trade possible. Are there reasonable health and safety standards? Yes, of course, but the danger is that countries use those as an excuse to restrict trade.

Global attempts to liberalize trade further, like the Doha Round of world trade negotiations, seem all but dead, with too many countries and too many different interests. Are bilateral trade pacts, like the one the U.S. and E.U. are now negotiating, the way forward?

They are. I'm a strong believer in Doha, but a transatlantic agreement could actually increase the chances for a global one. An agreement between the U.S. and Europe wouldn't be exclusionary, and once completed, other countries could sign up for it. Once you join these two behemoths together, you've created a single market out of such a huge part of the global economy that it would be very attractive for other countries to join. Certainly the surrounding regions like Eastern Europe and Latin America would join, I'm not so sure about China, but Japan would probably join pretty quickly.

"These agreements increase exports and consumer choices, and reduce the cost of buying things from overseas."

What are the stumbling blocks? A really

interesting one involves regulation. Here are two very well developed economies that both have very high, but slightly different, environmental, health, and safety standards — inspection standards for automobiles, for example. Right now you have to add about \$1,000 to the price of a car from Germany or Sweden just to pass inspection in America. One option would be to try to hammer out one harmonized standard. That would be very tough and take a long time. The other option is the idea of equivalency. We ask the Europeans to accept that our cars are well inspected and safe, and we accept that the Europeans have safe cars too, even if their standards are a little different. What reason do we have to believe Saab is not building safe cars?

What else? Agriculture is a major stumbling block. Not just the subsidies on both sides but also European opposition to genetically modified crops is going to be a huge, huge issue. Government procurement is going to be a big issue for our side, largely because of our 50 states, each with different procurement rules. The Europeans are going to want access to our state purchasing, and they're right that this should be made easier. Investment and financial regulations get complicated, too.

How would you judge the chances of this actually happening? I'm actually more optimistic than I've been in a long time. They would not have launched this if they hadn't seen a good chance of wrapping it up by the end of the Obama administration. In addition, the recent naming of Michael Froman as the U.S. Trade Representative is a good sign. He has a lot invested in this agreement. So I'd expect an agreement in 2015 that could go to Congress that year, possibly in 2016.

What about Asia? With so much growth there, negotiations on transpacific trade would seem at least as

important. The Trans-Pacific Partnership talks are moving, but they've not gotten down to the critical issues. Bringing Mexico and now Japan into the process is going to slow this down tremendously. Japan has deep and culturally engrained issues with rice and other agricultural subsidies where it's hard to see how they're

going to get past that. Maybe the new
Abe administration is thinking about how
to fight that battle, but there's never been a
Japanese leader willing to actually do it.
I would not predict any quick completion
of TPP. The talk about finishing it by
the end of the year is wishful thinking.

What would you tell skeptical voters who have second thoughts about free trade? These agreements will increase GDP for both sides. They'll increase exports, increase consumer choices, and reduce the cost of buying things from overseas. If you save \$1,000 on a Toyota, that's the same as getting a \$1,000 pay increase. Just think of all the benefits from prices going down in other areas, from telecommunications to airlines.

How will the rise of other economic powers like China, India, Turkey, and Brazil affect the liberal trading order?

It certainly complicates efforts to achieve multilateral trade agreements. Not so long ago, it was possible for a GATT [General Agreement on Tariffs and Trade, the predecessor to WTO] trade negotiation to be completed when the United States, Japan, Germany, the United Kingdom, and maybe one or two other players reached an agreement. Those days are gone. Today, there are a lot of players who justifiably want to play a role in trade negotiations. That's good on the one hand, but it definitely complicates negotiations. That may be the reason why the Doha Round of talks is the first unsuccessful multilateral trade negotiation since GATT was formed in 1947. A

Jim Kolbe, who earned his MBA from Stanford GSB in 1967, represented southeastern Arizona in the U.S. House of Representatives from 1985 to 2007. He is currently a senior transatlantic fellow at the German Marshall Fund of the United States. "Entrepreneurs need to be

overconfident

in their ability to solve a problem and paranoid that everything will get them." — Venture capitalist **Vinod Khosla**, at the Stanford GSB "Experience Entrepreneurship" conference "The average age of a startup entrepreneur is

49.

It is not people in their 20s."

— Zipcar founder **Robin Chase**Watch: http://stnfd.biz/lFiiU

"You want to be able to show up authoritative ... [and] you need to be able to show up

approachable."

Stanford GSB Professor **Deborah Gruenfeld** on power and influence
 Watch: http://stnfd.biz/lFiD4

EXCHANGE

SOME FINAL THOUGHTS ON BALANCE

"There's

an illusion

that there's a trade-off between considering more information and making fast decisions."

— Stanford GSB Professor **Chip Heath**, discussing his new book, *Decisive Read: http://stnfd.biz/lFizV*

"If I wasn't a great mother,

I wouldn't be a great CEO."

— Fashion business entrepreneur **Tory Burch**,
speaking at Stanford GSB

Watch an interview with her: http://stnfd.biz/lFipT

"Be both

decisive and compassionate."

— American Express Chairman & CEO **Kenneth Chenault** on leading through a downturn, speaking at Stanford GSB "In a merger, whoever leads the charge has to win the trust of

both sides —

no matter which side he or she came from."

— JetBlue chairman and Stanford GSB consulting professor **Joel C. Peterson**Read: http://stnfd.biz/iTvVg





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