FEBRUARY 2002

STANFORD BUSINESS

Trickier Acts of Finance
Coaxing the Mystery Out of Specialty Investments

A. Michael Spence Receives School's Third Nobel Prize

calendar

FEBRUARY

FEBRUARY 13: Stanford GSB Asian Society's inaugural banquet, Stanford campus. Contact Roan Kang at *kang_roan@gsb.stanford.edu*

FEBRUARY 17–MARCH 1: "Executive Program for Growing Companies," Stanford campus. See Web page *www.gsb.stanford.edu/exed/epgc* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

FEBRUARY 20: Cool Products Expo, Stanford campus. Contact Kim Champion at *champion_kim@gsb.stanford.edu*

FEBRUARY 27: Arbuckle Award Dinner honoring John H. Scully, MBA '68, Stanford campus. Contact Claudia Diven at 650.725.3767 or *diven_claudia@gsb.stanford.edu*

MARCH

MARCH 3–7: Executive program "Credit Risk Modeling for Financial Institutions," Zurich. See Web page *www.gsb.stanford.edu/exed/crm* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

MARCH 14–21: European Executive Briefing: "Electronic Commerce: Hope or Hype," featuring Professor Haim Mendelson, March 14 in Madrid, March 18 in Lisbon, March 21 in Paris. Contact Claudia Diven at 650.725.3767 or *diven_claudia@gsb.stanford.edu*

MARCH 18–20: Executive program "E-Business and Supply Chain Management," Hong Kong. See Web page *www.gsb.stanford.edu/exed/ebscm* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

APRIL

APRIL 1–5: Executive program "Advanced Negotiation," Stanford campus. See Web page *www.gsb.stanford.edu/exed/anp* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

APRIL 13: Future of Content Conference, Stanford campus. Contact Chloe Sladden at *sladden_chloe@gsb.stanford.edu* or Doreen Oliver at *oliver_doreen@gsb.stanford.edu*

APRIL 19–21: Challenge for Charity, Stanford campus. Contact Sarah Elk at *elk_sarah@gsb.stanford.edu*

APRIL 21–26: Executive program "Negotiation and Influence Strategies," Stanford campus. See Web page *www.gsb.stanford.edu/exed/nis* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

APRIL 27: Latino Leadership Banquet, Stanford campus, sponsored by Hispanic Business Student Association. Contact Alejandro Guerrero at 650.497.1623 or *guerrero_alejandro@gsb.stanford.edu*

APRIL 28–MAY 3: Executive program "Strategic Uses of Information Technology," Stanford campus. See Web page *www.gsb.stanford.edu/exed/suit* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

MAY

MAY 3–4: MBA class reunions for '01, '97, '92, '87, Stanford campus. Contact Lisa Brown at 650.724.4101 or *brown_lisa@gsb.stanford.edu*

MAY 5–10: Executive program "Finance and Accounting for the Non-Financial Executive," Stanford campus. See Web page *www.gsb.stanford.edu/exed/fanfe* or contact 650.723.3341 or *executive_education@gsb.stanford.edu*

MAY 22–24: SEP 50th celebration conference, Berlin. Contact Beverly Smith at 650.723.2921 or see *www.gsb.stanford.edu/exed/sep50*

* FUTURE EVENTS

JUNE 15: GSB diploma ceremony in Frost Amphitheater

JUNE 16: Stanford Commencement, Stanford Stadium

JUNE 20–23: MBA Class of 1977 25th Reunion

See the alumni online calendar at *www.gsb.stanford.edu/alumni/events/calendar.html*

For details on Executive Education programs, see the advertisement on page 11 or visit *www.gsb.stanford.edu/exed*

STANFORD
GRADUATE SCHOOL OF BUSINESS

STANFORD BUSINESS

FEBRUARY 2002 • VOLUME 70, NUMBER 2

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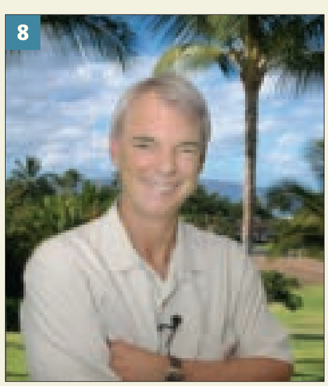
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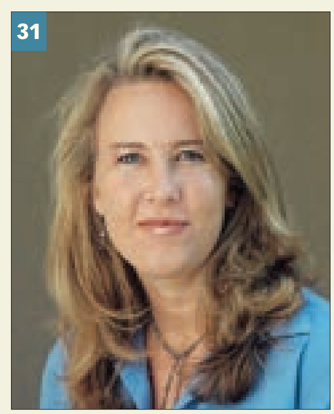
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STANFORD BUSINESS

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Eavesdropping on Seminars

"I GOT BACK FROM EGYPT ON SUNDAY NIGHT. My car battery was dead. I had to frantically unpack, and all my clothes smelled like mothballs. I couldn't sleep. Jet-lagged, I was expecting the worst from a Monday morning class." Jenna Wana was not the only second-year student to at first regret her decision to start back to classes a week early last fall. After the September 11 terrorist attacks led to a shutdown of U.S. airspace, she and other second-years had to scramble to keep their commitment to attend week-long seminars that faculty had set up for them on an experimental basis.

By the end of the week, however, Wana was pleased. Her seminar with Dean Bob Joss on leadership was a "comfortable, intimate setting that had a completely different feel from the normal classroom," she said. "I took this class because even though I had some management experience, I was unsure of what it meant to be a leader. This seminar taught me the skills and values successful leaders have and helped prepare me for such a role."

In this magazine, we offer you a look inside that leadership seminar (page 14) as well as two others: one offered by Professor Darrell Duffie on lesser known aspects of finance (page 20) and another by Professor Chip Heath that explored what makes some ideas stick in the marketplace more easily than others (page 26).

The students who took these seminars and a handful of others rated them highly for subject matter as well as teaching style. The faculty who participated reported that they enjoyed the opportunity to discuss some of their research in a more intimate setting, with students drawn from wide-ranging backgrounds. A magazine cannot reproduce those give-and-take environments, but we can offer you a glimpse at some of the ideas that were discussed. You won't earn school credit, but you also won't have to take a test!

Cherian George, who translated Duffie's finance seminar into a feature story for this issue, is a PHD candidate in Stanford's communication department. For George, the assignment was a convenient way to sample the GSB classroom: "I enjoy taking courses in departments other than my own, but it's usually quite difficult for non-GSB Stanford students to get into Business School classes." Formerly a journalist with the Singapore *Straits Times*, George regularly writes for *Stanford Business.* As a rule we include stories by a number of different freelance writers in each issue, but coincidentally, George's byline is all over this particular magazine. Read the two features, the leadership story, and the faculty research section, and you will understand why he is a valued contributor.

SELF-PORTRAIT BY TIM BOWER

The cover and inside illustrations for the finance feature were created for us by Brooklyn artist **Tim Bower**. Although Bower's client list includes business periodical heavyweights *Forbes, Fortune,* and *Kiplinger's,* he admits that illustrating finance concepts often presents a challenge for his right-brain *modus operandi.* Luckily for Bower—and for *Stanford Business*—Bower's girlfriend, a former Salomon Smith Barney broker, jumped in to help him demystify the specialty investment strategies described in the story.

Kathleen O'Toole

EDITOR

Hiring Through the GSB Network

TWO YEARS AGO, the biggest problem graduating MBAs faced was which of several great job offers to choose. Today, as we are all aware in so many different ways, the world has changed. With companies facing economic uncertainty, the em-ployment waters this year are probably the most difficult our students have had to navigate in a decade. Clearly, corporations are being conservative with their hiring plans. Last fall, banks and consulting firms, for example, told business schools they will not hire in the numbers they have in the past. As a result, our Career Management Center is doing more outreach than ever to serve our traditional recruiters and develop new corporate relationships. Last year, 174 firms engaged in on-campus recruiting at Stanford. As of December, we were up to 127 firms, with some very good companies in the pipeline for winter quarter.

Still, there's more work to do. Please remember that you, the alumni, are part of our community in many important ways, including recruitment. I invite those of you who may be hiring in 2002 to consider our terrific MBA students. To conduct on-campus recruiting or to be the point person to talk with students interested in your company, contact our new CMC director Andy Chan, MBA '88, at *chan_andy@gsb.stanford.edu* or 650.723.2150.

If you have only one opening that you believe won't justify a scouting trip from New York, Dallas, or overseas, there are many easy ways to access our students without coming to campus. First, the recruiter email distribution service is a free, quick, and efficient way to alert our students to your job opportunity. Typically, more than 95 percent of each class signs up to receive these email messages, so they are a great way to reach our community en masse. For instructions, go to *http://wesley.stanford.edu/cmc/Recruiters/* on our Web site and select "Email Distribution."

Second, if you prefer to call students rather than have them call you, you can get information on our MBAs by ordering the online "Resume Book," the collected curricula vitae of all our students. Just go to the Web site above and select "Order a Resume Book." Be sure to tell us you are an alum. Until May of this year, the book is free to recruiters who are GSB alumni.

Finally, if you spot a student whose background interests you, but you cannot visit campus for a meeting, we can arrange a job interview via teleconferencing.

No one knows better than you the value of a Stanford MBA. Our student body comprises the brightest, most motivated, and diverse group of young people with whom I have ever been associated. We have students with experience in engineering, manufacturing, retail, pharmaceuticals, banking, consulting, sports, software, and more—much of it international. You may have a specific need for an employee with particular skills or experience. Our online resources can help identify candidates who may fit your position.

You might wish to reach students by taking part in our Cool Products Expo (February 20), High-Tech Career Fair (March 7), or Growth Company Job Fair (April 18). See the CMC Web site for information. To keep up with CMC events, sign up for our monthly newsletter by emailing *carter_charlotte@gsb.stanford.edu*.

While all our students are in the job market, we recognize some alumni are making transitions as well. We have been expanding alumni services too. Visit the career services area (*www-gsb.stanford.edu/alumni/career/*). Go to "Career Strategy Advice" to sign up for a one-on-one meeting with career advisor Abby Wilder, MBA '82. Abby has years of contacts at her disposal and can get you started on the road to job searching. At the Web site, you'll learn about networking lunches and for-alumni-only workshops, which draw 20 to 80 people. This year, we will expand our workshops to various sites around the United States.

There are many ways to recruit at the Business School, even from far away. It's free, quick, and efficient.

POLLY BECKER

Another useful tool is the online *Alumni Employment Bulletin,* which lists full-time, part-time, and contract jobs targeted specifically at Stanford alumni. You can sign up at *www-gsb.stanford.edu/alumni/career/*. From the same site, you can access Monstertrak, a searchable online job listing service. Alumni career consultant Linda Wells, MBA '93, has worked closely with area venture capitalists to capture their opportunities and include them in the Stanford portion of Monstertrak, which currently lists 20 to 75 jobs every two weeks.

Working together, our strong Stanford Business School network and community can benefit us all. ■

Spreadsheet

WHAT'S UP | News About the GSB and Its Graduates

ANNE KNUDSEN

Profs Go to the Mat Not for Profit

FACULTY WHO MOONLIGHTED as sumo wrestlers (above, Paul Oyer and Yossi Feinberg) were a star attraction at a GSB carnival held in October to raise funds for two student-led programs, the I Have a Dream (IHAD) project and the Stanford Management Internship Fund (SMIF).

This year, IHAD took on a new group of 60 first-graders in East Palo Alto, as the last of the original group of "dreamers" headed off to college in the fall. Organized a decade ago by members of the MBA Class of 1992 and based on a similar program in East Harlem, the student organization initially raised $450,000 and adopted 58 third- and fourth-graders at Flood Elementary School to mentor and tutor. As the GSB students graduated, they handed off tutoring, mentoring, and fundraising responsibilities to members of new classes.

Nearly all of the original dreamers have gone on to college with financial help from IHAD, which now must raise $1.5 million to cover scholarships as well as materials and administrative expenses for the new group at nearby Costaño Elementary School.

SMIF raises funds to support GSB students doing summer internships in nonprofit organizations.

The GSB's Living Treasure

SARA LITTLE TURNBULL, the director of the School's Process of Change, Innovation, and Design Laboratory who has helped GSB students design ski racks, alarm clocks, and water bottles, to name just a few projects, was honored in November by the Modern Art Council of the San Francisco Museum of Modern Art. The council cited Turnbull's contributions to the world of design and officially designated her a "Bay Area Living Treasure."

Turnbull, who is 84, has enjoyed a storied career as a designer and consultant to such household names as Revlon and Procter & Gamble. She also spent 20 years as an editor at *House Beautiful.* The contribution for which she is most well known, however, is the design of Corning Ware.

Berlin Site of SEP 50th Celebration

THE STANFORD EXECUTIVE Program (SEP) will celebrate 50 years of outstanding general management education for senior executives with a conference in Berlin May 22–24. More than 7,000 managers from all over the world have taken part in the prestigious 6½-week program since it began in 1952.

Many SEP alumni/ae continue

to meet with their study groups and in some cases have been doing so for decades. They will have a chance to reconnect and expand their SEP contacts at the all-SEP academic conference and reunion celebration in Berlin.

Stanford faculty and prominent European business and government leaders will participate in the academic conference, says administrative director Beverly Smith. The conference will conclude in traditional SEP manner, she said, with a Friday night party like the ones held by on-campus program participants. SEP grads will receive their invitations in March.

For more information or to register online, go to *www.gsb.stanford.edu/exed/sep50* or contact Beverly Smith at 650.723.2921 or fax 650. 723.3950.

Hoop Dreams

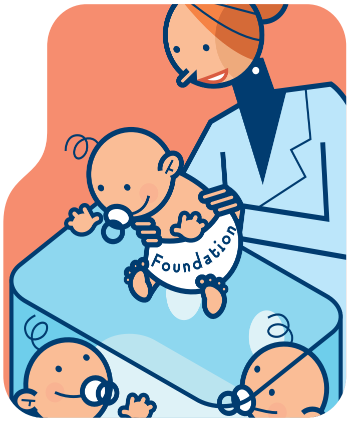
SCHOOL DEAN ROBERT JOSS celebrated his 60th birthday with a trip to Michael Jordan's Senior Flight School for the over-35 set, a gift from his wife. Joss, who played basketball in high school in Spokane and was a point guard on the freshman team at the University of Washington, was commended by his latest coach, Lute Olson of the University of Arizona, for staying in great shape. Joss's team finished with three wins and three losses, two of the latter by one point. "I was happy to have survived the tournament without injury," Joss said.

Lamaze for Nascent Foundations

STARTING A FOUNDATION to have an impact on the world around you can be an exciting but also a frustrating experience, say some who have been there. In an economic downturn, it is especially hard to spend time and money just to get a foundation up and running, says Cate Muther, MBA '78, founder of one and chairwoman of a new foundation for foundations.

The Foundation Incubator, funded by 21 organizations ranging from the well-known Rockefeller Foundation to new family-run organizations, is a place where the youngest get

ILLUSTRATIONS BY LEO ESPINOSA



mentoring from more established foundations. They also share services and facilities that would be more expensive to provide on their own.

Given the GSB's longstanding Public Management Program, it is not surprising that Business School alums were heavily involved in creating this innovation. Besides Muther, other founding investors include Community Foundation Silicon Valley, where Peter Hero, MBA '66, is president, and the Morgan Family Foundation, where Rebecca Morgan, MBA '78, is secretary. Michael Chertok, MBA '92, is managing director of one of the first four organizations in residence—the Global Catalyst Foundation. Incubator program director Leticia Miranda is a member of the Class of 1993, and staff member Isobel Gotto received her MBA from the GSB last spring.

The incubator, located at 1804 Embarcadero Road in Palo Alto, is open to private, family, operating, and corporate foundations, both large and small, with a wide range of funding interests. See *www.foundationincubator.org* for more information.

Ad Executive Chairs Alumni Board

BETSY SPENCE, MBA '86, became president of the Stanford Business School Alumni Association board of directors in January, succeeding classmate Martin Urrutia. Spence, who moved to New York City in September, served as president of the Denver SBSAA chapter for two years and has served on the alumni association board of directors for five years. She works for Merkley Newman Harty, an advertising agency whose clients include BellSouth, Mercedes Benz, Citigroup, and BMW Motorcycles. Previously, she was director of account services for a Denver advertising agency and before that, a senior vice president and director of marketing at Norwest Bank.

Silver Apple Winner Credits Alums

A PERSON WHO TRIES to carry a cat by the tail learns 10 times as much as the person watching, said Mark Twain. According to the faculty member who won this year's Jaedicke Silver Apple Award, GSB alumni/ae carry the cats and their professors watch and then write books about what they see.

Charles O'Reilly III, the Frank E. Buck Professor of Human Resources Management and Organizational Behavior, was honored during October's Alumni Weekend for his service to the School's alumni, including the many lectures he has given at alumni events since joining the faculty in 1993. O'Reilly is known for solid research and plain talk, one reason his latest book, *Hidden Value* (coauthored with GSB Professor Jeffrey Pfeffer), was named one of the top five business books of the past two years by *strategy+business,* a magazine published by Booz, Allen & Hamilton Inc.

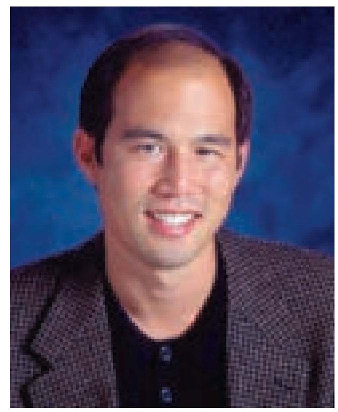
O'Reilly shared the credit for his work with "energizing students" and with alums who provide faculty with interesting conversations, access to their organizations for research, and "half their salaries." Recently, he has been tapping the GSB network for material for his next book—on what he calls ambidextrous companies.

The award, presented by the School's alumni association and named for Dean Emeritus Robert K. Jaedicke, was created to recognize faculty members for significant involvement in alumni programs.

Chan Returns to Head Career Center

As president and CEO of eProNet, Andy Chan, MBA '88, provided online job opportunities and career services to the alumni/ae associations of 22 universities, including Stanford. The GSB captured his undivided attention in October by naming him assistant dean and director of the School's Career Management Center. He succeeds Sherrie Taguchi, MBA '89, who moved to London after seven years as director.

Chan, who also holds a bachelor's degree in political science from Stanford and volunteers for the University's Athletics Department, where he was a varsity swimmer, "brings both functional and managerial experience to a critical role at the School," said Dean Robert Joss. Chan spent five years leading two career development firms, eProNet and the online startup MindSteps, but also has worked in consumer products, consumer software, and consulting.



Asked by the GSB *Reporter* for advice to jobseekers in a bear market, Chan said bear or bull, it's wise to write down what kind of work you like and don't like and where you would like to be in five years. Then review it often.

Littlefield's Legacy

Recent graduates will associate the name of Edmund Wattis Littlefield with the Littlefield building that houses faculty offices, classrooms, and the stately wood-paneled Wattis conference room. The building, with its distinctive center arch, is just one of many gifts that Ed Littlefield, MBA '38, gave the Business School and Stanford University before his death from lung cancer in October at the age of 87.

A prominent San Francisco business executive who led Utah International—a natural resources and shipping company that in 1976 merged with General Electric—Littlefield "was incisive at getting to the heart of business issues," said Dean Robert Joss. Former Dean Arjay Miller concurred: "I once told a Business School leadership class that I thought Ed Littlefield was the most outstanding corporate executive I knew. He had a vision to change the very nature of [Utah Construction] from one field—construction, which was low profitability—to mining uranium and coal, which was more profitable."

Littlefield also was generous with his time, serving on the Stanford Board of Trustees from 1956 until 1969, on the GSB Advisory Council from 1959 until 1984, and on the Hoover Institution Board of Overseers from 1990 to 1994. In 1970, he received the Ernest C. Arbuckle Award, awarded annually by the GSB's alumni association to an outstanding alumnus/a. He endowed a Business School professorship in 1973 and in 1988 contributed the name gift to construct the Edmund W. Littlefield Management Center.

Wireless in Japan

ONE OF THE MAJOR business failures of the wired Internet is that early entrepreneurs did not successfully develop

Spreadsheet

FOR THE RECORD

Placement Report: MBA Class of 2001

INDUSTRY ANALYSIS

Industry	Percentage of Class	Median Base Salary	Median Total Compensation
SERVICE (72 PERCENT)			
Management Consulting	31	$110,000	$145,500
Venture Capital/Private Equity	13	$125,000	$180,000
Investment Banking/Brokerage	10	$ 85,000	$145,000
E-Commerce/Internet	4	$ 95,000	$105,000
Investment Management/Hedge Funds	3	$100,000	$160,000
Nonprofit/Government	3	$ 75,000	$ 85,000
Entertainment/Media	2	$ 95,000	$136,000
Other	6	$ 95,000	$135,000
MANUFACTURING (17 PERCENT)			
Computers (Software)	4	$100,000	$135,000
Networking/Telecom Products	3	$105,000	$157,500
Consumer Products	2	$ 82,000	$101,000
Computers (Hardware)	1	$105,000	$145,000
Other	7	$100,000	$140,000
ENTREPRENEURS	6		
UNDECIDED	5		

AT A GLANCE

Top functions
Consultant: 35 percent
Venture capitalist/Private equity assoc.: 13 percent
Business developer/Strategic planner: 8 percent

Total compensation
Median: $145,000 (up 7 percent from previous year)
Range: $65,000–$370,000
Base salary
Median: $100,000
Range: $25,000–$200,000

Top five career choice factors
Compatibility with people in firm
Opportunity for broader career
Intellectual stimulation
Compensation package/potential
Geographic location

Top employers (hired five or more '01 grads, in alphabetical order)
Bain & Company
Booz Allen & Hamilton Inc.
The Boston Consulting Group Inc.
Cisco Systems Inc.
Deloitte Consulting
Goldman, Sachs & Company
McKinsey & Company
Monitor Company
Siebel Systems Inc.

Miscellaneous
Average number of job offers per student: 2
Graduates going to private companies: 69 percent; public companies: 26 percent; nonprofits: 5 percent
Change in industry from pre-MBA: 72 percent
International focus: 20 percent of positions are based outside the United States; 58 percent of positions are international in scope

Source: *Stanford Business School Career Management Center*

effective revenue models.

Professor Seungjin Whang told an Alumni Weekend audience that today Japan is building a wireless Internet network on a tried and true revenue model—the traditional billing standard of established telephone companies.

In Japan, he said, commuter trains are packed with passengers staring into their cell phone screens, as these ubiquitous devices have become the tool of choice for wireless applications. Content aggregators gravitated toward using cell phones after they surveyed high school girls who were not already addicted computer users to find out what kinds of content they might like on a cell phone. The result is that the cell phone is becoming a "horizontal device" for a "vertical" mix of applications, starting with games, cartoons, fortune telling, and train schedules, said Whang, who is a professor of operations, information, and technology.

LEO ESPINOSA

Business-to-business use of wireless lags behind consumer use, said Whang, who recently toured Japan, China, and Korea to investigate wireless applications. In Japan, wireless is used primarily for entertainment; in China, for buying and selling stocks; in Korea, for playing interactive games. Given these differences within Asia, Whang said, he doesn't want to predict what will happen in the United States and Europe. "It is not just a matter of prediction. It is a matter of who does what—a chicken and egg problem."

For a video file of Whang's lecture, go to *www.gsb.stanford.edu/services/news/audiovideo.html#alumni2001*. ■

yesterday

1990 IT WAS JUNE 4, just 9 days before the official destruction of the Berlin Wall began, when the popular Soviet president, Mikhail Gorbachev, whose *glasnost* and *perestroika* policies had ushered in the fall of the USSR, came to Stanford. Security on the Farm was heavy. At the Business School, classes were canceled for the day.

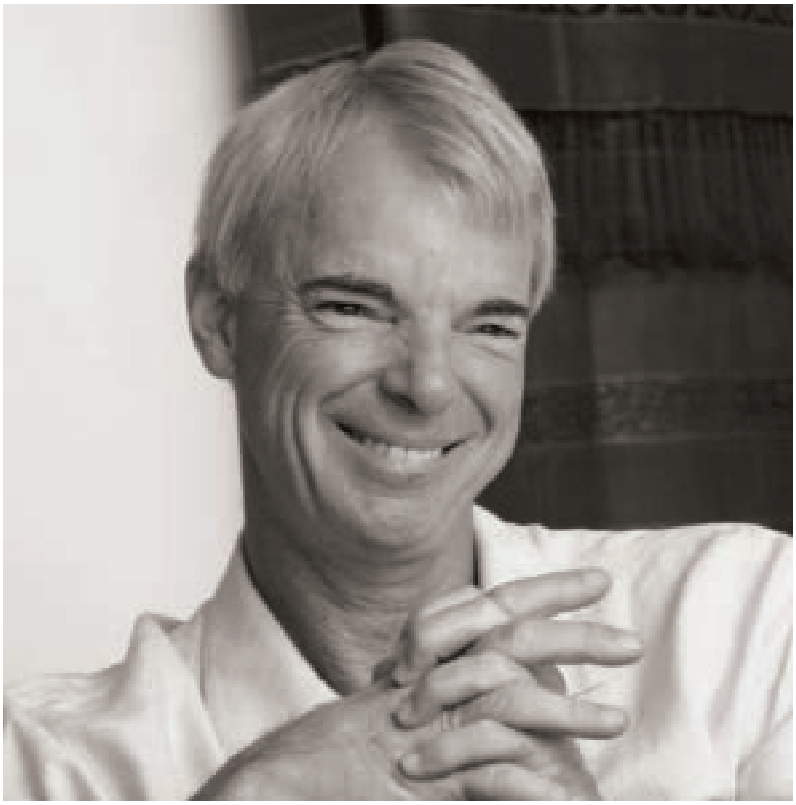
Facilitated by GSB professor emeritus George Shultz, Gorbachev's historic visit and speech in Memorial Auditorium were witnessed by 7,000 lucky Stanford lottery winners.

Back then, it was the *end* of a war—the Cold War. When the international world shook just over a decade ago, it seemed a more promising time.

STANFORD NEWS SERVICE

Spence Wins a Nobel in Economics

The School's third Nobel laureate is recognized for his "signaling theory," which helped to define the role of information in markets.



MATTHEW THAYER

NOBEL PRIZES IN ECONOMICS go to people who create order out of the apparent chaos of markets, but their ideas often are regarded as kooky at first. The GSB's first Nobel Prize winner, William Sharpe, devised an asset-pricing model that became the standard for pricing securities and made him a Nobel laureate in 1990. But Sharpe can still remember the pangs of self-doubt he felt in 1964 as "months went by and no one said anything" about his freshly published idea.

That silence may have been preferable to the initial fate of the School's newest Nobel laureate, former dean A. Michael Spence. His 1972 doctoral thesis, for which he garnered a Nobel in December, initially was misread by some and regarded as a foolish put-down of a solid economic principle.

"The first reaction at the University of Chicago to what I wrote was, 'Here is a guy who says education doesn't add to a person's productivity!'" Spence recalled last October, shortly after the Swedish Royal Academy awakened him at his Hawaiian vacation home to tell him he would share the 2001 prize. Spence is now one of 17 living Nobel laureates on the Stanford faculty and the third GSB laureate, following Sharpe in 1990 and Myron Scholes in 1997. He shares the current prize with George Akerlof, a professor at the University of California, Berkeley, and Joseph Stiglitz, a former Stanford colleague now at Columbia. Independently but collectively, the Swedish academy said, the three created the field of information economics.

Spence, of course, never doubted that a solid education enhances one's productivity and a nation's economic growth. He has been dean of two venerable educational institutions—Harvard's College of Arts and Sciences and Stanford's Graduate School of Business. His profession long ago figured out he hadn't committed heresy, for he was awarded the prestigious John Bates Clark Medal in 1983. Now an emeritus faculty member, he still teaches and conducts research at the GSB while also serving on company boards and managing technology investments for a venture capital firm.

What he wrote about education in 1972 was that a college degree had more private economic value to the individual who receives it than economic value to society from the individual's added productivity. From society's standpoint then, the market doesn't work as efficiently as it should. The larger ideas in his thesis were not just about education and job markets, but about how people behave in markets where buyers and sellers don't have access to the same information and therefore have difficulty agreeing on a price.

At a School celebration for him in October, Spence thanked mentors, colleagues, and students who had exchanged ideas with him over the years and spoke of "the joy of discovery that motivates us." Economics is a team effort, the former Princeton hockey team captain said, describing his own contribution, known as "signaling theory," simply as "moving the ball [perhaps he should have said puck] down the field."

It was Akerlof who started the ball rolling by analyzing why people were reluctant to buy and sell used cars without a dealer middleman. Used cars come in a variety of quality levels, he said, and just like the job seekers whom Spence was thinking about, some turn out to be lemons. The owner of each car knows its quality, but potential buyers do not. Buyers can't depend on reports from the owners. As Professor David Kreps put it to GSB students, "How often have you heard the seller of a used car say, 'This is a real lemon'?"

Given the unknowns, Akerlof theorized, buyers offer less than the seller of a quality car believes it is worth. Seeing this price, at least some sellers of superior cars will avoid the market, so the average quality falls.

Spence's work suggested one way a seller of a superior car could solve the problem—by finding a signal to convey his private information. Knowing the car was sound, the owner could offer a warranty to cover the cost of repairs. Owners of lemons would find it too costly to offer the warranty; therefore, the warranty offer becomes a credible signal that the car is worth a premium price.

Stiglitz contributed ideas on how market players could force others to reveal private information. An insurance company, for instance, could offer different deductibles. Those who were worse risks would reveal that by seeking a smaller deductible.

Over the years, scholars and managers have applied the threesome's ideas on information asymmetries to a wide variety of markets. A major implication has been that the "invisible hand" of the market cannot always be relied upon to get prices right. "It gives government a big role in information supply," Spence's early mentor, Kenneth Arrow, a Stanford economist and early Nobel laureate, told the *Los Angeles Times.*

Spence began working on theories to explain labor markets as a result of faculty seminars he attended as a graduate student at Harvard but also because he heard a lot about job seekers from his then wife, who was a placement officer at Radcliffe. In the late '60s and early '70s, men and women with similar educational degrees did not have similar outcomes in the labor market, and his original thesis gives an information signaling explanation.

"The idea of signaling is pretty simple," he says now, "but there is a complicated part about the equilibrium," by which he means the patterns of job applicant behavior and employer wage offers that persist because the signals appear to produce confirming feedback. If applicants and employers view men and women as in different labor pools, he argued then, they will send and receive signals that tend to regenerate sex-segregated employment patterns in a kind of self-fulfilling prophecy. The problem also could apply to race or other observable characteristics that people cannot change about themselves.

When he became a dean, Spence says now, his earlier work "definitely affected my thinking about admissions programs. Both at Harvard and here, we viewed affirmative action as the need to conduct a talent hunt, because this [signaling theory] tells you that there are talented people who will not apply on their own. I cannot prove it, but I don't have any doubt that in the first 20 years after World War II, the equilibrium for men and women was dramatically different, and then it changed rapidly, providing different returns to education."

The theories also help explain why the recent Internet bubble burst. Spence puts it this way:

"The definition of an equilibrium in a signaling world is that the signals that will survive are those that are consistent with experience. They close the feedback loop. When the Internet came along, it was clear to many people that it would have a major impact on the economy, but we were in dataless, uncharted territory. When the first data trickled in, it disconfirmed some of the expectations, and the stock prices came crashing down."

Spence believes the Internet will have lasting effects on the economy because "it crushes certain kinds of transaction costs and creates markets where there weren't any." These are concepts he and GSB Professor Garth Saloner explain in their recent book, *Creating and Capturing Value: Perspective and Cases on Electronic Commerce.*

That said, Spence takes a breath and continues, "The question is, does it go deeper than that? I want to do a lot more thinking about that." ■

BETTINA SALOMON

Rian Schmidt, MBA '96

As the news unfolded on September 11, everyone who wasn't immediately affected by the at-tack on the World Trade Center wanted to do something: rescue victims, contribute money to their families, fly Old Glory. Rian Schmidt reacted the way he knew best. He created an online database.

"The database was always meant to be a stopgap," Schmidt explained on a bright San Francisco afternoon four weeks later. On September 11, he had received a full mailbox of emails asking for news of friends believed to be in the vicinity of the Twin Towers. He decided the best way to thwart the terrorists' intentions was simple: "to just keep doing what we do naturally." For Schmidt, founder and owner of the 11-person Web maintenance and design firm Fine Brand Media, what came naturally was to design a Web site for friends to track their loved ones. In the following week, Schmidt's Friends and Family Database grew to some 10,000 people. Roughly 250,000 people visited the site, registering about 1.5 million page views, he said.

After looking in vain for another host for the list, Schmidt took the site down within a week. Not only had he been putting in 16- to 18-hour days manually entering data, but after three days his company was so jammed with computer traffic that it couldn't conduct business. "Our customers were understanding, but we couldn't expect them to stick with us forever," Schmidt said. And he started to hear stories about electronic scavengers who were mining the list for names and email addresses.

"Fine Brand isn't a glamorous company," he said at a sidewalk cafe near his office. "You could call us the janitors of the Web." To make sure Fine Brand's clients—the key to its continued success—would be around for the long run, Schmidt scrutinized their business plans before he signed them on. What made him so sensible when everyone else was caught up in dot-com mania? He glanced at the sun-drenched October scene. "I'm from Minnesota," he said.

Pete Pond, MBA '39

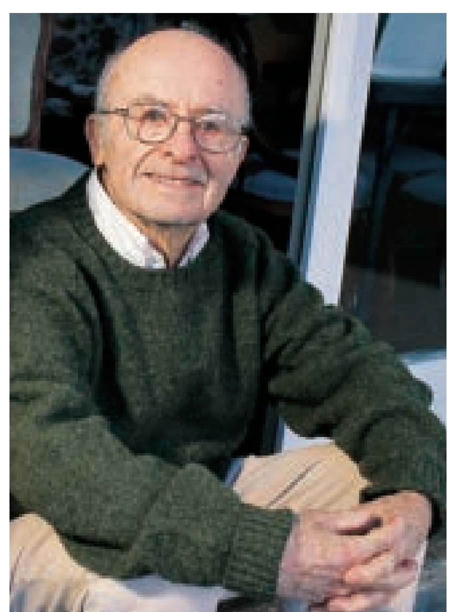
"I consider myself a work in progress," 87-year-old Samuel A. "Pete" Pond wrote in a 1997 memoir. A visit to the Woodside home he and his wife, Kip, built when Pond joined the Business School administration in 1961 confirms this. The former acting dean writes, hikes, travels, and devotes much of his formidable energy to the Southern California prep school he attended some 70 years ago.

Pond retired from the GSB in 1981 after serving as an associate dean under Ernest Arbuckle and Arjay Miller and as an acting dean in between. At 67, he was expected to retire, he says. But surmising he had a few years of lucidity left, maybe five, the Ponds bought *Bricker's International Directory,* a guide to executive education programs, and edited it until they sold it to Peterson's, the college guide publishers, five years later.

"So there I was at 72. When you're 72, they don't exactly come running to offer you directorships." So Pond threw himself into his work as a trustee at the Thatcher School in Ojai, Calif., and, with Kip's editorial assistance, he turned family historian.

Pond's fourth manuscript, titled simply "And Then I Wrote...," centers around family, friends, and mentors. As an MBA student, Pond met GSB economist Theodore Kreps. The teacher taught the young man to question his values. "He turned my life around," wrote Pond, adding, "I'm still a Democrat." Then there was Pond's youthful buddy Ernest Arbuckle, who introduced Pond to PT boats. (Arbuckle later earned a Silver Star in a Mediterranean torpedo boat; Pond skippered PT-108 in the Pacific.) Two decades later, Arbuckle asked Pond to leave Chemetron Corp. in Chicago to help him run the Business School.

Pond has had three brushes with serious illness since he turned 80. Typical of the man, the first happened in Fez, Morocco, the second in Quito, Ecuador, and the third in Paris. After successful open-heart surgery in 1997, he noted wryly: "Three times and out were not to be my fate. Here I am faced with the prospect of eternity. Now there's something to think about." ■



SAUL BROMBERER/SANDRA HOOVER

The Dawning of a New Century?

It was a day that horrified and bonded us—a day etched in the collective memory. Members of the GSB community talk about their experience of September 11, 2001.

ANTONIN KRATOCHVIL/VII

LIZ CHAVEZ LYNCH, MBA '92, was in the pedestrian overpass heading toward the World Trade Center towers at 8:48 AM; Bob Scott, MBA '70, was giving a speech in a hotel conference room between the towers; and Mike O'Brien, MBA '82, was in an 88th floor meeting room. All three lived, but none of us escaped. Some have said, ominously, that September 11, 2001, was the real first day of the 21st century.

"The world of every U.S. citizen has changed, and I think the world of almost everyone else has too," mused Roth Herrlinger, MBA '96, of San Francisco, one day before Thanksgiving. Herrlinger spent September 12 writing a song to deal with his own shock and grief. GSB classmates later helped him record and distribute the song through the Web and radio stations. "I believe we've all entered a deeper consciousness," he said.

The GSB community held its breath for days as the death toll from the terrorist attacks mounted. Many alums lost someone they were close to, and the School lost one alumnus in the tragedy—Bryan Jack, MBA '78, a Pentagon economist described by a colleague as a brilliant mathematician "who translated policy decisions by the U.S. Secretary of Defense into hard numbers." He was a passenger on the California-bound flight that was steered into the Pentagon. Jack's family has asked that memorial gifts be made to the Bryan C. Jack Memorial Fund at the Business School or to the Bryan Jack Fund at The Nature Conservancy.

Around the world, graduates found themselves caught up in the events, with New Yorkers hardest hit. O'Brien managed to get down the 88 stories from the tower conference room where he was meeting. One of four surviving board members of Keefe, Bruyette & Woods, he reported to GSB friends a few days later that the company "lost all of our trading group, most of our research group and half our New York sales group. We have a major rebuilding effort before us, as well as [the need] to take care of the 67 families who appear to have lost someone."

Morgan Stanley Dean Witter, where Scott is president, was more fortunate by comparison, but his news was devastating too. The firm lost six employees and six contract workers, most of them security workers who were on the job when the second tower collapsed, he said. The largest tenant in tower two, Morgan Stanley had 3,400 employees scattered in every direction during the evacuation and no Manhattan phone service to try to reach them. The company turned for help to young workers in one of its credit card call centers in Phoenix. "We gave them the assignment of talking with somebody desperate to find out if a loved one was alive or dead, and they did an incredible job," said Scott, who flew to Phoenix two weeks later to thank them in person. Some of the Arizona workers were among 13,000 Morgan Stanley employees who accepted grief counseling. It was important, Scott said, because "everyone, myself included, about once an hour would feel like crying" for the first 10 days or so. "We needed to know that everybody felt that way."

Many alums had to abandon their offices or apartments near Ground Zero and moved in with friends, family, and sometimes clients, but that wasn't the worst of it. "We are going to funerals of friends and hearing about funerals every day," said Marian Adams Bott, MBA '73, whose offices on Broadway were quarantined.

For classmate Paul Kennedy, the low point came when he attended a funeral for the fiancé of his longtime secretary instead of her wedding.

The National Guard unit of David Fleshman, Sloan '01, an F-16 fighter pilot, was quickly called up to "bore holes in the sky" over California, but Fleshman originally was alerted to the unfolding disaster by Kahoe Low, a classmate calling from Singapore to tell him to turn on CNN. "Now that's globalization," said Fleshman.

Thousands of miles away in Jordan, Saad Mouasher, MBA '00, is a member of a merchant family with an ancient, wide-ranging business tradition in the Middle East. The Mouasher Group of companies saw a year's work to create a partnership with one of the world's largest architectural and design firms swept away by the disaster, along with one of their companies' plans to provide outsourced customer support for U.S. firms. After the terrorist attack, many negotiations for international business liaisons were sent back to square one.

And if that setback wasn't enough, another Mouasher family company that had succeeded in attracting the CBS TV show *Survivor* to Jordan's scenic Wadi Rum desert lost the project. "When 9-11 came along, the *Survivor* team pulled out almost immediately and is now filming in some remote island," Mouasher said. The loss of the show—which would have generated international exposure worth about five times the government's normal $20 million marketing budget—was a blow to the nation of Jordan. Family problems aside, Mouasher sent condolences to American GSB alums within the first few hours expressing the shock and despair of the majority of people in his Muslim country.

Members of the MBA Class of '03, who had arrived on campus two days before the attacks, canceled some orientation activities and added memorial services to their schedules. "I emotionally withdrew from orientation activities and from the classmates I had looked forward to meeting for so long," wrote Sally Wolf of New York in a September issue of the student newspaper the *Reporter.* "It seemed wrong, even impossible, to enjoy this new place when my home and my friends were under attack."

> "It seemed wrong, even impossible, to enjoy this new place [the GSB] when my home and my friends were under attack."

Second-year MBA student Jen Bergeron took a leave from the Business School to return to her former job at the U.S. State Department, where her expertise in Pakistan and counterterrorism was needed.

Former Secretary of State George Shultz, a professor emeritus at the GSB who has long talked publicly about the potential for terrorism on U.S. soil, urged an unorthodox approach to curbing further terrorist attacks. "I hope one of the things they are doing [in Washington] is getting a lot of kooky people who are science fiction writers and putting them in a room somewhere and letting them think of every outrageous idea they have, because I think you want to try hard not to be surprised. You want to think imaginatively," he told the *Reporter.*

Some other imaginations, however, have brought more pain. Since September 11, Chirinjeev Kathuria, MBA '93, has been denied access to airplane bathrooms near cockpits and has been followed and interrogated by police on Boston streets. Passing motorists in Manhattan have shouted: "Go home, Osama." A Chicago physician who has founded several technology companies, Kathuria is a Sikh who often flies with his brother—both bearded and wearing turbans, reminding others of Bin Laden. "The way people looked at us, you could feel their fear from their faces," he told *Business 2.0*. In business meetings, he added, "it used to be that my persona was an asset. Now, maybe it's a liability."

Such stories are part of the sadness that propelled Herrlinger to write and record "Call to Honor," his song about the tragedy and hope for recovery (*www.digradio.com/calltohonor.html*). "I have written lyrics a half dozen times in my life, but this didn't come just from me," he said. "In my mind, the words are inspired by God." ■

A Perspective from Overseas

FROM ALI OJJEH, MBA '95: In 1996, Madeleine Albright, then the U.S. Secretary of State, was asked on national television how she felt about the fact that 500,000 Iraqi children had died as a result of U.S. economic sanctions. She replied it was "a very hard choice," but that, all things considered, "we think the price is worth it."

Statements like these from U.S. leaders receive little attention in the United States or even in Europe, where I now live. But they do not go unnoticed in the Middle East or in many Muslim and Arab communities around the world. Today, sanctions against Iraq remain in place, and innocent Iraqi children continue to die.

The popular view in the Arab world is that killing of any type is wrong, be it in Afghanistan or New York. We may never know what motivated the hijackers who flew airplanes into the Pentagon and the World Trade Center, but we know their belief in what they were doing outstripped their instinct for survival. This gives people in the Arab world pause. Pause to share America's grief at the immense loss of life and to think deeply about what happened and why.

The West's leadership says the war against terrorism is not against Islam. This may be true, but all declared terrorists belong to the larger Muslim community. All the assets that have been frozen belong to Muslim organizations. All countries mentioned as candidates for military strikes are Muslim countries.

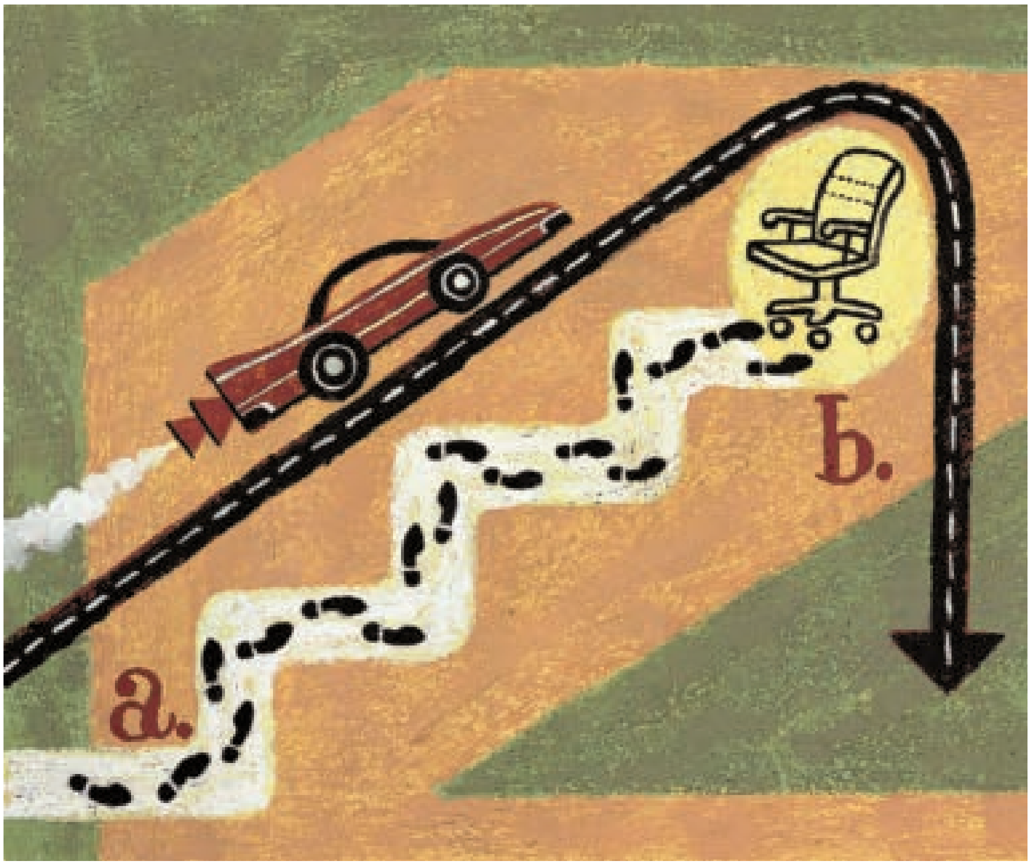
These sharply contrasting views of injustice are partly fueled by Arab regimes who have miserably failed to build a future for their people. Today, not a single Arab country is democratic, and most suffer from cancerous levels of government corruption. The vast majority of young Arabs have little hope for economic advancement. Those who can get visas escape overseas, while others turn to Islam as an escape. The regimes crush violent Muslim protesters and redirect their public's anger onto the United States through their state-controlled press. As a result, while it is poverty and hopelessness that breed terrorists, many see the United States as the master of the oppressors.

America is also perceived by the entire world as the leader in science, economics, industry, politics, business, medicine, engineering, social life, social justice, and, of course, the military. Rome at the beginning of the first millennium and the empire of Damascus 500 years ago enjoyed similar superiority but lost their edge. With that in mind, I am amazed by how little attention Americans have paid to the fine print of the "war on terrorism" legislation that passed Congress. Technology can win battles, but freedom wins wars. The most valuable asset the United States has is a constitution that offers unparalleled protection for personal freedoms. That protection has just taken a dent. ■

Ali Ojjeh was born in Damascus and now lives in London with his wife and two children. He is cofounder of The Capital Partnership Ltd., a London-based investment firm.

Beware the Shortcut to the Top

Promotion by pedigree, or even potential, can be a fast track to failure. The best leaders prove themselves by performance—every step of the way.



ILLUSTRATIONS BY JAMES STEINBERG

THE FAST TRACK TO THE TOP may look attractive, but people frequently are given new leadership responsibilities for which they are not ready, says Robert Joss, dean of the Business School. "Many companies don't think through when to put certain people in certain jobs, assuming that they'll be OK—and inadvertently setting them up for failure," Joss says. "That's a significant problem in many organizations."

The question of leadership, what it is and how to develop it—in organizations and in yourself—was the topic of a one-week seminar conducted by Joss. It was one of 11 small, innovative classes offered to second-year MBA students before the start of the 2001–2002 academic year. Each class revolved around a faculty member's favorite area of research and was limited to 10 students to provide an intimate, intensive learning experience. The aim of the seminars was twofold: to integrate research and teaching more strongly and to build community among students and faculty in an academic context. Stanford's low student-faculty ratio and cross-disciplinary approach to management allowed the experiment with this teaching form. Other seminars included *How to Make Ideas Stick, Working for Change for Women in Organizations, Advanced Investment Strategies,* and *Strategy and Organization in the Brewing Industry.*

The dean's *Issues in Leadership* seminar delved into several academic research papers and books but also confronted the students with some real-life conundrums. Should you aim for fast-track careers? Can intellectual ability make up for lack of work experience?

One key lesson is not to place too much stock in one's success as a student. "A student has been able to do nearly everything on his or her own, and that can be deceiving in terms of leadership ability," says Joss. "There's a big difference when you have to get work done through others. Learning how to inspire as well as control is a difficult thing, and you learn it through practice." The dean, who earned his MBA and a PHD at the Business School, was chief executive officer of the Australian financial consortium Westpac Banking Corp. and prior to that served as vice chairman of Wells Fargo & Co.

The Pipeline Approach

The need for hands-on leadership experience is a key theme in a new book that was assigned as one of the readings in the seminar. *The Leadership Pipeline,* by Ram Charan, Stephen Drotter, and James Noel, criticizes companies that look for their leaders only among the "best and brightest."

"Businesses are full of intelligent, good-looking people from top schools who are failing because they don't know how to get anything done," the *Pipeline* authors argue. "Succession programs often place these people in leadership positions based on their potential—they look the part, they have the right pedigree, they impressed someone with their ideas and ability to articulate them." Such people often don't stay in one place long enough to learn from mistakes, master the right skills, or gain the experience they need for performance.

The right way to perpetuate an enterprise, they argue, is to fill the pipeline with people who can be drawn upon to fill the next leadership level up. The writers draw on their experience running training programs at General Electric and Citigroup, two companies known for leadership development.

This performance-based definition of potential turns the focus squarely on one's ability to do the job at one's current leadership level. Performance now becomes "the admission price" for future growth and development. The strategy permits few, if any, shortcuts. This is because the leadership hierarchy is not a series of undifferentiated steps that would allow the energetic junior executive to skip a couple of stops on the way to the top. Instead, each management level involves a major change in job requirements, time, allocation, and work values—all requiring new learning and demonstrated mastery.

In large, decentralized companies, the hierarchy may constitute as many as six such career passages, or bends, in the pipeline. These range from managing oneself as an individual contributor to managing a team, to managing managers, to managing a function, to managing a business, and ultimately to managing an enterprise.

The authors are critical of the fast-track career path. "The pipeline isn't a straight tube but one with six 90-degree bends or turns," they caution. "At each one of the bends, people need to slow down, reflect, learn, and develop."

To Joss, this doesn't mean that you should not try to speed up your progress. "The book suggests how you ought to fast-track," he says. "If you're in a hurry, you should try to shorten the time on each track or on each level, rather than skipping. If you skip the acquisition of experience, you're certainly taking on some risk of having a very large gap in your knowledge or skills."

But what if your boss tells you you're needed to fill a position two or three levels up? Most people would probably grab the chance without a second thought. Joss urges caution. "Either take it with your eyes open and figure out how you're going to cover that lack of experience—maybe through some coaching, maybe your boss can help you out—or do a realistic self-appraisal and say, 'That's too big a risk. I'm not ready and I'm just going to fail in that job because I don't have enough background.'"

He realizes that the latter option sounds unrealistic to most people: Why would you ever turn down a promotion? But he points to a parallel in college sports. "You see it all the time," observes Joss. "A good basketball player who is a junior could be encouraged to turn pro, but the kid says, 'That's a big risk.' In college, you get much more coaching and more chances to work on the fundamentals. When you go to the pros, you've got to be ready to play every night. So, many of them choose to stay another year, even though it may be at great short-term economic cost to them."

The leadership hierarchy is not a series of undifferentiated steps that would allow the energetic junior executive to skip a couple of stops on the way to the top.

Level 5 Leadership

Consultant and former Business School lecturer Jim Collins, MBA '83, reinforces criticism of the "star" system in another of the seminar readings. In the course of a five-year research project into hyperachieving companies, he chanced upon a counterintuitive pattern. People generally assume that transforming companies from good to great requires big personalities who make headlines and become celebrities, he says.

Instead, he found that these companies' leaders were individuals who blend "extreme personal humility with intense professional will." Although fearless, they were also modest and shy, motivating others with inspired standards rather than inspiring charisma.

His study examined the 11 Fortune 500 companies between 1965 and 1995 that met his stringent definition of "good-to-great" transition. That is, after performing no better than the general stock market for 15 years, they steadily transformed themselves into dramatic and sustained overachievers, registering cumulative stock returns at least three times the market average over the next 15 years.

The 11 firms included paper company Kimberly-Clark under CEO Darwin E. Smith; Gillette under CEO Colman Mockler; Abbott Laboratories under CEO George Cain; and Wells Fargo under CEOs Dick Cooley and Carl Reichardt. All fit the profile of quiet, resolute leaders in contrast to more ego-driven CEOs of their less successful competitors. Collins' interpretation of his findings in his book *Good to Great* is that to build "enduring greatness" requires a "level 5" executive, whose ambition is for the institution, not for himself.

Joss agrees with Collins' observations. "It's a mark of all outstanding leaders that their egos get reasonably suppressed," he says. "They care more about other people and about the cause, which is to build a great company. And that shows through in discipline and will, and also in humility."

Emotional Intelligence

Other key seminar sessions involved discussion of emotional intelligence, personal renewal, and the tasks that leaders actually perform in their work. "Leaders are mostly made, not born," says Joss. "They are made by being put into challenging jobs that require them to earn followers in order to perform." This acquisition of experience and the related development of effective behaviors are essential complements to the acquisition of management knowledge, which is the central purpose of an MBA program. "Leadership is a performing art, just like diving or singing, and the instrument is you. It takes lots of practice and it takes considerable self-knowledge and self-management." ■

FOR FURTHER READING:

Good to Great: Why Some Companies Make the Leap … And Others Don't, Jim Collins, *New York: HarperCollins, 2001*

Leadership at the Turn of the Century, John P. Kotter, in John P. Kotter on What Leaders Really Do, *Boston: Harvard Business School Press, 1999*

The Leadership Pipeline: How to Build the Leadership-Powered Company, Ram Charan, Stephen Drotter, and James Noel, *San Francisco: Jossey-Bass, 2001*

Personal Renewal, John W. Gardner, *McKinsey Quarterly (No. 2, pp. 71–81), 1991*

What Makes a Leader? Daniel Goleman, *Harvard Business Review, Reprint #93306, 1998*

Shifting Gears

THE NAME OF A STANFORD MBA can be found engraved at the entrance of one technology company's headquarters in Sunnyvale, California. Given how many business school alumni/ae have made their mark in Silicon Valley, this may seem unremarkable. Except this particular name is not where you'd expect to find it. It's not on Network Appliance's list of founders, board members, or executives. Instead, it's outside the main building, on a 10-foot-tall sculpture purchased by the firm. The bronze piece depicts a man doing a handstand on the back of a bucking bull. The sculptor's signature is etched in a rounded, childlike hand: **"Ostenberg."**

Thomas Ostenberg, MBA '75, was once a banker. But after 15 years in finance, he pulled off a career move as audacious as the gymnastics performed by the bronze figures he would later sculpt. In 1990, at the age of 40, he turned his back on a $200,000 consultancy practice, tossed his Madrid apartment and his Porsche convertible, and headed to art school.

He had always been consumed by what he'd seen in museums, but the creative end was so new to him, he was stumped when the college asked to see his portfolio. Investment portfolios he understood. But an artist's portfolio? It would be the first of many steps in the remolding of his life.

One day last summer, 11 years and a world away from that fateful move, we meet the banker-turned-artist on a Native American reservation in New Mexico. He has come there to do some work at Shidoni, a foundry where artists have their sculptures cast in bronze. Many sculptors leave this difficult process entirely to the foundry's skilled artisans. Ostenberg prefers to pitch in.

We find him at the controls of a sandblasting cabinet, which is roaring like a vacuum cleaner. His tousled, graying blond head peers in through its rectangular window, and his arms are inserted into two holes in the machine. Several minutes later, he is done. He opens the door of the cabinet and extracts a thigh-high sculpture. When he places it on the floor, it gives off a *thunk* and a cloud of dust. The artist doubles over with an exuberant sneeze. "Excuse me!"

Introductions over (his fiancée, Caroline, is also present; as for the piece, he calls it "A Notion of Consonance"), he dips the statue into a vat of chemical solution from which rises a foul, sulfuric odor and then leaves it out to dry. He explains that he has just removed its original, dark green patina at the request of the gallery where it is to go on sale. Later he will pick up a brush and a propane blowtorch to apply the lighter green patina that the gallery has asked for. It is one of the colors he regularly works with, so he doesn't mind changing it, he says.

It pays to keep the customers satisfied. To see how much is at stake, you need only to travel down a country road a few miles south of Shidoni to the city of Santa Fe. New Mexico's state capital is an art-lover's mecca, with galleries on almost every street downtown. There, the elegant Peyton Wright Gallery stocks several Ostenbergs. In the garden stands "In Pursuit of a Clearer Understanding," a trio of slender, 6-foot-tall figures with impossibly long gaits, each atop a flat, wheeled cart. A catalog informs you that it would cost $75,000 to take this sculpture home.

"Above Conflict," the piece whose clone stands outside the Network Appliance building, is also available. It is from an edition of seven and is priced at $100,000. In Peyton Wright's attic are several miniature pieces, small enough to sit on your palm. They look like toys until you feel their solid weight. These cost just a few hundred dollars. If size matters, however, try this 9-foot-tall creation: a man balancing on one hand atop a surprised-looking horse, which itself stands on a wheel resting on a pedestal. For one of an edition of eight, write a check for $100,000. Its title: "But, I Feel Fine."

These days the sculptor isn't feeling too bad, either. Don't expect

Photographed by DOUGLAS MERRIAM

At age 40, Thomas Ostenberg traded in his comfortable banking career for art school. Now he creates sculptures that reflect his life of risk and excitement. By CHERIAN GEORGE

Ostenberg to affect the stereotypical pose of the tortured artist, struggling and misunderstood. He is unabashedly happy with the way things have worked out. It is not the money, he stresses. After deducting the galleries' cut and the costs of casting and shipping, Ostenberg nets less than half of his pieces' big price tags. He earned more as a banker. But he can't complain: Of all the students he met in his six years in leading art schools, he is the only one he knows who is making a full-time living from sculpture. It is that hard.

Indeed, in hindsight he realizes that the odds of survival were so low that his decision to switch careers was just plain irrational. "It was really stupid," he says. "I mean that literally. It was foolish." In a different mood, he describes his choice in more philosophical terms: "I think my life has evolved."

That life began in Nebraska, but he grew up mainly in Colorado, on a ranch surrounded by the cattle and horses whose spirits would later animate much of his artwork. He studied languages at Principia College in Illinois before enrolling at Stanford. One of his GSB friends was Scott Schnuck, who now runs his family's grocery business in St. Louis, Missouri. "We had the common goal of getting through school," Schnuck recalls. "Did I see his artistic side? No."

But then, neither did Ostenberg. MBA in hand, he joined Citibank and worked in Brazil and Spain developing financial products for corporate clients. In 1986, he struck out on his own as an international financial consultant. The newfound independence gave him the time to take stock and connect with his "truest desires."

"The aggressive pursuit of money and material well-being has been the socially accepted standard defining success," he would later write. "But with an accompanying sense of purposelessness, an increasing number of people are searching for a more spiritual definition of achievement and a deeper meaning to life." Although he had never before done any serious art himself, he was a museum buff and loved the visual stimulation of fine art. The turning point came one summer when he saw a retrospective of Velázquez and Goya in Madrid and also visited the Rodin Museum in Paris. "It was so magical," he recalls. "I decided, let's give it a shot."

On visits to his sister in Kansas City, Missouri, Ostenberg had learned of its highly regarded art school. He dropped in and met its director. "He asked to see my portfolio. I asked, 'What's a portfolio?' But they were very interested in mature students, and he could see I was very interested." The director told him to read two introductory how-to books, including the bestselling volume by Betty Edwards, *Drawing on the Right Side of the Brain: A Course in Enhancing Creativity and Artistic Confidence*.

Ostenberg returned to Spain and started drawing. After a couple of months, he overhauled his portfolio: Out went assets such as apartment and sports car; in came a sheaf of drawings of no market value, but impressive enough to gain admission to Kansas City Art Institute's four-year bachelor of fine arts program. (The move touched his sister, too. She was so inspired by his decision to follow his heart that she gave up a successful legal career to pursue movie production. Starting out as an assistant to Paul Newman, she is now a special effects producer.)

In art school, Ostenberg discovered sculpture. "I went to art school to paint, but because I already had a BA, I was exempted from the liberal arts courses and was allowed to double-major in sculpture. I'm a decent painter, but I loved working three-dimensionally," he says.

One year in Missouri, he could not afford the tuition and had to take a term off to work in a foundry, where he learned every stage in the laborious craft of "lost wax" bronze casting. The process starts with an original sculpture in clay, plaster, or other sculptable material, and ends with an identical copy in enduring bronze.

"It's basically the same process that was used to cast bronze thousands of years ago," Ostenberg notes. In its contemporary version, the artist's original handiwork is first coated with a layer of fast-drying silicone-rubber paint, which is then reinforced with plaster to keep the pliable rubber mold rigid. The mold is cut open and the original sculpture removed and put away. Next, the inside of the rubber mold is coated with liquid wax, which solidifies into a hollow reproduction of the original work. Then, this wax copy is completely encased, inside and out, with a rock-hard ceramic shell. When the assemblage is placed in a kiln heated to more than 1,000 degrees Fahrenheit, the wax melts away—hence the name "lost wax"—leaving a hollow ceramic mold into which molten bronze is poured.

"I'd be there before they opened the doors at 8, and they would have to kick me out at 10 p.m.

Ostenberg's sculpture "Above Conflict"

After the piece cools down, the shell is hacked away to reveal the bronze sculpture. The last major step is patination. Time and nature tarnish bronze, but artists accelerate and control the process.

Hooked on sculpture, Ostenberg moved on to London's renowned Royal College of Art (RCA), aided in part by a scholarship from the Henry Moore Foundation. "I wanted to build a serious body of work in that cocoon. I worked seven days a week. I'd be there before they opened the doors at 8, and they would have to kick me out at 10 P.M. Others didn't have the same work ethic. I think Stanford teaches you to work your butt off."

At RCA's two-week degree show, he sold out most of his exhibition and made enough to buy the small flat in London that would be his base for the next few years. He now works on both sides of the Atlantic, dividing his year between London, the south of France, and New Mexico. In Santa Fe, he stays in an old Airstream trailer in a friend's garden. With most of his customers in the United States, he is thinking of moving permanently to New Mexico.

Ostenberg's work is now in several galleries, including Theo Waddington in London and Lisa Kurts in Memphis. British singer Kate Bush owns an Ostenberg. So does Scott Schnuck, who met his classmate in his new incarnation at their 25th anniversary reunion in 2000. "It's contemporary, but not far out," says Schnuck of the large piece he bought for the hall of his house in Colorado.

Ask others what they think of his work, and you'll hear words like "whimsical," "playful," "dreamlike." "It has a spirit of lightness," says Network Appliance executive Thom Bryant, of the piece displayed at the company's headquarters. "Most people can relate to it, unlike a lot of public art that's just ignored." Writes London critic Edward Lucie-Smith: "The first thing that strikes one about Thomas Ostenberg's sculptures is that they are so joyful. Joy is not an emotion I normally associate with contemporary art, however worthy its other qualities." What's his secret? Ostenberg shares it readily. "The creative process is such a joyous thing—unless you take yourself too seriously and you listen to the critics instead of to the pieces."

Most of his sculptures play with the theme of motion and balance. Look down and you'll perceive a precariousness in the form that almost makes you want to reach out with a steadying hand. But look up and you'll see a human figure that is supremely confident, performing extravagant acrobatics with perfect poise.

"It's very autobiographical," the artist says. He has learned from personal experience that a simple shift in mindset can produce radical, uplifting change. His sculptures capture that dynamic moment of risk and excitement. "I used to be very secure economically.

Others didn't have the same work ethic. I think Stanford teaches you to work your butt off."

It was a golden life. But I felt a little bit barren. The difference now is I don't know how I'm going to pay my studio rent from month to month, but in terms of personal fulfillment, I've got it nailed. So the lower half of my pieces often look unstable, but the guy on top of the base—*bam!*—he's totally secure."

Ostenberg hasn't forgotten his roots, though. Some who have followed his career say his business background gives him a distinct competitive edge in the art world. "Most artists at his level aren't well versed in the business aspects of being a working artist," notes John Wright Schaefer, owner of the Peyton Wright Gallery. "Tom brings to bear mature life experiences that are obvious both in his art and in the way he conducts himself in the art business." Frank Morbillo, Shidoni's foundry manager, has also observed the skill with which Ostenberg has managed his affairs: "He's very positive and proactive in his pursuit of galleries and marketing his work."

Ostenberg says he worked on marketing himself while still in school. After his first year at the RCA, he had high-quality, professional photographs taken of his work and printed them on postcards. "Every three months I would send my postcards to 700 different galleries," he says. He believes this direct marketing campaign gave him a visibility among critics and collectors that belied his status as a relative newcomer. Now he has a Web site *(www. thomasostenberg.com)* to showcase his work.

"Most artists invest so much emotional capital in the creation of an art piece, but then find it difficult to stand back and say, now I've got a product I need to sell," he says. "I still think of myself as a business person. My attitude is, I must move this widget, otherwise I won't be able to do my next one.

"Once you've been in business school, it's natural to think in those terms rather than leave the financial side of things to chance. But by choice I make sure it does not take up more than 15 to 20 percent of my time. What I really love is to be in the studio."

Observe him at Shidoni, doing what he loves, and it is hard to picture Ostenberg in a suit giving PowerPoint presentations in a boardroom. He is at home here in waterproof pants and sneakers, surrounded by the wax, the silicone, the chemicals, and the tools that help transmute his imagination into solid works of art.

The bronze casting process, he notes, can reproduce an original work with such fidelity that you sometimes can discern the artist's fingerprints preserved on the metal. On the lawn are three of his finished pieces, loaned to Shidoni for its 30th anniversary open house the previous weekend. He scans the surface of one of them looking hopefully for his fingerprints, but gets distracted by an inch-long, dirty white streak—the kind that quickly adorns outdoor sculptures everywhere.

"Bird print!" he laughs. He licks his thumb and tries to rub off the mark, as unselfconsciously as a parent might wipe away a food stain from a child's cheek. He only manages to smudge it. But what does become quite clear is that, despite his cavalier description of art as business, his creations are not mere widgets to him.

Inside the foundry, he cheerfully greets the artisans who are bent over their work. In the wax room, half a dozen young men are working, with funk-metal band Clutch playing on a stereo. They look up shyly as he introduces his fiancée to them with barely concealed pride. She works as a Web designer, and just as Ostenberg used to in his past life, she drives a sporty German convertible, which he borrows occasionally. Except that hers is not a Porsche, but a little Volkswagen Golf with cow-print upholstery.

Now married, the couple met on the ski slopes of Vail. He, who grew up in Colorado, was then living in England. She is English but lives in Colorado. It is just another happy twist in the life of Tom Ostenberg. "One thing after another has fallen into place. I wake up every day and say, thank you," he says. "A lot of it is listening to intuition. After a while, you have to stop paying attention to facts and start listening to feelings. It's just worked for me.

"I wouldn't change a thing." ■

Illustrations by **Tim Bower**

Specialty Moves
for Market Players

THEY TEND TO HIT THE HEADLINES for the wrong reasons.

The practice of short-selling made news after the attacks on the World Trade Center and the Pentagon. Initially, terrorist groups were suspected of profiting from their foreknowledge by taking short positions in financial markets.

Hedge funds came under the spotlight when their activities contributed to the 1997 Asian financial crisis and when Long Term Capital Management almost precipitated a global crash in 1998.

However, these seemingly pariah branches of the financial industry are being taken more and more seriously by both participants and researchers.

Thus, when the Stanford Business School launched a new, one-week program of seminars for its second-year MBAs, finance professor Darrell Duffie decided to use the opportunity to discuss these specialized areas. The September seminar, limited to 10 students, focused on hedge funds, convertible bonds, and securities lending, which is a prerequisite for short-selling.

A look at short-selling, hedge funds, and convertible bonds

By Cherian George

"These are topics that tend to be left out of most introductory finance courses and textbooks, but they are, in fact, fairly important," said Duffie, who is the James Irvin Miller Professor of Finance and codirector of the Credit Risk Modeling for Financial Institutions executive program.

One sign of the times is the impending launch of EquiLend, an automated software platform for securities lending. Until now, most banks have brokered the transactions manually. Ten top banks—including Goldman Sachs, JP Morgan Chase, Merrill Lynch, and Morgan Stanley—are due to launch EquiLend in 2002 to streamline and standardize the connections between borrowing and lending institutions.

Following is a summary of Duffie's seminar.

SECURITIES LENDING AND SHORT-SELLING

Palm Inc.'s handheld computers may be icons of efficiency and systematic organization, but to academics studying finance, the company's initial public offering has come to represent something else altogether. For a few months in 2000, its stock price seemed downright irrational. "It was a truly weird situation that caused a lot of head-scratching," said Duffie.

Scholars now point to the Palm case to illustrate how things can go wrong when the practice of short-selling isn't working as it should. Short-sellers move in when they expect a stock's price to fall. They borrow the stock, sell it, and later buy it at a lower price to return it to the lender.

This strategy of selling high and then buying low depends on a properly functioning securities-lending market—stockholders who are prepared to loan out their equity for others to trade with in return for cash collateral. Following its IPO, Palm was ripe for shorting, but would-be short-sellers were thwarted by a sluggish securities-lending market.

The IPO resulted from a decision by parent company 3COM to carve out 3 percent of its stake in Palm. 3COM said that it would spin off its remaining Palm shares by year-end, with shareholders promised 1.525 shares of Palm for every 3COM share they owned. Logically, one 3COM share had to be worth more than 1.5 times the price of a Palm share.

After the first day of trading, Palm closed at $95.06 a share. 3COM's stock price should have been at least 1.5 times that, or $145. Instead 3COM fell to $81.81 a share. The market thus implied that 3COM's non-Palm assets and businesses had a negative value of $63—a plainly absurd proposition.

Hence, the opportunity for short-selling. In this case, anyone who bought 100 shares of 3COM and shorted 150 shares of Palm would have basically been getting the non-Palm part of 3COM for *minus* $63 a share. Enough of these transactions would have quickly corrected the mispricing. Yet the imbalance lasted more than two months.

Why? First, traders found it difficult to get their hands on stocks to borrow. This is generally true of IPOs, when there are often restrictions on lending. Second, even stockholders willing to lend their equity demanded prohibitively high fees. The standard practice is for lenders to rebate interest on the cash collateral to the borrower, but when borrowable equity is scarce, the rebates shrink. Such arrangements, called "specials," are in effect a premium lending fee.

Palm's mispricing was not unique. Owen Lamont and Richard Thaler of the University of Chicago found five other cases between April 1996 and August 2000 in which parent companies were valued unambiguously lower than the firms they had just carved out and were going to spin off. In each case, the market eventually corrected itself—but only gradually. "The mispricing persisted because of the sluggish functioning of the shorting market," the researchers write.

Another study suggests that such dynamics may have helped inflate the Internet bubble. Eli Ofek and Matthew Richardson of New York University's Stern School of Business have found that shorting was more difficult for Internet stocks than for other

stocks. Pessimists—read "realists"—who wanted to short-sell patently overvalued stocks couldn't. With more and more optimists arriving in the market, the researchers write, "it becomes like a stampede, without any initial way of stopping it."

Thus, although shorting is a layer of securities practice that lies below normal trading, its effects do filter up and affect prices of stocks and bonds, Duffie notes. It is a layer that is being taken more seriously by financial institutions that have securities to lend or that are in a position to act as brokers between borrowers and lenders. For some banks and brokerages, securities lending has become a major source of income. (The fine print on brokerage agreements may allow them to lend out retail investors' holdings without needing to seek permission each time they do it.)

Also growing in number are exclusive lending agreements between brokers and institutions with large, long-term investments. One such deal was struck in November 2000 between a pension fund, the California Public Employees' Retirement System (CALPERS), and Credit Suisse First Boston. The lockup enables CSFB to be a major broker in securities lending.

HEDGE FUNDS

Dominic DeMarco, MBA '96, bets on companies that most large investors don't think are worth their time. He is a principal of Stadium Capital Partners, a hedge fund that focuses exclusively on small-cap firms—the 75 percent of U.S. public companies with market capitalizations of under $500 million.

DeMarco, a guest speaker in Duffie's seminar, provided an insider's view of the secretive world of hedge funds. Stadium Capital, he said, has produced annualized returns of 30 percent since its launch four years ago by focusing on undervalued stocks in the chronically ignored market segment of small-cap public companies. Such returns seemed low in the NASDAQ bubble years but now look relatively healthy. "The bad news in a good market was that nobody cared about our stocks. The good news in a bad market is that nobody cares about our stocks," De Marco said.

The low correlation between hedge funds' performance and the market's ups and downs is the main reason why such funds are valued as alternate investment vehicles. They essentially exploit market inefficiencies, using long or short positions to offset market risks.

By one estimate, the number of hedge funds grew tenfold in the 1990s, exceeding 3,000 last year. The most famous is probably George Soros's Quantum Fund, which reportedly made $1 billion by betting on the British pound's devaluation in 1992. Such a fund, focusing on global, macroeconomic trends, represents just one possible strategy. Others include event-driven funds that focus on mergers and bankruptcies, for example.

Hedge funds are private investment vehicles set up as partnerships. As such, they have more freedom and flexibility than mutual funds, which represent the more common form of pooled investment. By dealing with wealthy individuals through word-of-mouth instead of soliciting business from the public, hedge funds are exempt from various registration and disclosure requirements in U.S. securities laws. Investment advisors warn that this greater freedom also amounts to a greater risk of fraud, especially as the number of funds multiplies. They are probably best left to sophisticated investors who are able to exercise their own oversight.

Hedge fund managers have strong incentives to perform. They receive an annual management fee of 1 to 2 percent, plus an incentive fee of 15 to 20 percent of profits. The latter is subject to a high-water mark, earned only when the fund recovers past losses. As the industry matures, investors are also demanding hurdle rates: The fund is expected to surpass some minimum rate of return. Managers also tend to invest heavily in their own fund, and many are general partners with liability for losses.

A study by Carl Ackermann, Richard McEnally, and David Ravenscraft notes that hedge funds' organizational features help align the interests of their managers and their investors, whereas most mutual fund managers do not receive incentive-based rewards.

"Say the high-water mark for the hedge fund is 100 and you lose one-third of its value, to 67. You must then work for free to increase its value by 50 percent to get your head above water."

Mutual fund managers also enjoy less latitude, because they are more regulated and attract less sophisticated investors. "This combination of incentive alignment and investment flexibility gives hedge funds a clear performance advantage over mutual funds," they write.

Another guest speaker, Joseph Grundfest, who is a professor at Stanford Law School, highlighted the impact of the high-water mark on managers' psyches. "Say the high-water mark is 100 and you lose one-third of its value, to 67. You must then work for free to increase its value by 50 percent to get your head above water." This means that hedge fund managers must control risk, contrary to their popular image as "wild, swing-for-the-fences types," he noted.

For Stadium Capital, the way to control risk has been to conduct in-depth research. Its principals believe that 6 to 10 positions are sufficient to eliminate 80 to 90 percent of portfolio volatility risk.

Indeed, a much larger portfolio would be too difficult to keep tabs on. So it targets just 10 to 15 positions at any one time. It takes at least one or two months to study a company, including long meetings with its management and conversations with its customers and vendors, before making a core investment.

With one investment, it even meant standing in front of a Kmart store to ask 300 consumers what they thought of the target company's brand. "In this market segment, hard work yields real, proprietary information," explained DeMarco.

For most hedge funds, however, private information is virtually impossible to get, argued Grundfest. "You have to play a level up," he said. "If venture capital is like playing poker, hedge funds are like chess. You're all looking at the same board. If the other player sees mate in four, can you see mate in three?"

CONVERTIBLE BONDS

More companies than ever before are issuing convertible bonds as a way to raise capital. According to conventional wisdom, these hybrids—part bond, part stock—attract investors because they promise the security of a bond, plus the option to convert to equity should the company's market valuation rise. For the issuing company, convertibles require lower interest payments than ordinary bonds—or, increasingly, no interest at all.

To Duffie, however, these explanations for convertibles' popularity do not make sense on their own. Since their advantages already may be priced in through lower interest rates, convertibles may not actually represent a better investment than bonds or equities. "Among those who suggest that they really like convertible bonds, there's no one who says, convincingly, that he's getting a bargain when he buys them," he noted. As for the issuing company, the option component on the convertible means it may have to give away stock in the future, thus diluting earnings per share.

One intriguing theory is that the rise of convertibles is being fueled partly by certain tax advantages. Two second-year MBA students, Jen Bergeron and Cheryl Frank, examined this tax incentive in a recent study done for a finance class cotaught by Duffie and Kenneth Singleton, the C. O. G. Miller Distinguished Professor of Finance.

The pair looked at the case of Alza, a pharmaceuticals firm based in Mountain View, Calif., which issued a 20-year convertible bond in 1994. Like many others, the Alza convertible includes a provision allowing the issuer to call the bond before maturity and thus force conversion. If the issuer exercises this call when the market price of its stock is rising well beyond the conversion price, investors would be virtually certain to opt for conversion into equity, rather than ask for their principal back.

Curiously, however, researchers have observed that firms often choose to keep their convertibles alive. This was the case with Alza. At the first call date, July 1999, the conversion price was $17.69, which was still higher than the prevailing stock price. However, from April 2000, the convertible was consistently in the money for more than a year: At its peak, Alza stock traded at 144 percent of the bond's conversion price. Yet, Alza did not exercise a call on the bond.

"Among those who suggest that they really like convertible bonds, there's no one who says, convincingly, that he's getting a bargain when he buys them."

Bergeron and Frank suggest that the most compelling reason is the tax shield provided by the bond. The bond promises a yield of 5.25 percent a year until maturity. Being a zero-interest bond, no annual coupons are actually paid out to investors. However, Alza's books must increase the value of its debt by 5.25 percent each year. The company can write off the year-to-year accretion value as an interest expense. Thus, in 2000, Alza expensed $22.7 million of interest on this debt. At a tax rate of 35 percent, it was able to retain almost $8 million in cash, shielding this amount from the taxman's grasp.

Of course, there is no guarantee that the bond will continue to be in the money indefinitely. The issuer must weigh the tax incentive for not calling the bond against the value of exterminating the convert option by calling it. In this case, it seemed the bond was so deeply in the money that Alza did not envisage much likelihood of ever having to pay out the cash representing the accrued interest; it has until 2014 to call the bond if investors do not convert first.

What about the tax implications for the bondholders? The interest expense that is treated as a tax write-off by the issuer must be declared by investors as interest income—even though, in the case of zero-coupon bonds, this income is not realized in cash. Investors need to price in this tax when buying the bonds. However, many buyers of convertibles are offshore, or otherwise tax-exempt, investors in hedge funds.

"It could be that convertibles have been so popular because their tax advantages are so distinct," Duffie mused. "In other words, the Internal Revenue Service may be subsidizing both the investors and the issuers of convertible debt." ■

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Communication

What Makes Some Ideas Hang Around

JOEL HOLLAND

SHORTLY AFTER the World Trade Center terror, some Americans urged their family and friends to avoid shopping malls on Halloween. They forwarded an email allegedly authored by a friend of a woman whose Afghani boyfriend had skipped town but not before urging her to stay off airplanes on September 11 and out of malls on Halloween. The email listed the woman's employer and work phone number to provide skeptics with a way to check the veracity of the story.

Psychologists know such stories thrive in situations of heightened anxiety, says GSB professor Chip Heath, a Stanford-trained psychologist, "but we have yet to explain why, in more normal times, people tell each other rumors and urban legends on a day-to-day basis."

Urban legends often develop informational credentials that act as camouflage and make it harder for people to debunk them.

Take the stories of poison– or razor-blade–laced treats that have put a damper on Halloween night for two generations of children. Over more than three decades, researchers have been able to verify only two instances of tainted candy, and both of those were tampered with by the children's family members. Or take the recurring legends about companies financing the Church of Satan or the Ku Klux Klan. Unlike many widespread commercial and political ideas, these bogus ones propagate without anyone funding an advertising campaign. Their success against the odds is why Heath studies them.

In a recent seminar for MBA students, Heath, an associate professor of organizational behavior, explained that urban legends often develop informational credentials, such as the phone number in the email legend above, that act as camouflage and make it harder for people to debunk them. In the Church of Satan rumor, Heath notes, skeptics in the '70s were told that a "friend of a friend" had heard the CEO of Procter & Gamble confirm the rumor on the *Donahue* show. By the '90s, the friend had heard the CEO on *Oprah* or *Sally Jesse Raphael,* and now the CEO was explaining why he would be crazy enough to risk losing customers by confirming this rumor on national television. "There simply aren't enough Christians left to matter," he is purported to have said, a twist that makes Christians angrier and even more likely to pass along the story.

Heath's approach to this subject is guided by past research in folklore, sociology, and psychology, but also by an oft-repeated idea from Oliver Wendell Holmes. In a famous Supreme Court opinion in 1919, the chief justice used the metaphor of an economic marketplace to describe how ideas succeed or fail. "The best test of truth is the power of the thought to get itself accepted in the competition of the market," Holmes wrote.

To date, Heath's research casts doubt on the existence of a competitive marketplace of ideas, at least one in which truth wins out. Based on experiments he has conducted at Stanford and the University of Chicago, as well as research by others, Heath says: "People do care about the truth of an idea, but they also want to tell stories that produce strong emotion, and that second tendency sometimes gets in the way of the first."

"If we could understand what kinds of stories succeed beyond all expectations, even when they are not true, we might be able to take legitimate information, about health for example, and change people's behavior for the better," Heath says. "Or if I were a business manager, I would love to have a mission statement for my organization that was as successful at moving through the organization as the most successful urban legends."

Much evidence suggests that people are very poor at remembering facts such as statistics, while they are better at remembering and repeating ideas cast as narratives or as analogies. "This is hard for our MBA students to accept, because I think business people in general think that facts speak for themselves," Heath says. To illustrate the power of analogies, he developed a case on the Center for Science in the Public Interest (CSPI), an organization that exists to support better health practices. Instead of telling people how many grams of fat are contained in movie popcorn or Chinese restaurant kung pao chicken, CSPI scientists speak of its equivalent in quarter-pounders, the stereotypical bad-for-you fast food. "It works because it's a vivid analogy, so I can remember it and it's interesting enough to tell my friends," Heath says.

Heath also believes ideas are more likely to succeed if they fit into large niches—if there are many social situations where people are prompted to remember the ideas. He and Jonah Berger, an honors student at Stanford, used publications databases to track the proliferation of two phrases used by presidential candidates in a televised debate in 2000. Al Gore spoke of putting a "lockbox" on Social Security funds, while George W. Bush criticized opponents of his Social Security proposals for using "fuzzy math." The researchers found both phrases were repeatedly used in articles about the campaign, but "fuzzy math" crossed over into far more articles that had nothing to do with presidential politics, and its use lasted much longer.

"There probably are more conversational niches in which you could appropriately use 'fuzzy math' than 'lockbox,'" Heath says, "and that helps it propagate." —KATHLEEN O'TOOLE

"Emotional Selection in Memes: The Case of Urban Legends," Chip Heath, Chris Bell, and Emily Sternberg, Journal of Personality and Social Psychology (Vol. 81), 2001

"Do People Prefer to Pass Along Good or Bad News? Valence and Relevance as Predictors of Transmission Propensity," Chip Heath, Organizational Behavior and Human Decision Processes (Vol. 68), 1996

Marketing

Matching the Pitch to the Perspective

A JUICE COMPANY IS TRYING TO DECIDE between alternative marketing campaigns. One approach promotes the product as an energizing and fun drink. Another touts its ability to help prevent disease. One relates to the consumer as an individual. Another shows the individual surrounded by family. Which approach would be the most effective? Recent research by Jennifer Aaker, associate professor of marketing, suggests that persuasion depends on the kinds of benefit promised, and whether consumers view themselves as either autonomous beings or members of an interdependent group. Cultural factors outside anyone's control, as well as message content that the marketer can tweak, both may play a role in making one type of appeal more effective than another.

Working with two Northwestern University scholars—Angela Lee, associate professor of marketing, and Wendi Gardner, assistant professor of psychology—Aaker ran a series of experiments to test the different advertising approaches. In one experiment, 94 participants were asked to look at a Web site for Welch's grape juice. Half of them were shown a version with promotion-focused language, saying that the product contributed to "higher energy levels" and was "fun to drink." The other half were given prevention-focused content, saying that the juice could "reduce the risk of some cancers and heart disease." The researchers also tried to trigger different self-perceptions in the participants by modifying the Web site's pictures and text. An "independent" self-view was activated by addressing the user as a single person, while an "interdependent" self-view was activated by referring to a family.

Participants were asked to rate the different Web site versions and their level of affinity toward the brand. The researchers found that participants placed in the "independent" condition were more likely to be drawn by a promotion pitch than a prevention pitch. Conversely, the prevention-focused argument was more effective among participants in the "interdependent" condition, who were primed to think of themselves in a family context, emphasizing responsibilities to others.

The researchers conclude that appeals compatible with a consumer's own goals tend to be more persuasive. Thus, an independent self-view—which cultural psychologists say tends toward self-improvement and self-enhancement goals—is compatible with promotion-oriented benefits. "The consistency of the responses and the magnitude of the effects were remarkable. Further, they seem to be relatively persistent," says Aaker. Indeed, a questionnaire sent to the participants two weeks later found that this effect persisted over time.

Do the results hold for non-Western consumers? Two subsequent experiments in the study also included Chinese participants in Hong Kong. This brought into play consumers' different "chronic" self-views—products of their cultural backgrounds. In line with conventional wisdom, the researchers found through questionnaires that the Americans saw themselves in more independent terms, while the Chinese leaned toward interdependent self-views. However, these self-views may be malleable. The researchers found some evidence to suggest that a culturally shaped self-view could be trumped by a message that primes the consumer to shift perspective. In one of the experiments, messages put in terms of a "team" made Americans more amenable to prevention-focused arguments. Conversely, Chinese participants were rendered more open to promotion-focused messages when these were framed in a way that emphasized individual rewards.

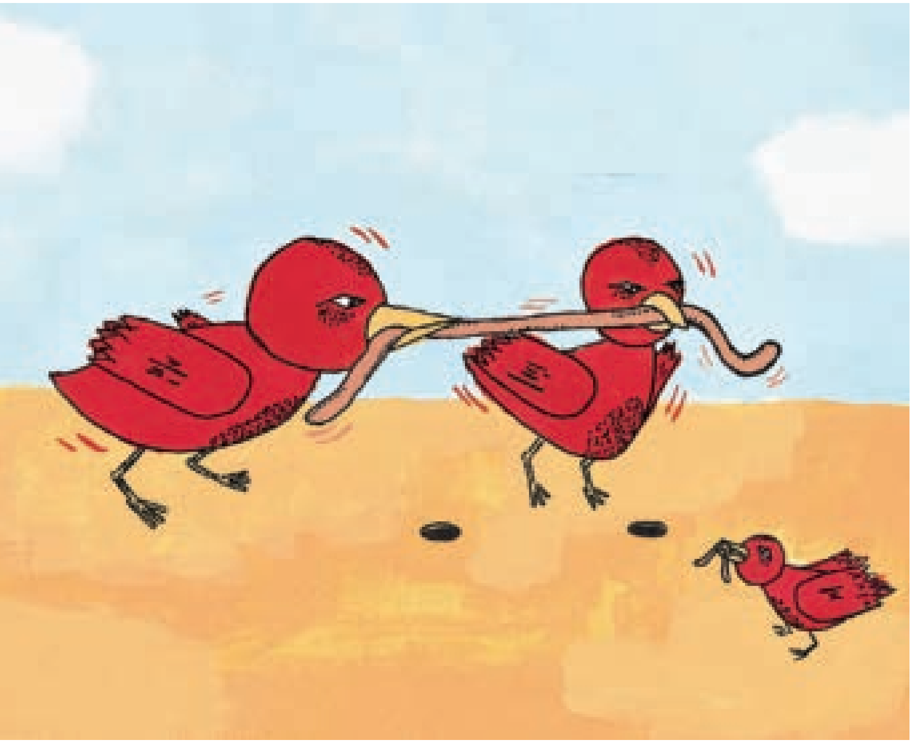
The prevention argument was more effective among those who thought of themselves in a family context.

The findings suggest that it should be possible for marketers to craft goal-compatible messages that work across cultures. Culture may make one self-view more mentally accessible than the other most of the time. However, a marketer can activate an otherwise latent self-view by framing the message, thus making consumers more receptive to pitches that describe benefits either in terms of the pleasure to be gained or the pain to be avoided. —CHERIAN GEORGE

"'I' Seek Pleasures and 'We' Avoid Pains: The Role of Self-Regulatory Goals in Information Processing and Persuasion," Jennifer Aaker and Angela Lee, Journal of Consumer Research (Vol. 28), June 2001

Strategic Management

Competition Can Enhance a Firm's Survival



JOEL HOLLAND

CONVENTIONAL WISDOM suggests that technology companies should deal with globalization and rapid change by setting themselves apart from the pack. Firms should strike out alone by racing into novel technological markets or by cornering an isolated niche, so the old theory goes. But a new study questions these strategies. William Barnett, professor of strategic management and organizational behavior, has scrutinized four decades of ups and downs in the hard disk drive (HDD) industry. He finds that firms that try to avoid competition incur hidden costs.

Such companies are less likely to develop new capabilities and may thus jeopardize their long-term survival. "Technologically and geographically differentiated firms face less competition today, but they forgo the benefits of exposure to competition that would have helped them tomorrow," Barnett says in a paper coauthored with David McKendrick, research director for the Information Storage Industry Center at the University of California, San Diego.

Barnett and McKendrick tested their theory by tracking the worldwide HDD industry from the time IBM made the first movable-head device in 1956 until 1998. They note that HDD manufacturing—just like semiconductors, telecommunications, and computer software—has had a history of spectacular technological progress at the industry level but also high rates of failure for individual firms. More than 100 players entered the market after 1980, but most did not survive the ensuing shakeout. Among the big-name casualties were General Electric, Burroughs/Unisys, Connor Peripherals, Hewlett-Packard, Mitsubishi, Olivetti, Sony, and Siemens. Altogether, the HDD market saw exits by 155 out of 169 organizations in the 42-year period studied.

In fast-changing industries, the researchers say, what matters is not a firm's absolute rate of innovation but its development relative to others. A firm may slip behind even as it undergoes rapid change. The phenomenon has been dubbed the "Red Queen effect"—after the character in Lewis Carroll's *Through the Looking Glass* who is running but seems to Alice to be standing still.

The researchers compiled data covering 1,511 organization-years, including each company's entry and exit dates, nationality, sales, and the types of disk drive made. These details were then coded and subjected to mathematical modeling and analysis. The results show that firms have greater survival chances if they already have endured competition in the past. Barnett and McKendrick propose that competition be seen in terms of an "ecology of learning." Innovation by one firm excites innovation in others to create a virtuous cycle. Thus, exposure to competition drives organizational learning.

These findings question the judgment of strategic managers who believe their job is to find ways to isolate their firms from rivalry by differentiating them either along technological or geographical lines. The researchers do not deny that competition can kill. Their analysis shows that an organization facing a single rival in the high-end, advanced-technology niche has a 14.6 percent higher chance of failure than a firm without a rival. This amounts to a 20-fold increase in the exit rate of firms facing 22 rivals—the maximum pool of competitors observed in the data.

However, with time these effects are offset by the benefits of competitive experience. Competition eventually enhances a firm's survival chances. This threshold is crossed after about 10 years for firms in the low-tech niche and after 16 years for those in the more hazardous high-end niche. "Isolation from competition has obvious current-time benefits but also has the less-obvious downside that it deprives an organization of the engine of development," the researchers write. In a related finding, HDD makers that were set up as captive producers for parent companies in the computer business were less likely to last, compared with those producing HDDs purely for sale in the open market. The study also suggests that a lack of

Isolation from competition deprives an organization of the engine of development.

competitive experience domestically can prove to be a critical disadvantage globally. "Age on its own is not a plus," Barnett notes. "Organizations that have no competition may survive by being in an isolated context, but they become impotent." —CHERIAN GEORGE

"The Organizational Evolution of Global Technological Competition," William Barnett and David McKendrick, GSB Research Paper #1682, March 2001 (http://gobi.stanford.edu/facultybios/bio.asp?ID=10)

Finance

How Investor Psyche Affects Stock Pricing

AT THE ZENITH of the dot-com craze when Palm Inc. spun off from parent 3COM, its March 2, 2000, IPO touched off a stampede of over-eager investors elbowing their way into the action. When the dust settled at the end of the day, Palm's worth surpassed its parent, even overtaking such titans as Ford and GM.

"3COM owned 94 percent of Palm," points out Ming Huang, an assistant professor of finance who has conducted research in the burgeoning field of behavioral finance. "Yet Palm was trading so high that 3COM's value was much lower than Palm's. It didn't make any sense."

In academia, financial economists were hard put to explain this and other stock behavior in the frenzied months leading up to the bursting of the dot-com bubble. The highly irrational pricing of Internet stock—especially at IPO—did not square with the traditional approach to the study of financial markets, which assumes that markets are always efficient and participants always rational. The traditional view that "smart money" in the market will take advantage of human mistakes and thereby drive prices back to equilibrium could not explain the collective faulty judgment of a broad base of investors and their impact on stock prices.

"Financial economists have long been aware that in laboratory settings, humans often make systematic mistakes and choices that cannot be explained by traditional models of choice under uncertainty," says Paul Pfleiderer, the William F. Sharpe Professor of Financial Economics. "We are now willing to consider that some of those lab-observed behaviors may affect pricing in financial markets after all."

In light of the dot-com bomb, the questions are: Which behaviors? And how do they affect pricing?

"The good news is that behavioral finance is at the heart of what finance is all about, and that is: What drives stock prices? What drives investors' decision making? The price part is the key," says Harrison Hong, an associate professor of finance and a leading voice in the resurgence of the field's popularity.

He and fellow faculty member Huang have been perhaps the most visible agents provocateurs of the finance status quo. "They are at the forefront in developing rigorous models that will give us insight into how deviations from our standard assumptions might have important effects on pricing," says Pfleiderer.

While Hong has studied asset pricing from the angle of collective investor beliefs, Huang has examined the impact on pricing of investors' preferences toward risk.

"The research my coauthors and I worked on proposed to explain an array of pricing phenomena, or anomalies, by merging the traditional asset pricing approach with some evidence from psychology literature of human beings' preferences when faced with uncertainty—what's called the prospect theory," says Huang. The theory demonstrates, among other findings, that people care about changes in financial wealth rather than absolute value, and that they are more sensitive to losses than to gains relative to certain reference points, like the price paid for a stock.

Huang and his collaborators specifically showed that their framework can help explain why stock investment returns historically exceed interest rates by 6 percent, and why price-earnings ratios tend to fluctuate more widely than can be justified by cash flow news. They also have applied this framework to study the predictability of individual stock returns.

Some people, such as professional money fund types, are rational, while others have limitations in their formation of accurate expectations.

Hong and his coauthors have modeled and measured the impact of investors' collective beliefs on asset prices. "Rather than saying, 'investors make errors,' we know it's more accurate to say there are different degrees of rationality," says Hong. "Some people are very rational—the professional money or hedge fund types—while others have limitations in their formation of accurate expectations. What happens when you put these people together and you look at the equilibrium prices that result? My research explores that interaction." Specifically, his research shows that simple models of asset pricing featuring these interactions can efficiently reconcile a number of stock price phenomena such as momentum in stock prices, the overvaluation of IPOs such as that of Palm Inc., and market crashes.

In his most recent research, Hong looks at what determines investors' beliefs and tests the idea that stock market participation is influenced by social interaction.

"There is a lot of evidence on prices that indicates markets are predictable," says Hong. "Now we're taking steps toward bridging the gap between hypothesis and rigorous, empirical testing. I think that's what behavioral finance is about." —HELEN K. CHANG ■

See full text of above-mentioned research by Harrison Hong online: "Social Interaction and Stock Market Participation" (www.stanford.edu/~hghong/SocialJune01.pdf); "Breadth of Ownership and Stock Returns" (www.stanford.edu/~hghong/jfe-breadth.pdf); "Forecasting Crashes: Trading Volume, Past Returns, and Conditional Skewness in Stock Prices" (www.stanford.edu/~hghong/jfe-forcrash.pdf); "Bad News Travels Slowly: Size, Analyst Coverage, and the Profitability of Momentum Strategies" (www.stanford.edu/~hghong/jf-badnews.pdf)

Text of research by Ming Huang: "Mental Accounting, Loss Aversion, and Individual Stock Returns" (www.stanford.edu/~mhuang/papers/mental_accounting.pdf); "Prospect Theory and Asset Prices" (www.stanford.edu/~mhuang/papers/prospect.pdf)

Newsmakers

WHO'S IN THE NEWS | A Roundup of Media Mentions

Tim Ling represents a new generation at work in the oil patch.

GAIL ALBERT HALABAN

Crude's Newcomers

AT HIS 10TH GSB REUNION in 1999, **Tim Ling** says venture capitalists and dot-commers who were flying high teased him with comments like "What the hell are you doing in the oil patch?" For this generation, joining the boom-and-bust oil industry requires a "thick hide and a wide contrarian streak," *Fortune* observed in an article on young oil executives like Ling, MBA '89, who are shaking up the industry's culture and replenishing the graying ranks in the management suites.

As president and COO of Unocal, Ling has forced the company's drillers to become more attuned to the financials and hopes to use the Web to employ some of the talented geologists who fled the industry during one of its bust cycles.

He is not the only new blood from the GSB in oil. Natural Gas Partners, a Dallas-based financier of small oil and gas companies is led by three GSB alumni: managing partners **Ken Hersh,** MBA '89, and **David Albin,** MBA '85, and managing director **Billy Quinn,** MBA '98. According to the magazine, NGP made a profit of $200 million on companies it sold in the past boom year.

Contingency Planning for Supply Chains

IN A WORLD with terrorism as well as floods and earthquakes, how can a business ensure its supply chain will meet unexpected demand for flashlights or American flags? "We have emphasized the efficiency side too much, and flexibility is sometimes overlooked," GSB Professor **Hau Lee** told *InternetWeek* shortly after the September 11 terrorist attacks. Companies need to develop the capacity for their e-business networks to pool resources so that if a shortage occurs in one place, a surplus elsewhere can be easily tapped, he said. Businesses also need intelligent electronic tools that have "special optimization and statistical techniques to do the proper trade-offs."

Engineering Yet Another Turnaround

ROBERT "STEVE" MILLER has put his model railroad on hold again. **Miller,** MBA '68, was named chairman and CEO of Bethlehem Steel Corp., the nation's third-largest steel company, in September, shortly before the company that built the girders for the Golden Gate Bridge and the Empire State Building filed for Chapter 11 bankruptcy protection. Miller, who negotiated the government bailout of Chrysler Corp. in the eighties, said Bethlehem could not overcome the damage done by low-cost imports and the slowing economy. As usually happens, his latest assignment came with no advance notice, he told Portland newspaper the *Oregonian.* But before joining Bethlehem, he had "six months of tranquil-ity" working on the elaborate model railroad in his basement in Sunriver, Ore. (See *Stanford Business,* June 1998.)

Talk Isn't Cheap

COMPANIES ROUTINELY PAY $50,000 or more a day to have a popular business guru speak, a craze started by the "antic" **Tom Peters,** reports *Business 2.0.* Peters, PHD '72, wasn't the first author of a mass-marketed management book, but he was the first to use a best-seller (*In Search of Excellence,* 1982, by Peters and **Bob Waterman,** MBA '61) to blaze a new trail on the lecture circuit. Though he wrote more books, the magazine says, they were merely "loss leaders" for his more profitable speaking business.

The magazine also counts **Jim Collins,** MBA '83, among the current gurus but describes him as more "scholarly" than Peters. Gurus satisfy a deep need for making business seem less confusing, the magazine says. "We are still primitives around a campfire," adds Collins.

The Internet: What's Next?

WHAT WOULD the second generation of the Internet revolution look like? *Fast Company* suggests looking at eONE Global LP, where **Garen Staglin,** MBA '68, is CEO and president. The company was created in 2000 by First Data Corp., an electronic payments giant, and iFormation Group, a consortium of the Goldman Sachs Group, the Boston Consulting Group, and General Atlantic Partners LLC, to leverage venture capital and new technologies with the assets of established companies.

eONE has bought up start-ups with new technologies and hopes to get ahead of the competition in the wireless payments arena. As a director of First Data, where there was concern about not keeping up with emerging technologies, Staglin sought out partners by making his first call to General Atlantic's **Steve Denning,** MBA '78, with whom he had served on the GSB's advisory council. The resulting marriage of established assets with new technologies and venture-management skills has been like "attaching a speedboat to a battleship," Staglin said.

Schwab Tinkers with Business Model

KNOWN AS a discount broker with great Web services but no stock market advice, **Charles Schwab** & Co. has started offering advice without the commissioned brokers and staffs of research analysts that full-service brokers maintain, according to *Fortune*. Schwab, MBA '61, has long preached that traditional commissioned brokers do not have their customers' best interest at heart. His firm will use salaried investment specialists and software that reportedly can scan portfolios and screen stocks for investors without the investors having to manually input their screening criteria, *Fortune* says.

BARBARA RIES

People Who Need People Spend less

STRONG FEELINGS of community brought on by a threat can prompt consumers to spend less, **Jennifer Aaker**, GSB associate professor of marketing and

ANNE KNUDSEN

People spend less when facing risk, says marketing prof Jennifer Aaker.

PHD '95, told the *San Francisco Chronicle* in November, when anthrax and hijackings, along with war in Afghanistan, were dominating the news. "When people are feeling very strongly independent, they tend to search for excitement and achievement," Aaker said. But when the group is more important, individuals become risk averse. Under the mood that prevailed in October, regardless of how much money you make, she said, "you're less likely to buy a Porsche."

CEOs Take the Fall

WITH MANY PUBLIC FIRINGS of CEOs in 2001, the *Washington Post* asked if boards of directors were making CEOs scapegoats for unforeseen developments. That may be, but "the evidence is that when firms begin to fail, it takes a new senior management team to rescue it," GSB professor **Charles O'Reilly** told the newspaper. "Even if the old managers know what to do—and they often do—people aren't going to believe them. They're too much associated with the past. Their identity and pride and friendships are so tied up with the way things are that they resist change."

Move Over, Jack

WALL STREET long has considered Jack Welch the superstar of CEOs, but when *Fortune* looked around for executives whose companies might have performed as well as or better than General Electric's 21.5 percent total return during Welch's 1981–2001 tenure, it found six, including **Phil Knight**, MBA '62. With Knight at the helm, Nike Inc. also returned 21.5 percent. Knight attributed his successful collaborative business style to his early interactions with Japanese culture. But he added that "without the Swoosh, we'd be nowhere."

Fighting Words from Poet

"DANA DRESSES like a businessman, and it drives some people crazy," a poet friend of **Dana Gioia**, MBA '77, told the *Los Angeles Times* in a September article on the latest literary storm surrounding the Santa Rosa poet and essayist. One poet even challenged Gioia to a fistfight because of Gioia's

Poet Dana Gioia shakes up the status quo in literary circles.

latest essay, which describes California as a mediocre literary backwater, with no "great" poets compared to the East Coast.

Gioia, the son of a cab driver, was raised in Los Angeles, but his business career took him to New York, where he was an executive for General Foods until his growing reputation as a poet led him to retire nine years ago. The author of three books of poetry, two essay collections, translations, an opera libretto, and the editor of numerous anthologies, Gioia told the *Times* he is the "most widely attacked poet of my generation. But, you know, it doesn't bother me. For me, literature is a conversation. And the richer, the more energetic, the more diverse that conversation, I think the healthier a literary culture. What the poetry wars are about is a challenge to the status quo, which needs reforming, and no institution wants to be reformed."

Training Daddies

WITH 12 SIBLINGS and four children of his own, **Greg Bishop**, MBA '81, has had lots of experience caring for babies. Noticing many men were less comfortable, the IBM executive founded Boot Camp for New Dads at the Irvine, Calif., Medical Center in 1990 and has volunteered as a coach ever since, teaching such subjects as baby safety and family bonding, as well as hands-on care. Now a video and manual make the boot camp transportable. Bishop has been interviewed by many magazines and all the major networks, including an appearance on *Live with Regis and Kelly.*

Cashing In on Web Searches

GOOGLE, ONE OF THE MOST popular Internet search engines, has built a "no-nonsense path to profitability by treating advertising just like search." The unsung hero behind it all is **Omid Kordestani**, MBA '91, says *Wired* magazine. An engine that conducts 100 million Web searches a day, Google was started by Stanford students who devised a search technique that tends to get people quickly to the information they want. It does this by ranking Web pages according to how many other pages link to them.

The dilemma, however, has been how to make money off the service. Other search engines sell advertisers placements in search results, but Kordestani says this undermines the usefulness of the search. "Someone buys a 'cancer' keyword and then sells term life insurance on it." Under his plan, Google sells ads that show up when they are related to a query but are visually separated from other results. Businesses also can buy a spot in a separate advertising search list off to the right of the main search results. An automated program counts the click-throughs so that ads users find most relevant move up the list. ■

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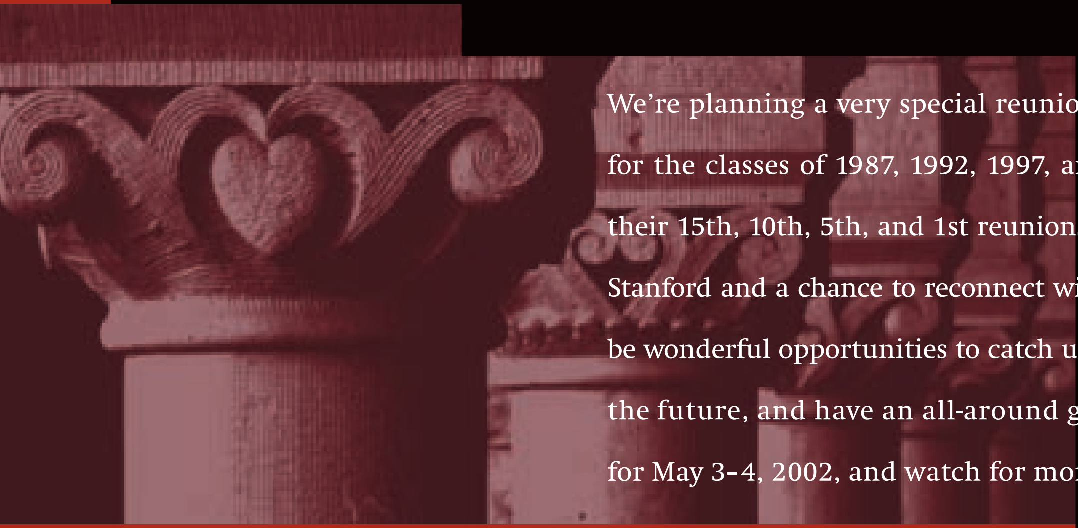

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