When Women Rank High, Firms Profit

Do firms benefit from promoting women to senior management?

Last year, Professor David Gaddis Ross began investigating a phenomenon that has long puzzled both economists and politicians: women have been very successful at entering the professional business workforce, but not at senior management levels. According to the Standard & Poor's ExecuComp database, less than one-third of the largest 1,500 U.S. firms in 2006 could count at least one woman on their senior management teams.

When it comes to chief executives, the numbers are even more discouraging: only 2.5 percent of these 1,500 firms had a female CEO. In 2006, 12 women were running Fortune 500 companies — and that was a record, up from just 1 in 1996. (The leader in this elite group is Angela Brady, the CEO of health-benefits firm WellPoint, ranked 35th on the Fortune 500 and the largest U.S. company headed by a woman.)

These statistics seem stark, yet few studies have focused on the relationship between the percentage of women in a firm's senior management and the firm's economic success. “We're not trying to explain why there might or might not be a glass ceiling,” explains Ross, who worked with Cristian Dezso of the University of Maryland. “Rather, we're looking at whether companies with a higher level of female participation do better and, if so, why.”

Many studies contend that there is a so-called female management style— and that it is, in fact, more effective than the management style associated with men. Women tend to manage in a more participatory manner, compared with a more hierarchical approach used by men. Research has also shown that including women on a senior management team adds to the diversity of perspectives, life experiences and problem-solving skills, all of which can contribute to a firm's financial success.

Other studies have argued that a female management style isn't necessarily welcome at the CEO level, where an autocratic approach is often expected. Perception, accurate or not, is also an issue; a woman may be seen as not aggressive enough to hold a firm's top position. And some experts say diversity hinders decision making because it can lead to internal strife.

Another problem is that men tend to be judged more favorably in jobs that are typically held by men. With CEO positions overwhelmingly filled by men, a female executive may start out at a disadvantage. These factors make it difficult to assess whether the female participation rate, as the researchers put it, is related to a firm's bottom line.

To investigate the connection between female senior managers and firm performance, Ross and Dezso examined such performance metrics as the market-to-book ratio, return on assets, return on equity and...
annual sales growth from 1992 to 2006 for the largest 1,500 U.S. firms. The researchers analyzed the relationship between these measures and the percentage of women in senior management positions up to, but not including, the CEO level. Separately, they studied these performance measures in firms that had female CEOs.

Their findings showed that having a higher percentage of women in senior management positions up to the CEO level—in most cases, just having a single female—is positively associated with better firm performance. For companies with a female CEO, however, the association with firm performance is neutral or negative. This suggests that female senior managers do add value to their firms but that whatever special qualities female managers may have are neutralized by the unique attributes of the CEO position.

Investigating further, the researchers examined what types of firms benefit from the female participation effect, or the percentage of women in senior management positions below the CEO level. Their study showed that female managers are most effective at firms with a strong emphasis on research and development. “The positive impact is found in firms that are involved with innovation, where a democratic and participatory approach to management is known to be important,” Ross says. “And that’s consistent with the notion of a female management style.”

Overall, the data suggest that firms that promote women to senior management positions enjoy superior economic performance because of the complementary set of interpersonal management skills related to inclusiveness and the encouragement of employee voices that women bring to the table. As Ross says, “That’s precisely what many feminists and others have argued for years.”

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David Gaddis Ross is assistant professor of management at Columbia Business School.

A Question of Taste
Ordinary people may have better taste in arts and culture than their choices in consumption suggest.

Critics, as professional judges of culture and the arts, tell audiences what’s good and what’s bad. Yet, audiences often bypass critics’ recommendations: Hollywood blockbusters are often hugely popular and successful, regardless of negative reviews by experts. Critics might highly recommend an artsy, independent or foreign film, yet those films rarely achieve the same level of box-office success as their Hollywood rivals. “Many studies have found a weak relationship between critical reviews and popularity with the ordinary consumer,” Professor Morris Holbrook says. “If we agree that a professional critic has good taste, then this suggests that the mass audience has little or bad taste.”

Holbrook and coresearcher Michela Addis of Università degli Studi Roma Tre in Rome studied the difference between what the critics recommend and what the public consumes to examine whether consumers have bad taste. Using movies as the focus of their study, Holbrook and Addis considered three factors: popular appeal—which movies people recommend to one another—expert judgment and ordinary evaluation, or the unobstructed opinion of ordinary consumers, distinct from what they may actually prefer.

“There is a lot of promotional communication, including advertising, trailers, celebrity guest appearances, number of opening screens, and more advertising generated due to box-office success, such as mentions in the news,” Holbrook says. “There is also a great disparity in promotional efforts. Independent or foreign films are usually shown on only a few screens, while the blockbusters are in every shopping mall in America. In other words, one reason blockbusters become popular and take in big revenues is that the range of choices a moviegoer has is relatively narrow.”

To explore the weak link between expert taste and public taste, and to learn more about ordinary evaluation, the researchers had to find a way to isolate movies from all that promotional communication and marketing activity. They examined hundreds of expert reviews that were published before a movie’s release, on the Web site Rotten Tomatoes, which gathers online reviews from various critics. The researchers measured market success by box-office and rental revenues, ordinary evaluation through the public’s average ratings on the Web site IMDB and popular appeal by the number of such ratings.

Holbrook and Addis found that, when controlling for market-related phenomena, regular moviegoers expressed similar views to those of the professional critics and were five times more likely to exercise good taste than previously expected by the researchers.

Does this mean that better films, which are often independent, have a better shot at becoming popular? Not so, Holbrook explains. Big studios don’t always have the best scripts but they have the most powerful budgets, and the success of blockbusters, good or bad, encourages big studios to put their advertising dollars into those pictures. Independent films often rely on word of mouth to gain momentum, which can propel them into the blockbuster category by generating postrelease advertising that’s driven by audience interest. But such success, as was the case with The Big Fat Greek Wedding, is uncommon.

The findings suggest that ordinary people’s consumption of art isn’t always aligned with what they believe is good.

“But if you take away the contaminating influence of the marketplace—advertising dollars, promotional budgets and putting a movie on every screen in every shopping mall—you find that people actually do like what’s good,” Holbrook says. “People seem to have good taste.”

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THE IDEA
A strategic model shows how to buy or sell a large position most efficiently.

THE RESEARCH
Optimal execution—how to buy or sell a large stock or position in the markets at the best price—is a classic problem of financial engineering. When an institutional investor or hedge fund buys or sells a large position, the transaction tends to move the markets. For example, if a mutual fund sells 100,000 shares of Google, the price of shares of Google will decline, and the fund will be forced to accept a lower price. (A dramatic, if extreme, example took place in January 2008, when Société Générale needed to liquidate €50 billion in futures positions racked up by a trader. Liquidating the positions led to a €4.9 billion [US$7.5 billion] loss, the biggest in banking history.)

Previous researchers who have developed models for optimal execution generally have concluded that the best way to avoid moving the markets is to spread trades over time, such as throughout a day. In theory, this gives supply and demand a chance to balance out, minimizing the effects of large trades.

However, these models did not account for a significant problem. Suppose the mutual fund selling the 100,000 shares of Google spreads its trades over one day, selling a small chunk every five minutes. Very quickly, hedge funds and other traders on the watch for this sort of planned trading would notice and could take advantage by front running, or shorting the security ahead of the next planned sale.

Professor Ciamac Moallemi, working with Beomsoo Park and Benjamin Van Roy of Stanford University, explored whether there might be a way to balance the tension between the need to spread trading to get the best price and the risk of leaking information to competitors. Using game theory, they came up with a model that integrates strategy and statistics. In contrast to previous researchers’ models, which used algorithms to determine how to stagger trading, the model devised by Moallemi and his coresearchers has a strategic component that provides a set of tactics for sellers and competitors.

PRACTICAL APPLICATIONS
Hedge funds, institutional investors
You can use this research to make trades most efficiently, applying this model in lieu of an algorithmic model to execute large positions in a more strategic manner less likely to tip off competitors.

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Ciamac Moallemi is assistant professor of decision, risk and operations at Columbia Business School.
Retirement Gain, Without Pain
An online tool helps consumers make better retirement choices by demonstrating likely outcomes of their investment decisions.

Investing for retirement is one of the most important decisions a person will ever make, yet most people spend less than one hour making it. In that small window of time, the typical 401(k) investor eliminates about 160 million possible investment options by answering three questions: How much should I contribute to my retirement plan? Which funds should I contribute to? How much should I allocate to each fund?

Despite—or perhaps because of—the importance and complexity of investing for retirement, most people do little research about their choices, consult with no one other than family members and don’t make any change to their allocation when they have the opportunity to do so.

Further complicating such decision making, investments are tied to an inherently uncertain market, so most people can’t easily estimate what the value of their investments will be when it comes time to retire. Given a decision so rife with uncertainty, how can the average person ever be anything but woefully unprepared to make an informed choice about investing for retirement?

When financial-services firms sell investment products to consumers, they offer some guidance in the form of information brochures and questionnaires that assess individual risk attitude. If a consumer completes a questionnaire and the results indicate a low tolerance for risk, an adviser will typically direct her toward the range of choices that carry lower risk over time—and typically result in a lower return. Such tools shepherd clients into making retirement choices based on the attributes of investment products, much like consumers weigh the attributes of other products—a safe car, a fast computer, a trendy pair of shoes—before buying those that match their lifestyle.

But using questionnaires and brochures to guide investing for retirement has significant limitations. First, psychologists have shown that people’s attitudes about risk vary over time and in different situations; pegging risk tolerance at a single point in time may not be a sound strategy on which to base investment decisions. Further, investment products are different from most consumer products because they aren’t consumed immediately, or even in the short term, and must grow in value over a long period of time. Yet financial-services firms’ advice to their clients remains focused on the current risk attributes of their products, not the likely outcomes of consumers’ choices.

Professor Eric Johnson worked with Daniel Goldstein of London Business School (and formerly a postdoctoral fellow at Columbia) and Nobel laureate William Sharpe of Stanford University to develop a new tool that can help firms and consumers shift the focus of retirement decision making. “The standard questionnaires treat people’s risk attitude as if it’s a personality characteristic,” Johnson says. “We turned that upside down. Instead of asking people about personality characteristics—Do you sleep at night if you’ve lost a thousand dollars?—let’s ask what kind of distribution of income people want at retirement.”

Johnson and his co-researchers created the Distribution Builder (DB), an online tool that allows consumers to simulate retirement-investment allocations and then see a probable retirement outcome—in other words, one likely total income at retirement—based on their choices. The DB is a simple computer display. Its left axis represents different probabilities—each row depicts the chance that the investment allocation will return a given percentage of preretirement income in the long term. With a budget of 100 markers, each representing one probable retirement outcome, the user arranges each marker on the grid to reflect her desired probability distribution—a probability range that she would be comfortable using to determine her level of income in retirement (see figure on page 5). The consumer is effectively choosing how to spread out her risk—more here, less there.

For example, a user who wanted to safely aim for a retirement income of 75 percent of her preretirement income—a commonly advised target—would allocate as many of her markers to the 75th percentile as the DB budget allowed and would cluster the remainder as close to that percentile as possible. A consumer who wanted to aim to have 90 percent of her current income at retirement, then, would allocate as many markers to the 90th percentile of the distribution as her budget allowed.

The DB mimics how such choices work in real life because any time a consumer opts to pay for upside potential—an allocation that could result in a large return on the initial investment—she also has to accept some downside risk—a relatively high risk of losing the initial investment. As the user moves markers toward the 100th percentile, the total cost of the allocation goes up, and as users move markers downward, the cost goes down. (View a demonstration of the DB online at www.archive.org/download/DistBuilder/DBVideo.avi.)

Once all markers are placed, they disappear one by one until a single marker is left—representing one probable outcome of the user’s allocation decisions. This could be useful in a couple of ways. A consumer could allocate her markers exactly...
the same way with each use of the DB to see different probable outcomes to gain a sense of the range of probable best- and worst-case scenarios under that distribution. Or, a consumer could allocate her markers differently each time to assess various possible outcomes under vastly more risky or less risky allocation scenarios.

The researchers tested the DB to confirm its accuracy in predicting investment outcomes over the long term and confirmed that their subjects (adults who had been investing in retirement for at least five years) used the DB in a way that was consistent with how the subjects chose to allocate their actual resources.

The DB also has potential as a useful tool to assess individuals’ risk tolerance more accurately than other tools that are currently available. By conducting a gambling game with their subjects, the researchers were able to accurately predict how much risk subjects were likely to expose themselves to in the DB. Those results in turn helped the researchers develop a data set to compare with constant relative risk aversion (CRRA), a tool widely used by financial-services firms to estimate a normative range of risk that most consumers are willing to assume while investing for retirement. The researchers’ initial findings suggest that many consumers have lower risk tolerance than what the CRRA and similar tools predict.

“If all people do not have the same aversion to risk when it comes to their retirement investments, following standard investment advice would go against their preferences,” Johnson says. “Why shouldn’t they be permitted to allocate funds into a selection that better reflects their comfort with risk?”

Johnson suggests that more experiences with the DB may increase tolerance for risk in retirement investment, since consumers can see that likely outcomes of riskier allocations may not be as risky as they perceive. “The Distribution Builder can function like a flight simulator, allowing those investing for retirement to explore the outcomes of their decisions with only virtual outcomes,” Johnson explains. “You can learn a lot from the crash, without the pain.”

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Making the Grade with Mentoring

Schools, like firms, increasingly use mentor programs to reduce turnover and increase productivity, but little is known about how they work. New data from New York City’s public schools sheds light on some best practices.

Hiring new teachers is an expensive proposition. The hiring season is also highly concentrated: schools fill their positions in the summer, and it can be difficult to find a replacement in the off-season if a teacher quits during the school year.

Over the last 15 years, public schools have increasingly embraced the practice of mentoring — pairing experienced educators with new teachers — as one means to increase teacher retention and improve student achievement, a key measure of productivity in schools. Mentoring has also been steadily on the rise in the private sector, for similar reasons.

As with professionals in other fields, more experienced teachers tend to be the most effective and productive teachers. “Schools are no different than any firm: loss of human capital is detrimental. In industries where human capital is really important, retention becomes a major issue,” says Professor Jonah Rockoff, whose research has frequently examined teacher training in public-school systems. There’s no solid evidence that turnover among teachers is higher than that among professionals in other fields. “But,” he points out, “turnover is typically higher in schools that serve disadvantaged populations. So these schools constantly need to spend resources on hiring, and end up filling their classrooms with inexperienced teachers.”

“The stress level in the beginning of a teacher’s career is often highly influential in whether a teacher stays or goes,” Rockoff says. “Mentoring is a way of easing that transition.” It’s also a way for seasoned professionals to pass on knowledge and advice. But mentoring is expensive, and no conclusive data exist about how well it works.

“Two big questions are what makes the mentoring experience beneficial and how should we tailor mentor selection and assignment to ensure the best outcome,” Rockoff says. A ny number of factors could influence the mentor-mentee relationship to him or her had previous experience working in that school, either as a teacher or a mentor.

“One big reason teachers will stay or go is whether or not they get information and training and help that allows them to operate well within the particular school environment that they’re situated in,” Rockoff explains. “If I’m a new teacher in P.S. 101 and have a mentor who’s been teaching there for 15 years, that could be really helpful because that mentor can help me figure out how to deal with Vice Principal Jones, who’s really tough, or where to get the cheapest school supplies or even what bus to take to get there on time. A mentor who’s been teaching 20 years in another part of town may not understand the students or administrators at that school.”

Happily, Rockoff says, this finding coincides with some new policy decisions that the New York City public schools had already put into effect that allow principals to exercise more decision making at the school level.

Rockoff also found that a mentor’s having had prior experience in the teacher’s school was more important than such factors as whether the mentor and teacher shared similar educational backgrounds, or were of the same race or gender — differences that didn’t seem to have any impact, good or bad. Nor did the mentor’s caseload appear to matter much, despite the fact that some mentors were assigned more than 20 teachers, while others were assigned less than 15.

Regardless of their caseload, some mentors put in many more hours than others. Rockoff found that the more time a mentor put in overall the better that mentor’s teachers performed in terms of student achievement: students’ test scores in
reading and math were significantly higher for those teachers whose mentors worked more hours.

“The effects are not straightforward to uncover. If you look at the simple relationship between how many hours of mentoring teachers received and student achievement, you see negative effects,” Rockoff says. He suggests that it’s actually the anticipation of a poor outcome—lower student achievement—that causes more hours of mentoring. “Mentors know that among their group of teachers, maybe there are two or three teachers who really, really need a lot of help, and that’s where mentors spend a lot of extra time.”

Teacher-mentoring programs usually stipulate that a teacher be matched with a mentor who shares the same subject-area expertise, a requirement that wasn’t always strictly enforced in the New York City teacher-mentoring program. “Quite a lot of effort goes into tailoring assignments based on license area,” Rockoff says. “Yet teacher-retention rates, student outcomes and even the survey results [teachers’ evaluation of their mentor] show that whether a teacher is assigned a mentor who is matched to their subject makes absolutely no difference.”

It turns out that teachers often thought their mentor matched their subject area even when their mentor’s license was in a different area, particularly if they rated their mentor highly overall. Rockoff suggests that the best mentors “are able to jump in and give advice that’s relevant, leading teachers to believe that the mentor is licensed in the same subject area. So pushing certain program requirements may actually lead to inflexibility and rigidity that is unproductive.”

When New York City’s teacher-mentoring program was developed, the program’s designers spent a lot of time debating programmatic aspects—caseload, subject-area expertise, years of teaching experience. “But those things didn’t seem to make that much of a difference. The model of formal mentoring advocated by many groups who design these programs is based on the idea of a central, full-time mentor who works in a number of schools. That may hold some advantages for a district’s administration.”

“THE INFORMATION that needs to get to new employees is information about how to operate in their specific environment.”

Rockoff says. “But if it’s the school-specific knowledge that’s really important, that says that a district is better off trying to have principals run their own systems within their schools.”

Rockoff’s findings suggest that mentoring programs—whether based in the private or the public sector—should seek to assign mentors based on their experience in the local work environment and their ability to provide relevant advice and guidance, regardless of their field of specialty. “The information that needs to get to new employees,” Rockoff says, “is information about how to operate in their specific environment.”

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Jonah Rockoff is associate professor of finance and economics at Columbia Business School.
Money Can’t Buy Democracy

Contrary to a long-held assumption, prosperity does not always lead nations on the path to democracy.

The idea that economic prosperity engenders political freedom can be traced to Aristotle, who argued that only well-off citizens were afforded enough leisure time to adequately participate in political life. In the 1950s, the political scientist Seymour Lipset was among the first to propose a novel take on Aristotle’s theory by promoting the idea that economic development is a prerequisite for the growth of democracy. Much of the work of such institutions as the World Bank and International Monetary Fund is informed by this premise, known as the modernization hypothesis.

At a first glance, the hypothesis appears to hold up. “Look around the world. Every rich country is also a democracy,” Professor Pierre Yared says. “So if we try to promote economic development, is that equivalent to trying to spread democracy?”

Yared worked with Daron Acemoglu and Simon Johnson of the Massachusetts Institute of Technology and James Robinson of Harvard University to answer this question. The researchers examined levels of democracy — measured by political freedom using the Freedom House Political Rights Index and the Polity Democracy Index — and prosperity — as defined by GDP per capita — from almost every country during the last 500 years. Their findings suggest that wealth does not promote democracy and that factors other than wealth — such as key, often accidental events in history — are more likely to be direct causal factors behind the differential trends toward democratization.

To identify or rule out a causal relationship between income and democracy, the researchers controlled for country fixed effects, a method that required looking at the individual experience of countries rather than comparing levels of income and democracy at a single point in time (an approach that shows a positive correlation but cannot eliminate other possible factors that may simultaneously affect levels of income and democracy). The researchers looked at changes in countries at intervals of 25, 50, 100 and 500 years.

“It seems that countries today are potentially different as a consequence of historical accidents,” Yared says. “A event long ago could have pushed a country on a path of high economic growth and democratization without the economic growth itself causing democratization.”

“If the modernization hypothesis holds, you would expect to see that in the short term — over the last 25 years — the countries whose economies grew the fastest also improved the most in political rights or, inversely, did not experience the deterioration of political rights. We don’t observe this, and in fact, it’s all over the board.” For instance, in Malaysia the economy boomed between 1970 and 1995, but political freedom there deteriorated relative to the rest of the world. During the same period, Niger experienced little economic growth but saw big improvements in political freedom.

The findings also suggest that any efforts to kindle democracy using only economic stimuli would at best require an extremely long wait on any return. “You might expect to see a positive causal relationship between a rise in income and democracy over the course of 100 years, during the time period spanning the Industrial Revolution, for instance,” Yared says. “Surprisingly, you don’t see that. A hundred years of sustained economic growth is not associated with real improvements in political freedom. If you believe economic growth fosters democracy, a country would need to sustain high levels of growth for 500 years in order to see any effect on its political institutions, which is a very long time!”

Why then has there been a noticeable worldwide increase in democracy and income in some countries in the last 500 years? “We suggest that certain historical events have pushed some countries onto a virtuous path of growing faster economically and becoming democratic, whereas other countries have stagnated politically and economically,” Yared explains. Consider the role of repressive colonization in causing economic and political stagnation in much of sub-Saharan Africa, or the role of the Enlightenment and Protestant Reformation in promoting Europe’s political development.

Economic development is desirable for its own sake because it often raises the standard of living for a broad group of people; political freedom can raise the overall quality of life for citizens. But policymakers may want to revisit the modernization hypothesis, focusing efforts less on economic development and more on building the kinds of institutions that foster political freedom. “You cannot expect democracy to happen as a benefit of economic growth,” Yared says. “It has to be more direct.”

Read More


Pierre Yared is assistant professor of finance and economics at Columbia Business School.

Pierre Yared
Flying the Frenzied Skies

Flight cancellations, delays, inspection fiascos, mergers, bankruptcies—and now a checked-bag fee? Garrett van Ryzin examines the airline industry’s recent ills.

To a large degree, recent airline woes are plain bad luck and bad timing. For years airlines have operated with an overburdened infrastructure. But stringent FAA inspections kicked in just as oil prices soared to record highs (fuel costs airlines as much as labor does these days), and as the mortgage crisis hit, the economy tumbled into a recession. A perfect storm.

Similar shakeouts took place in 2001 as the economy slowed after the dot-com boom, triggering layoffs, bankruptcies and aircraft fire sales. Airlines are acutely sensitive to economic downturns. Many consumers and businesses eliminate air travel when times are hard, yet airlines cannot shed costs quickly enough to keep pace because they have large capital commitments and fixed costs, such as airplanes, labor contracts, gate space and landing slots. The result: an inherently boom-and-bust industry.

In hard times, airlines do all they can to survive. Some file for bankruptcy protection; others restructure and merge. Mergers, like Delta and Northwest’s, can create more routes for customers, feed traffic into airlines’ hubs and spread overhead costs. But it’s a gamble. As Continental’s recent rejection of a merger deal with United shows, no clear consensus exists on whether consolidation will ultimately help reduce costs and increase profits. Continental is scaling back where it can, and it recently announced groundings of domestic flights and told staff to expect layoffs. Long term, it is betting that international diversification will offset a weakening U.S. economy and dollar-denominated oil.

Paradoxically, these woes can be viewed as beneficial. Lower fares (at least by historical standards), packed planes, airlines racing to offer new routes and services—all of these reflect fierce, efficiency-wringing competition.

In a sense, travelers are getting exactly what they want: cheap, basic service, judging by how they vote with their wallets. Bob Crandall, former CEO at American Airlines, once said whenever American offered customers more legroom for an additional $5, it lost out to competitors over price.

A nother by-product of a competitive industry is innovation. Bad business models fail and are replaced by new ones. Entrepreneurs continually strive to reinvent the industry. Take Eos Airlines. It thought a market existed for an all-business-class service to Europe with seats that recline to fully flat beds, champagne and gourmet meals. A novel idea, but one that Eos’s recent bankruptcy proved wasn’t viable.

On-demand air-taxi service is another notable high-end trend. Small regional jets are relatively cheap to operate, fly out of less congested regional airports and have sufficient range to compete with mainline carriers. The service is targeted at business people who want to avoid the hassles of commercial-airline travel. Good idea? Bob Crandall thinks so; he is leading a new venture called POGO to provide exactly this kind of service, which starts in 2009. Time will tell if he’s right.

As the industry absorbs shocks and innovates, disruption follows. Cost cutting brings pain, and rapid change triggers a sense of chaos. Yes, flying today is often miserable and airlines have trimmed services, but the fine-tuning has its benefits. While air travel was more glamorous in the past, it was also prohibitively expensive and available in only a limited number of cities. Now consumers can fly almost anywhere at a relatively low cost.

The question is, how much austerity and disarray will customers tolerate before they stop flying? If flying becomes so frustrating that customers prefer to stay put or drive, the industry will have real worries.

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An earlier version of this piece originally appeared on Public Offering, the Columbia Business School blog. To comment on this piece or read other posts, visit www.gsb.columbia.edu/publicoffering.
THE RESEARCH
Breast cancer is the most common type of cancer, and the second-leading cause of death for women. Women with breast cancer have a far better chance of survival if the cancer is discovered early.

Currently, the most accurate test for breast cancer is an open surgical biopsy. But because this test has risks, as do all surgical procedures, doctors often use a less invasive and less expensive diagnostic test called fine-needle aspiration biopsy to determine whether a patient has cancer. The test involves extracting a small amount of tissue just below the surface of the skin for analysis. While it is more convenient, safer and cheaper than an open surgical biopsy, fine-needle aspiration has a greater risk of producing false results.

When analyzing the extracted cells, physicians look for different attributes, such as irregular size, texture and concavity. The presence or absence of cancer can be assessed by combinations of attributes, or rules. For example, one rule might be that a patient has cancer only if the cell is irregular, having a large size and a particular shape. But there are many possible rules, and no single rule is perfect, with each bearing a different risk of producing false results for certain types of patients.

Using data from nearly 600 patients, Professors Rajeev Kohli and Kamel Jedidi, working with Ramesh Krishnamurti of Simon Fraser University, developed a procedure for identifying the best predictive rules. The researchers set out to find the efficient frontier, which describes a set of rules that trade off between false positives and false negatives. The researchers found that the best predictive rules — those that resulted in the most accurate diagnoses — were those that identified a certain minimum number of cancer-predicting characteristics.

THE IDEA
A simple set of related rules can help physicians determine whether a patient has breast cancer.

PRACTICAL APPLICATIONS
Physicians
You can use this research to apply simple but effective rules to diagnose breast cancer, using the relatively less invasive fine-needle aspiration test, in a clinical setting. You can also use this research in other types of diagnoses for which it is desirable to conduct less invasive diagnostic tests that may have a higher rate of false-positive results.

Manufacturers of medical devices
You can use this research to “productize” the rules to help clinicians analyze the results of diagnostic tests.

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Kamel Jedidi is professor of marketing and chair of the Marketing Division and Rajeev Kohli is professor of marketing at Columbia Business School.
Who Benefits from the WTO?

The trade organization doesn’t treat rich and poor nations the same, but all members can gain from collective negotiations.

A
loit from its start, the World Trade Organization (WTO) has been controversial. The WTO has its origins in the General Agreement on Tariffs and Trade (GATT), a treaty signed by the United States and 22 other countries in 1948 that was intended to promote trade by eliminating tariffs. By 1994, 125 countries had joined the GATT, and they decided to upgrade their arrangements by creating the WTO, an international organization that would have a greater authority and a more efficient mechanism to adjudicate trade disputes among its members.

Divisions soon arose, however, between developed and developing nations, rooted in questions about which group benefited more from liberalizing trade. Today, supporters of the WTO argue that its success is self-evident: it has increased global trade and continues to fulfill its mission.

Detractors say that the WTO’s approach helps rich countries at the expense of poor countries. (But this criticism hasn’t stopped many developing nations from trying to get in; most famously, China sought admission for 15 years before finally making the cut in late 2001.)

An influential 2002 paper declared that any benefits from the WTO were an illusion since the trading volume between those countries by roughly 120 percent, or about $8 trillion dollars in 2000 alone, thanks to its provisions. But the researchers also found that these benefits were not distributed evenly. “The WTO makes a huge difference,” Wei says, “but not in a symmetrical pattern — and that’s intentional. It has always been nonuniform, by design.”

The researchers discovered several key differences in how the WTO functions for developed and developing nations. One key difference they found is that the WTO does boost trade more for rich countries than for poor countries. Although this may seem unfair, it follows directly from the GATT’s structure. “During much of GATT’s history, developing countries were given a free pass,” Wei says. “They didn’t have to do much to reduce their trade barriers. It was the principle of ‘special and differential treatment.’ So it’s no surprise that you don’t see much of an effect on developing countries’ trade volume.”

Things are different for developing nations that joined the GATT later or joined once the WTO had replaced the GATT, and the researchers argue that such countries have gained the most. “In the latest round of negotiations, members tightened up the ascension criteria,” Wei explains. “Countries that joined the GATT after 1990 or joined the WTO had to implement more reforms, and these nations have seen faster growth in their international trading volume.”

Wei noted the case of China, a new WTO member that has seen explosive growth in the last 35 years and especially in the last decade, an effect he attributes in part to the reforms China instituted in its years of seeking WTO membership. “Some older member countries that didn’t have to undergo reforms haven’t derived many more benefits than nonmembers and probably fewer than newer members,” Wei adds.

The researchers also examined which economic sectors benefited from trade liberalization. Although the WTO was purportedly intended to remove trade barriers, many sectors were exempt, including agriculture, steel, clothing and textiles. The researchers found that those sectors that were subject to negotiated reforms under the GATT/WTO saw greater increases in trade volume.

The researchers’ findings have implications for future WTO negotiations, including the ongoing Doha round. “There are asymmetries in the WTO, but countries can organize exchanges,” Wei says. “Developing countries should be willing to undergo reforms in exchange for rich countries’ dropping their own barriers, particularly in agriculture.”

In many cases, Wei says, negotiations need more finessing than a simple bilateral agreement— for example, the United States wants to expand its banking business in India, which wants to export more agricultural products to the European Union, which in turn wants to increase its manufacturing and banking exports to the United States and India. “In this case, countries may be reluctant to take down their trade barriers on their own,” Wei says. “But they can work within the WTO system to negotiate for a coordinated reductions in trade barriers across these countries. It doesn’t guarantee success— and negotiations can take years — but coordinating countries’ varying trade goals will increase the chance of success.”

IN MANY CASES negotiations need more finessing than a simple bilateral agreement.
The Nursing Shift

A queuing model for nurse staffing can cut costs and improve patient care.

Hospitals must achieve a difficult balance when scheduling nursing shifts. Nurses often make the difference in life-and-death situations and play a central role in quality of patient care. Having too many nurses, however, causes budgeting problems, as nurses’ compensation makes up the largest component of hospital budgets—typically more than 50 percent of all costs.

When assigning nurses to clinical units, a hospital must consider numerous factors, including current patient levels, anticipated admissions and discharges, patient severity levels, availability of support personnel and pressure to keep costs down. To complicate matters, hospitals are also confronted with a nationwide nurse shortage.

In the face of these challenges, many hospital administrators implement one of two widely used methods to determine staffing levels. One method assigns nursing staff by estimating the hours of care each patient must receive from a nurse. The American Nursing Association has criticized this system for its simple quantification, which only takes into account the average time required to care for patients and doesn’t consider the varying needs of patients with different diagnoses or ages or with multiple ailments.

The more commonly used method is ratio staffing, which dictates a minimum nurse-to-patient ratio. California mandates ratio staffing, requiring its hospitals to have one nurse staffed per six patients in medical-surgical units, but that rule doesn’t consider other crucial factors—for example, weekends, which are typically slower than weekdays. With fewer patients coming into the hospital on weekends and fewer procedures scheduled, each nurse could take on a larger load. Ratio staffing is also inflexible and doesn’t account for varying patient needs, varying lengths of stay and the differences among hospital units. Still, several other states are considering implementing similar mandates.

Professor Linda Green maintains that ratio staffing is too simplistic for such a complex situation. “The one-size-fits-all approach doesn’t make sense,” she says. “Under some circumstances, it results in understaffing, which isn’t good for patients. In other circumstances, it results in overstaffing, which costs the hospital money.”

One reason for California’s implementation of ratio staffing is that the healthcare field is confronting an ongoing nurse shortage. “Essentially, the law says if you can’t hire enough nurses, you have to admit fewer patients,” Green says. As a result, to maintain the mandated ratios, hospitals may have to cancel elective procedures, divert ambulances to other hospitals and wait longer to admit patients.

Green and doctoral candidate Natalie Yankovic developed a queuing model that will help hospitals to more accurately estimate effective nurse-staffing levels.

“I started to think about what would make sense as a methodology,” Green says, “and was excited about the prospect of measuring the demand and workload for nurses to see how nurse staffing was related to performance, in terms of responsiveness to patients and patient satisfaction.”

When there aren’t enough nurses in each unit, the quality of care suffers in several ways. Immediate attention to patients in need can be jeopardized. The emergency room can fill with patients waiting for beds, even though beds may be available, because there may not be a nurse available to admit patients. Conversely, patients who are ready to leave may have to wait for an available nurse to discharge them.

“A shortage of nurses has been shown by research to result in increased medical errors and deaths,” Green says. “Nurses are one of the primary mechanisms by which errors made by other people, like doctors and pharmacists, are caught and corrected.”

The researchers’ queuing model bases nurse staffing for a clinical unit on patients’ needs, such as admissions, discharges, administration of drugs, preparation for procedures and responding to call buttons; the time it takes to respond to those needs; the number of beds; length of stay; and patient movement in and out of the unit.

Obtaining electronic data and sources of information for all the variables was more difficult than Green expected. This may be one reason that queuing theory, which has been used for a century, hasn’t been previously applied to nurse staffing. (Green has used a queuing model to allocate doctor staffing in emergency rooms.)

“A major part of this two-year study, working in conjunction with the Hospital for Special Surgery in New York,” she says, “is trying to collect data and identifying electronic sources of information so that any hospital can replicate this model by plugging data into the equations.”

Green hopes that this will be a model by which all hospitals can easily and effectively staff nurses. “This is going to be the first methodology,” she says, “that is actually based on nurse performance.”

Read More

Linda Green is the Armand G. Erpf Professor of the Modern Corporation in the Decision, Risk and Operations Division at Columbia Business School.
Bad-Apple Picking
Daniel Ames contends that firms can better protect themselves from unscrupulous employees by fostering ethical norms rather than trying to identify potential troublemakers.

There’s something almost irresistible about the adage that one bad apple spoils the whole bunch—that an unscrupulous individual’s lack of integrity can humiliate an unwitting organization or even bring it to its knees. Witness Société Générale’s rogue trader Jérôme Kerviel or knife-and-mallet wielding Lisa Nowak, the NASA astronaut involved in a love triangle.

Hand in hand with the notion that one bad apple can single-handedly wreak havoc in a firm is the idea that we can—and should—spot them in advance. According to the adage, the way to prevent problems stemming from unethical conduct is to identify and weed out provocateurs before they make trouble. The problem with this fix is that it’s almost entirely wrong.

Let’s start with the first part of the story: bad apples are behind most trouble. A century of social science highlights how behavior is a joint function of people (their character, their vulnerabilities and so forth) and the situations in which they act (incentives, pressures, temptations, who their role models are and so forth). To be sure, some people’s characters need very little opportunity to prompt their unethical behavior, and indeed some people simply create those opportunities for themselves.

But some situations are powerful enough to sway almost anyone to commit egregious acts, even though most people outside the circumstances would view such actions as unacceptable. Psychologist Phil Zimbardo of Stanford University argues that the territory, sleep-deprived, pressure-cooker, no-rules environment at the Abu Ghraib prison in Iraq in 2003 was sufficiently intense to make decent people do awful things while seeing themselves as just and reasonable.

None of this is to dismiss the idea of personal responsibility for one’s own behavior. But if the goal is to predict improper behavior, screening for bad apples may not be sufficient to forecast who will do what.

Do bad apples exist? Yes. Is “bad-apple-ness” the best explanation for bad behavior? Sometimes it is, but in many cases the story is considerably more complicated.

Now, the second part of the story: can bad apples be spotted? One tempting approach is to catch bad apples on their way in the door by gauging their integrity during the job-application process. Pose an ethical dilemma to a candidate, for example, and use the response to predict whether his or her moral compass passes muster.

This method appears to be utterly rational, but my reluctant conclusion is that it’s likely to be almost meaningless, or worse. Recent work on ethical thinking suggests there are multiple mental systems in play. Research by such neuroscientists as Joshua Greene of Harvard University suggests that moral choices and behavior often flow from intuitive, unconscious, sometimes emotional processes that are distinct from rational or conscious processes. A sketchy someone to respond to a hypothetical ethical situation could tap into this latter system of conscious thought, extemporaneous account-giving and verbal proficiency. When put on the spot, a charming sociopath could fabricate an enchanting account about impeccably ethical behavior, even though his or her actual behavior in a real situation might be something quite different; a tongue-tied do-gooder might botch his or her answer but do the right thing if the situation actually happened.

Posing ethical challenges to screen applicants could be worse than useless if an organization believed that such screening meant it was free of bad apples. Misplaced confidence in gatekeeping could lead an organization to ease up elsewhere in reinforcing the importance of integrity. Does this mean scrapping ethics and integrity from the application and interview process? Not at all. Discussing integrity during an interview can provide an important signaling function, saying, in effect, “We care about integrity here.”

Rather than focus on whether someone passes an ethics test, perhaps focus on showing candidates from Day One that the organization takes integrity seriously. While it may be tempting to try to catch bad apples before they get in the door, practical and reliable methods for doing so are not readily at hand.

And, organizations can build what Tenbrunsel calls an ethical infrastructure—formal and informal systems of communication, sanctioning, decision framing and so forth—that creates conditions that encourage everyone to do the right thing.

Daniel Ames is the Sanford C. Bernstein & Co. Associate Professor of Leadership and Ethics at Columbia Business School.

This piece originally appeared on Public Offering, the Columbia Business School blog, as part of a series in conjunction with the School’s Leadership and Ethics Week in April. To comment on this piece or to read other posts, visit www.gsb.columbia.edu/publicoffering.
India’s Growing Pains in the Global Economy

Q & A with Charles Calomiris

Charles Calomiris discusses India’s adaptation to participating in global markets, its challenges in sustaining growth and its rivalry with China.

Q. Sustaining India’s Growth Miracle is a compilation of papers presented at a 2006 conference on India’s growth. Can you talk about the conference and the book?

A. The conference was a comprehensive, multiperspective examination of India’s potential bottlenecks. It prompted a lively conversation between academics, policymakers and economists.

We brought academics with specific knowledge together with policymakers and generated a conversation in an attempt to create something relevant and deep. In these conversations, the participants were encouraged to think about where things should and are likely to go and about what’s happening at a higher level of political reality, and how these pieces fit together.

One of the things we were trying to do in the book was to get the conversation to come alive in a way that it rarely does. In that sense, the book builds a bridge between public policy and the academic world.

The book looks, over three or four decades, along each of the dimensions of the authors’ expertise, at how India’s economic achievements have evolved and where problems remain. These perspectives likely will remain relevant for at least several years; India is a democracy in which things move very slowly, and although a lot of things are happening, progress is not sudden.

Q. What are the biggest challenges India faces in sustaining its growth?

A. There are several challenges. One is the need to better coordinate and to improve fiscal policy incentives in terms of the management of taxes, subsidies and expenditures. This requires keeping the budget sufficiently manageable in size and also trying to find a way to keep government spending meaningful and helpful, and avoiding free riding among various government entities. All of this is very challenging in every country but especially in India because of the structure of decision making and the relationship between the various regions and the central government.

A another challenge is resource issues. One of the things that came out of the conference was that not charging for electricity has other kinds of resource-use implications—for example, for water use. The lack of reliability, the high production cost and the inability to charge for electricity are major issues. Though the government is taking this problem seriously, charging for electricity is a terribly difficult political issue because so many people have free (pirated) electricity and nobody wants to give that up. The problem of reliability is a huge fiscal drain on the government.

So the electricity policy connects with the fiscal side and with efficient resource use. The problem is that people don’t want to give up the subsidies. So the question is, how do you get from here to there?

Q. What advantages does India have over China?

A. Many. One is that India is an English-speaking nation, and although the gap is narrowing substantially, China is not. Especially in the service industries, people can do a lot of things in outsourcing to India because of the access to education in English.

India’s second advantage is a good level of achievement in educating the Indian people. China is currently lagging behind in some areas and faces some questions about maintaining educational opportunity in its rural areas.

The last advantage is the most obvious one, which is political. Being the world’s largest democracy brings a lot of positives, despite the negatives associated with overregulation, a bloated bureaucracy and
populist policies that crimp growth. It's clear that, over the last several decades, India's democracy has not always been a friend of growth in India because of the need for consensus. Also, populist rhetoric can sometimes lead a democracy to do things that are contrary to the interest of its people.

At the same time, if you can overcome the populist/socialist mindset — and climb out of what one might call a mistaken-belief equilibrium — democracy can then be a powerful engine for progress. That is, once the popular will favors growth-oriented policies, democracy, rather than being an impediment to progress, can actually help galvanize people and help create institutions for consensus building that allow things to progress on a more stable path going forward.

Has democracy held India back relative to China? Undoubtedly yes. However, looking forward, India has now learned the advantages of growth-oriented policies, and China faces a lot of political challenges that India doesn't face precisely because India is a democracy.

Q. How has India's place in the global political field changed over the last several decades?

A. I think that the global political economy and India's ideological predisposition contributed to India's isolation during the Cold War era. India was opposed to the kinds of things that have proved to be big parts of the solution to its poverty, especially participating in global markets. There was a protectionist view of the local industries and maintaining a commitment to workers' rights rather than a commitment to creating jobs. If India were a rich country, that would be fine, but poor countries first need to find people jobs. That's not saying that workers should not have rights, but that there is a need to balance the creation of jobs and the rights of workers who already have them; India's lack of balance in this regard worked against its growth.

One could argue that part of what inspired India to change was China. When India saw China, the other huge and impoverished economy in the world, its very poor next-door neighbor, start doing great things, it took notice. In Latin America, similarly, the progress of Chile in the 1980s had a similar effect on Argentina in the early 1990s.

Globalization allows countries to learn from each other's experience: a country can see the visible advantages of orienting itself toward being able to take advantage of participating in global markets to elevate its people out of poverty. Many people were skeptical of this back in the 1950s and the 1960s when socialist, protectionist dogma reigned in many developing economies. Now the successes of China and India make it evident that such skepticism is no longer reasonable. The main contribution of globalization in both countries has been to reduce extreme poverty and to create a burgeoning middle class.

Q. There seems to be a push to bring the uneducated sector of India, which includes farmers, to work as factory laborers and to educate their children in the IT sector. Could this have adverse effects on India's agricultural industry?

A. Not so long ago, the majority of the American population was involved in agriculture. Over the 20th century, the United States hugely depopulated the agricultural sector. And what's happened to agricultural production in the United States? Well, it has skyrocketed. Farming has become a modern industry, with huge economies of scale, huge technological advancements and enormous growth. India, too, will gain efficiency in agriculture and a more rational use of resources, especially if transportation costs are reduced and electricity is provided to the agricultural areas. So, just using the United States' experiences as a guide, as India's population moves out of agriculture, they won't necessarily produce less agricultural products; rather, agriculture will become a more efficient and perhaps even a high-growth sector, but with fewer people employed.

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IN THIS ISSUE . . .

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