A Touch of Risk
A light touch can go a long way. JONATHAN LEVAV shows how a mere pat on the back makes people feel more secure—and increases the likelihood that they will take risks.
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A Touch of Risk

A mere pat on the back makes people feel more secure—and increases their appetite for risk.

The effect of maternal touch appears to be so fundamental that it can be observed even in spiderlings, which venture farther afield the more contact they have with their mothers. Developmental psychologists have found that infants across the animal kingdom are healthier, more responsive to sights, sounds, and smells, and more likely to explore the farther bounds of their environments the more they have experienced their mother’s touch. Some psychologists have suggested that feelings of security engendered by touch—and maternal touch in particular—prompt infants to feel safe enough to take on the unfamiliar. For babies, security facilitates risk taking.

But does the same hold true for adults? Researchers have not explored that question, but evidence increasingly suggests that decisions once thought to be driven by rational processes—such as those with financial implications—appear to be guided as much or more by subjective, emotional processes—which decision makers are often not aware of.

Professor Jonathan Levav, whose past research has explored some of the connections among emotion, judgment, and decision making, worked with Jennifer Argo of the University of Alberta to design a series of experiments aimed at learning how much the type and origin of a touch matters. Would a handshake produce the same effect as a pat on the back? Would subjects react similarly when touched by a man? In a second experiment researchers gave a new group of subjects $5 each to invest in a real company (stripped of its identifying features); the money paid off as if it had been invested some months in the past based on the company’s current value. Subjects could also choose to put some or all of the money in a less lucrative but also less risky government-insured contract that guaranteed a 4 percent return.

The body of research that links maternal touch to security does not document an association between security and male touch, and as expected the researchers saw no effect on subjects who got a handshake or a touch on the back from men. Nor did the researchers expect to see much of an effect on subjects who received a light pat on the back—far less comforting gesture than a pat on the back—from a woman, and they were correct: there was only a very small increase in risk taking in that group. But parallel to the first experiment, subjects who were touched were even (slightly) more secure than those who received no touch.

The effect of the touch was notable: people who received a light pat on the back chose the riskier option 50 percent more often than those who received no touch. The researchers also wanted to learn how the type and origin of a touch mattered. Would a handshake produce the same effect as a pat on the back? Would subjects react similarly when touched by a man? In a second experiment researchers gave a new group of subjects $5 each to invest in a real company (stripped of its identifying features); the money paid off as if it had been invested some months in the past based on the company’s current value. Subjects could also choose to put some or all of the money in a less lucrative but also less risky government-insured contract that guaranteed a 4 percent return.

The findings also provide insight on what it takes to reassure people. Not a lot, Levav says. “If the feeling of security really is the thing causing people to take on more risk,” Levav says, “then people who wrote about feeling insecure and who were not touched should be really risk-averse—which they were.” Subjects who wrote about feeling insecure but were touched, however, were just as risk-seeking as those who wrote about feeling secure. Among the subjects who wrote about feeling secure, those who were touched were even (slightly) more risk-taking, but not significantly so.

While only a touch from a female experimenter increased risk taking, the effect of the touch was equal whether the receiver was male or female in all of the experiments.

Encouraging individuals to take on greater financial risk is unlikely to be a popular undertaking on the heels of a recession that has often been attributed to excessive risk taking. But the researchers’ findings extend far beyond financial decision making.

“For example, certain new products are often perceived as more risky,” Levav says. “Can you prompt people to consider a new product they otherwise would have overlooked, simply by making them feel more secure?”

The findings also provide insight on what it takes to reassure people. Not a lot, Levav says. “It’s very subtle—a lot of people didn’t remember being touched. You can make people feel secure with very little effort.”

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Jonathan Levav is the Class of 1967 Associate Professor of Business in the Marketing Division at Columbia Business School.
Remembering the Future

Insights about the role of memory and attention in decision making may help us make wiser choices—putting future considerations ahead of immediate gratifications.

There are so many opportunities to sacrifice long-term gain for short-term pleasure: workers spend more of their earnings immediately and confront meager retirement savings years later; firms jockey for short-term gains that promote bubbles and volatility down the line; people overeat today and struggle with weight and serious health problems tomorrow.

“It’s hard to think of the future first,” says Professor Elke Weber, whose recent work in behavioral economics has investigated financial risk taking and environmental decision making. “What we think of first is triggered by so many factors in our environment that compete for attention, and there is so much out there—ads, what our friends, family, and colleagues are doing—that primes us to focus on immediate consumption.”

Not only do people have a tendency to think about the present at the expense of the future, but when asked to put off consumption, they demand disproportionately large rewards for doing so. “If a customer expects to receive an iPad immediately and then Apple announces there’s been a delay and offers a coupon for other products as compensation for the wait, most people would expect a lot for that,” Weber says. “But if a customer expects to receive an iPad in three weeks and Apple offers the chance to get it sooner for a premium, most people would not be willing to pay that much more.”

“Economic theory says that people should be willing to pay as much to speed up their consumption as they would demand to slow it down,” says Professor Eric Johnson, whose research focuses on consumer and managerial decision making. But these amounts are never the same, and in fact, the difference is startling: the price people demand to slow down consumption is on average two to three times higher than the price people will pay to speed it up. The phenomenon—asymmetric discounting—has long been noted but has not been well-explained. “Understanding why asymmetric discounting happens might help us understand how to make immediate gratification look smaller and distant rewards look bigger,” Johnson says.

“Other work on decision making shows that people construct what they are willing to pay,” he explains, “meaning that our shift the balance of support from the present to the future by prompting people to generate more evidence in favor of delaying rewards and less evidence in favor of immediate rewards.

The researchers first conducted a standard asymmetric discounting study with subjects on the web with real money at stake. Half of the participants were offered the chance to receive a $75 gift certificate three months from that day, while half were presented with the chance to receive a $50 gift certificate immediately. Consistent with other measures of discount rates and asymmetric discounting, the subjects offered the $75 (later) option were willing, on average, to give up about $15 to receive the gift certificate right away, while those offered the $50 (now) option demanded an increase of $30 to wait three months.

Subjects had also been asked to report (by typing) the thoughts that were running through their minds as they were making their decisions. Later, after making their choices, subjects categorized their thoughts as supporting immediate consumption or supporting delayed consumption (or none or both). By counting the number of thoughts in each category, the researchers determined whether the balance of support in each instance favored immediate or delayed consumption.

As the researchers had hypothesized, subjects who had first been given the chance to receive the $75 gift certificate in the future were able to list more thoughts supporting delayed consumption. Those first offered the chance to receive a $50 gift certificate in the present reported many more thoughts that favored immediate consumption.

This lends credence to the theory that people muster the most evidence to support the first choice they are offered, drowning
out other options. “We think something like this happens: someone offered $75 to spend three months in the future might first think about how their spouse’s birthday is right around that time, or maybe a holiday, and they think about what kind of nice gift they might buy,” Weber explains. “Whereas someone offered $50 to spend today might first think about that CD box set they’ve been eyeing. Subsequent ideas have little chance of overriding the first one.”

To measure how strongly such evidence influences choice, subjects in a later experiment were explicitly asked to list reasons that favored later consumption before listing reasons that favored immediate consumption, even when they were given the option of getting the $50 gift certificate right away first. When they did that, they had a harder time coming up with reasons for immediate consumption and discounted the possible larger gift certificate they could get in three months at a much smaller rate.

In a final experiment using the asymmetric discount setup, half of the subjects were given a list of short statements—some clearly related to the experiment, like “I don’t need the money now” or “waiting is bad,” and others clearly unrelated, such as “the mug is dusty”—and were asked to simply say, as quickly as possible, whether or not the phrase was related to the current study. The researchers found subjects most quickly identified those phrases that most closely aligned with whichever option they had been given first. “If you’ve just convinced yourself to be patient because you first considered the delayed reward, those reasons should be more top-of-mind than if you just convinced yourself to be impatient, because you first considered the immediate reward,” Johnson says.

If, as these results suggest, memory and attention do play a key role in decision making, they also suggest that it is possible to influence the way that people make their choices. “This reinforces the significance of nudging, or choice architecture,” Johnson says. “Asked the same question in different ways, a patient person might make an impatient decision or an impatient person might make a patient decision. We can use query theory to design an intervention or treatment that people could use to make themselves more patient.”

Weber points out that we live in an era that makes choice architecture easy to implement. “More and more decision making and communication occurs on the web, where it is easier to structure a choice environment in a way that focuses people on one type of option or query over another,” she says.

“So you can first provide people with information about the future when they make health or financial decisions, building decision environments that promote less impulsive choices and encourage more long-term choice.”

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**Powerful Lies**

Most people become stressed when lying, but new research shows that people with power feel just fine when lying—and are better at getting away with it.

Lying is costly, extracting physiological and cognitive tolls from most people. The body of research on lying consistently shows that people become stressed when they do not tell the truth. The speed with which they process information slows down, possibly because lying requires keeping track of the lie and the truth while simultaneously trying to suppress nervous habits or other signs that might give the liar away. (So-called lie-detector tests, or polygraphs, can’t actually determine if people are lying, but they can identify signs of physiological stress that are consistent with lying.)

Professor Dana Carney, who studies social judgment and decision making, noticed that in a different area of scientific study, psychologists have observed that power—defined as control over others’ social or monetary outcomes and always accompanied by feelings of power—enhances cognitive functions and makes people feel good. The effects of feeling powerful are precisely the inverse of those that most people experience when they lie.

“The overlap is remarkable. When you feel powerful, you feel good, you’re a little smarter in that you process information more quickly and are better at multitasking, and some evidence suggests you may be more physiologically resilient,” Carney says. “When you lie, you feel bad, your cognitive systems are overworked, and you are physiologically taxed. What if you put lying and power together? It’s a match made in heaven or a match made in hell.”

Carney worked with Andy Yap, Brian Lucas, and Pranjal Mehta of Columbia University to see what they could learn about the differences in the physiological and cognitive responses of both high- and low-power liars.

Previous research has shown that the mere act of assigning subjects leadership roles and subordinate roles is sufficient to produce feelings of power and subordination. Several parts of the researchers’ experiments here were designed to intensify those feelings. Subjects first completed a survey intended to make them believe they would be assigned a role as a leader or subordinate based on their answers. In fact, subjects were randomly assigned their roles. Each leader was shown to an expansive, comfortable office, while each subordinate was relegated to a small, windowless space.

Next, each pair met face-to-face in the leader’s office, and was asked to review a set of résumés and decide how to allocate a small pool of bonus funds. They also had to divide a small amount of bonus money between themselves. The conditions of the experiment gave the leader control in three significant areas: social control of the interaction, control over the final outcome of the assigned task, and control over how the monetary incentive was divided between the leader and the subordinate.

Once the first phase of the study was complete, the subjects were separated and asked to wait, alone, in another room, where they were led through an exercise that asked certain leaders and subordinates to steal money (hidden in the room) and lie to the researchers about having done so.

Subjects had saliva samples and other measures of physiological stress taken at key points during the experiment—for example, before beginning the survey and after being asked to lie. All participants also completed a reaction-time test at the end of the experiment designed to measure their cognitive capacity.

The researchers found that subjects assigned leadership roles were buffered from the negative effects of lying. Across all measures, the high-power liars—the leaders—resembled truthtellers, showing no evidence of cortisol reactivity (which signals stress), cognitive impairment, or feeling bad. In contrast, low-power liars—the subordinates—showed the usual signs of stress and slower reaction times. “Having power essentially buffered the powerful liars from feeling the bad effects of lying, from responding in any negative way or giving nonverbal cues that low-power liars tended to reveal,” Carney explains.

It’s an unsettling finding that prompts a number of questions, the first of which is, if powerful people can lie without suffering consequences, are they prone to lie more? “Even a very ethical person who suddenly finds herself in a position of power is probably going to notice on a conscious or unconscious level that lying no longer feels bad,” Carney says. “We can’t say empirically that power makes a person lie more, but the evidence does suggest that power would make you lie more easily and therefore more often.”

Carney emphasizes that these results don’t mean that all people in high positions find lying easier: people need only feel powerful, regardless of the real power they have or their position in a hierarchy. “There are plenty of CEOs who act like low-power people and there are plenty of people at every level in organizations who feel very high power,” Carney says. “It can cross rank, every strata of society, any job.”

**The effects of feeling powerful are precisely the inverse of those that most people experience when they lie.**

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Dana R. Carney is assistant professor of management at Columbia Business School.
The Art of Choosing

Q&A with Sheena Iyengar

In her new book, Sheena Iyengar offers strategies for managing choices in an era of seemingly boundless options.

Q. You are a social scientist by training, so why the art of choosing instead of the science of choosing?

A. The science of studying choice helps us figure out how to align the odds—how to maximize the objective characteristics of what we’re choosing between.

The art of choosing is not about maximizing objective criteria. It’s about figuring out what is going to make us happy. There’s no science that can tell us that.

Q. What’s the most important thing for those in leadership roles to understand about the art of choosing?

A. In the first chapter I cite a British study that looked at the health of employees of different ranks. It’s interesting: you might think that CEOs were the most stressed out given all the responsibility that falls on them, but even after the researchers accounted for differences in factors like weight and smoking, overall CEOs were better off than doormen, physically.

The researchers ultimately found that the poorer health outcomes of those lower in the organizational hierarchy had a lot to do with their perception of how much choice they had in their on-the-job decisions. People who had less control over their work had higher blood pressure during work hours.

That doesn’t always mean you give people choices. People have very different expectations about the way they exercise control or express control, depending on their cultural upbringing. What it does suggest is that what is really important to people is the perception of having choice.

Q. What are some of the different ways that control and choice play out?

A. For some people control might be “I got to choose everything,” while for others it might be “I got directed,” or they had a helping hand to guide them—that’s the way they associate feeling in control. Either mindset can be empowering, but a manager has to understand that while everybody wants control, the way that it gets expressed varies as a function of culture.

One of the things I try to do early in the book is give people a compelling sense that we need to understand where people are coming from. In a study I did with my graduate school adviser, Mark Lepper, we found that Anglo-American children did better work and worked longer when they were given choices about their work. In contrast, Asian-American children did better when they believed their mother had chosen their assigned tasks for them.

Another study showed that when Anglo-American children had choices about how to complete a math assignment, their performance jumped by almost 20 percent, but by zero percent when their classmates or strangers made those decisions for them. Asian-American children showed some improvement when they made their own choices but did their best work when their classmates made the decision for them. They showed no improvement when strangers made their choices for them.

The growing reality is that globalization puts us to work in a culturally diverse environment. Cultural diversity doesn’t mean we all just eat different foods or wear different clothes or watch different TV shows. Those are in fact, perhaps, the less important and less interesting differences. What’s more important and more interesting is understanding how our core values and motivations differ.

Q. What has been the most unexpected or most surprising of all the research you’ve conducted on choice?

A. I don’t know if I ever did a study that I predicted accurately. I’m constantly surprised. I think the real question to ask is, was there a study that didn’t surprise me? I don’t think there was one.

Q. Much of your work has illuminated the ways in which choices can overwhelm us or even make us unhappy. You touch on ways that both experts and creative types manage choices in their work. What can the rest of us learn from these types about getting control when faced with too many choices?

A. Experts combine the best aspects of intuition and experience to filter out information that isn’t germane or is somehow biased. Experts aren’t perfect, of course, but they have a better recognition of what they know and what they don’t know. That recognition enables them to zero in on the most salient details at hand and filter out the noise. We can’t become experts on everything, but we can make the effort to learn more about those things that are most important to us or most common and that we enjoy.

The Art of Choosing continued on page 8
The Art of Choosing continued from page 7

I also try to show how choosing is a creative process, how we create our environment and ourselves through the choices we make. We are so used to having so much material, so many choices, and we are so used to preserving our choices that we don’t question whether or not we really need those choices—or if they are really benefitting us.

But we know that when you give people more material to work with, they are less creative. Inventors and artists understand how working within a set of rules or with only a few materials can give them the freedom and the ability to create.

When we engage in the exercise of choosing there are inherent limitations to what our abilities are. The more we lack awareness of or tools for dealing with our limitations, the more overwhelmed we become. The more we’re aware of our limitations, the better we’ll be able to tackle those challenges. Art makes the science of maximization less overwhelming.

Q. The field of decision making is vast. How do you limit which avenues you choose to study?

A. I think a rule that my doctoral adviser gave me has stood up: when you have a research idea, don’t latch on to it the first time it comes back, or even the second time. When the idea comes back a third time, pursue it. I’ve found that I’ve used that guideline; I get a lot of ideas, but an idea or a question that is truly significant will keep coming back.

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Gaming the Electoral College
Detractors argue that the winner-take-all nature of the electoral college disenfranchises voters in some states. Brett Gordon combines game theory and econometrics to predict how changes to the electoral system could shift campaign strategies, ad spending, and election outcomes.

A Tax by Any Other Name
Politicians and advertisers have long understood that labels can trump substance. New research from Eric Johnson and Elke Weber reveals how labels trigger the cognitive and emotional processes of decision making. Their findings suggest that despite our divisive political atmosphere, the key to finding common ground may rest in setting aside emotionally charged labels.

The Democracy Network
Theories abound about just how democracy has spread to become the predominant global political system. New research from Paul Ingram suggests that membership in intergovernmental organizations reinforces democratic practices among member nations, driving the spread of democracy.

Is Ideology Psychology?
Skeptics have long doubted that there are fundamental differences between conservatives and liberals. Dana Carney observes the ordinary, everyday lives of Americans and finds that deep-seated differences in psychological needs and motivations do exist.
Can’t Wait to Procrastinate
New research shows that for many, procrastination is rooted in impatience.

Yielding to procrastination, that universal human foible, can have major consequences. “It doesn’t take much time to choose a retirement plan, but a lot of people put off choosing one for a few years,” explains Professor Ernesto Reuben, whose research interests include behavioral and public economics. “You could lose a lot of money if in the meantime your employer puts you on a default plan that doesn’t really meet your needs.”

Investigating the interplay between procrastination, impatience, and self-control.

Some experts attribute procrastination to poor self-esteem: people put off starting or completing projects because they don’t think they can do them well. Others suggest that people procrastinate because taking action is too difficult or too costly. Economists have taken a different view, speculating that procrastination is rooted in problems of self-control and, in an apparent contradiction, impatience—people would prefer time off now, so they simply postpone less pleasant obligations.

Reuben worked with Paola Sapienza of Northwestern University and Luigi Zingales of the University of Chicago to investigate the interplay between procrastination, impatience, and self-control.

First, the researchers measured impatience by offering subjects the choice of receiving a check for small amount immediately (for example, $50) or a larger amount (for example, $60) two weeks later. To measure procrastination, the researchers recorded how long it took the subjects to actually cash their checks.

The rational expectation is that most people would wait two weeks in order to receive more money, especially since nearly everyone has access to credit cards that allow them to spend money now and cash the check to pay their credit card bill later. Yet half of the impatient subjects—those who took $50 rather than wait two weeks for $60—took more than four weeks to cash their checks. The subjects for all of the experiments were MBA students, so their impatience and procrastination could not be blamed on misunderstanding the benefits and consequences of waiting versus receiving money immediately.

“Taking the money in the present is really a sign of impatience—people cannot wait to simply get their hands on the money itself,” Reuben says. “And many people aren’t self-aware to the point that they foresee that while they can’t control the temptation to take the money now, they will procrastinate actually cashing the check.”

The researchers next created an online game to eliminate the everyday barriers—a faraway bank, more pressing errands to run—that might mischaracterize nonprocrastinators. The game, a quiz about their school’s prominent alumni, was very easy to complete because it was online, but costly to put off since the participants earned more money the sooner they completed it. Again, the researchers confirmed a strong relationship between procrastination and impatience, and found that overall about two-thirds of the subjects consistently procrastinated completing the game.

By measuring when subjects filled out a compulsory survey that was part of their MBA program (it could be completed online at any time during the term) and observing the differences in how each subject handled the online game and check-cashing, Reuben and his co-researchers were able to distinguish between sophisticated and naıve procrastinators. Sophisticated procrastinators understand that they have a tendency to procrastinate, while naıve procrastinators deceive themselves into believing they do not. Participants who delayed completing their compulsory survey (where there was no monetary cost for procrastination), but who completed the online game (where there was a cost for procrastination) on time were deemed sophisticated procrastinators, as they clearly reacted to the change in incentives.

Naıve procrastinators appear to overestimate the likelihood of their cashing the check in the future, suggesting they believe that the possibility that they will lose their check is very low. “Consequently, they ask for a check later—they perceive that the larger check has a greater value than it actually has,” Reuben says. “They would be better off taking the check today and cashing it immediately.” Somewhat counterintuitively, then, the willingness of naıve procrastinators to wait for a larger check makes them appear more patient than sophisticated procrastinators.

Sophisticated procrastinators, in fact, appeared significantly more impatient than their naıve counterparts: it took just over a 7 percent greater reward on average for a sophisticated procrastinator to wait for a check compared to a naıve procrastinator.

If procrastination is related to self-control, how can it be managed? Reuben suggests that sophisticated procrastinators can commit themselves, for example, to self-imposed deadlines, while naıve procrastinators probably benefit from a slightly more paternalistic approach. For instance, they may procrastinate less when given deadlines or being made aware of their tendency to procrastinate by others rather than self-selecting deadlines or discovering and addressing the problem on their own.

“Establishing that procrastination is largely about self-control rather than other factors,” Reuben says, “tells us the kind of interventions we need to create.”

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Ernesto Reuben is assistant professor of management at Columbia Business School.
Strategy as Learning
Q&A with Willie Pietersen

In his latest book, Willie Pietersen contends that businesses that seek sustainable competitive advantage must set aside the view that strategy is planning and embrace the idea that strategy is learning.

Q. There are so many books and blogs on strategy out there. Why write another one?
A. I developed the framework itself out of a sense of frustration. There are a lot of exhortations and slogans like Think outside the box. You’ve got to be a revolutionary. Make your decisions with the customer in mind. But there are few actual practical business tools or processes to translate these appeals into action. Change doesn’t happen through exhortation. If you want to get anything done in an organization, you have to introduce a business process to make it happen.

I felt we needed to move away from static models and instead create a dynamic process that introduces the idea of strategy as learning. That’s a fundamental shift that businesses must make: from strategy as planning to strategy as learning. So I set out to assemble the right set of underlying concepts that would inspire a highly practical, simple process to put these ideas into action.

Q. Would you describe the model?
A. It’s a four-step insight-to-action model. To think strategically is to think outside-in and to function strategically is to make decisions based on that outside-in thinking.

The four steps move in a cycle. Learn about the externalities and the organization’s own reality. Focus by using that set of insights to identify the few things that matter the most to the firm’s success and make choices about where the firm will compete, what it will offer its customers and how it will win. Align all of the elements of the business behind the strategy: organizational structure, culture, people, competencies, measurement, and reward systems and motivation to drive it all forward. Execution is the final step, a set of rigorous disciplines to implement changes faster and more effectively than competitors.

That takes the firm back to the learn step because the environment will have shifted, the organization’s own realities will have evolved and it will need to refresh its insights. It is an ongoing cycle of learning, discovery, and renewal.

Q. Why do you say that strategy is everyone’s job, and how does that fit into the strategic learning framework?
A. Strategy’s role is to empower an organization to make the smartest choices on how to focus its scarce resources to achieve competitive advantage. The more I’ve worked with this framework, the more I’ve realized the fundamental truth that if strategy is created behind a veil of secrecy by a top team and then announced from the mountaintop, it very seldom motivates people to do the right things. They find it really hard to translate that into the right kind of priorities in their own areas of responsibility. The idea is that it is everybody’s job at every level in the organization to create a clear line of sight to the organization’s strategic intent or priorities, and then to translate those into aligned priorities for success in each department.

Herein lies a real challenge—the challenge of leading upward. We all seek simplicity. If simplicity doesn’t descend on us from the top, we feel like victims, saying to ourselves, “I would be able to do this if only the folk at the top would clarify where this needs to go.” Leadership is about finding that clarification, defining for yourself what you think it is, testing it out with the top leadership, and then translating it into action at your level.

Q. Why do you say that companies must love their customers—not just understand them?
A. After her grandmother mistakenly took medication meant for her grandfather, Deborah Adler made redesigning prescription bottles into her thesis at design school. The new bottles, which she tirelessly and successfully lobbied Target to adopt, incorporated safety features including color coding for different family members and larger font sizes. It was a truly revolutionary redesign of prescription bottles.

I once asked Deborah how many other designers out there were capable of doing the same kind of work, and she said, “Oh, hundreds and hundreds.” So I asked her what made her different from them and she said, “Well, I really love my grandmother.”

Now, that is also a metaphor for loving the customer. Look at Procter & Gamble. Instead of using a survey—in 20 years I’ve never seen really deep insights about customers come out of a survey—or even focus groups, P&G conducts analyses that are essentially ethnographies. They do what Deborah Adler did by behaving like anthropologists or sociologists, looking at people’s behavior, and uncovering customer needs through intense examination. So many of P&G’s product breakthroughs arise from this type of analysis.

“The most costly kind of mistake is the one that gets covered up. The mistake will remain, but there is no value to the learning.” —Willie Pietersen
Q. What is the difference between a value proposition and a winning proposition?

A. So many organizations still speak the language of the value proposition. A value proposition defines the value we aim to provide to our customers. But as I point out in the book, in a competitive world absolutes have no meaning at all. Our job is to create greater value. Our customers have choices, so they will go where the highest value is; the same is true of our investors.

So the big questions are why should customers choose our products or services, and why should investors give us their money? The only rational reason is because they seek greater value, and what we are offering is greater than competing alternatives. So we must always strive for a winning proposition that defines the margin of difference in the value we offer compared with the competing alternatives. And that is a higher hurdle than a value proposition, which is not comparative.

Edison pointed out that most of his learning came from things that didn’t work. And so now it becomes a matter of culture as to how you view mistakes. The most costly kind of mistake is the one that gets covered up because the mistake will remain, but there is no value to the learning.

For me, there is an equation—it is not exact but you can get a good assessment: the quality of the learning is bigger than the cost of the mistake. It is not about assigning blame; it is about capturing the value of the learning.

Q. You don’t often hear people say that storytelling is important for strategy, but you say it is. Why?

A. Storytelling is vital—and I’m not talking about being an extrovert. When I teach, I use stories to try to illustrate my points. Inevitably people most remember the things that were told as stories.

I introduce this notion by telling a short story about a businessperson walking past a construction site where there are workmen toiling on the sidewalk. He asks each man, one at a time, “What are you doing?” The first workman says, “I’m digging a hole.” The second one says, “I’m laying bricks.” The third one says, “I’m building a cathedral.”

Leaders are always able to describe the cathedral. So it is not about being an extrovert; it is about being able to create a vivid picture that lives in people’s minds, galvanizes them and encourages belief and commitment.

A counterpart to that idea is the idea of simplicity. At the age of 33, Marco White was the youngest chef in history to get three Michelin stars, which is the maximum. He was British, so it was a kind of double achievement. Restaurants are very chaotic places and he had a string of them that he ran with this mantra: complexity creates confusion, confusion creates inconsistency, and inconsistency creates failure. This mantra is a reminder that at the heart of effectiveness in leadership and strategy creation is the idea of simplicity.

Q. You view mistakes as an essential aspect of the strategic learning framework, but even the best organizations are often not comfortable or good at managing mistakes head-on.

A. Mistakes are inevitable, of course. But there are dumb mistakes, where you repeat your own or someone else’s mistake. And there are smart mistakes—because there is no risk-free environment and by definition some things won’t work. Call them mistakes if you like, but that is where innovation comes from.

When the environment shifts, the organization’s own realities evolve and it will need to refresh its insights. It’s an ongoing cycle of learning, discovery, and renewal.
The Dark Side of Creativity
Stressful situations and bad moods can spur creativity.

Creativity is vital. It can generate new products, invigorate old ones, launch or enhance a brand, and introduce efficiencies that increase the bottom line. But where does creativity come from, and how can it be harnessed?

The answer may be a dark one, says Professor Modupe Akinola, whose research examines how stress affects performance. Consider the archetypical artist-as-tortured-genius. “Vincent van Gogh was said to have painted some of his best known works, such as Starry Night, after some of the most trying events in his life,” she says. Akinola wanted to learn if there are personality characteristics that, when coupled with situational factors like mood, can enhance creativity. “If you make someone unhappy or stressed out,” she asks, “will he be more creative?”

Akinola worked with Wendy Berry Mendes of Harvard to answer this question. The researchers set up an experiment in which participants were asked to give a short speech about their dream job. The researchers measured levels of the hormone dehydroepiandrosterone-sulfate (DHEAS) in each participant and asked participants a series of scaled questions about their moods both before and after their speeches.

In the last stage of the experiment, the participants were given glue, paper, and colored felt and asked to make anything they wanted using those materials. Professional artists then evaluated how creative each collage was. (This may seem subjective, but the judges’ assessments were highly consistent and other research has validated the use of the process.)

The DHEAS measures taken before the speeches allowed the researchers to observe a factor specific to each individual participant that would provide insight into the relationship between personality and creativity—information that the pre- and post-self-reporting mood surveys could not reveal. Endocrinologists have long established that people with low DHEAS seem to be more susceptible to depression, so the DHEAS sample taken before the speech gave the researchers a sense of each person’s affective vulnerability, or how susceptible a person is to experiencing wide mood swings. Participants were also asked to self-report their moods, so the researchers had both subjective and objective baselines from which they could observe mood changes.

Prior research has shown that evaluative situations trigger different moods: being praised after an annual work review usually makes for a good mood while a critical review makes for a bad mood. When participants received positive feedback—smiles and nods—during their speeches, they reported feeling the same or better than before. Participants who received negative feedback like frowns and shaking heads during their speeches, reported feeling worse compared to before their speeches. Self-reported mood changed very little for participants who received no feedback.

Overall, participants who received negative feedback were more creative than those who received positive or no feedback, their collages clearly reflecting, for example, deep attention to detail and the specificity required of creative work. Of this group, those who had the lowest DHEAS to start with—an internal rather than external factor—were the most creative of all. (A separate follow-up experiment confirmed that effort alone did not explain the differences between the most and least creative collages.)

These results confirmed that mood is a factor in creativity, and it can be manipulated. However, the most essential part of Akinola’s hypothesis supported by this study is that while external events like negative feedback or social rejection can play a role in prompting creativity, some people have biological presets that make them more sensitive and so, in some cases, more creative.

Moreover, while there appears to be a dark side to creativity, there may also be a bright side. Employees who are vulnerable to mood shifts are generally most effective on work that requires a good deal of scrutinizing, or on projects that demand vigilant attention to detail, or testing, selecting, and rejecting ideas. Akinola and her colleagues suspect that different moods affect different types of creative processes and are exploring whether positive moods may provide the best prompts for problem-solving strategies that rely more on filtering or seeing the forest for the trees, for example, the way an analyst might take in the details about a firm’s financial and strategic condition before making a recommendation.

“These questions are important,” Akinola says, “because in business settings we often find ourselves in situations where we come out of an important meeting feeling really good or really bad. But then we need to work on whatever is next at hand.” Akinola says, “If creativity is affected by these mood-triggering situations, what is the best way to capitalize on that? There is no one-size fits all answer. We need to better understand these triggers.”

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Modupe Akinola is assistant professor of management at Columbia Business School.
THE IDEA

Use text mining and network analysis to capture and interpret an ocean of online data to listen in on consumers without asking a single question.

THE RESEARCH

Marketing managers are often challenged by the difficulty and expense of collecting meaningful data about consumers using traditional methods such as surveys and focus groups. At the same time, today’s marketing managers confront an almost limitless bounty of data generated by consumers via online sources such as consumer forums, chat rooms, blogs, and product review sites. While these platforms provide large amounts of rich, qualitative information directly from consumers, the data is not easily quantified or analyzed.

Professor Oded Netzer worked with Ronen Feldman and Jacob Goldenberg of Hebrew University in Jerusalem to create a two-part approach to capture and analyze online data generated by consumers. First, they created a text mining tool that converts unstructured online data—including correcting abbreviations or misspellings of keywords like brand names and product attributes—into structured, quantifiable data. The second part of their method employs semantic network analysis and mapping techniques, derived in part from psychology theory that posits that the brain has an associative network that groups together and recalls items and concepts that are closely associated in memory. The method allowed the researchers to create visualizations of large-scale data by assessing how frequently keywords—such as brand names or product attributes—occurred together in the text, and treating the keywords and co-occurrences as nodes in the semantic network.

The researchers tested the accuracy of these techniques on an online consumer car forum. The analysis allowed the researchers to assess similarities between different cars in the discussion and the derived market structure. They found that their analysis correlated very closely to actual sales and results generated by traditional survey-based techniques. The analysis also revealed less obvious aspects of market structure. For example, the Cadillac brand was more closely associated with higher-end European brands than with other American brands, which may reflect General Motors’ efforts to reposition the Cadillac brand over the past few years. The tools allow for tracking such market position trends over time.

Used to analyze online consumer discussions about prescription drugs, the technique revealed that consumers frequently mentioned several side effects not commonly associated with those drugs in medical records. Firms and regulators could monitor such reports to take corrective action or—since a side effect could be due to an underlying medical condition—correct consumers’ perceptions about the origin of the side effect. The research holds great potential for gaining insight into market structures, competitive landscapes, and the top-of-mind association between products and features.

PRACTICAL APPLICATIONS

Marketing managers, customer relationship managers, social media managers

You can use this research to collect data on customer preferences and competitors’ products by mining online consumer forums. You can also track the effectiveness of ad campaigns and related marketing efforts and monitor word-of-mouth as spread by opinion leaders.

Product developers

You can use this research to mine online data in real time, monitoring the course of existing trends and identifying new ones. You can also use this research to identify unmet needs of current consumers and develop new products. This research can be used to track the lifecycle of a product or competitor’s product from launch to new model and alter and add features to existing products based on consumer feedback.

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Oded Netzer is associate professor of marketing at Columbia Business School.
Know Thy Future Self
Differences in our perception of our present identity versus our future identity influence the trade-offs we make, offering direction for better decision making.

Ever wonder how much money in lost interest this morning’s latte will cost you in retirement savings? If not, you are far from alone.

Most people don’t pull out a calculator to weigh the future financial consequences of today’s latte, and behavioral scientists are producing ever-mounting evidence that people are not wired to consider financial decisions in such a systematic, rational way. Even when the future consequences are clear, people often advance short-term interests at the expense of long-term well-being, thinking about these trade-offs in more personal, situational terms: It’s just a few dollars, and I need a pick me up. In the end, it’s all about “me.”

More precisely, it’s all about the “me” of the present and how much a person thinks he or she will change in the future, says Professor Dan Bartels, whose research often explores the psychology behind intertemporal trade-offs—how people weigh smaller, immediate rewards against larger, long-term rewards. Working with Oleg Urminsky of the University of Chicago, Bartels conducted a series of experiments, manipulating the degree to which subjects felt connected to their future selves. The researchers hypothesized that people who believe they will change significantly in the future—people who feel less connected to their future selves—will not think about their future selves as fully themselves in the same way people with high connectedness think about their future selves, and expected low-connected people to be more likely to make impatient, short-term decisions.

College graduation is the kind of milestone likely to prompt significant life changes. The researchers used a simple but very effective method of fostering a feeling of future connectedness (or disconnectedness), asking a group of college seniors—three weeks before graduation—to read a passage that described college graduation either as an event that would prompt a major change in their identities or as an event that would prompt only a relatively trivial change. Compared to students who read the passage describing graduation as small change, those who read a description of the event as a major change were much more likely to make more impatient choices, choosing to receive a gift certificate worth $120 in the next week rather than wait a year for up to $240.

But couldn’t this mean that the soon-to-be-grads simply expected their preferences to change? Probably not, because unlike taste in clothing or music, preference for cash rarely goes out of style. To be sure, though, the researchers set up a variation on the graduation experiment, presenting subjects with messages to promote or diminish future-connectedness, but with more flexible options: students made a hypothetical choice between receiving a smaller value gift certificate in one week’s time or receiving a larger gift certificate in one year, and designating which retailer they’d prefer to use the certificate at. But subjects were told that if they won the drawing (and would therefore receive a gift certificate in the time frame and amount they had chosen) it could be used anywhere, not only at the selected retailer. The future-connected subjects were still more likely to choose to receive larger amounts in a year, while the less-connected subjects were more likely to choose smaller amounts sooner.

While other factors clearly play a role in decision making, Bartels notes, this research shows that having a diminished sense of connectedness to one’s own future self can cause an unwillingness to defer benefits to a future self who is evaluated to be substantially different—what they call intertemporal selfishness. This tendency is unique among other factors that influence now-versus-later trade-offs. For example, some purchase decisions—a college student spending their last dollar of their monthly budget to buy ramen—are made out of necessity. Yet in another of the experiments, people who said they needed a new laptop right away—because theirs was too old and slow—and who were primed to feel more connected to their future selves chose to wait about a month longer than would have been expected, in order to get a lower price. And, people who had the same need for a new laptop who were primed to feel disconnected from their future selves bought about a month sooner than would otherwise be expected.

“Our work suggests that you can motivate people to hold onto their money, or make other, more prudent decisions by increasing their sense of connectedness to their future selves,” Bartels says.

But he cautions against viewing every impatient choice as a mistake. “Rather than trying to guilt ourselves into making prudent financial choices or creating complicated incentive schemes that force our current and future selves to face off against each other, we could instead look for simple, straightforward ways to foster our sense that what matters most will be preserved in our future selves, so that we can achieve goals that are important.”

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Dan Bartels is assistant professor of marketing at Columbia Business School.
Brand Lucky
Superstition can prompt consumers to forgo their most-liked products in favor of new or less-favored brands.

Superstitions can be comforting, offering the illusion that every-thing is under control. This is how Professor Gita Johar, whose research explores often automatic and largely unconscious influences on choice, explains the uptick in psychic consultations reported at the onset of the financial crisis.”

Most consumer decisions have some rational basis, where cause clearly bears some relation to effect—the way buying a certain car leads to feeling safe or comfortable. “But a good deal of anecdotal evidence suggests that consumers choose some brands to try to influence outcomes over which they have no control, and where there is no basis to link the choice with a desired outcome,” Johar says.

People employ superstitious strategies unconsciously.

Johar, working with Eric Hamerman PhD ’08, of Tulane University, explored superstition, control, and consumer decisions in a series of three experiments. In the first, subjects believed they were helping the researchers choose whether to use blue or green background computer screens in their online lab, and overwhelmingly expressed a preference for blue screens. The researchers then gave everyone IQ and social skills tests, alternating screen colors over different stages of the tests, leading some subjects to believe they were performing better when holding the stress ball, and overwhelmingly expressed a preference for blue screens. The researchers then gave everyone IQ and social skills tests, alternating screen colors over different stages of the tests, leading some subjects to believe they were performing better when holding the stress ball, and overwhelmingly expressed a preference for blue screens. The researchers then gave everyone IQ and social skills tests, alternating screen colors over different stages of the tests, leading some subjects to believe they were performing better when holding the stress ball, and overwhelmingly expressed a preference for blue screens. The researchers then gave everyone IQ and social skills tests, alternating screen colors over different stages of the tests, leading some subjects to believe they were performing better when holding the stress ball, and overwhelmingly expressed a preference for blue screens. The researchers then gave everyone IQ and social skills tests, alternating screen colors over different stages of the tests, leading some subjects to believe they were performing better when holding the stress ball, and overwhelmingly expressed a preference for blue screens.

“In another experiment, the researchers asked subjects to watch fellow university students play a fictitious competitive game involving the construction of stock portfolios. The idea was to ensure subjects (who believed the online game was real) had some stake in the outcome, and to show that they would give up well-established preferences (in this case, a favorite color). While it is notoriously difficult to get people to give up established preferences, that’s just what happened: Each subject was given a stress ball—which researchers associated with the competition by describing as an item that stock traders often use when making decisive trades—in their favorite color. After watching a part of the game while holding the stress ball, and seeing their team perform poorly, subjects (who believed the game remained in progress) were more likely to switch to a stress ball in a different, less-preferred color when offered one to take home.

The researchers also found that even a well-established product can be imbued with superstitious power. Participants were given Snickers just prior to watching their college, Columbia, compete in a simulated quiz bowl game in which their team started off poorly. As the home team’s score improved, the researchers distributed Snickers during simulated refreshment breaks. When the experiment ended—with the game still in progress—the researchers offered subjects a Kit Kat or Snickers. “You would expect most people to choose Kit Kat since they’ve already had so many Snickers. But about half the time, people chose Snickers. Moreover, when asked to predict who would win the game, those who chose Snickers rated the likelihood of Columbia winning very high. Importantly, those who chose Snickers after making the prediction rated the likelihood of Columbia winning lower than this group,” Johar says. “They believed that their superstitious choice strategy would work!”

Some businesses could have some fun—and profit—from this insight. “It would be easy for a bar to charge a premium for Guinness if, for example, fans could associate that brand with a Yankees victory,” Johar says. “Or to do dynamic pricing in a stadium based on building up associations between products in the stadium and the home team.”

The researchers also found, through a personality assessment administered toward the end of each experiment, that only people experiencing low self-efficacy gravitate toward superstitious behavior. “Trying to control an outcome is one way that people try to make themselves feel better,” Johar says.

Notably, Johar says, people employ these strategies unconsciously. “When we asked people why they made these choices, they didn’t tell us that they were trying to influence the outcome. Instead, they told us about attributes of the products: ‘I liked the green screen,’ or, ‘I liked the other color stress ball,’” Johar says. “And when we ask them to make predictions, they seemed to assume that their having done the superstition thing would affect the outcome.”

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Gita Johar is the Meyer Feldberg Professor of Business in the Marketing Division, a senior scholar at the Jerome A. Chazen Institute for International Business, and vice dean for research at Columbia Business School.
Are Watchdogs Corrupt, or Just Biased?
Regulatory agencies favor firms that have good reputations.

n early 2010, the National Highway Transportation Safety Administration (NHTSA) issued a wide-scale recall of some models of Toyota cars in response to a flurry of reports of spontaneous acceleration and disabled brakes. The extent of the recalls—a dozen models and millions of cars—was as startling as the fact that Toyota, long regarded as a standard-bearer for automotive safety, was slow to alert regulators when the company discovered that serious problems might exist with some braking systems.

Regulators have not been immune to the fallout, as the public wondered how such egregious safety flaws could have gotten past the NHTSA, echoing other recent incidents that have called into question the efficacy of gatekeeper agencies. Why did the SEC fail to act when financial services firms took sky-high risks with investors’ money? How could the Minerals Management Service fail to require petroleum giant BP to secure permits designed to protect sea life in the Gulf of Mexico prior to the Deepwater Horizon disaster?

The conventional interpretation of regulatory failures is that watchdog agencies are too easily influenced by the companies they are charged with policing and are held hostage by the firms’ enormous resources and a seemingly unlimited ability to wield influence, particularly through the use of lobbyists and lawyers. Safety and consumer advocates worry that corporate power grows, regulators find it increasingly difficult to withstand pressures and temptations.

But Professor Jerry Kim hypothesized that regulatory agencies favor certain firms not as a result of lobbying or corruption but instead because some firms have reputations for producing safe or effective products: the better a firm’s reputation, the better its regulatory outcome. “Using reputation as a proxy for safety may be one way regulators manage uncertainty,” Kim says. “They aren’t prone to corruption and respond with dollars or votes. But high-status firms—an average of 218 days sooner—than it approved drugs from other firms. Political contributions and a firm’s experience in dealing with the regulator, on the other hand, did not lead to a meaningful reduction in approval time.

The lag in approval time translates into a significant economic impact: by some estimates, a one-month delay in approval time results in about $40 million of lost revenue. Furthermore, the effect of a standout reputation in a single major drug category was strong enough to spill over into other drug categories. A firm known for its cancer drugs facing approval for a different class of drug, such as a new nasal spray for asthmatics, could benefit from its reputation for cancer drugs even if it had no track record with asthma drugs.

This halo effect signaled to Kim that political motivations might explain the reliance on reputation. Consider the FDA’s typical response after a drug recall: it slows approval for all drugs, suggesting that the agency is trying to protect and repair its own reputation to retain functional autonomy and avoid scrutiny. But high-status firms suffered the smallest penalty as, in a time of crisis, the FDA looked toward those firms it trusted most.

“It’s ironic that the firms that suffer the most due to drug recalls, the lower-status firms, are not the firms that are usually responsible for recalls—the ones with stellar reputations,” Kim notes. He suggests that lower-status firms (which are typically newer and smaller) may be able to offset the bias toward higher-status firms (which are typically older and larger) by carving out niches of expertise that the more favored firms can’t or won’t enter, which can earn the notice of regulators.

Kim found no evidence that firms with high status actually produced better quality products overall, which suggests that firms that benefit from regulatory bias should exercise caution. “These firms shouldn’t assume they can skate by without further consequences down the road, which may be what happened in the case of Toyota,” he says.

Kim’s research also offers some insight into the role of gatekeepers more broadly. Critics are gatekeepers of a sort, weeding out boilerplate movies, books, or music from masterpieces. Similarly, journalists vet information about the government and businesses so the public can form opinions and respond with dollars or votes.

“However trusted these gatekeepers may be,” Kim says. “They aren’t prone to corruption so much as they are just human and prone to bias.”

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Jerry Kim is assistant professor of management at Columbia Business School.
Forecasting Uncertainty
Maxim Ulrich finds that inflation uncertainty impacts bond prices and yields more dramatically than GDP uncertainty and creates a simple method for calculating uncertainty.

The Upside of the Sliding Scale
New research from Frank Lichtenberg shows that even consumers who pay the highest prices can benefit when pharmaceutical firms employ price discrimination by serving different markets at different prices.

How Private Equity Tackles Taxes
Private equity firms may sidestep earnings management at their portfolio firms, but Sharon Katz finds that they don’t shy away from legitimate forms of aggressive tax planning, which generate significant tax savings. Can other businesses learn from them?

A Little Free Press
Offering free samples is a tried-and-true tactic for generating revenue and sales, but the practice presents special challenges for media organizations. Oded Koenigsberg and Donald Lehmann offer a technique to help firms determine how much content should be free and what price to charge for paid content.

Accounting for Value
In a new book, Stephen Penman offers investors common-sense guidance for using accounting to get at valuation. He contends that many of the tools of modern finance are flawed, and shows how fundamental analysis can provide an antidote to bubbles and crashes.
How Do Business Groups Form and Evolve?

New metrics provide a way to measure the growth and evolution of complex business groups.

Business groups are large collections of firms that, although legally independent, are joined by complex ownership links, in many cases controlled by a single family. Though uncommon in the United States—in part due to the introduction of intercorporate dividends in the 1930s that has made the groups less attractive here—they are found in most other parts of the world.

The complexity of business groups presents a number of challenges for anyone wanting to assess the performance of a group’s member firms, their strategic position, or their valuation, among other considerations. Further, unlike a stand-alone firm, a firm that is part of a group must be judged in the context of its position in the group, says Professor Daniel Wolfenzon. “For example, lenders may view such a firm as less risky than a stand-alone firm since it can fall back on other firms in the group should it falter.”

Business groups have not been the subject of much empirical research. Ownership data needed to establish firm connections is hard to come by, and until recently there were few measures for assessing relationships among the firms in a group.

After a number of the largest chaebols—Korean business groups—collapsed in the wake of the Asian financial crisis of 1997–98, the Korean government, through the Korean Fair Trade Commission, began requiring chaebols to report a great deal of data about their constituent firms. The data provided Wolfenzon, along with Heitor Almeida of the University of Illinois at Urbana-Champaign, Sang Yong Park of Yonsei University in Seoul, and Marti Subrahmanyam of New York University, an opportunity to study how chaebols form and evolve over time.

To undertake this study, the researchers first established metrics that allowed them to make sense of and summarize the complex ownership structure of groups. They computed a firm’s position, or how close or far a firm is to the controlling family. They also devised a new metric, centrality, that captures the degree to which a firm is used by the family to acquire other firms. Finally, they measured the family’s level of control by taking into account all possible links from the family to the firm in question. “The new metrics we devised are easy to apply to any group structure,” Wolfenzon says, “no matter how complex.”

Being placed low and in a pyramidal part of the chaebol did not appear to affect profitability.

The researchers used these metrics to look at how new firms are added to the group and, in particular, where firms were positioned in relation to the controlling family.

The poor performance of lower-positioned groups in chaebols is often attributed to agency problems arising from the separation of ownership from control—a firm placed far away from the controlling family will be subject to less direct oversight, resulting in lackluster performance. But Wolfenzon and his coresearchers wanted to see if this effect of distance was causing poor performance or if in fact these firms were selected into a lower position in a group as a result of their poor performance at the time of acquisition.

The researchers found that a firm’s low profitability prior to acquisition led to more pyramiding in the chaebol’s overall structure (in which new firms are placed under the control of another firm), while a firm’s high profitability prior to acquisition resulted in its placement much closer to the controlling family.

Moreover, the researchers found that firm performance neither improved nor deteriorated once acquired and placed low in the chaebol. In other words, being placed low and in a pyramidal part of the chaebol did not appear to affect profitability one way or the other, bolstering the case for the researcher’s selection hypothesis.

Overpayment for acquisitions also affected placement in the chaebol. The researchers compared the book value of an individual firm to price paid for acquisition and found that firms for which the chaebol paid more relative to book value are placed near the bottom while those for which the chaebol paid less relative to book value are placed near the top. They also found that most central firms are valued at a discount, particularly those that actively acquire other firms. “This suggests that shareholders are anticipating the selection of low net present value (NPV) firms into pyramids,” says Wolfenzon, “and shareholders discount the share of these central firms accordingly.”

Why do groups engage in acquisitions that have low NPV at all? “It is possible that the family derives other benefits, not just monetary, from controlling these firms,” Wolfenzon says, “but don’t want to use family money for the acquisition. Pyramiding involves trade-offs but can be an efficient way for the controlling family to access resources.”

Read More

Daniel Wolfenzon is the Stefan H. Robock Professor of Finance and Economics and research director at the Eugene Lang Entrepreneurship Center at Columbia Business School.
What’s a Handshake Worth?

New research evaluates the dynamics of informal contracts and predicts how long they are likely to last.

In 1989 the investment banking giant First Boston reeled after the junk bond market collapsed, rendering its overleveraged positions in those bonds worthless. Parent company Credit Suisse injected new capital and by the early 1990s First Boston was regaining some of its lost ground.

Most of Wall Street had recovered well enough from the recession of the late 1980s, and bonus compensation at most firms remained robust in the new decade. But neither First Boston nor Credit Suisse seemed willing to justify paying outsized bonuses in 1991, when performance was improving, but not dramatically.

By industry standards, First Boston bonuses that year were small, and executives quieted rumbles of dissatisfaction with assurances that the bank was on track to return to the flush compensation of years past. But at the end of 1992, First Boston announced a second consecutive year of comparatively modest bonuses, and scores of its top bankers left.

Industry observers and insiders attributed the mass departure to First Boston’s reneging on a promise—no one had signed any papers, but it appeared that the bankers nevertheless felt they had been guaranteed higher bonuses. (This kind of scenario is what Wall Street points to today when asserting that it can’t afford not to pay large bonuses to top talent even in the face of broad outcry against such rewards.)

Informal contracts like the one First Boston’s employees believed they had entered into—stick with us and you’ll be compensated handsomely—are as integral to conducting business as formal contracts are, says Professor Marina Halac, who includes organizational economics among her research interests.

“It isn’t possible to draft a formal contract that can cover all relevant aspects of performance or expected obligations for parties,” she says. “Performance might depend on broad measures that can’t be written into a contract: How do you reward an employee for leadership, innovation, cooperation, or initiative? Those qualities are difficult to measure objectively. So it’s not unusual for a formal agreement to be augmented by an informal one.”

Informal contracts are not necessarily difficult to enforce: incentives and threats to the relationship (and its financial value) provide leverage between principals and agents that can ensure a contract will be honored. In fact, if a relationship is particularly valuable, one party can make substantial promises to the other—since walking away from the contract and ending the relationship is costly, this party will have no incentives to renge.

But how can an agent (in the case of First Boston, bankers working on behalf of a principal—the bank) know whether a principal places a high or low value on the relationship when the principal has private information or an outside option that the agent is unaware of? Halac set out to establish a method for determining the value of such relational contracts, analyzing the dynamics of how parties to informal contracts induce each other to reveal clues to private information.

To do so, Halac created a model that reflects the three main aspects of the principal-agent setting. The first aspect is moral hazard, or the fact that the principal cannot observe the agent’s effort, so the principal offers motivation and incentives in the form of rewards that are contingent on performance. The second aspect is that not all performance or output can be measured, so some of these rewards are discretionary and informally enforced (in the case of First Boston, the promised bonuses).

The third aspect, and the innovation on which Halac’s paper rests, is that the principal may have private information or outside options that the agent isn’t aware of. Can a firm close up shop and take its operations elsewhere, or can it replace current employees with others who have similar expertise? The inability to know whether each party places a high or low value on the relationship makes it difficult to gauge whether the promises made through an informal contract are trustworthy. It also makes it difficult to determine what contracts a party will be willing to accept and which ones it will prefer to reject.

Even if counterparties can’t identify the details of such outside options and private information, Halac’s research suggests that it is possible to size up whether a relationship has high or low value. Since informal contracts are usually implemented over time, an agent may have the opportunity to learn the private information of the principal based on the way the principal behaves (or vice versa), akin to how poker players glean information about their competitors’ hands and adjust their subsequent decisions with their competitors’ choices in mind.

Principals and agents usually reveal information through their decision to honor or renege on a contract, or through their decision to accept or reject a proposed contract. For example, a principal might make a promise to pay an agent or to promote him to a higher position in the event that performance is high. If the principal does not renege on his promises, the agent can be reasonably certain that he is facing a principal that places a high value on the relationship. If the principal reneges on some or all such promises, the agent can reasonably assume the principal doesn’t

How do you reward an employee for leadership, innovation, cooperation, or initiative?

Handshake continued on page 20
place a high value on the relationship, and there’s a high likelihood that the agent will end the relationship.

One of the biggest factors to consider is how the principal wants to misrepresent its private information to shape the way in which it is perceived by the agent (or vice versa). “A party may have incentives to overstate or understate its private information,” Halac says. “The location of bargaining power plays a key role in this respect: If one party has power, it will probably want to convey that it places a high value on an informal contract. If its power is not that strong, it will probably want to convey that it places a low value on an informal contract.”

For example, a firm may have an incentive to make its employees (or contractors or vendors) believe that it values its relationship with them more than it actually does to provide an incentive for them to work hard or otherwise produce value for the firm—in which case the counterparty may believe that ending the relationship would be more costly to the firm than it really is.

Or, if employees organize and demand higher pay, the firm may want to take the opposite approach: It may not want to reveal that employees are highly productive lest they ask for a larger share of profits through wages. (There is evidence that this happens — research shows that in years when companies are in negotiations with unions, reported revenue decreases, suggesting that firms engage in efforts to make profits look smaller than they are.)

“The model,” Halac says, “can help predict the outcome of informal credit contracts, agreements between firms, supply-chain contracts — wherever informal contracts arise and parties don’t have access to the same information.”

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**Marina Halac** is assistant professor of finance and economics at Columbia Business School.

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**Shifting Out of Neutral**

Game theory shows how flexibility on net neutrality principles could benefit consumers, ISPs, and content providers.

In 2005 the Federal Communications Commission (FCC) changed the Internet’s designation from telecommunication services to information services, lifting non-discrimination requirements on Internet service providers (ISPs). Since then, a debate has simmered over the Internet’s fundamental neutrality.

The notion of the Internet as a neutral space stems from the fact that no single transmission has priority over any other transmission and that ISPs cannot discriminate against any transmission by slowing or restricting it; traffic from all content providers (CPs) is treated equally. For example, traffic generated by a search in Google takes the same time to travel through the system and has the same priority level as traffic generated by a startup search engine running in a garage.

In the eyes of neutrality advocates, the Internet breeds entrepreneurial equalization and innovation: anyone can put up a website to promote a concept, product, or service and easily place it within reach of a worldwide audience. For those who hold this view, the Internet’s neutral default is its essence and is central to its success.

On the other side of the debate is a group mainly represented by ISPs and the telecom industry. These firms invest significant resources to introduce the physical network: digging trenches, laying optic fiber and cable, and going the costly last mile, where the signal from a large main cable must be split into a number of much smaller lines that fan out to individual users. And, maintaining and upgrading the infrastructure brings commensurate costs. For ISPs in the wireless market, investments are even bigger and recurrent because they need to buy rights to use the spectrum from the government at hefty prices, and airwaves offer limited capacity compared to the wired Internet. But ISPs and telecoms have little flexibility in the contracts they can offer to CPs. In their view they should be permitted to offer a greater variety of contract terms, such as charging higher rates for faster or more secure delivery, to recoup their investment. Others view the current Internet as neutral in a limited sense, because CPs with the deepest pockets can (and do), for example, strategically deploy server farms and contract with content distribution networks to reach consumers more quickly.

Connection quality — a connection’s speed and priority among all users vying to connect through an ISP or telecom platform—is at the heart of the neutrality debate. CPs prefer high-quality platforms, which transmit data faster and are less likely to drop packets containing user data, because they allow CPs to collect more ad revenue than with low-quality ones. Of course, consumers also prefer high-quality platforms because these improve their Internet experience.

While the FCC’s most recent moves suggest it will uphold key principles of neutrality, so far the agency has not imposed formal regulations, and the Internet’s neutral future remains unclear. A recent joint proposal from Google and Verizon, which proposes more flexibility on neutrality principles, especially in the wireless market, has amplified the debate. While lawyers consider the contractual implications of a neutral versus a non-neutral Internet and engineers study technical considerations, others, including Professors Nicolás Stier-Moses and Gabriel Weintraub, are beginning to examine the pros and cons from an economic perspective.

Internet stakeholders such as ISPs and CPs tend to view their interactions as a zero-sum game, but the researchers’ work suggests otherwise.

In the current pricing scheme, Google generates a tremendous amount of web traffic but does not pay ISPs to deliver that traffic. Put simply, Google pays an ISP to get Internet access once. Because the Internet is a complex structure of interconnected ISPs and networks, another service provider may end up delivering the information to end users; this provider does not charge fees to Google. “A central issue...
in the net neutrality debate is whether ISPs, on the argument that such a great proportion of traffic is generated by a relatively small number of CPs, should be allowed to charge those CPs for access to consumers,” Stier says.

To find out, Stier and Weintraub used principles of game theory to create a model that mimics a two-sided market for Internet access, working with Paul Njoroge and Asuman Ozdaglar of MIT. In their model, an ISP or telecom platform receives payment streams on both the consumer side and the content side, so that platforms compete for consumer and CP fees.

When the researchers modeled investment in quality in the neutral scenario between two platforms they found that it through ISPs to get access to their consumers. This presents a tremendous revenue opportunity and gives low-quality platforms a much bigger incentive to invest in quality. The low-quality platforms can charge higher prices to CPs, and this extra revenue offsets the inevitable loss on the consumer side, where the increase in platform quality drives up competition for consumers and pushes prices down.

Somewhat ironically, the model suggests that CPs will end up better off in a non-neutral scenario, because overall quality increases. “A poor connection to YouTube,” Stier says, “is not worth much.” As the overall Internet experience improves, users will consume more content, enabling CPs to benefit from higher ad revenue.

“While the FCC’s most recent moves suggest it will uphold key principles of neutrality, so far the agency has not imposed formal regulations, and the Internet’s neutral future remains unclear.

is optimal for the platforms to maximally differentiate and segment the customer market—in other words, for one platform to invest in infrastructure, improving quality and attracting customers (but also incurring higher costs related to establishing and maintaining quality), and for the other platform to invest as little as possible, attracting customers who will forsake a high-quality connection for low fees. If the low-quality platform were to increase its investment in quality, it could not attract enough additional customers to offset its spending. Should a high-quality platform invest less, it would lose too many customers to remain profitable.

In the non-neutral scenario of the Stier and Weintraub model, a platform can charge all CPs, not only those who connect directly to it, granting platforms monopoly power over access to their consumer bases. The ISPs become gatekeepers; CPs must navigate solutions to improve the quality of their users’ experiences.

The Stier and Weintraub model focuses on quality investment by ISPs. “We suspect that in some sense we would see similar results if we had explicitly modeled innovation investments by CPs,” Stier says. “CPs and ISPs offer services that are complements to one another, so if CPs are given incentives to innovate, it’s likely that ISPs would be better off.”

“Ultimately, all stakeholders may have something to gain by conceding some ground,” Weintraub says, and points to the Google-Verizon proposal. “The goal of their agreement is to simultaneously encourage investment in infrastructure with openness and innovation on the content side. Google’s willingness to concede on neutrality principles demonstrates that a compromise may offer gains for both sides. The goal of the FCC should be to encourage investments, innovation, and competition in the CP and ISP markets, so that these gains translate into benefits for consumers as well.”

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Gabriel Weintraub is associate professor of decision, risk, and operations and a senior scholar at the Jerome A. Chazen Institute of International Business at Columbia Business School.
THE IDEA

Determine when making price changes will—and won’t—pay off.

THE RESEARCH

Retail firms rely heavily on pricing policies to maximize their revenue, raising and lowering prices as they reassess customer demand or in response to external factors such as big swings in the economy or new competition.

But price changes are costly. To advertise new prices, a clothing retailer may need to republish and redistribute its catalog. Some states have consumer protection laws that require retailers to label individual units for sale, making the cost of paying staff to relabel products substantial, especially for retailers that carry a large number and variety of products. In a grocery store, for example, the cost of repricing may include relabeling individual units, staff supervision, and correcting errors; the total cost can amount to 35 percent of a store’s net annual profit margins. Far-reaching price changes that require greater managerial attention and resources can further inflate costs.

Retailers must weigh the cost of relabeling against the expected increase in revenue when considering whether to reprice. In practice, firms tend to resist frequent price changes because of associated costs. But sometimes the retail environment demands it.

While many quantitative methods for pricing exist and are built into retail software packages, these models often call for frequent price adjustments but ignore the costs of making such adjustments.

Professor Alp Muharremoglu worked with Sabri Çelik of Columbia University and Sergei Savin of Wharton to create a better model for price changes, accounting for fixed costs, such as advertising, and variable costs, such as those that depend on the amount of inventory on hand.

The researchers created two models. The first is a dynamic model that reflects the complex considerations of price changes and sometimes results in making counterintuitive recommendations. For example, it may be profitable to lower a price when inventory for an item decreases by 20 percent but more profitable to raise the price again later if inventory drops by an additional 20 percent.

The researchers then created a second model that offers a pared down calculation for optimal price changes. The researchers recommend using this simplified version even when it might appear that the complex version provides a more accurate recommendation, because implementing a less precise but more streamlined change may offset the cost or effort of using the more complex model.

PRACTICAL APPLICATIONS

Pricing managers

You can use this research in retail settings for markdown management or to fine-tune price changes in response to a broad range of environmental factors. This research is especially useful to retail firms that traffic in large numbers of products subject to the whims of consumer demand or that are particularly sensitive to external conditions.

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Alp Muharremoglu is assistant professor of decision, risk, and operations at Columbia Business School.
Follow the Retail Traders

New research shows that retail investors don’t merely follow temporary upward trends but can actually predict future stock returns.

A good deal of recent evidence suggests that retail investors consistently predict future stock returns. Are these retail investors merely good followers, buying stocks that are already on the rise? Or are they the leaders that other investors should follow, making well-founded trading choices that put them in front of the market?

Professor Paul Tetlock worked with Eric Kelley of the University of Arizona to better explain how it is that retail traders regularly predict stock price movements. “Past research focuses on how many dollars retail investors lose from trades and how many dollars institutional investors win,” Tetlock explains. “Instead, we look at the direction of trades to see if retail traders are buying in advance of price increases and selling in advance of price decreases.”

The researchers analyzed the largest and most recent US database of orders ever studied, made up of retail order flow routed to two large market centers from 2003–07, representing 225 million executed trades and $2.6 trillion in volume. The researchers first measured retail trader order imbalances, adding up all buys and subtracting all sells, and found that the net buying activity of retail investors positively predicts the direction of future stock returns for at least one month and up to three months. They then combined the order data with a database of 3.75 million financial newswires covering the same 2003–07 period to determine if any of three possible explanations account for retail traders’ ability to predict returns.

The private information hypothesis says that retail investors trade on information that others aren’t yet aware of, and that a stock’s price will take some time to reflect all available information. “Suppose there is a relatively large number of physicists in the United States who know a lot about microchips,” Tetlock says. “They may know something about AMD, the microchip producer, that stock analysts on Wall Street don’t know—perhaps AMD has developed a superior production process that will ultimately lead to big gains in market share for AMD—and those physicists buy ahead of everyone else.

“We should see newswire stories with many positive words about AMD start to appear in the weeks after the physicists started buying AMD, when the market and the financial press become aware of that private information.” Tetlock says. “And it does turn out that aggressive buying—market orders from retail traders to immediately buy regardless of price—usually precedes positive news.”

The liquidity provision hypothesis considers how to explain activity around retail traders’ so-called patient orders—limit orders to buy or sell a stock when it reaches a certain price. “Maybe AMD suffered a negative liquidity shock when a mutual fund sold it for reasons unrelated to AMD’s profitability. Retail traders who recognize this can step in and buy AMD stock cheap, which provides liquidity to the mutual fund. The traders eventually realize profits when the stock rebounds, once people see that AMD’s profits haven’t changed and there is nothing fundamentally wrong with the firm,” Tetlock explains. In short, limit orders are responses to non-news, correcting past errors in market prices. Consistent with this, the researchers found no relationship between retail traders’ limit order activity and firm-specific news.

The one explanation the researchers do not find support for is the autocorrelated flow hypothesis, the idea that some retail traders simply buy day after day, putting repeated upward pressure on stock prices even though they lack private information. According to this story, because prices rise for no real reason other than in response to the buying activity, prices should eventually fall when the market corrects itself. But this is inconsistent with the researchers’ finding that price increases occurring after retail investor buying activity continue for at least one month and as long as one quarter. Tetlock suggests that traders who buy day after day may be like the hypothetical AMD physicists, buying one after another acting on the same information that the market simply hasn’t figured out yet.

Tetlock’s results, along with other recent evidence, contrast with earlier findings about retail investors’ predictive abilities, differences that he attributes to recent changes in the trading population. “Traders disproportionately invested in Internet stocks in 2000 would have lost about 80 percent of their money over the following two years, whereas traders with more diversified investments would have kept most of their wealth,” he says. “It’s an evolution argument: survival of the fittest. Those who were actively trading and doing poorly simply lost their money. Who is left? People who didn’t do that.” He also points out that early adopters of online trading may have been disproportionately young and male, suggesting there may be a more prudent population of older investors and women investors reflected in recent data.

“Ultimately, knowing that today’s retail traders predict which way stock prices are going to move in the next month is valuable information for institutional investors, high-frequency traders, and market makers whose profits depend on monthly stock price movements,” Tetlock says. “It allows them to direct their portfolios the right way.”

Read More

Paul Tetlock is the Roger F. Murray Associate Professor of Finance in the Finance and Economics Division at Columbia Business School.
A Passive-Aggressive Path to Harvesting Risk Premiums
Large long-term investors can capture a variety of risk premiums at a lower cost by shifting some investments from active management to passive benchmarks.

Twenty years ago, Norway established a sovereign wealth fund to manage the public wealth generated by its oil revenues. Today the Government Pension Fund–Global is valued at well over $400 billion, larger than the size of Norway’s annual GDP. With only five million residents, the fund represents close to $100,000 per citizen, and, as such, is understandably prominent in Norwegian life. Consequently, there was a great deal of public debate about how the fund should be managed after Norway’s fund, like many funds, experienced significant losses as a result of sharp declines in global asset prices in 2008 and early 2009. As part of the debate, some members of Norway’s parliament proposed pulling the fund’s active management mandate and shifting the entire fund into a passive index. But it was not entirely clear that passive investing was the right answer for Norway, so the Ministry of Finance commissioned an extensive external review designed to assess how well the fund had been managed and to make recommendations for going forward.

The centerpiece of the review was produced by Professor Andrew Ang, who worked with William Goetzmann of Yale and Stephen Schaefer of London Business School. The three-part report first sought to assess the performance of the fund’s managers and answer the question of whether the fund should pursue active or passive strategies.

“Academic theory says that if markets are efficient then investors should simply hold index funds,” Ang says, “and that those pursuing active management will lose money because of the transaction costs associated with paying fees to fund managers.”

This view—the efficient markets hypothesis—has evolved since its inception in the 1960s, and its more recent incarnations do take into account transaction costs, financing and other frictions, and that fund managers are either more or less advantaged based on their skills or their access to superior information about the market. Ang and his coresearchers determined that, consistent with these realities, there is no reason for Norway’s fund—or any large fund—to pursue a purely passive strategy.

“The fund’s large size confers advantages that Norway should make the most of,” Ang says. “Large funds have the advantage of being able to do things on a truly global scale and to hold assets with very long payoffs that short-term investors or smaller funds cannot.” A large fund can also provide liquidity—the Norwegian fund was one of the largest buyers of equity in the last part of 2008, worldwide—and can buy cheap when most others are selling.

Ang and his coresearchers next conducted a historical evaluation of the fund’s long-term performance and assessed whether the fund was being correctly and efficiently managed.

“We found that the fund’s managers were doing precisely what they should have been doing: collecting as many sources of risk premiums as possible,” Ang says. “There are many strategies for exposing a fund to risk premiums—value investing, exploiting various sources of credit risk or illiquidity risk, selling...”
A White Hat for Private Equity?
A growing body of evidence suggests that when private equity enters an industry, growth and productivity follow.

Does private equity wear a black hat or white hat? The black-hat view holds that private equity firms buy out other companies primarily to engage in financial engineering and pare down operational efficiency to ensure a quick turnover sale and profit. The white-hat view contends that private equity investors are driven not merely to generate operating efficiencies and short-term returns but to add value through increased productivity and other drivers of growth.

Private equity has long been the object of such scrutiny, and the recession has done little to provide definitive answers to these questions. That’s more true than ever as key market players and regulators cast around to identify just which institutions and investors were most responsible for introducing massive systemic risk and instability into financial markets. And so a larger question looms: Did private equity funds, with their highly leveraged investments and opaque operations, contribute significantly to instability in financial markets?

Professor Morten Sørensen, working with Shai Bernstein and Josh Lerner of Harvard University and Per Strömberg of the Stockholm School of Economics, sought clues as to whether private equity played a role in introducing systemic risk into financial markets. In particular, they hoped to learn about the cyclicality of private equity: Do private equity investments smooth or amplify the economy’s up and down cycles?

Researchers face many challenges when trying to answer even elementary questions about the performance and operations of private equity–owned firms, because direct data from such firms is not readily available—as private companies, the firms are not required to file annual reports or financial disclosure statements. “It is hard to see what happens in terms of research and development, in terms of expenditures and in terms of a number of internal business decisions,” Sørensen says. “That makes it hard to understand what private equity investors are doing after they buy these companies.”

There are, however, sources of data that can provide indirect means to measure the economic impact of private equity. Sørensen and his coresearchers linked the Organization for Economic Cooperation and Development’s (OECD) structural analysis database, composed of statistics from across industries in dozens of countries from 1991 through 2007, to a database of worldwide private equity activity. The OECD data allowed the researchers to look at overall industry performance as a way to measure total production of private equity–owned companies.

The researchers found countries that had private equity investments in select industries and then compared the performance of industries without private equity investment in those countries to the same industries in other countries where there was private equity investment. The researchers looked most closely at productivity measures, which determine whether there are valuable gains by 3 percent, productivity in industries with private equity investment increased on average by 4 percent, a fairly substantial increase, particularly when sustained over time, as the OECD data suggests is the case.

The researchers also compared the OECD measures of total labor costs and employment numbers by industry, again comparing data from those industries with private equity investment to those industries without. Here too they found that the growth rate improved substantially in industries with private equity investment, by 0.5 to 0.8 percent. (This also means that in industries that are contracting, the contraction is less severe when private equity investment is present.)

“The overall picture we are getting is that private equity investors seem to be long-term investors, creating value in the industries where they invest,” Sørensen says.

The strong association between private equity and growth prompts the question, do private equity investors cause growth or are they simply good at selecting industries that are already on a growth trajectory? A range of analyses suggests that the direction of causality runs from private equity to productivity and employment growth. For example, the researchers found that private equity investments enter industries before employment or productivity starts to grow in those industries, suggesting that private equity investment prompts growth rather than the other way around.

The researchers also looked for evidence supporting claims that private equity investors are strictly interested in short-term returns, eschewing investment in fixed assets, maintenance, and expansion in favor of financial engineering and quick turnaround. But declines in capital formation, smaller capital investments, or higher consumption of fixed assets—typically signs of short-term investment—were neither higher nor lower in industries with private equity–owned firms. The researchers also looked at

Flexibility allowed private equity to weather the downturn.

in an industry in a given year, and employment growth and labor costs. By comparing and controlling for specific years and overall performance of industries, they were able to gauge whether private equity investment leads to more cyclicality and better performance.

To examine productivity measures, Sørensen and his coresearchers looked at the amount of value added in an industry in a given year, comparing that with countries that had private equity investments in that industry and those that did not, finding that private equity investment is associated with a roughly 1 percent annual improvement in the growth rate. In other words, if overall productivity increased on average

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cyclicality and whether swings in industries where private equity is present are larger than those without private equity and concluded that there is little difference between private equity and other types of firms.

In continental Europe, the regulatory environment for private equity is less friendly than it is in the United States and the UK (several new regulatory proposals targeting private equity and hedge funds are on deck in Europe), but the researchers found that the beneficial effects of private equity appear to be just as robust in Europe as in the United States and the UK.

The data sets Sørensen and his core-searchers used ended a short time before the financial crisis hit, and it is unclear if their findings would have differed significantly had the data included the months leading up to the crisis. Sørensen speculates that the conclusions would not have changed much. “Evidence is starting to accumulate that private equity–owned companies are fairly resistant to downturns despite their higher leverage, alleviating concerns that the high leverage would put these firms into distress during tough times,” he says. “That hasn’t happened to any extent we feared.” This is probably, he says, because leverage negotiated at the height of the boom came with relatively easy conditions and deferred interest, granting firms the means to ride out the recession.

Sørensen also attributes this resilience to the unique capital structure of private equity–owned firms, which allows them to renegotiate and structure debt with more latitude than publicly traded companies, which must contend with shareholders. “That flexibility is probably what allowed private equity to weather the downturn.”

**Read More**

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**Liquidity in Three Dimensions**

A new model reveals quantity to be as important a variable as price and time in investors’ optimal trading strategies.

In contrast to traditional liquidity, or the overall ease with which assets can be traded, as a two-dimensional trade-off between price and time: An investor accepts a worse-than-desired price in order to trade a set quantity immediately, or she waits to execute the trade later at a better price.

But this canonical price-time trade-off might not always offer the best approach to understanding liquidity, Professor Laurie Hodrick says. “The trade-off might actually be between quantity and time, or quantity and price,” she says. In such instances, liquidity reflects not only the dimensions of price and time, but also quantity.

“We think of the mutual fund portfolio manager as the archetypal investor, limited by both what she needs to attain and the ease with which she can attain it,” Hodrick explains. For example, timing will be a key consideration for a fund manager facing re đemments—when investors want to cash out shares. The manager will not necessarily sell a given set of assets at whatever price she can get—she will look at her portfolio and current market prices and, based on that, pick and choose what and how much to sell.

“Contrast that with the idea of ‘this exact amount of this exact asset is the amount I have to sell—no more, no less,’” Hodrick says. “Depending on how binding other constraints are, if the terms are bad enough a portfolio manager may not trade some assets at all. It may simply be that when she runs the optimization, her most rational course might be to not trade.”

Quantity may not always be an important factor. Value investors are primarily concerned with long-term value and price. But for others, quantity is a dominant consideration. Hodrick worked with Pamela Moulton, PhD ’03, of Fordham University to create a model of investor dynamics that incorporates quantity as a variable in asset trading.

“Our model explores a three-dimensional concept of liquidity: ‘I want it, I want it now, I want it at a good price,’” Hodrick says. The model yields new insights about liquidity and other considerations that all investors—from the sophisticated active portfolio manager to the relatively uninformed index fund manager—take into account in their attempts to optimize their trades. “Things that looked funny under previous models now look very consistent with rational, maximizing behavior.”

Index reconstitution, for example, is widely predictable because there is no asymmetric information—a portfolio manager is simply replicating an index of securities without regard to what he may know about the particular assets that make up the index. But portfolio managers often trade illiquid securities in advance of reconstitution, creating important liquidity considerations. This may cause tracking error (under- or over-performance compared with the index) by producing variations that don’t perfectly replicate the index. “But the managers are anticipating what they need to trade, obtaining the desired quantity at what they regard as a good price,” Hodrick says. “This is a behavior that earlier models did not allow for.”

Including quantity as a decision variable illuminates how investors try to optimize their portfolios. “Changing one choice variable in the investor’s maximization can make you think differently about many things,” Hodrick says. “It affects everyone. It changes how prices are set by market makers. The informed investor faces different prices because of the uninformed investor’s maximization. The equilibrium in the market as a whole can look very different.”

**Read More**

Laurie Simon Hodrick is the A. Barton Hepburn Professor of Economics in the Faculty of Business in the Finance and Economics Division and founding director of the Program for Financial Studies at Columbia Business School.
The Mismeasure of Mispricing: The Case of Customer Satisfaction

New research dismantles the notion that the stock market undervalues firms that earn high marks from consumers.

The customer may always be right, but satisfied customers might matter less for some industries than others. The high cost of entry into the utility industry, for example, helps ensure little competition and a high rate of customer captivity for existing utility companies, which need not compete on customer satisfaction to maintain market share and sustain demand for products and services.

Customer satisfaction is tricky to price because, like branding strategy or research and development, it falls into the category of intangible assets, which are difficult to measure and value. For the last decade, a number of marketing experts advanced the notion that the stock market undervalues firms with high customer satisfaction scores, reporting that stock prices continue to rise in response to such scores for months, rather than days, after the surveys are published. A large body of research has grown around this idea, and a number of investment advisers promoted trading strategies designed to exploit it.

But Professor Natalie Mizik was unconvinced: if the market doesn’t immediately recognize customer satisfaction, why would the stock prices of firms in industries less sensitive to customer satisfaction behave like those from industries where customer satisfaction is paramount to business success? She hypothesized that the aggregate data could be masking sector-specific phenomena.

Mizik was also curious about more than the relationship between stock price and customer satisfaction. Other researchers have pointed to the volatility and bubble-like patterns in the market following big technical revolutions: new types of firms behave differently than established ones, and the market fluctuates more than usual as it calibrates to the new industry.

Mizik’s data sets matched those used by the researchers who first identified customer satisfaction mispricing, covering the late 1990s and early 2000s: the Internet boom and bust. The emergence of online retailing clearly fell into the category of a revolution—one that struck Mizik as dramatic enough to skew results.

Working with Robert Jacobson of Diogenes Consulting in Seattle, Mizik took another look at the association between high customer satisfaction and stock prices. The researchers matched the daily and monthly stock returns of more than 100 prominent US firms covered by the American Customer Satisfaction Index (ACSI) survey from November 1996 to August 2006. (ACSI publishes a survey-based measure of consumer satisfaction for a broad spectrum of industries in the United States at regular intervals.)

The researchers capitalized on a new methodology in financial research—one that Professor Andrew Ang helped pioneer—using time-varying risk factor models to allow for risk premium changes over time. “Firms change; portfolio compositions change,” Mizik says, “and that must be accounted for.”

When the researchers aggregated data for all industries, their results closely replicated those of the past research. But then they segregated out utilities and Internet firms from the rest of the data sample and examined each of three sectors—utilities, Internet firms, and all other firms—separately.

What did they find? “It is all, pretty much, about the Internet bubble,” Mizik says. “If you isolate the Internet firms—and there are only seven of them in the total sample—there is no association between ACSI and future stock returns.” The previous findings that suggest widespread mispricing of ACSI across industries appear to be driven by this small set of outliers in the Internet sector.

“Because Internet firms exhibited this dynamic, their characteristics and pattern of returns were very different from other firms. Valuation models used for Internet firms at the time by the market were probably different,” Mizik says. “These differences need to be recognized and accounted for in the model. Once you do that, all of the mispricing results for customer satisfaction disappear.”

The results suggest that financial market mispricing of customer satisfaction, if it exists, is not widespread but is instead limited to firms in the computer and Internet sector. “Customer satisfaction has different implications in different industries, and different value implications are reflected in different valuations,” Mizik says. “It’s important to look at the same types of firms, or firms operating in a similar business environment.”

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Risky Incentives and Executive Pay

Equity-based pay is standard in many industries, but in banking the practice ratchets up risk taking and increases the likelihood of default.

As businesses, banks are unique. Highly leveraged from borrowing large sums against loan and deposit bases, it can be relatively easy for a bank to find itself overextended. Trouble—collapse, bankruptcy, or bailout—can easily ensue. This is, in large part, the story of the financial crisis.

Full-tilt leverage by itself is not unique to banks, but unlike other enterprises that rely heavily on debt to produce returns, such as hedge funds and private equity firms, the business of banking touches more directly on the question of moral hazard: when a bank—or any financial services institution—grows large enough, it may become so closely woven into the economy that it becomes too big to fail. Bank executives know that if their risks backfire, a bailout is more likely than not, diminishing their incentives to moderate risk.

Typically, shareholders shy away from moral hazard; if risk rises, so does the chance a firm will lose value or even enter bankruptcy, wiping out shareholders. But a virtually assured bailout means that both stockholders and executives, most often compensated in equity-based pay such as restricted stock and options, are protected against these adverse consequences.

“Governance breaks down in this environment because it’s not clear who is going to care if a financial institution takes on excessive risk,” says Professor Bruce Kogut, whose expertise includes governance, ethics, and financial innovation.

Not all financial institutions fell prey to the temptation of excessive risk. But how did so many institutions run by capable managers and prestigious boards end up taking on such wildly risky bets?

The conventional view of risk and executive compensation is that if the riskiness of a CEO’s choices bears against his own pay and position, the CEO will act in the best interests of the firm’s many stakeholders. “Equity-based pay usually accomplishes this,” Kogut says. “If you make reckless decisions your equity goes down and you personally suffer.”

However, for financial institutions equity behaves like an option once government policy provides implicit insurance against bankruptcy, thereby salvaging the value of equity. The incentive for taking on risk soars: after all, an option can go up in value dramatically; in the worst-case scenario, the option is valued at zero.

Kogut and Professor Sid Balachandran, working with Hitesh Harnal of Columbia University’s Financial Engineering Program, looked at equity prices and data from balance sheets of publicly traded banks and other financial institutions from 1995 to 2008, including credit and mortgage companies and security brokers, dealers, and exchanges.

“Typically, researchers have used the volatility of equity to assess risk, but that doesn’t tell us about excessive risk—it only tells us if equity fluctuates,” Kogut points out. “All firms’ equity is subject to fluctuation, particularly during bad periods, but volatility is not the same as default risk.”

Instead of focusing on volatility, the researchers measured risk as the likelihood that an institution would default, and then examined the relationship between likelihood of default and the proportion of the two main types of compensation—cash or equity—that make up the lion’s share of annual executive pay. They used frontier econometric methodologies and financial engineering, using liabilities from balance sheets and equity prices from the stock market to derive what the stock market implicitly thought was the probability that a firm would default.

Across the board, the researchers found that equity-based pay was consistently and significantly associated with an increase in the probability of default. Non-equity-based pay was associated with a decrease in the probability of default.

“In many cases it is good to give people equity-based incentives, though this doesn’t always sit well with the public or policy makers,” Kogut says. “The problem is that if something is good for most industries, we assume it is good for all industries. But in banking it’s not smart to incentivize managers if banks are heavily leveraged and if the government pays for bankruptcy.

“The puzzle is why there was no rational, prudent calculation of risk,” Kogut continues. “It probably points to other things that happen to people in this kind of environment, either competing to be better than the next person or already being so wealthy that gambling with the next $10 million is just a game.”

Is there a better solution than paying CEOs more in bonuses than in options and equity? Professor Patrick Bolton has proposed basing pay on how far a bank’s credit default swap spread is from the industry average, implicitly penalizing increases in default probability (see p. 30); other suggestions include basing pay on how well bank-issued debt performs or instituting clawbacks, in which compensation is deferred pending sustained long-term performance.

None of these proposals made it into the financial reform bill passed in July 2010, and not everyone agrees that changes are necessary. Many academics and commentators contend that in eras of stronger regulation, financial executives didn’t take on all of the
Trading at Light Speed

A model provides a simple method for calculating the cost of latency, the delay between the decision and execution of a trade.

Today’s technical limitations don’t allow computer systems to decrease latency, the ever-diminishing horizon between the time a trader makes the decision to trade and when the trade is made. But trading at light speed may not be far off. The last decade has seen a big increase in the incidence of high-frequency trading, with traders buying and selling in high volume at lightning-quick speeds. Trading firms invest significant amounts of money in sophisticated computer systems in their efforts to drive latency down to millisecond or even microsecond timescales and maintain competitive advantage in the modern electronic marketplace.

Even before a high-frequency trade set off a 300-point drop in the Dow in spring 2010, latency was getting attention around so-called flash orders. Some financial exchanges sold milliseconds-in-advance notice to select traders, who could observe and act on certain buy and sell orders before those orders were revealed to the broader marketplace. While technically legal, the orders prompted calls for regulatory intervention, but NASDAQ and other major exchanges voluntarily stopped offering the services before regulators took any action. In mid-April, the SEC proposed a trader ID system to help the agency monitor high-frequency traders.

“The discussion around latency thus far has been somewhat ad hoc,” says Professor Ciamac Moallemi, pointing out that latency is poorly understood. “For example, some have asserted that only high-frequency investors are affected by latency and that, for example, pension funds, which have very long timescales, are unaffected. “But latency is important for all investors: if you can lower latency you can lower transaction costs,” he says. “Pension funds would like to lower their transaction costs as much as high-frequency traders would.”

Moallemi worked with doctoral student Mehmet Sağlam to compare different theoretical trade scenarios, with and without latency, and used the results to create a simple quantitative model that can be used to value latency.

“The main conclusion is that we should view latency as a trading friction. So for a single individual, lower latency will reduce transaction costs. To the extent that high-frequency traders trade more often than pension funds, in dollar terms a high-frequency trader is more affected. But every trader pays transaction costs; everyone would benefit from their individual latencies being lowered.”

The implications of ever-decreasing latency for the financial system remain unclear. High-frequency traders have argued that lower latency allows them to be more active and post orders closer together, lowering bid-offer spreads, which should benefit other investors and create greater liquidity.

“So what do executives care about? Status,” Kogut says, is probably high on the list: bring back perks such as the corporate jet, country club memberships, or charitable giving. “The catch is, these would all go away once an executive leaves the job,” he says. “The larger point is that behavioral motivations might matter more than monetary incentives.”

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A Little Debt Can Curb Big Risks

Pegging CEO pay to banks’ credit default swap spreads could inhibit excessive risk taking, without requiring new regulatory measures.

Last summer, in an effort to correct what have been broadly viewed as distorted pay incentives in the financial services sector, AIG instituted a new compensation policy for senior management that bases pay on a mix of 80 percent debt and 20 percent stock.

The debt-based pay innovation aims to solve incentive problems that uniquely apply to financial institutions because of the high proportion of leverage that the firms take on—90 to 95 percent of bank and financial institution balance sheets are debt, on average. This makes financial institutions much riskier than nonfinancial institutions, where only about 40 percent of the average balance sheet is made up of debt.

But deposit insurance provides an explicit guarantee in the event of a failure, and the widely accepted (if increasingly questioned) notion that banks are too big to fail provides an implicit guarantee against failure, effectively subsidizing debt financing and shifting the consequences of risk taking from banks and their shareholders onto insurers, the government, and taxpayers.

This idiosyncratic nature of banks means that equity-based pay and other off-the-shelf solutions used at nonfinancial firms shouldn’t be applied to financial firms. “At more highly leveraged institutions with risky debt, maximizing equity value creates incentives for excess risk taking,” says Professor Patrick Bolton.

AIG’s new pay structure is one of a number of proposals that aim to reign in CEO pay by using debt to correct misaligned incentives. Doing so could work, Bolton says, so long as such proposals consider the firm’s overall value—or whole enterprise value—rather than equity value alone.

At nonfinancial firms, actions taken to maximize shareholder (equity) value also maximize the whole enterprise value, as long as corporate debt is mostly safe from default. “But even if debt is risky, firms have to take into account how actions that increase the value of equity might decrease the value of debt,” Bolton says, pointing out that in a highly leveraged institution with risky debt, equity is like a call option.

“Increasing risk or volatility always raises the value of a call option. But it also lowers the value of the debt, because debt holders are the first to be exposed and will pay a disproportionate amount of the loss if the firm goes under.” Therefore, when debt is risky, shareholders would like to commit to not take excessive risk. For financial firms the problem is amplified by the fact that the value of debt may not go down in proportion to higher risk because of the explicit and implicit guarantees provided by the government.

Yet there’s a simple solution to control excess risk taking, Bolton says. “We have market measures of risk. It’s just a question of exposing CEOs to those measures.”

Bolton worked with Hamid Mehran of the Federal Reserve Bank of New York and Joel Shapiro of the University of Oxford to test the notion that some forms of debt can be used to pay CEOs at financial institutions while better aligning incentives to avoid excessive risk taking. In conjunction with a bank’s stock price, the researchers propose using a bank’s credit default swap (CDS) spread, or the deviation of the CDS spread relative to the market average. The CDS spread measures how the market perceives risk to have gone up on the debt of the institution.

Much like a thermostat regulates temperature, a bank’s CDS spread would regulate CEO compensation: as the spread widens, CEO compensation would decrease; as the spread contracts, compensation would increase.

The researchers first conducted a theoretical analysis of CEO pay and risk taking, modeling the interplay between shareholders, debt holders, depositors, and executives, showing that a combined equity- and CDS-spread-based compensation structure could curtail excessive risk taking. They complemented their theoretical analysis with an empirical study of bank CEO compensation for 27 banks in the lead up to the financial crisis, comparing CDS spreads over the same time period. The research confirmed not only that CDS spreads captured risk accurately, but also that lower CDS spreads were associated with higher fractions of total CEO pay in the form of deferred compensation and more debt-like CEO compensation in general.

Bolton is less enthusiastic about using other forms of debt to correct CEO incentives. “Paying CEOs by asking them to hold part of the bank’s debt is problematic because you expose them to a lot of risk that has nothing to do with their actions, like aggregate risk with respect to interest rates,” he says. “If the Fed raises rates, then debt goes down—and so does CEO pay—which has nothing to do with what the CEO is doing. We agree that enterprise value, not just equity value, is
what matters. But we think a CDS spread is a better way of aligning incentives because it more directly identifies the risks that the CEO and the firm are taking.”

Shareholders could be reluctant to embrace the use of CDS spreads or other forms of debt as a payment vehicle since they get more value if the bank takes more risk. “But if you remove some of the implicit and explicit guarantees that encourage risk taking — and we are moving in that direction — then this potential conflict between regulators and shareholders will shrink,” Bolton says.

Correcting CEO incentives toward risk taking would correct trader incentives for excess risk taking. “If CEOs have skin in the game,” he says, “they will put more pressure on their risk managers to report risk accurately and to monitor traders more.”

Banks in turn wouldn’t have to work as hard up front trying to measure risk the way they currently do. “Nor would banks be forced to set aside capital in proportion to those measures, which are noisy and unreliable. This could streamline the way risk is measured and correct the weaker aspects of Basel III,” says Bolton, referring to the most recent round of accords that set international standards on bank laws and regulation.

“The weakest link in financial firms is typically between the risk management unit and the traders, but CEOs paid based on a CDS spread would have incentives to implement new internal risk management mechanisms,” Bolton says. “All it takes is a few banks to take the lead.”

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Patrick Bolton is the Barbara and David Zalaznick Professor of Business in the Finance and Economics Division and a senior scholar at the Jerome A. Chazen Institute of International Business at Columbia Business School.

The Spirit of Glass-Steagall
David Beim examines the assumptions behind the Obama administration’s proposal to implement new regulatory controls on big banks with a new Volcker rule and offers a different solution consistent with the original Glass-Steagall regulations: focus on asset quality.

Taking Attendance with Teachers
New research from Jonah Rockoff finds that the negative effects of teacher absences on student achievement are even greater than expected and underscores the cost of lost productivity in high-skill fields when replacements must fill in for absent workers.

Was Policy Failure behind China’s Great Famine?
A devastating famine in China more than a half-century ago has historically been attributed to a long spell of poor weather that reduced the country’s agricultural production. But new research from Pierre Yared suggests that China produced more than enough food to feed its people, showing how an inflexible government distribution policy played a central role in the disaster.

Helping Consumers Cross the Boundary
Customers must often navigate a number of physical and mental barriers, or cues, before making a purchase. Leonard Lee explores how manipulating some seemingly minor situational cues can make customers feel more committed and engaged, increasing satisfaction and loyalty.
Passing on a Bargain

While regulatory concerns and Wall Street’s modest rebound may have stopped banks from participating in the Treasury’s Capital Assistance Program, the program represented a great value for banks.

As the financial crisis peaked in the early part of 2009, the US government launched the Capital Assistance Program, or CAP, a counterpart to TARP and part of a larger financial stability plan. In the first phase of the program, nineteen of the nation’s largest distressed financial institutions—those with $100 billion or more in assets—underwent much-publicized stress tests to estimate how much capital each bank would need to survive a prolonged economic downturn.

The second phase of the program was designed to ensure that the same banks could raise capital in the face of the poor investment climate. Participating banks would raise capital by issuing securities in the form of convertible preferred shares to the Treasury, which would earn dividends on the shares.

The proposal was unique in that the issuer (rather than the buyer) would hold the conversion option: banks participating in CAP would have the option to redeem the shares, convert preferred shares to regular shares, or convert the shares to common equity. Conversion would become mandatory after seven years.

It is this conversion option that made CAP securities a form of contingent capital (in effect, a type of derivative) —a source of common equity a bank can draw on when other means of raising capital are unavailable.

The Treasury would retain the option to buy more shares in the bank in the form of warrants on the bank’s common equity. Warrants are attractive because they become very valuable if and when a bank recovers. “The Treasury doesn’t want to gouge a bank that’s in trouble, but if a bank recovers, the Treasury recovers its investment,” says Professor Paul Glasserman, whose research focuses in large part on risk management and derivatives pricing.

The greatest drawback is that if the bank or the Treasury exercised their options, the bank’s equity would become diluted for all shareholders. Otherwise, CAP represented a very good value for eligible banks, according to work that Glasserman undertook with Zhenyu Wang of the Federal Reserve Bank of New York.

The researchers used a contingent claims framework, accounting for the competing options of each bank and the Treasury, to estimate the value of CAP for each of the 18 banks that participated in the stress tests of early 2009. They found that CAP would have been a very good value to the effect of net 30 percent return on average, though with wide variation. Citigroup and First Third bank would have returned about 70 percent. According to the researchers’ estimate, Goldman Sachs would have benefited the least, but still with an approximately 14 percent net return.

Yet, the program had no takers. If CAP was such a good deal, why did every eligible bank pass it up?

The deal may have been a good one, but the higher share prices rose, the less banks needed the insurance of CAP—by its November 2009 application deadline, bank shares had regained much of the value they had lost in the early months of the crisis. And banks may also have been concerned that the market would view participation in CAP as a sign of a bank’s weak condition.

Banks were also probably hesitant to leave themselves open to the regulatory oversight that seemed likely to follow participation in CAP, as had occurred with TARP participants. “If the constraints put on banks are too stringent, it could be too costly to take a government subsidy,” Glasserman says. He points to the particularly pronounced case of Citigroup. In early 2009, the Mexican government initiated action that would have forced Citigroup to sell the Mexican bank Banamex on claims that Citigroup was owned by the US government, as Mexican law prohibits foreign governments from owning domestic banks. In the case of CAP, a mandatory review of senior management was one up-front condition.

Glasserman cautions that it would be a mistake to view the dearth of participation in CAP as a failure. Its mere existence probably did a great deal to reduce uncertainty about the ability of the biggest banks to keep operating; the banks knew they could count on the program if their efforts to raise private capital failed. That likely played a role in driving up confidence and share prices. And, had the economy continued its freefall, banks might have found some of the less palatable regulatory oversight worth the cost of survival.

CAP may leave its mark in other ways. Several proposals currently being floated by the private sector, academics, and regulators use a similar structure to allow banks to raise capital when the market sours and banks find private capital scarce. “The idea is to build a mechanism that would automatically trigger the release of contingent capital,” Glasserman says. One proposal would require banks to hold a certain amount of capital aside that could only be accessed in a moment of crisis. Another proposal involves debt that would automatically convert to equity when a bank finds itself in trouble.

“There is a little irony here in that, in the end, despite all of the bad feelings around derivatives,” Glasserman points out, “the Treasury structured these very complicated programs as part of the bailout.”

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A Simple Equation

New research shows why preventing another mortgage crisis might come down to cultivating better basic math skills.

The precise cause of the subprime mortgage crisis remains subject to debate, but one fact is clear: homebuyers are far more likely to default on certain types of mortgage contracts than others. Adjustable-rate mortgages, for example, have a much higher probability of entering delinquency and foreclosure than other types of subprime mortgages.

One popular explanation is that even as the subprime mortgage market made credit available to consumers who had previously been shut out of the housing market, lenders took advantage of unsophisticated consumers by steering them toward the riskiest mortgage products. These vulnerable borrowers, who often lack even elementary financial skills, took on attractive but risky subprime mortgages that they couldn’t afford and on which, in many cases, they subsequently defaulted.

Professor Stephan Meier worked with Kristopher Gerardi of the Federal Reserve Bank of Atlanta and Lorenz Goette of the University of Lausanne in Switzerland to see if they could find evidence that the most financially naïve consumers were ushered toward the most treacherous mortgages.

The researchers surveyed subprime mortgage borrowers listed on registers of deeds in three northeastern US states, asking participants to complete a three-part survey that assessed respondents’ numerical ability (that is, basic math skills), economic literacy, and cognitive ability.

It’s important to view numerical ability as one facet of financial and economic literacy rather than as synonymous to it. “The ability to understand basic mathematical concepts may be important for economic literacy,” Meier explains, “but it does not reflect whether or a person understands basic concepts about the economy, like what compound interest is or what inflation does, which we consider economic literacy.” Nor is a college degree a guarantee of facility with numbers. “Yes, there’s a much lower probability that a person with a college degree can’t divide 300 by two—the easiest of the questions we ask on the numerical ability survey,” he says. “But even people with college degrees can have difficulty dealing with numbers.”

The researchers matched the survey scores with the deeds and repayment history of each borrower to see which mortgages were current, delinquent, or in foreclosure, and what types of mortgages each individual held. The comparison revealed an extreme correlation between numerical ability scores and delinquencies: borrowers with the lowest numerical ability were delinquent almost 24 percent of the time, compared to 12 percent for borrowers with the highest numerical ability. Borrowers with the lowest numerical ability had a 21 percent rate of foreclosure compared to about 7 percent for the highest ability group.

Significantly, the default rates for those in the lowest numerical ability group were similar across all types of mortgages, rather than being more heavily skewed toward the most risky types. That result implies that the relationship between high rates of default and low rates of numerical literacy is not due to borrowers taking on too much debt or being systematically steered to the riskiest mortgages.

These consumers may not have been more susceptible than their savvier peers, but, Meier suggests, they were susceptible to their own lack of financial know-how. “People with low numerical ability are not just mismanaging their money when it comes to mortgages; they are mismanaging their finances in general,” he says. “We’ve all been confronted with a recession that required everyone to readjust their budgets, spend less, and think more about savings. These are people who just don’t have the skills to do that, and they’ve become trapped in a cycle of financial vulnerability.”

The public policy challenges, then, are difficult at best. In Meier’s view, much-touted plain vanilla mortgages are probably not the answer for the most vulnerable borrowers, because even the more straightforward terms of these mortgages would not address borrowers’ dearth of basic math skills and overall lack of financial literacy skills. He suggests that lenders consider applying a more rigorous screening process for prospective borrowers, including simple testing for basic math skills. Better yet, lenders could offer support to the most vulnerable borrowers, such as helping with budgeting, providing tools that make it easier to track budgets and providing courtesy reminder calls as payment due dates approach.

In the short run it may be tempting for lenders to squeeze as much money as they can out of customers who don’t know better. “But in the long run, those customers are more likely to default, and there go the profits,” Meier says.

Other research has shown that a surprisingly large proportion of Americans lack a basic level of financial and economic literacy. And, Meier points out that the financial decisions everyone faces have become much more complex than they once were. “We choose between defined benefit or defined contribution retirement plans. Everyone has a credit card now. And—at least during the housing boom—everyone could buy a house,” he says. “An investment in financial education would be a good one because the returns would only increase as financial decision making becomes even more complicated.”

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Stephan Meier is assistant professor of management and a senior scholar at the Jerome A. Chazen Institute for International Business at Columbia Business School.
Why Do the Chinese Save So Much?
A skewed sex ratio is fueling a highly competitive marriage market, driving up China’s savings rate and with it the global trade imbalance.

Much attention has been directed toward China’s high savings rate. Not only is the savings rate disproportionately high compared to virtually any other country, but it directly impacts China’s current account surplus and the US consumer deficit. When national savings exceed investment, the excess savings show up in China’s current account surplus.

The prolonged period of low global interest rates has been attributed in large part to this surplus, and with the surplus come pros and cons. “In the context of the financial crisis, the long period of low interest rates was linked to excessive risk-taking behavior in US markets, especially where regulation has been lax or inadequate,” Professor Shang-Jin Wei says. “The upside is that with low interest rates comes a lower cost of capital, which is good for investment.”

Given its far-reaching effects, both private sector analysts and policy makers have attempted to trace the causes of China’s high savings rate and to predict how long it will last. Some have attributed the savings primarily to Chinese corporations rather than households. Others point to a precautionary savings motive: because Chinese people are worried about costs of healthcare, education, and old-age pensions and are unsure about how much these costs might change over time, they respond by saving more. Other explanations point to habit formation or financial development.

“But these explanations do not tell the whole story and possibly are not the most important part of the story,” says Wei. Instead, Wei hypothesized that an important social phenomenon is the primary driver of the high savings rate: for the last few decades China has experienced a significant imbalance between the number of male and female children born to its citizens.

There are approximately 122 boys born for every 100 girls today, a ratio that translates into cutting about one in five Chinese men out of the marriage market when this generation of children grows up. Three factors conspire to produce the imbalance. First, Chinese parents often prefer sons. Second, it has become increasingly inexpensive for even a relatively poor farmer to afford the $12 Ultrasound B, the most common technology used for learning the sex of a fetus.

Third, but perhaps most importantly, China’s stringent family planning policy limits the number of children a couple can have. The policy allows most couples to have only one child. But in some regions, if a couple’s first child is a daughter, the state permits the couple to have another child. Families with one daughter that become pregnant with another daughter are more likely to terminate the second pregnancy in hopes of producing a son later on. (India, Korea, Vietnam, and Singapore also have sex ratio imbalances that favor male children despite the absence of these stringent family planning policies. It might be that in these countries people voluntarily want to restrict the number of children they have, and still prefer sons and have access to inexpensive selective abortions. The sex ratio imbalance is high in these countries but not as extreme as in China.)

“The increased pressure on the marriage market in China might induce men and parents with sons to do things to make themselves more competitive,” Wei says. “Increasing savings is one logical way to do that, to the extent that wealth helps to increase a man’s competitive edge. Parents increase household savings mostly by cutting down their own consumption.”

Wei worked with Xiaobo Zhang of the International Food Policy Research Institute in Washington DC to see if his hypothesis held up, comparing savings data across regions and in households with sons versus those with daughters. “We found not only that households with sons save more than households with daughters in all regions,” Wei says, “but that households with sons tend to raise their savings rate if they also happen to live in a region with a more skewed sex ratio.”

The effect is significant. The household savings rate in China rose from about 16 percent of disposable income in 1990 to over 30 percent today, which is much higher than most countries. About half of the increase in the savings rate of the last 25 years can be attributed to the rise in the sex ratio imbalance. “It’s a very high ratio of savings to income,” Wei says. “The comparable savings rate in the United States would be 2 or 3 percent before the crisis, and about 6 percent since the crisis.”

Even those not competing in the marriage market must compete to buy housing and make other significant purchases, pushing up the savings rate for all households.

“While the conventional explanations for the high savings rate all play a role, they are not as important as people previously thought,” Wei says. “People had noticed the sex ratio imbalance as a social problem.
Sociologists and other social scientists had looked at the phenomenon but had not looked at it in relation to the high Chinese savings rate."

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As economists and policy makers have looked with concern to the large Chinese current account surplus and large US current account deficit, or global imbalances, much of their discussion has focused on changing exchange rate policy. There are global economic implications if China continues to save at such a high rate, and Wei’s research highlights a connection between social policy, saving behavior, and current account balances.

"Exchange rates might be part of the solution, but our work suggests they might not be the most important part," Wei says. Because sex ratio imbalances that skew toward males are viewed as evidence of a society’s tendency to discriminate against women, it calls attention to the status of women and women’s rights. And China is not the only country where the sex ratio dynamic needs attention. "The effect of sex ratio imbalance on savings is not unique to China," he says. "Many other countries with significant sex ratio imbalances also have relatively high current account balances.

"None of the discussion about global imbalances has brought family planning policy or women’s rights to the table, because people do not see these issues as related to economic policy," Wei says. "Our research suggests that this is a serious omission. You can only implement the right policy when you get the diagnosis correct, and fruitful policy dialogue has to include discussion of these issues."

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volatility protection, or providing liquidity when others want to sell. The fund should have exposures to these risk factors.”

Importantly, the researchers found that the majority of the fund’s losses in 2008 and 2009 could be attributed to its pursuit of these factor risk premiums. But the common intuition that the resulting losses were bad for the fund is a superficial one, according to Ang. “It is no mystery that exposure to these is going to result in losses at some point. It is precisely because factors—like credit, liquidity, or volatility risk—do badly during certain times that they pay off handsomely in the long run.”

Where the fund stumbled, Ang says, was in its failure to clearly communicate the types of active strategies that it was pursuing. “The Norwegian parliament and public are sophisticated about these matters. For example, when equity markets fell dramatically in 2008, there was no outcry because the Norwegians understood that equity markets could crash.”

In the case of the more recent discord over losses in the assets under active management, Ang suggests that the Norwegian public should have been made aware of the active investment strategies the fund was pursuing prior to 2008. “They would have understood that such strategies might provide low returns or even losses in the short term, and been steeled to expect the downside,” he says.

The final part of the report—and the one of greatest interest to the wider fund management community and to large pension funds in particular—made recommendations on how the fund should be set up to exploit its advantages. The central recommendation is to pursue risk-factor exposures through a passive rather than active strategy, freeing up active management resources to pursue other premiums and mispricing opportunities in the marketplace. There are many sources of dynamic risk premiums other than passive holdings of assets and these should be harvested by investors.

But there is no index fund that provides exposure to, for example, volatility risk. “Part of Norway’s problem, and the problem that many investors have right now,” Ang says, “is that their benchmark is an asset-based benchmark composed of things like an equity or bond mix, without additional components that would give long-run returns on, for example, volatility risk, value-growth risk, credit risk, or other factor exposures.”

Ang and his coresearchers developed a framework that provides a way to engineer risk factors into the passive component of a fund—a practical tool capitalizing on factor benchmarks rather than asset benchmarks. The framework also provides a way to holistically look at an investor’s portfolio in terms of its underlying risk properties, rather than viewing it solely through the lens of asset classes.

Shifting factor exposure into passive benchmarks shifts decisions about how much factor risk to bear from the fund manager back to the investor. It also allows investors to monitor risk more closely. Active managers should be pursuing strategies that cannot be replicated by factor exposures, thus bringing factors into the benchmark reduces costs to the investor.

“Factor benchmarking is better for investors from a back-pocket point of view,” Ang says, “because investors should only be paying for active fund management that cannot be engineered passively.”

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