

you can at work, how can you pretend to be competitive? When the personal tools in your mobile phone are more empowering than what your company provides or approves for your projects, how can you be saved from devastating market forces? You can't.

The tools we use in life have leapfrogged over the ones we use at work. Business's lingering love of bureaucracy, process, and legacy technology has fallen completely out of sync with what people need to do their best.

**The Breakthrough Idea.** So what can you do? Hack work, and embrace the others in your midst who care enough to do so. Hackers work around the prescribed ways of doing things to achieve their goals. The benevolent among them do this rule bending for the good of all. And once frontline performers and middle managers try hacking work—and discover they've increased their output by a factor of 20—they never go back.

Richard Saunders (not his real name) is a benevolent hacker. He works for one of those banks that did its job so well in 2008 that we landed in the worst financial hole we've seen since the Great Depression. As the crisis unfolded, the bank's senior executives cried out, "Reports! Our kingdom for more reports!" The problem was that what they really wanted—useful, insightful analysis—couldn't easily be produced with the software provided by corporate IT.

Poor Richard. What to do? Work 29 hours a day, 10 days a week, to manually create those reports and the much-needed analysis? No way. He hacked the system. He softened up a vendor, got a password, tapped into the database, and began creating never-before-possible reports for the C-suite.

Would the bank's auditors and IT security guys freak out if they knew that Richard had hacked their system? Uh, yes. But since then, Richard has become incredibly productive and is now a go-to guy companywide. He's a hero to all those senior execs who wanted more than data dumps. If only they knew the full story. Says Richard, "As a result of this hack, I keep senior management off our backs, so we're able to continue doing more for our clients with less."

He's not alone in believing that he has to take matters into his own hands in order to get the job done and achieve better results for the organization. Many in the workforce are com-

ing to the same conclusion. The illusion of corporate control is being shattered in the name of increased personal productivity.

**The Promise.** This kind of work-around isn't new—your company has been hacked from the inside for ages. What is new is that the cheat codes are becoming public, and there's nothing you can do about that. Bloggers are telling your employees how to bypass procedures. Forums give tutorials on how to hack your software security. Entrepreneurs are building apps to help your employees run their own tools and processes instead of yours.

There's only one successful strategy for a hacked world: If you can't beat 'em, join 'em. Change the debate within your company to leverage what your hacker employees know. We're seeing managers in enormous corporations such as Google, Nokia, and Best Buy embrace things that benevolent hackers would pursue with or without them: greater worker control over tools and procedures, increased transparency, and meritocracy. As even senior management begins to feel the pain of outdated tools and structures that refuse to budge, what was once shunned as bad is now the new good.

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## 8. RISK MANAGEMENT

### Spotting Bubbles on the Rise by Sendhil Mullainathan

*We have the tools to sound the alarm early.*

**The Problem.** Will Rogers had sage advice on investing: "Buy some good stock and hold it till it goes up, then sell it. If it don't go up, don't buy it." The guidance we get today regarding economic bubbles is just about as helpful: If it bursts, it was a bubble. That kind of postmortem analysis is useful to historians, but it does nothing to limit the collateral damage caused by, for example, a sudden collapse in housing prices.

An early warning system would be more valuable. For one thing, it would change the way that regulators go about securing the

safety and soundness of financial institutions. To ensure that a financial institution is sound, regulators must discount the value of its assets for their riskiness. Under the current Basel regulatory framework, the discount is determined by looking at market pricing of risk. This has disastrous consequences during a bubble, when almost by definition, the market is underpricing significant downside risk. A financial institution holding \$50 million worth of mortgage-backed securities in its trading book in January 2007 was facing far more risk—and was less sound—than the market price suggested. If we had a reliable metric for pronouncing an asset class to be in a bubble, regulators could dampen the risk. They could more aggressively discount asset values and analyze an entire balance sheet's exposure to the threatening burst.

**The Breakthrough Idea.** At ideas42—a behavioral economics R&D lab that I codirect—we have taken on the challenge of creating an early warning system. We are asking, “Could a bubbles committee—like the committee that does recession dating for the National Bureau of Economic Research—use the research in behavioral finance to identify bubbles as they form?” The answer appears to be a guarded yes.

Understand that our goal is not to be able to predict when a bubble will burst. That might never be possible. Luckily, in terms of the public interest it isn't necessary. To regulate risks it would be helpful merely to recognize when we are in one—a far simpler task. That is why a public effort must create such a committee. (The market itself is far more interested in the timing of bubbles. Any smart arbitrageur would rather ride a bubble for some time than lean against it; a fortune can be made by riding the bubble up and selling right before the burst.)

How would the committee make the call on a rising bubble? Behavioral finance gives us the perspective to spot telltale signs. We know that when markets work well, it's because they are incorporating disparate views of asset value and distilling them into a single price. When markets fail, as they do during bubbles, that is no longer true. After prices have risen for a prolonged period, the bears have sold all their shares, so their downward influence on price is lessened. If they believe that shares are overpriced and due for a fall, they must bet against

them in more expensive (and hence less potent) ways, such as short selling.

This suggests an approach to finding warning signs. Looking at short interest, demand for put options, and trading on a variety of derivatives, a bubbles committee could construct technical measures of those opinions that are underrepresented. In taking these factors into consideration, the committee wouldn't strictly be going against consensus opinion; it would be discovering times when narrow asset prices alone did not measure the consensus.

A bubbles committee need not be passive. If it suspected a bubble in an asset market, it could selectively recommend introducing derivatives that explicitly target bubble risk. Consider a long-horizon put option designed to pay out only in the case of a significant drop in prices. The market price of that security would help regulators decide how to view that asset class. Of course, the committee's activities might serve to burst a bubble early, but that need not be its primary goal; we should be satisfied if the committee simply minimized the social costs of the bubble's eventual burst.

**The Promise.** Translating these raw insights into a concrete methodology will take some work. Careful research is required. Diverse technical measures must be gathered to quantify contrarian investors' bets. These must be integrated with traditional indicators of fundamental value, such as P/E ratios. New consumer-sentiment measures, based on insights from consumer psychology, will also need to be explored. All of this must be tested against historical data. In this we are lucky: There is no shortage of data. Numerous asset classes around the world have gone through what in hindsight were obviously bubbles. The steps outlined above are technically challenging but very manageable if we make a concerted effort.

We can't prevent earthquakes or hurricanes, but construction engineers have learned ways to minimize their damage. Similarly, financial bubbles will surely continue to rise and burst around the world, but with one big R&D push we can put tools that contain their effects in the hands of a public-minded committee.

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