

INTERVIEW

John Cochrane

Editor's Note: This is an abbreviated version of EF's conversation with John Cochrane. For the full interview, go to our website: www.richmondfed.org/publications

There are many similarities between physics and economics. Both fields explore movement — of objects in one case, and economic variables in the other — and they use many of the same mathematical tools and techniques. It is not uncommon for economists to follow theoretical physics as a hobby.

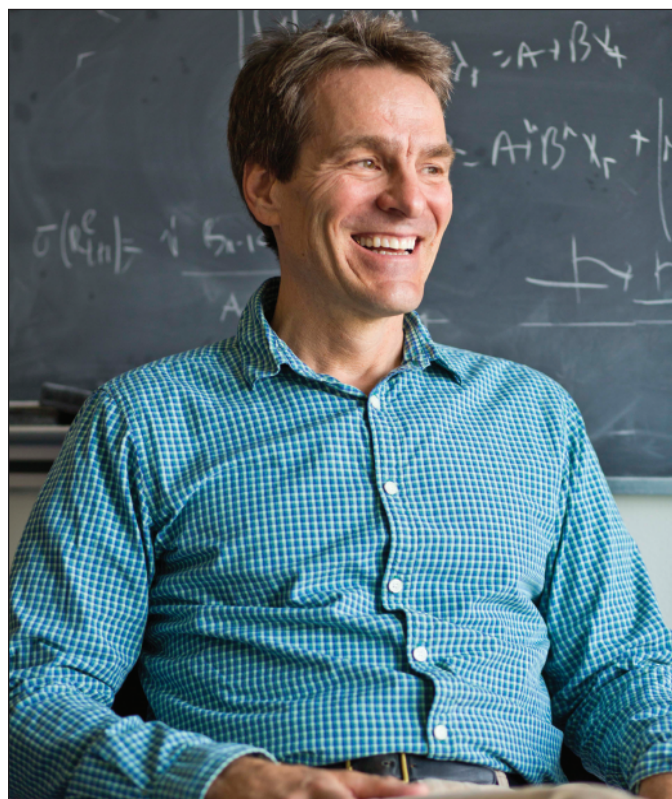
Economist John Cochrane takes his interest in physics up a level — or, more accurately, several levels: He flies unpowered planes, known as gliders, competitively. Many people would find that hobby less daunting than another way Cochrane spends his nonresearch time: discussing reforms to the financial system, the tax code, and health care in newspaper and magazine articles and on his blog, *The Grumpy Economist*.

Cochrane is known for arguing against the popular view that more regulation is needed to fix the financial system; typically, he says, regulation ends up encouraging risk-taking. He has also studied the fiscal theory of the price level, the somewhat controversial view that large fiscal deficits can overpower the central bank's attempts to control inflation. His wide-ranging work has made Cochrane a key voice in the public policy debates of the last several years.

Cochrane joined the faculty of the University of Chicago's economics department in early 1985, and moved to its Booth School of Business in 1994. He is also a Senior Fellow at the Hoover Institution, and is the author of *Asset Pricing*, one of the most commonly used graduate textbooks for finance. Aaron Steelman interviewed Cochrane at his office in Chicago in late August 2013. Renee Haltom and Lisa Kenney contributed to the interview.

EF: Does the 2010 Dodd-Frank regulatory reform act meaningfully address runs on shadow banking?

Cochrane: It tries, but I don't think it actually does much about runs. I think Dodd-Frank repeats the same things we've been trying over and over again that have failed, in bigger and bigger ways. The core idea is to stop runs by guaranteeing debts. But when we guarantee debts, we give banks and other institutions an incentive to take risks. In response, we unleash an army of regulators to stop them



from taking risks. Banks get around the regulators, there is a new run, we guarantee more debts, and so on.

The deeper problem is the idea that we just need more regulation — as if regulation is something you pour into a glass like water — not smarter and better designed regulation. Dodd-Frank is pretty bad in that department. It is a long and vague law that spawns a mountain of vague rules, which give regulators huge discretion to tell banks what to do. It's a recipe for cronyism and for banks to game the system to limit competition.

Runs are a feature of how banks get their money, not really where they *invest* their money. So a better approach, in my view, would be to purge the system of run-prone financial contracts — that is, fixed-value promises that are payable on demand and cause bankruptcy if not honored, like bank deposits and overnight debt. Instead, we subsidize short-term debt via government guarantees, tax deductibility, and favorable regulation, and then we try to regulate financial institutions not to overuse that which we subsidize.

EF: So what do you think is the most promising way to meaningfully end “too big to fail”?

Cochrane: You have to set up the system ahead of time so that you either can't or won't need to conduct bailouts. Ideally, both.

On the first, the only way to pre-commit to not conducting bailouts is to remove the legal authority to bail out. Ex post, policymakers will always want to clean up the damage from crises and worry about moral hazard another day. Ulysses understood he had to be tied to the mast if he was going to ignore the sirens. You also have to let people know, loudly. The worst possible system is one in which everyone thinks bailouts are coming, but the government in fact does not have the legal authority to bail out.

On the second, if we purge the system of run-prone financial contracts, essentially requiring anything risky to be financed by equity, long-term debt, or contracts that allow suspension of payment without forcing the issuer to bankruptcy, then we won't have runs, which means we won't have crises. People will still lose money, as they did in the tech stock crash, but they won't react by running and forcing needless bankruptcies.

EF: Do you think there's any reason to believe recessions following financial crises should necessarily be longer and more severe, as Carmen Reinhart and Kenneth Rogoff have famously suggested?

Cochrane: Reinhart and Rogoff only showed that recessions following financial crises have been, on average, longer and more severe — not even “always,” let alone “necessarily.” I don't believe they advanced a theory, either, so they really just documented a historical regularity, a correlation and not a cause. So no, I don't believe that, at least not yet. Lots of people tell a story in which it takes a long time to “deleverage,” “restore balance sheets,” and to work “excess debt” out of the system, but just what that means and why it takes a long time hasn't been adequately modeled and tested yet.

An alternative explanation for the correlation is that governments tend to do particularly bad things in the wake of financial crises. They tend to bail out borrowers at the expense of lenders, overregulate finance, pass high marginal tax rate wealth transfers, alter property rights, and introduce other distortions. Mortgage foreclosure used to take a few months, and now it can take two years. And then people wonder why lenders aren't willing to lend at low rates anymore. The Great Depression seems like a classic case of counterproductive policies being put in place after a financial crisis that made the whole episode much deeper and longer.

EF: What are your thoughts on quantitative easing (QE) — the Fed's massive purchases of Treasuries and other assets to push down long-term interest rates — both on its effectiveness and on the fear that it's going to lead to hyperinflation?

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Cochrane: In my opinion, QE has essentially no effect. Interest rates are zero, so short-term bonds are a perfect substitute for reserves. QE creates a minor change to the maturity structure of government debt — and doubly minor because the Fed's effort to shorten maturity is essentially matched by the Treasury's new sales of long-term bonds. We've had much larger changes in the quantity and maturity structure of debt in the past with no big effect on the level of interest

rates. You have to buy some new theory of very long-lasting flow effects, but I think coming up with new theories to justify policies ex post is a particularly dangerous kind of economics.

So I don't think the theory suggests QE can have a big effect. What about the evidence? Most of it comes from announcement effects. Even there, it's pretty weak: a 15-or-so basis point change in interest rates in return for a pledge to buy trillions in Treasuries. But interpreting announcements is tricky, and tells you a lot less about QE's effectiveness than you might think.

Markets tell you what they think will happen — mixed with what risks they're willing to take — but not why. If the Fed announces more QE or delayed tapering of QE and bond prices rise on that announcement, is that because QE itself is moving the markets? Or is it because bond investors think, “Wow, the Fed is scared, so it will keep interest rates low for a lot longer than we expected”? Without a solid economic reason to believe QE on its own has much of an effect, the latter interpretation seems more likely.

Also, the market's reaction to an announcement doesn't tell you for how long QE could have an effect. QE advocates take these reaction estimates, assume they are causal, and assume they are permanent. There are more than \$17 trillion in U.S. Treasury bonds outstanding, and another \$1 trillion are being issued every year. Why would the Fed buying even \$1 trillion of them — in exchange for reserves, which are really just floating-rate overnight debt — have a permanent effect? Microstructure studies might see price pressure in Treasury markets but for a day, not for years. Also, if market reactions prove anything, they prove that markets think QE has an effect. But this is a policy we've never seen before, so we don't have much rational expectations-based reason for believing markets are right about it. Markets are great at correlations and unconditional forecasting, and less so at structural cause and effect for things they have never seen before.

So neither the theory nor the evidence make me think QE is effective. But the good news is that we therefore can't worry too much about its reversal. It's neither going to cause hyperinflation, nor need it cause much trouble when the Fed “tapers.”

EF: Both fiscal and monetary policies have been on extreme courses recently. What are your thoughts on how they might affect each other as they move back to normal levels?

Cochrane: This is my main research focus right now, fiscal-monetary interactions. In the United States, we've had 50 years of experience without severe fiscal problems, so we've kind of forgotten about the fact that over longer spans of history, fiscal policy and monetary policy were always linked. Big inflations have tended to follow bankrupt governments.

Monetary policy will be different in the shadow of huge debts. For example, suppose the Fed wants to raise interest rates to 5 percent tomorrow. The Treasury would then have to start rolling over its debt at that higher interest rate, which means a net flow of about \$800 billion of extra deficit that has to come from somewhere — more taxes or less spending eventually. Will Congress still say, "Sure, go ahead and tighten"? After World War II, we had a similarly huge debt and Congress simply instructed the Fed to keep interest rates low to finance the debt. That could happen again. How independent can monetary policy be in the shadow of huge debts?

EF: That relates to the fiscal theory of the price level, the theory that inflation ultimately comes from government debt, as opposed to the central bank printing money. Why do you find that theory attractive?

Cochrane: In some sense, the fiscal theory of the price level is still about money. A government that borrows in its own currency will print money rather than default. That will cause inflation. But inflation can rise long before the money gets printed, and that's what I mean by fiscal inflation. People see the central bank's eventual bailout coming, and they run from the government's debt. First they buy alternative assets, such as stocks or houses. When those prices rise, people buy goods and services, driving up prices. In that situation, there's nothing a central bank can do; fiscal events take over. People don't want debt of any maturity or liquidity, so exchanging one type of government debt for another — that's all a central bank does — loses its effectiveness.

More deeply, the fiscal theory of the price level is an answer to the question of why money has value. That's the most fundamental question of monetary economics. Why can I give the store a piece of paper and get a cup of coffee in return? As Adam Smith argued, it's because the government takes those pieces of paper, and only those pieces of paper, for your taxes.

I've been searching all my professional life for a theory of inflation that is both coherent and applies to the modern economy. That might sound like a surprising statement, especially from someone at Chicago, home of $MV=PY$. But although $MV=PY$ is a coherent theory, it doesn't make sense in our economy today. We no longer have to hold an inventory of some special asset — money — to make transactions.

I use credit cards. We pretty much live in an electronic barter economy, exchanging interest-paying book entries, held in quantities that are trillions of dollars greater than needed to make transactions. The gold standard is a coherent theory too, but it doesn't apply today either. The prevailing theory of inflation these days has nothing to do with money or transactions: The Fed sets interest rates, interest rates affect "demand," and then demand affects inflation through the Phillips Curve. That theory isn't coherent either. So I've been looking for a new theory: What is the basic theory of inflation? Where do we start before we add frictions and complications? I became attracted to the fiscal theory of the price level because it is the only theory that answers that question in a clean, compelling way that is compatible with modern institutions.

We've got the big picture of the fiscal theory, but it turns out that its predictions are quite subtle. Figuring out how it can plausibly account for what we see, before we even begin more formal testing, is hard. There is a lot of work to be done there, so that's my big research agenda.

EF: Switching gears to finance specifically, what do you think are some of the big unanswered questions for research?

Cochrane: I'll tell you about the ones I work on, but there surely are others. And often you don't know there was a big question until you've answered it.

One big unresolved issue in finance is why risk premiums are so big and why they vary so much over time. You can look at the spread between what you have to pay to borrow and what the U.S. government pays in order to see that risk premiums are big and varying.

There is a good macroeconomic story. In a business cycle peak, when your job and business are doing well, you're willing to take on more risk. You know the returns aren't going to be great, but where else are you going to invest? And in the bottom of a recession, people recognize that it's a great buying opportunity, but they can't afford to take risk.

Another view is that time-varying risk premiums come instead from frictions in the financial system. Many assets are held indirectly. You might like your pension fund to buy more stocks, but they're worried about their own internal things, or leverage, so they don't invest more.

A third story is the behavioral idea that people misperceive risk and become over- and under-optimistic. So those are the broad range of stories used to explain the huge time-varying risk premium, but they're not worked out as solid and well-tested theories yet.

The implications are big. For macroeconomics, the fact of time-varying risk premiums has to change how we think about the fundamental nature of recessions. Time-varying risk premiums say business cycles are about changes in people's ability and willingness to bear risk. Yet all of macroeconomics still talks about the level of interest rates, not credit spreads, and about the willingness to substitute

consumption over time as opposed to the willingness to bear risk. I don't mean to criticize macro models. Time-varying risk premiums are just technically hard to model. People didn't really see the need until the financial crisis slapped them in the face.

Large time-varying risk premiums might also change how we think about monetary policy. It has become a common argument that too-low interest rates cause risk premiums to decline. I'm pretty skeptical: I don't know of any economic model that links Fed-induced changes in the level of short-term interest rates to risk premiums, and it smacks of new theories to justify preconceived policies. Still, the "reach for yield" story is bandied about so much, we should get to the bottom of it. [See "Reaching for Yield" on page 5.]

I'm seeing a new enthusiasm for work on the trading process, and there are deep questions to be answered. How does information get incorporated into prices? How does trading work? Is high frequency trading helping or hurting? Is the extensive regulation of trading helping or hurting?

And of course, the financial crisis spurred a whole new research agenda — or maybe the revitalization of an old agenda — in finance. The crisis, the run, the evolution of shadow banking, financial innovation, real estate finance, banking regulation are all hot topics on which we're making a lot of progress.

As often happens, just as people say a certain branch of economics is a dead field with all the big questions answered, it is in fact poised for revolutionary changes. It's a really exciting moment to be working in finance.

EF: You've written a lot about health care recently. What is the problem with that sector? If you could start from a clean slate, what would you do?

Cochrane: The big problem is vast overregulation and fundamentally misguided regulation. Like Dodd-Frank, the Affordable Care Act (ACA) just layers on more of the same regulatory approach that failed before.

Health insurance should be there to protect your wealth against large, unanticipated shocks. There is no more reason it should pay for routine expenses than your car insurance should pay for oil changes. Insurance should be individual, not tied to your job, guaranteed-renewable (meaning, once

John Cochrane

► Present Position

AQR Capital Management
Distinguished Service Professor of
Finance at the University of Chicago
Booth School of Business

► Previous Appointments

University of California, Los Angeles;
Anderson Graduate School of
Management Visiting Professor of
Finance (2000-2001); University of
Chicago Department of Economics
(1985-1994); Junior Staff Economist,
Council of Economic Advisers
(1982-1983)

► Other Positions

Research Associate, National Bureau
of Economic Research; Senior Fellow,
Hoover Institution; Co-Director, Fama-
Miller Center for Research in Finance;
Adjunct Scholar, Cato Institute

► Education

S.B. (1979), Massachusetts Institute of
Technology; Ph.D. (1986), University of
California at Berkeley

► Selected Publications

Author of *Asset Pricing*, a widely used
textbook, and numerous articles in such
journals as the *American Economic
Review*, *Quarterly Journal of Economics*,
Econometrica, *Journal of Finance*, *Journal
of Monetary Economics*, and *Journal of
Economic Perspectives*

you buy it, you keep it, without premium increases, when you get sick), portable across jobs, marriages, and states, transferable to other insurance companies, and accompanied with large deductibles.

There is no market failure preventing this from happening. People want this, and companies want to sell it to them. But the market has been killed by regulation, including the tax deduction for employer-provided group plans but not employer contributions to individual insurance, state regulations, the prohibition against selling insurance across state lines, and others. The kind of private health insurance I described is now effectively illegal under the ACA.

So I would start by simply allowing the economically ideal insurance to exist, and rebuilding this individual market from there, for example, converting employer-based group plans to individual policies. Then, we could pay for health care the way we pay for vet care, home repair, car repair, or anything else. If the dog is sick, bring her in. Don't wait six weeks to get a referral. There's no state board saying that your vet insurance must include "free" toenail clipping and ear trimming.

EF: Do you think something like medical savings accounts have any hope of being adopted on a large scale?

Cochrane: Medical savings accounts are a great idea, although the need for special savings accounts for medicine, retirement, college, and so on is a sign that the overall tax on saving is too high. Why tax saving heavily and then pass this smorgasbord of complex special deals for tax-free saving? If we just stopped taxing saving, a single "savings account" would suffice for all purposes!

There are too many other distortions right now for medical savings accounts to work all by themselves. Medical savings accounts give you cash, so they are predicated on the idea that if you show up with dollars, there will be a competitive supplier offering you efficient, well-priced services at a competitive price. And that doesn't exist right now. If you walk into a hospital without insurance, they're going to charge you \$500 for a Band-Aid.

That's part of the deeper problem, and it's the other half of my answer to, "If you could start with a clean slate." We need supply competition. There is no point in having people pay with their own money if the Southwest Airlines

and Wal-Mart of medicine can't disrupt big, entrenched, inefficient providers. Instead, our government protects incumbent insurance companies and hospitals from this kind of innovation and competition.

As for "hope," the ACA is phasing health savings accounts out, so the "hope" would have to be that major parts of the ACA are repealed. That's a question of politics, not economics.

EF: You wrote an op-ed on an "alternative maximum tax." What's the idea there?

Cochrane: The alternative maximum tax is not my favorite nor a perfect tax code. It's a Band-Aid. Our current tax code is a chaotic mess and an invitation to cronyism, lobbying, and special breaks. The right thing is to scrap it. Taxes should raise money for the government in the least distortionary way possible. Don't try to mix the tax code with income transfers or support for alternative energy, farmers, mortgages, and the housing industry, and so on. Like roughly every other economist, I support a two-page tax code, something like a consumption tax. Do government transfers, subsidies, and redistribution in a politically accountable and economically efficient way, through on-budget spending.

But that isn't going to happen anytime soon. In the meantime, our tax system puts in place much higher marginal rates than most people acknowledge. People keep focusing on federal income taxes alone, where marginal rates top out around 40 percent. But that leaves out state, county, and local income taxes, plus sales taxes, estate taxes, excise taxes, property taxes, corporate taxes, and many others. If you earn an extra dollar for your employer, how much do you actually get when it's all added up? I have not been able to find any decent comprehensive calculations of marginal tax rates. In a *New York Times* column, Greg Mankiw came up with 90 percent for himself, and he left out sales taxes and a bunch of other taxes.

The idea behind the alternative maximum tax is this: Choose any rate, even say, 50 percent or 70 percent. Whatever we decide is the "enough is enough" point. If someone could show they've paid that percentage of their income in tax to some level of government, they don't have to pay any more. If the people who say that nobody pays that much are correct, great, then it can't hurt.

Like I said, it's not perfect. This is an average rate, and marginal rates really matter. It doesn't address the large effective marginal tax rates that poor people feel from means-tested benefits. But it's a way to check that all of the creeping, extra things don't add up to a horribly distortionary tax code even though each individual element may not seem excessive.

We have an alternative minimum tax to make sure clever taxpayers don't exploit the insane complexity of the tax code and escape. Given that same insane complexity, why not have an alternative maximum too?

EF: Which economists have influenced you the most?

Cochrane: There are many; I'm reluctant to answer because I'll forget to mention someone. So with that proviso, Bob Lucas, Tom Sargent, Lars Hansen, and Gene Fama stand out as enormous intellectual influences. Lucas and Sargent are masters of mixing theory and facts, thinking hard about what the equations mean, and reading historical episodes. Writing theory that matters. I was floundering around thinking about random walks when I first got to Chicago, and Lucas walked into my office and pointed out that decade averages were very stable; he handed me my first big paper on a silver platter. People think of Lucas as a theorist, but he has a talent for organizing facts in a really revealing way.

I learned most of what I know about asset pricing by running back and forth between Gene Fama's and Lars Hansen's offices and trying to put it all together. They are each absolutely brilliant but in different ways. Hansen has an unjustified reputation for writing hard papers. In fact, once you spend a few months figuring it out, you see that he has brilliantly simplified the problem, just in a different space. And Gene is the Darwin of finance. He has this amazing talent for putting all the facts together and finding the simple story underlying them. He makes it all look so easy in the rearview mirror.

I was also very influenced by my days in grad school. George Akerlof, Tom Rothenberg, and Roger Craine taught me things that ring to this day. Akerlof and Craine both got me thinking about money and where inflation comes from. Akerlof wrote and taught about how $MV=PY$ doesn't make sense; the "Irving Fisher on his Head" paper, for example. He was after a different point — slopes of the LM curve, and the effectiveness of fiscal policy — but his critiques of $MV=PY$ were deep. I would not have run into that at Chicago, which was still kind of the home of monetarism. That's really what began my search for the foundations of inflation that is now expressing itself in work on the fiscal theory of the price level. Learning from Tom Rothenberg was a life-changing experience on how to do empirical work that all of his students remember.

My heroes also taught me, by example, a lot about how to be an economist. Think about the facts and the theory, with no party or academic politics. Debates are sharp but never personal. Don't play games or try to impress people. Relentlessly simplify and clarify your work. Turn in your referee reports on time. Cite generously. Value people for their ideas, and pay no attention to academic rank. And so on.

Most of all, always remain open to new ideas. I still remember the moment I became an economist: when my first micro classes overturned some of the common ideas I had at the time. There is no better moment than when I make some pronouncement, and a colleague says "No, John, you're totally wrong, and here's why," and convinces me. My heroes are all like this, and I'm attracted to people with that attitude.

EF