10 years later, any safer?

John H. Cochrane*

It has been 10 years since the financial crisis of 2008. Is the financial system safer?

Though officials, policy analysts and economists don't agree on much, they broadly agree that the large banks are somewhat safer than they were in 2008. And the primary reason is is simple: more capital.

Janet Yellen herself echoed this view. In a 2017 Jackson Hole speech[1], she led with:

"Several important reforms have increased the loss-absorbing capacity of global banks. First, the quantity and quality of capital required relative to risk-weighted assets have been increased substantially."

I agree. But banks don't have nearly enough capital. The capital lesson has not percolated far enough past the big banks to small banks, the shadow-banking system, and the architecture for financial innovation. And current capital requirements continue to be a complex game will likely fail again as it did before. All the banks, even Lehman Brothers, amply met their regulatory capital requirements right through the 2008 crisis, and much fragile pre-2008 financial innovation such as special purpose vehicles and artfully tranched securities, were set up to game that era's capital requirements.

Capital is the central answer to crises. And the radical innovations in computation, communication, and financial technology of the last few decades give us a once in a lifetime chance to end financial crises forever, by moving to a financial system largely based on capital. The aftermath of the crisis provided a perfect political moment for reform, as evidenced by the Dodd-Frank act and subsidiary flurry of regulation-writing.

But the moment is passing. Political attention has moved on, and interests of the banking industry and policy community are aligned to preserve the current system and limit argument to small modifications. Bankers know the regulations are an excellent barrier to entry, and policy makers have built careers and empires out of them. The next crisis will come, and it will be much worse than the last one.

Once we get past capital, belief that the rest of the post-2008 regulatory architecture will do much to stop the next crisis is much more contentious. Few have much faith in the enormous Basel III[2], the hundreds of thousands of pages of Dodd-Frank regulation, the hundred or more regulators embedded in each big bank, the annual stress test dance, the resolution authority that somehow will carve up big banks in a weekend without becoming a piñata of creditor bailouts. Fewer still think much of policy economists' continuing dreams of "macroprudential" policy, that central bankers will this time see trouble coming, tighten credit in a boom, artfully detect and prick asset price "bubbles" and so forth. That capital comes first on everyone's list is

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[1] https://www.federalreserve.gov/newsevents/speech/yellen20170825a.htm

in a sense proof against the rest: if anyone trusted regulators to stop banks from taking too much risk, banks wouldn't need a lot of capital!

There is a good reason not to expect much from all this. For Dodd Frank and Basel III and the rest just expand the same basic set of ideas that failed: To stop runs, guarantee bank debts, and in a crisis lend to banks, bail out creditors, and prop up asset prices. Then try to offset the consequent bad incentives by directly controlling the riskiness of banks' investments. The US started down this road following the 1907 crash with the 1914 creation of the Federal Reserve, and expanded it in the 1930s with Glass-Stegall and deposit insurance. In each crisis the government has guaranteed more debts to stop larger runs, and then created more complex asset risk rules and deployed larger armies of regulators. If this set of ideas failed over and over again, surely tripling the size of the same set of rules and giving authorities a bigger mop is not likely to finally, this time, put an end to crises.

More capital, and less short-term debt, avoids the conundrum. With more capital, banks and similar financial institutions are safer on their own, and do not require intense asset risk regulation. With more capital and less short-term debt, depositors and other creditors don't run in the first place, so big crisis interventions aren't needed. More capital allows less of all the other regulations.

On this point, there has been a substantial intellectual progress in the last 10 years. In the immediate aftermath of the crisis, calls for substantially more capital were regarded as the sort of discussion only dreamy free market libertarians have, like privatizing driver's licenses. "Real world" people thought the financial system would crater if banks were required to have even 5% capital, properly measured, and 10%, 20%, 50% or more is just unrealistic.

That view has changed. Current capital requirements hover near 10%, though still with a crazy-quilt risk-weighting system. But calling for properly-measured capital of 20% is regarded only as politically difficult, given industry opposition, not an economic calamity. One can discuss numbers as high as 40% or more in polite company. This represents considerable intellectual progress[3]. If only we could extend and act on that intellectual progress.

Capital, money, and the end of crises.

Let us understand why capital is such a potent weapon against crises.

Banking crises are, at heart, systemic runs. Runs only happen when financial institutions get their funds primarily by borrowing, and by borrowing it in a specific way — by promising that the lender can always get his or her money back, at any time, first-come first-served, and should the bank not fulfill this promise, the bank must fail, and creditors can tear it apart and seize its assets. With this setup, if there is a sign of trouble, the bank's creditors have an incentive to run to get their money out before others do. (Throughout, I'll use "bank" as a shorthand. The 2008 crisis centered around investment banks and "shadow banks," all involving short-term debt but not legally banks. The same principles apply.)

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[3] Anat Admati and Martin Hellwig's *The Bankers' New Clothes: What's Wrong with Banking and What to Do about It,* Princeton University Press 2014, was an important force for changing people's minds about capital.

Runs on individual institutions are not necessarily an economic problem. But when investors see trouble at bank A, and then start to wonder if their bank B is in trouble and run, then we can have a run on the entire system. The system as a whole has promised more money than there is and must fail. Runs and money are intertwined.

Now, suppose instead that a financial institution got 100% of the funds it needs to make risky investments — loans, mortgages, trading, securities, or even common stocks — from issuing equity or retaining earnings, not by borrowing. *Such an institution cannot fail.* Failure means failure to pay debts. An equity-financed institution makes no formal repayment promise. Its investors cannot demand their money back. They cannot seize assets. They can collectively vote to liquidate the company, but they can't run down to be the first ones in line[4].

An equity-financed company can lose a lot of money. The stock price can crash, rationally or irrationally. But that crash is not a crisis. There is nothing investors can do but bemoan their bad fate and that they did not sell when prices were higher. They cannot run to the company and demand their money back, and by doing so force the company to bankruptcy.

The 2000 tech stock bust did not cause a financial crisis and was associated with only a small recession. Why? Because tech companies were financed by equity and not short-term run-prone debt.

Long-term debt is a partial answer. If the institution promises to pay back money 5 years from now, bondholders cannot panic and run to get their money back now. Still, in 5 years when the debt rolls over there will be trouble. Equity is better.

So, suppose financial institutions funded all their risky investments with lots of equity, and some long term debt, but not with deposits or other short-term, run-prone debt. *Private market financial crises wound never happen again, with essentially no additional risk regulation.* (I add the caveat "private market." Sovereign defaults are a different kind of crisis, which we'll come back to.)

Well, why not? 2008 was pretty bad. The Great Depression was worse. We have it in our grasp to end financial crises forever. Let's do it.

First objections

Around 2009, responses to this call for capital reflected basic misunderstandings. Critics complained that forcing banks to "hold" more capital would divert funds that could be used for lending. But banks don't "hold" capital. Banks hold reserves, liquid assets they can use to satisfy creditors. Capital is a source of funds, not a use of funds. It is a place where banks get money, not where they use money.

Related, critics complained that massive new amounts of funds would be required to support bank lending. This is also false. Banks need more equity, yes, but they need correspondingly less debt. They need a different flavor of money, not less money overall, to support the same

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[4] Note to nitpickers: Yes, a bank that trades derivatives trading can, in theory, lose more than 100% of its value. This possibility is far from reality, and easy enough for a very light touch of regulation to address.

volume of lending. And, as we'll get to in a moment, the banking system actually doesn't actually need to change at all the composition of securities it requires to fund its lending.

A costly source of funds.

The more serious objection is that capital is an expensive source of funds. Critics would say that one must pay stockholders a 15% per year. Debt is cheap, costing, say, 2% per year. So, if banks have to get their money at 15% rather than 1%, they will have to pass that cost on to borrowers.

(Investors would be a lot happier getting 15% returns rather than 1% returns, a point uniformly ignored in this debate. The economy includes savers, not just borrowers; your cost of capital is my return to saving. But since the 15% is a fallacy, I won't belabor the point.)

This argument misses an important fact: If banks issued much more equity, that equity would be a lot safer, and stockholders would require a lower rate of return. This is the famous Nobel-Prize winning Modigliani-Miller theorem of finance.

Bank assets are among the safest and least volatile on the planet. Compare a well-diversified pool of home mortgages and business loans to, say, Google's investment in self-driving cars, or SpaceX's plans to send people to Mars. Those are wildly more risky. Yet there are no risk-weighters, stress-testers, or army of regulators trying to make sure Google and SpaceX don't take too much risk. Why not? Because those are funded by equity, so if they fail there is no financial crisis. The army of bank regulators and stacks of bank regulations watching the safest assets on the planet are only there because those assets are funded by immense amounts of short-term debt.

If bank assets were funded by equity, bank stocks would be just as safe as the underlying assets. They would be the most boring, safe stocks around. And they would pay bond-like returns.

But, objectors say, the Modigliani-Miller theorem fails in real life. Yes it does. But certainly not completely. If a bank levered 10 to 1 must pay 15% equity return and bonds pay 2%, one might argue that an all-equity bank might have to pay 4%. But not 15%.

Like all theorems in finance, the Modigliani-Miller theorem is an enormously useful benchmark because it forces one to state just why it does not hold. A theorem is a theorem. If conditions x y and z hold, then the cost of a bank's capital is independent of whether it gets that capital by issuing equity or by borrowing. To disagree with that, you have to state which of x y or z you think do not hold in the real world, and then assess how much that fact affects the theorem.

The number one reason the Modigliani-Miller theorem fails for banks is that debt is subsidized. Interest is tax deductible, while dividends are not. More importantly, banks and especially big banks enjoy the governments' guarantee of their debt, explicitly through deposit insurance and implicitly through the widespread expectation of bailouts. If you are normally a risky borrower and have to pay 6% interest, but the government guarantees your debts, now you can borrow at the government's rate, say 2% instead. The government does not guarantee your stock.

Once argued, not simply asserted, you can see the hole in the argument. Debt is cheap *to the bank* and equity expensive because of a government subsidy. There is no *social* advantage to debt.

If our government wishes to subsidize bank lending, let it do so directly — If you take out a $100,000 home mortgage, the taxpayers send you $2,000 per year. That is the same subsidy as guaranteeing bank debt to the point that it is two percentage points cheaper than equity, and does not lead us to financial crises.

It is understandable that bankers miss the point and complain that equity financing is expensive. It is, to them. The banker sees only the current price. She does not see that if she raised more equity the cost would fall — the volume discount on equity issues. The banker does not see that her debt costs are artificially low, because the government is subsidizing that debt. And most of all the banker does not see the social cost of the crises that her bankruptcy may cause.

Critics also complain that the MM theorem fails because there is an "agency cost" of equity: Banks must pay an artificially high return to stockholders, or equivalently they will not raise a full dollar for selling stock whose true value is a dollar.

One should be suspicious. Bank assets are much easier for investors to value than corporate assets. Moreover, such an "agency cost" states that the stock market is now too *low*, *under*valued, not suffering the usually alleged "bubble." Finally, though it may seem plausible that banks who issue new equity don't get full value for the proceeds, capital advocates do not require that step. Banks can increase equity by retaining earnings rather than paying them out via dividends and stock repurchases. The value of those investments raises the value of existing stock. Keeping earnings inside the company is an essentially free source of capital. For just this reason, the Fed has forced banks to raise capital slowly, largely by forbidding dividend payments and repurchases, rather than new stock issues.

The history of the last 10 years also helped to clarify this discussion. In 2009 banks and their apologists warned that increases in equity requirements would lead to anemic and costly lending, and unprofitable banks. The Fed almost doubled capital requirements on the big banks. And here we are, with bank stocks and profits way up, and no sign at all of restricted or unduly costly lending. Moreover, the big banks with higher capital requirements are doing fine; small banks are suffering despite lower capital requirements.

The usual arguments that equity is costly and debt is cheap also ignores one of the central effects. If the whole banking system faces higher equity requirements, the whole banking system will be less likely to fail again, and we will have fewer less severe crises and recessions. All equity will be safer and the cost of all equity — the "equity premium" will fall, lowering the banks' cost of capital — as well as everyone else's.

And balancing any costs, we have to remember the central point — the benefit of capital! The financial crisis cost the US almost 10 percentage points of GDP, and 10 years later we still have not recovered to the previous trend. It cost us nearly 10 years of elevated unemployment, and millions left the labor force. The pain to those who lost homes jobs and businesses is concentrated far beyond these averages. Suppose we could avoid all that with half a percent more on home mortgages — or with an equivalent on-budget mortgage subsidy. Even if there are costs, they are modest compared to that enormous benefit.

There are many complex studies of the cost of equity capital issued by banks and international organizations. They almost uniformly ignore the social rather than private cost of debt, the equity premium effect, and the benefits that a crisis-free economy would bring.

In sum, the true social cost of equity is far overstated, and the true social benefits of debt far understated. The Modigliani-Miller theorem works a lot better than most observers thought in 2008.

And this realization is slowly sinking in. It accounts for much of the slow change in sentiment towards capital, much more capital, as the central cure for financial crises.

We need banks to "transform" assets and to "create" money / liquidity

The next set of arguments against equity-financed banking states that bank short-term borrowing is crucial, not so much as a cheap source of money to finance cheap bank loans, but in order to provide a supply of money-like liquid assets for people to hold.

This was true in the 19th century. Simplifying a lot, the government only provided coins — no paper money. Banks issued notes — paper money — backed by their loans, but promising to pay coins on demand. Paper money is a lot more convenient than gold coins, and one can create a lot more of it. Banks "transformed" illiquid assets into useful liquid ones.

So, the argument goes, people need modern liquid assets — deposits, short-term debt, overnight repo, interest-paying electronic money. If banks and other financial institutions can't "create" them, similarly backed with today's loans and securities, the economy will be short of money.

But the 19th century was punctuated with crises. Loans are illiquid assets, so if everyone comes in at the same time demanding payment in gold, the bank can't easily sell its loans to get the promised gold. And the banking *system* is in even worse shape. In a systemic run, the banking system has promised more gold coins than exist. Like victims of a short squeeze, it must fail. Eventually the US government banned bank note issue, and the US Treasury and now the Fed took over all paper money issues. That source of runs ended forever.

We should learn the same lesson today.

In 2007, banks and financial institutions "created" a large quantity of money-like assets backed by various less liquid or illiquid assets such as mortgage-backed securities. These promised pay bank reserves (accounts banks hold at the Fed), which are the modern system's equivalent of gold coins. It fell apart in the same way. People ran, demanding to hold government cash, treasuries, and bank accounts instead.

Well, let us do the same thing as in the 19th century. Let interest-paying electronic money be either directly provided by the government or 100% backed by short-term government debt. We can stop crises of deposits, repo, and interest-paying money just as we stopped crises of bank notes.

The natural objection: there won't be enough. We need banks and financial institutions to "multiply" government-provided money so there are enough liquid assets to go around.

This is false. Before getting going though, once again remember the cost of occasional crises in the current system. It's worth bearing some small inconveniences to eliminate crises!

First, the fortunate upside of our government's fiscal profligacy is that there is plenty of government debt! There is about $16 trillion of treasury debt, and another $9 trillion of agency debt, guaranteed by the US government. So $25 trillion of money could be backed by government debt.

True, some of that debt is longer term debt, subject to interest rate risk. But much is not. About half of the US debt rolls over every two years. The Fed could radically increase its balance sheet, buying longer term treasuries and issuing trillions of reserves, which it could open up further to non-bank financial institutions. The treasury could easily issue much shorter debt, and swap out interest rate risk, or, best of all, issue reserves directly.

If $25 trillion isn't enough, the Treasury could start a sovereign wealth fund, such as Norway does with its oil revenues, and issue more debt.

By contrast, there are about $2 trillion of demand deposits[5] — checking accounts, basically — in commercial banks. Banks are holding $1.8 trillion of reserves at the Fed, and $2.5 trillion in Treasury securities, so a narrow banking carve-out could be accomplished tomorrow. There are about $3.5 trillion of repurchase agreements, which is essentially how the shadow banking system "creates" money out of less liquid securities.

Second, just why is there supposedly such an insatiable demand for fixed-value, instantly liquid, run-prone assets, immune from default risk but not inflation risk? Most of us hold very little cash, and make most of our transactions with credit or debit cards, and larger transactions electronically. Just how terrible would it be to pay the credit card bill from a floating-value money market fund, a stock index fund, or similar security? I don't think any of us could tell the difference.

In fact, today's technology could easily take us much further. You could pay for a cup of coffee by swiping a card or cell phone, selling an S&P index fund, and crediting the seller's mortgage-backed security fund, all in milliseconds. Cryptocurrencies take the case further. We do not need fixed-value, run-prone assets to make transactions.

There once was a good reason for a big demand for money and money-like assets. In 1935, if you wanted to buy a cup of coffee, or a car, you could not offer stocks in return. In the store, neither you nor the seller knows the value of stocks, the bid-ask spread and commissions are high, and it takes days to clear the transaction. Modern communication, computation, and financial technology — the invention of the index, money-market, and exchange-traded funds — have changed all that.

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[5] Numbers from the Fed's Z1, H6, H3 releases, all at https://www.federalreserve.gov

Yes, the transition is still underway. Lots of accounting, tax, and regulatory rules favor run-prone securities. But if half the effort devoted to the Dodd-Frank regulatory system were devoted to weaning the financial system from run-prone securities, we'd be a lot closer to eliminating crises.

The remaining arguments are almost mystical. People have some psychological or behavioral attachment to securities that promise a fixed nominal (not real) value. This is cocktail party behavioralism. And such attachments change fast when offered a few basis points more interest. I suppose 19th century commentators waxed about the psychological attachment to gold coins.

Get the leverage out of the banks.

These thoughts lead naturally to a vision of a modern economy, with fast electronic transactions, in which we all hold liquid, interest-paying but floating value and run-proof securities. This is an exciting and interesting vision, but not necessary to the basic idea.

We can have banks that fund their risky investments 100% by equity, and maintain *exactly* the current assets in private hands — the same mix of highly-levered equity, long-term bank debt and short-term bank debt.

The key is to take the leverage out of the banks. Suppose banks fund themselves entirely by equity, with no debt. The banks cannot fail. Then, let there be holding companies that buy this bank equity, and issue their own debt, say 90% of value, and equity, say 10%. (The "holding companies could also be a mutual funds, exchange-traded funds, or special-purpose vehicles. The exact nature and legal structure doesn't really matter at this level.)

The bank has the same assets and investments as today. The holding company has the same liabilities as today. Neither borrowers nor lenders nor equity holders see any fundamental difference. But taking the leverage out of the bank and putting it in the holding company solves most of the problem.

Suppose the bank assets fall in value, say 11%. Today this means failure. Unless the government intervenes, we go to bankruptcy court and tear the bank apart, sell assets to satisfy the creditors. Not only does a lot of money get wasted, but the bank's operations don't work. It can't easily make new loans, make markets in securities, and do all the other things banks do while it's being torn apart.[6]

But not in my new world. In that new world, the bank stock falls 11% in value. Direct stockholders lose money, but they can't do anything about that.

The holding company fails. But think how quickly one resolve a company whose only assets are common stock of banks, and whose only liabilities are equity and debt. The assets are traded, and marked to market. You can simply give the bank stock to creditors. More easily still, you can

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[6] Ben Bernanke famously showed that much of the damage of the banking crises of the great depression came from just this source: Failed banks could not function to deliver credit.
Ben S. Bernanke (1983) "Nonmonetary Effects of the Financial Crisis in the Propagation of the Great Depression", The American Economic Review 73, pp. 257-276.

sell the bank stock the millisecond it is not enough to satisfy creditor claims, and split the proceeds among the creditors. Or, better yet, long-term debt holders can receive new equity in return a fraction of their debt. The bank holding company can go through bankruptcy, recapitalization, and resolution, by computer. In seconds.

Tearing apart banks is costly to the economy and to the bank. To "create liquid assets," the banking system needs leverage. But that leverage does not have to be inside the banks. We can have equity-financed banking without any change at all in the liabilities of the banking system. Other systems, that economize on short-term debt, as I described above can only be better.

Having issued short-term debt, you might think that the holding company is prone to runs. But its assets are liquid — traded bank equity — and marked to market in milliseconds. Runs require not only run-prone liabilities like deposits, but illiquid and somewhat obscure assets. When the assets can be sold in milliseconds to satisfy depositors, the depositors will be satisfied. When everyone knows the asset value every few milliseconds there cannot be rumors of trouble at bank x, prompting runs.

A run-proof world really only changes the internal structure of the banking system, and would not look much different to a consumer or a borrower. Bank deposits and short term debt would still exist, and you could write checks and go down to the ATM. The "deposit" is a liability of a treasury money-market fund or a bank holding company. You don't really need to know that. The bank originates loans as today.

This sounds pie in the sky, but we're really closer than it appears. As above, banks now have enough treasuries and reserves to back their checking accounts. Banks are held by holding companies. They just need to clean up the accounting a bit — and regulators have to demand that they do so.

Capital and trading

A notable current complaint is that capital and liquidity requirements are keeping banks from trading, making the markets for many securities illiquid.

There is logic to the argument. Trading requires capital. Why don't banks issue new capital or retain some earnings if there are profitable trades to be made? The answer is "debt overhang." Markets now believe banks not might be bailed out, at least in a non-crisis event, and so banks borrow at higher interest rates than they used to, reflecting the larger probability of default. If banks issue more capital, or retain earnings, that action makes the bank safer, which raises the value of the bank debt. That extra value is lost to the existing shareholders[7].

But once you understand the logic of the argument, you see that the problem is too little capital, not too much capital. If banks had lots and lots of capital, their remaining debt would be safe.

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[7] For a brilliant explanation of this effect see Duffie (2018), "Post-Crisis Bank Regulations and Financial Market Liquidity"
https://www.darrellduffie.com/uploads/policy/DuffieBaffiLecture2018.pdf

Raising even more capital to make a profitable trade couldn't make the debt any safer, so the debt overhang would vanish.

If the government lowered capital requirements, as the banks want, then yes they could trade more for a little while. But they would soon pay that capital out to shareholders; they would be riskier than before, and the debt overhang would be worse.

Practicalities

Just how much capital should the government require?

This is a frustrating question, since it presumes that capital is socially costly, so it's important to figure out the minimum we can get away with. My central point is that capital is not socially costly, so it's not important to set a precise limit. "Enough so it doesn't matter how much" is the right answer, but not satisfying.

It's like the question, how much gas should you keep in the tank so you are sure not to run out? Well, you could spend a lot of time calculating the distance to the nearest gas station and figuring out down to the last drop just how much you need. But carrying extra gas around really doesn't hurt, so why not? Carry so much it doesn't really matter how much.

Related, capital requirements suffer from the life preserver problem: The boat starts to sink, and passengers come to get life preservers. The captain says "I'm sorry, you can't have them, because safety regulations require that there are always 100 life preservers on board." The problem is more serious for banks, because the crisis can always get worse. We say capital is there as a "buffer" to "absorb losses," and it is. But when a bank loses, say 10% of its value and wipes out its capital, it has to get more capital at just about the hardest time, or close down. Plus, regulators usually want to see even more capital after the first downturn, because the downturn can always get worse.

Moreover, capital requirements as structured today are obscenely complex. Different assets require different amounts of capital. This is sensible on its surface, as riskier assets make default more likely. But risk weights applied to individual assets ignore the portfolio effect — a portfolio of risky assets can be pretty safe. Or, a portfolio of apparently uncorrelated bets can suddenly be very risky if they all go down together.

Risk weights induce banks to buy securities with low risk weights rather than lend directly, and induce financial engineers to create securities designed to game the risk weights.

Understanding that the risk weights are flawed, current capital requirements include a backstop liquidity ratio, requiring a ratio of capital to total assets regardless of their risk. But this is an irritant as well. It means banks must have capital for the safest of all investments, even reserves at the Fed, or short-term treasuries.

Understanding risk weights are flawed, the Fed makes banks go through "stress tests." It writes down a few scenarios and asks banks to calculate the overall health of the bank under these conditions. Each year it has to get creative with the scenarios to stop banks from gaming them. It's easy to see how that can go wrong.

If risk weights worked, we wouldn't need the liquidity backstop or the stress tests. If stress tests worked… well, you can see where this is going. Regulators hope that intersecting these three (and many many more) regulations will give a safe banking system without bringing the whole thing to a standstill of compliance work, but both ends of that belief strain credulity. In any case, this structure is not fundamentally different from the regulatory regime that held in 2007: guarantee debts; regulate assets. There is little reason to believe it is qualitatively safer.

A practical solution needs to address all three problems: that no hard and fast number makes sense, and that more and more complex capital ratios, risk weights, and stress tests are fundamentally flawed. It needs clarity and simplicity.

My first answer is a tax on debt, especially short-term debt. For every dollar of debt, the bank has to pay, say, 2 cents per year to the government. The tax should be higher for short term debt, and especially high for overnight debt or debt such as deposits on which the lender can demand payment at any time.

A tax on debt is better than capital requirements for the same reason that pollution taxes are better than command-and-control schemes. If short term debt is really really important, in some cases, as its advocates claim, well, then they will pay the tax and get to use it. If not, then they will find ways to get by without it. "Private financial crises are everywhere and always due to problems of short-term debt," Doug Diamond famously said,[8] in analogy to Milton Friedman's famous dictum on money and inflation. So, tax short term debt.

Second, we can base capital measures on market values not complex accounting schemes. For a first pass at the idea, define the capital ratio as the market value of equity divided by the face value of debt. Basing capital regulation on this ratio avoids all the risk weight, stress test, and liquidity ratio problems.

The market value of equity takes account of the true riskiness of assets, not their regulatory buckets, and correlations between assets. Regulators, of course, don't trust markets and think they can do a better job. History questions this hubris.

Yes, the market value of a bank may fall suddenly. All the more reason for the bank to maintain a hefty buffer over the regulatory minimum!

Finally, capital regulation should not be a bright line — over x percent is safe, under x is not safe. Rather, there should be a sliding scale. If a firm has 100% capital and no short term debt, then it cannot fail, cannot pose a systemic risk, and needs essentially no regulation beyond that of any other public company. As the capital ratio declines, it faces gradually more and more regulatory burden. If a firm wants to operate like today's big banks, with 10% capital, a massive regulatory compliance department with risk weights and stress tests and all the rest, fine, let it do so. I suspect most will choose not to! (This is the fundamental architecture of the Choice Act,

[8] https://www.houseoffinance.se/wp-content/uploads/2018/03/Diamond2.pdf. Yes, this essay disagrees with the second part of the Diamond quote at this source.

proposed by Rep. Jeb Hensarling.[9] I mention it to point out this isn't all academic pie in the sky, but real people share some of these ideas.)

As with the tax on debt, it is easy to argue that capital is costly and deposits and short-term financing is vital for one or another complicated reason. OK, offer the menu of choices, and see where they line up.

Simplicity is vital. Each round of bank regulation has gotten more and more complex, with no discernible result of safety. Despite the fashionable narrative, banks were pretty darn regulated in 2007, and more so when the European banking system subsequently discovered that sovereign debt might have a bit of risk. As emphasized by Andrew Haldane's famous "dog and frisbee" speech, only simple regulations have a prayer of actually working[10]. This principle leads me to focus on simple common equity rather than complex contingent convertible bonds or other creative securities.

My fellow libertarian free-marketers must remain disappointed, however. Some regulation is needed. Debt, and especially short-term run-prone debt, has a tremendous social cost that its private users do not see. The government has a legitimate role to tip the scales against it.

Let them in

The discussion over financial regulation always centers on, "How should we regulate the existing big banks and investment banks?" The question is almost never asked, and even more rarely answered: "How would we like new financial institutions to organize themselves and behave?" What does it take for a new institution to come in, and say to the Fed, "OK, we have followed your guidance, we are set up to be totally unsystematic, now let us operate without the huge pile of rules meant to guard against systemic dangers?"

Fundamental reform has never come from the Federal Government pushing existing firms to behave differently. We did not get cheap airline tickets from the Civil Aeronautics Board of the 1970s passing regulations to get airlines to be more efficient and seats to be tiny. We did not get iPhones from the FCC telling the 1970s AT&T monopoly to go make them.

If we are to move to a capital-intensive run-proof financial system, it will likely be spearheaded by new competitors who see the opportunity and structure themselves this way, not by forcing existing behemoths to change their ways. If markets are illiquid, because big banks are not trading, new equity-financed hedge funds should come in to do it. New companies are already moving in to loan origination separated from deposit financing. New companies are moving in to providing transactions services. It is much easier to make sure that new companies are structured to avoid run-prone financing rather than exploit loopholes in existing regulations than it is to write another few hundred thousands of pages to fix Citi.

This is a small instance of the larger point. Regulators get used to a huge rule book; large oligopolistic firms who have constructed hundred million dollar per year compliance departments

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[9] https://financialservices.house.gov/choice/

[10] Andrew G Haldane and Vasileios Madouros, 2012, "The dog and the frisbee" https://www.bis.org/review/r120905a.pdf

get used to a new rule book. Don't count on rewriting that rule book for reform. Reform will come by allowing a new structure to sprout alongside. That is a much smaller and more practical test.

Sadly, the Fed failed one of its first tests abjectly. TNB, standing for "the narrow bank" is trying to take large commercial deposits and invest them entirely in reserves at the Fed. It is designed to substitute for overnight repurchase agreements — precisely the contract that brought Lehman and the rest of the financial system crashing down in October 2008. And the Fed said no, to the point of acting illegally, at least according to TNB's complaint.[11] The Fed is also restricting access to reserves through its reverse-repo program, and paying banks 20 basis points more than others. A run-free financial system wants reserves wide open — or the treasury to offer an equivalent security.

Dreaming?

I have told a story of impressive intellectual and some institutional progress. Yet at this 10 year mark, progress seems to have stalled. For the first 5 years or so, there was strong intellectual progress on the point, yes, a financial and monetary system largely based on equity and with much less short-term debt is possible, reasonable, not costly, and all on its own will solve the problem of recurring crises.

But now the zeitgeist has changed. Energy for fix-the-crisis reform has faded. Regulators, once mildly chastened by their failure to foresee and stop the last crisis, are emboldened once again with self-assurance they will not fail once again if only given more powers. Despite 10 years of promises to tighten regulation in the boom so it does not turn in to the bust, the political pressure is on to loosen regulations just as in the last boom and every boom before it.

Deregulation is important, and current regulations are stifling competition in financial services. But raising capital standards is exactly the key which will allow regulators to loosen all the other noisome regulations. Yet capital is exactly the one thing which is most profitable to banks to reduce, and therefore under attack. For now, high-level regulators are resisting mightily, but the pressure is strong. The chance to substantially strengthen capital requirements seems to be gone.

But the next crisis will come. What will be its source? I don't know — every crisis comes from a new and unanticipated source. If we could anticipate them, they wouldn't happen. We can speculate and it's useful to do so. Where is there a whole lot debt that can't be repaid, much of it short-term, covered up by shady accounting, and susceptible to a run? Right now sovereign debt strikes me as the main weak point.

Financial crises have been just as often sparked by sovereign defaults as they have by bank runs. Often a bank-centered crisis becomes a government debt crisis as the government runs out of resources to bail out banks.

If our next crisis becomes a sovereign debt crisis, it will be even worse. It could happen. Imagine a global recession hits. China's debt blows up, and they sell their treasurys. Italy goes under. Europe sells its treasurys. US state and local pensions are revealed to be empty. A few

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[11] See "Narrow Odds for Narrow Banks," Wall Street Journal, Sept 12, 2018, https://www.wsj.com/articles/narrow-odds-for-narrow-banks-1536793230.

states go under. And the US, now let's say $30 trillion in debt, running trillion-dollar deficits, with unreformed social security and health care bleeding the budget, paying a trillion dollars per year or so in debt service once interest rates rise to historical levels, needs suddenly to borrow more trillions for bailouts, stimulus, and so forth while it rolls over $10 trillion of debt. Imagine that further partisan polarization has led to political paralysis — the President is being impeached and the Senate has refused to confirm a Treasury secretary or Federal Reserve officials. There comes a point that politics says no — we're not bailing everyone out again — or markets say no — we're not lending you any more money. Then the firehouse has burned down and the financial system with it.

Well, if something like this happens, it would be a lot better if the banks were not suffering runs, dependent on lender of last resort and government bailouts. It would be a lot better if the financial system were immune and the ATMs did not go dark.

The European financial crisis offers a small warning sign. Greek, Spanish and Italian banks held a lot of Greek, Spanish and Italian debt. So, if their governments default, the banking system fails too. The answer to "why didn't Germany and France just let Greece default?" — as the architects of the Euro intended — is largely that their own banks would have failed, as well as Greek banks, spreading a simple sovereign default to a worse economic calamity.

A banking system that does not fail all of its own, without government help, is a great thing, especially when the government itself might be the source of the next crisis. And capital, lots more capital, is the key to that resilient financial system. In 10 years, I think we have largely figured that out. But as the tremendous cost of the last crisis fade in memory, as the potential cost of the fact it could have been much worse fades in memory — to their credit our officials did not repeat the mistakes of the Great Depression, and they could easily have done so — and as the usual interests of a regulated oligopolistic industry and a massive government bureaucracy merge, it seems the chance of implementing that knowledge is passing.

*Mr. Cochrane is the Rose-Marie and Jack Anderson Senior Fellow of the Hoover Institution, Stanford University.