

Gary Gorton

I have no idea what Gary said just now, but I know it's really, really important, so I'm going to sit down and study this until I get it.

Professor Randall Wright
University of Wisconsin
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After listening to Yale finance economist Gary Gorton deliver a talk on “shadow banking” and the recent financial crisis, Randy Wright, a brilliant monetary theorist, was both perplexed and intrigued. *Region* readers may well have the same reaction after dipping into the following interview with Gorton.

Shadow banking—the intricate web of financial arrangements and techniques that developed symbiotically with the traditional, regulated banking system over the past 30 or so years—is territory Gorton has studied for decades, but it (and he) have been largely on the periphery of mainstream economics and policy.

That all changed in mid-2007, when panic broke out in the subprime mortgage market and financial institutions that support it. Expressions like “collateralized debt obligation” and “repo haircut” escaped the confines of Wall Street and business schools, and began to fill the airwaves. We’re still struggling to come to terms—and few are in a better position to help than Gorton.

Gorton might have stayed on the margins had Fed Chair Ben Bernanke not highlighted his research. In a September 2010 speech, for instance, Bernanke cites a Gorton paper as an example of contemporary research that has “significantly enhanced our understanding of the crisis and [is] informing our regulatory response.” By no coincidence, the Fed invited Gorton to major policy conferences in 2008 and 2009 to give papers on shadow banking, versions of which appear in his 2010 book *Slapped by the Invisible Hand*.

Gorton begins that book with a bit of self-disclosure that reveals his grasp of the issues as more than academic. “I was in a unique position to observe the events” of August 2007, he writes. Not only had his research career focused on banking, financial crises and banking panics, but “starting in 1996, I also consulted for AIG Financial Products, where I worked on structured credit, credit derivatives, and commodity futures.”

Thus, Gorton’s appreciation of modern banking and its vulnerabilities is informed by practice as well as theory. Sharing that understanding requires considerable effort; we’ve provided a glossary to help with the terminology and, fortunately, Gorton is a lucid narrator of a complex tale. And as Wright suggests, the rewards to studying this material are profound.



SHADOW BANKING

Region: Why don't we begin with some background on so-called shadow banking—the factors behind its enormous growth, and then its collapse during the financial crisis? Do you prefer a different term? You use “securitized banking” in some of your papers.

Gary Gorton: The term shadow banking has acquired a pejorative connotation, and I'm not sure that's really deserved. So let me provide some context for banking in general.

Banking evolves, and it evolves because the economy changes. There's innovation and growth, and shadow banking is only the latest natural development of banking. It happened over a 30-year period. It's part of a number of other changes in the economy. And let me give even a little *more* context, historical context. I want to convince you that shadow banking is not a new phenomenon, in a sense—that we have had previous “shadow banking” systems in the past—and that there is an important structure to bank debt that makes it vulnerable to panic. So, the crisis is not a special, one-time event, but something that has been repeated throughout U.S. history.

Before the Civil War, banking involved issuing private money—that is, banks issued their own currency or bank notes. And this system worked in the way economists would expect it to work. The private bank money did not trade at par when it circulated any significant distance from the issuing bank. Instead, it was subject to a discount, so that a bank note issued by a New Haven bank as a \$10 note might only be worth \$9.50 at a store in New York City, for example.

Such discounts from par reflected the risk that the issuing bank might not have the \$10—redeemable in gold or silver coins—by the time the holder took the note back to New Haven from New York. The discounts from par were established in local markets. But you can see the problem of trying to buy



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your lunch when the cook has to figure out the discount. It was simply hard to buy and sell things in such a world.

A big innovation in that period was to back the money by collateral, by state bonds. It turned out that this didn't always work very well because the bonds themselves were risky. The National Banking Act then corrects this by having the government take over money and issue greenbacks, or federal government notes backed by Treasuries. That was the first time in American history that money traded at par. That was 1863.

The National Banking Acts (there were two of them) are arguably the most important legislation in the financial sector in U.S. history. But what's interesting, and the reason I bring this up, is that as that was going on, a shadow banking sector was developing. And this shadow banking sector first really makes itself felt in the Panic of 1857 when depositors run and demand cur-

rency from their checking accounts.

So, after the Civil War, there's no problem with currency [because greenbacks were backed by the federal government], but we have this other form of bank money: checking accounts—which appears to be shadow banking.

It develops into something very large and repeatedly has crises. In the late 19th century, academics were literally writing articles with titles like “Are Checks Money?” in top economics journals. And in 1910, the National Monetary Commission, which is the precursor to the Federal Reserve System, commissions 30-some books, one of which is about the extent to which checks are used as currency for transactions. So they're still studying it in 1910.

Eventually, as you know, we get deposit insurance, which then makes checks safe, so to speak.

Region: There were some efforts to provide deposit insurance prior to the Federal Deposit Insurance Corporation, of course.

Gorton: Yes, there were state deposit insurance schemes that had different experiences, and there were proposals for federal deposit insurance for quite a while before it was actually adopted. Interestingly, FDIC insurance was opposed by economists.

THE RISE OF REPO

Region: How does this historical context relate to shadow banking today?

Gorton: In the last 30 or 40 years, there have been a number of fundamental changes in our economy. One of the most fundamental of these has been the rise of institutional investing. The amount of money under management of institutional investors has just been exponentially increasing. These include pension funds, mutual funds, large money managers. And these institutions basically have a need for a checking account, if you will. So if you're a large institutional money manager, you may

need a place to put \$200 million, and you want it to earn interest and to be safe and accessible. That led to the metamorphosis of a very old security: the sale and repurchase (or “repo”) market. Like a check, **repo*** had been around for perhaps 100 years, but it was never very large.

Region: This is in the early 1980s?

Gorton: Well, the early '80s are the beginning point of a number of developments that are going to come together. We don't have any data on repo except for a small subset of firms, so we can't document many of the things we're interested in knowing. I'll come back to this problem later, perhaps: the measurement problem in macroeconomics generally.

But these firms basically would like to have a checking account, and a repo provides that in the following sense. Let's just start with a regular bank. If you put your money in a checking account in a bank, they pay you, say, 3 percent; they take your money and lend it out at 6 percent. They make the spread. Banking is a spread business.

Repo works similarly. You take your \$200 million to the bank, to Lehman Brothers, say. You deposit it, so to speak, overnight so you can have access to it the next morning if you want to. They pay you 3 percent. And you want it to be safe, so they give you a bond as collateral. But Lehman earns the interest on the bond, say, 6 percent. And the bond is going to turn out often to be linked to bank loans.

Region: And there's also a “**haircut**,” true?

Gorton: There may be a haircut. If you deposit \$100 million and they give you bonds worth \$100 million, there's no haircut. If you deposit \$90 million and they give you bonds worth \$100 million, then there's a 10 percent haircut.

Region: Just to be clear, they don't deposit those funds in a checking account because ...



If you're a large institutional money manager, you may need a place to put \$200 million, and you want it to earn interest and to be safe and accessible. That led to the metamorphosis of a very old security: the sale and repurchase (or “repo”) market. Like a check, repo had been around for perhaps 100 years.

Gorton: Right, because the Federal Deposit Insurance Corporation limit is too low, just \$250,000, and these deposits are in the tens or hundreds of millions.

There are competitors for repo that these firms consider and use, but again we don't know the relative sizes of these. I think now we have a good idea of what repo was just before the crisis.

But repo—the transaction I just described—has other similarities to the checking account story. If you put a dollar in your checking account and the bank has to keep 10 percent of it on reserve, they lend out 90 cents. Somebody deposits that 90 cents, the bank can lend out 81 cents (because of the 10 percent reserve requirement) and so on. So you end up creating \$10 of checking accounts for \$1 of demand deposits, assuming there's a demand for loans. Now, that money multiplier process is very important because it

means that the amount of endogenously created private bank money in checking accounts is 10 times the size of the collateral, so to speak, of \$1 of government money. So, in a traditional banking panic, if everybody wants their \$10 back, there's only \$1. And that's the problem.

Region: The **Jimmy Stewart problem**.

Gorton: Right, the Jimmy Stewart problem. And that can happen in repo as well because if you're Lehman and I'm the depositor, and you give me a bond as collateral, I can use that bond somewhere else. So there is a similar money multiplier process.

Region: That's “**rehypothecation**,” right? One of my favorite new words.

Gorton: Yes, it's become very popular lately [laughs]. So, if shadow banking refers to the growth of this type of money—and it's not controversial to say it's money; it was counted in **M3**—but in order for this to grow, you have to have the collateral, and collateral, of course, like in the pre-Civil War era, can turn out to be risky bonds.

The reason for this is that there aren't enough high-quality bonds. Prior to the crisis, there were not enough Treasuries. Many Treasuries are owned by foreigners and are not available to be used in repo. And collateral is also demanded for posting in derivatives transactions, and for clearing and settlement. The most common way of dealing with counterparty risk is to ask for collateral. So the demand for collateral is pervasive. For repo to grow, you needed to have more collateral.

The other important aspect of shadow banking is related to the way the traditional banking sector evolved, the decline of the traditional banking business model. The traditional model was: I issue checking accounts—and in the old days, I didn't have to pay interest because I had a monopoly on that. And I would lend the money out.

A lot of things changed. Money market mutual funds took market share

*Terms highlighted in blue are defined in a glossary on pages 28–29.

from banks because they offered interest. Eventually, checks are going to pay interest, which makes banks' cost of capital go up. Junk bonds take away a profitable form of lending for banks. And so, starting in the 1980s, the traditional bank lending business didn't work anymore.

Region: They lost what you refer to as "charter value." Could you explain that a bit?

Gorton: Right. The way that's described in the economics literature is that the charter value, which is the title to earn some monopoly profits because of limited entry into banking, disappears because of competition and innovation. And that's not so surprising, right? That's something that happens all the time: There's innovation.

But what happened this time was interesting because the regulatory response was to allow banks to compete, and allowing banks to compete meant that the charter value went down even more. So traditional banking needed to have an innovation in order to maintain itself as an industry. And the innovation was **securitization**.

GROWTH OF SECURITIZATION

Region: I've seen your data from the early '90s showing declines in profitability of U.S. banks, or their low profits relative to Japanese banks that entered the U.S. market and competed with them. Is there more recent empirical evidence of reduced profitability in traditional banking relative to shadow banking?

And would you elaborate on why and how securitization evolved?

Gorton: The empirical question is very hard to answer because in equilibrium these firms do things to be profitable, so in traditional banking you can see a decline in profits, but the decline goes away because they're doing new, profitable activities.

Securitization basically allows the traditional banks to finance their loans



Securitization basically allows the traditional banks to finance their loans by selling them rather than holding them on balance sheet, and the source of value here is avoidance of bankruptcy costs. ... Because of this link, traditional banking and shadow banking are integrated. ... Traditional banking funds itself in large part by selling loans to firms that use those loans for collateral for this other category of loans. This is a crucial, crucial point.

I would describe shadow banking as the rise to a significant extent of a very old form of bank money called repo, which largely uses securitized product as collateral and meets the needs of institutional investors, states and municipalities, nonfinancial firms for a short-term, safe banking product.

by selling them rather than holding them on balance sheet, and the source of value here is avoidance of bankruptcy costs. A firm that originates loans does so by lending money to any number of borrowers—both corporate and consumer—and it then selects a large portfolio of its loans to sell, in a very specif-

ic legal sense, to a "special purpose vehicle," an entity it creates for that very precise reason. The main advantage of doing so—of establishing the SPV and legally selling the loans to it—is that this arrangement circumvents the costs associated with bankruptcy.

Let me briefly elaborate on the appeal of these SPVs. They're a kind of robot firm, a set of rules governing the cash flows. No one works there, and there is no physical location. They own loans and are obligated to pay their liabilities, which are the **asset-backed securities** they issued to buy the loans. But if the SPV can't pay those liabilities—if the underlying loan portfolio doesn't generate enough cash to make the coupon payment due on the asset-backed securities bond—it doesn't trigger an event of default. Instead, the liabilities amortize early. That is, the principal payments are made ahead of schedule, but over time. So again, for the firm that originates the loans, the source of value is the avoidance of bankruptcy costs.

Institutional investors, including money market mutual funds among others, buy portions (called "tranches") of these loans at prices that reflect their credit ratings—**AAA** senior, **BBB** and so on—and that's how the traditional banking sector is linked to this securitized, or shadow, banking sector. This elaborate system of securitization evolved over 30 years, and it ended up producing a large part of the collateral that's used for repo.

Region: What you've just described, then—this intricate process of large investors buying asset-backed securities that are based on portfolios of loans generated by banks or loan originators—is the connection between repo in the shadow banking sector, and the consumer and business loans that are originated in traditional banking.

Gorton: Right. Let's just review how repo operates. For repo to work, firms that want to borrow cash (to finance their activities) must hold a sufficient amount of bonds on their balance sheets to be

used as collateral when depositors (effectively lenders: money market mutual funds, other institutional investors or corporations seeking a place to save large quantities of cash in the short term) arrive to put their money in the “bank”—the firm wanting to borrow cash. In the example I used earlier, the “bank” was Lehman Brothers, but most financial firms using repo didn’t collapse as dramatically as Lehman did.

So those bonds, if they’re securitization bonds, asset-backed securities, are linked to portfolios of bank loans. Because of this link, traditional banking and shadow banking are integrated. They’re part of the same system. Traditional banking funds itself in large part by selling loans to firms that use those loans for collateral for this other category of loans.

This is a crucial, crucial point. Because if you think about the current unemployment rate and wonder, “Well, banks aren’t lending. What could we do?” A very practical, constructive step would be to help the securitization market, which would at the same time help traditional banks.

The fact is that this market is broken. And shadow banking very importantly is not a separate system from traditional banking. These are all one banking system. It happened that repo was concentrated in certain firms, many of which were the old investment banks, but also in the large quasi-investment banks or commercial banks.

In summary, I would describe shadow banking as the rise to a significant extent of a very old form of bank money called repo, which largely uses securitized product as collateral and meets the needs of institutional investors, states and municipalities, nonfinancial firms for a short-term, safe banking product.

Region: So, it’s a valuable innovation.

Gorton: Exactly. It’s a valuable innovation.

Region: And that’s why you might want a term other than “shadow banking” that doesn’t have a pejorative connotation.

Gorton: Yes. Of course, the problem with repo and shadow banking is that they have the same vulnerability that other forms of bank money have. We can talk at great length about what that vulnerability is, but loosely speaking, it’s prone to panic. Looking back at history, think about how long it took to devise a solution to the first banking panic related mostly to demand deposits. That was in 1857. It wasn’t until 1934 that deposit insurance was enacted. That’s 77 years where we’re trying to understand demand deposits and figure out what to do.

The situation that we’re in now, seriously, is one where we are back in about 1860: We’ve just had a big crisis, and we’re trying to figure out what to do. We can only hope that it doesn’t take 77 years to figure it out this time.

SENSITIVE/INSENSITIVE TO INFORMATION

Region: That brings us to the question of what did cause the collapse. You write a lot about information asymmetry regarding debt, and how panics are caused by the status of debt shifting from information-insensitive to information-sensitive. What role did information asymmetries play in the financial panic? And what is this distinction between debt that is sensitive or insensitive to information?

Gorton: I should say first that I think it’s very important for economists to be very precise with these terms. For example, the term “crisis.” I think it’s used in economics very loosely; and certainly informally, people think of a crisis as just a bad event. But I would distinguish between global financial crises and bad events such as the collapse of the Internet bubble, the Asian crisis, the 1987 stock market collapse, the S&L crisis. These were not global financial crises. There’s a distinction between these two.

Now, formally, what is the distinction? I think economists need to think about that as well. Global financial crises are about debt. About *debt*. But,

obviously, we need to have a theory of debt to understand why people would use a security, bank debt, and how that could lead to a crisis.

In the literature so far, I think we’ve all had trouble with this because the models of crises assume debt and the models of the optimality of debt really have little to do with crises. This is an unfortunate situation to be in as a profession. In my work with Tri Vi Dang and Bengt Holmström, we develop this idea, that you mention, of the optimality of debt arising from its information insensitivity. Roughly speaking, the argument for the optimality of debt is simply that it’s easiest to trade if you’re sure that neither party knows anything about the payoff on the debt.

Go back to the Free Banking Era again. The Free Banking Era worked in the sense that the discount from par at which the notes traded was correct in an efficient market sense. But the problem was that when you went to buy your groceries in a nearby town, somebody had to figure out what the discount was, and you could never be sure that the discount was correct and you weren’t being taken advantage of. Meanwhile, the cashier is looking up in this little newspaper to figure out what the discount is. And that’s not an efficient way to transact. That was exactly the problem that the Free Banking Era law tried to prevent, by sufficiently backing the notes so you wouldn’t have to do this.

Region: You wanted the note’s value to be information-insensitive.

Gorton: Yes, information-insensitive. You wanted it to be the case that I come to your store and I offer you “Bank of New Haven” notes in Wisconsin, and you just say “fine” and you take them. And that happened once the National Banking Act created federal money.

That intuitive logic applies to repo as well. Nobody wants to be given collateral that they have to worry about. And the mechanics of how repo works is exactly consistent with this. Firms that trade repo work in the following way:

The repo traders come in in the morning, they have some coffee, they go to their desks, they start making calls, and in a large firm they've rolled \$40 to \$50 billion of repo in an hour and a half. Now, you can only do that if the depositors believe that the collateral has the feature that nobody has any private information about it. We can all just believe that it's all AAA.

This is a feature of an economy that is fundamental. It is fundamental that you have these kinds of bank-created trading securities. And the fact that it's fundamental and that you need these is not widely understood in economics. I mean, if you take a standard macro model, a dynamic stochastic general equilibrium model, this is a neoclassical growth model that has no technology for transactions.

Region: Money plays no role.

Gorton: Bank money plays no role. There's no chance that such a model could ever explain a crisis. Zero chance. And I should add that it's not a matter of putting in a "friction." The nomenclature that's used is very interesting. You say, "It's a friction. We need a friction."

In welfare terms, the fact that your model can explain good times doesn't get a lot of weight if it can't explain what happens in a crisis where there is a huge welfare loss.

BETTER DATA: BETTER MODELS

Region: In Chairman Bernanke's recent speech about what the financial crisis means for economics, he suggests that because standard macro models were designed to understand noncrisis periods, they don't have much to say about crisis or financial instability.¹

I gather you would agree?

Gorton: The way standard models deal with it is, I think, incorrect. A lot of macroeconomists think in terms of an amplification mechanism. So you imagine that a shock hits the economy. The question is: What magnifies that shock



The recent crisis, the Great Depression, the panics of the 19th century. Those are more than a shock being amplified. There's something else going on. I'd say it's a regime switch—a dramatic change in the way the financial system is operating. ... The notion of adding things to existing models—a friction or an amplification mechanism—retains this overall paradigm in which financial intermediation generally has no role. I don't think that is going to work.

and makes it have a bigger effect than it would otherwise have? That way of thinking would suggest that we live in an economy where shocks hit regularly and they're always amplified, but every once in a while, there's a big enough shock ... So, in this way of thinking, it's the *size* of the shock that's important. A "crisis" is a "big shock."

I don't think that's what we observe in the world. We don't see lots and lots of shocks being amplified. We see a few really big events in history: the recent crisis, the Great Depression, the panics of the 19th century. Those are more than a shock being amplified. There's something else going on. I'd say it's a regime switch—a dramatic change in the way the financial system is operating.

This notion of a kind of regime switch, which happens when you go from debt that is information-insensitive to information-sensitive is different conceptually than an amplification mechanism. So there's a problem. Conceptually, the notion of adding things to existing models—a friction or an amplification mechanism—retains this overall paradigm in which financial intermediation generally has no role. I don't think that is going to work.

Region: Is this a preview of what you'll be covering in your keynote tonight [at the University of Wisconsin School of Business Conference on Money, Banking and Asset Markets]?

Gorton: No. I'll try to convince people of a few things about the crisis in my talk tonight—in particular, that the panic is not a special, one-off event, but is due to this structural feature of bank money that we have been talking about. But to understand that requires doing some things that are painful for most economists.

One thing is that you have to understand a lot of institutional detail. It's important to do that so you can understand what's really going on. It's not that the institutional detail per se is so valuable to understand. We're not consultants. But to penetrate the details to the point that you can see the commonalities between, say, different forms of bank money, so you can see what's really going on, requires an understanding of the institutional detail which is not, I think, widely appreciated.

The other thing is that it's very important to document and understand what happened by getting data. We can't write theories just by reading the newspaper. You have to go find out what happened, and that's much harder. With respect to the crisis, there's no place you can go and just download data. For example, there is no source for repo data; the New York Fed only collects data on repo that the primary dealers do with the New York Fed.

Region: But not on haircuts, true?

Gorton: They never collected haircuts. Now they do. The important data are hard to find. One thing I've done is spend a lot of time trying to get data. And you get data by appealing to the civic duty of traders and your friends and former students.

Region: People you've worked with in the financial industry, or taught.

Gorton: Yes. That's how you get data. You tell them, "It's very important, and I know your company is significant." So, again, it's the endeavor of finding data. People just have to be encouraged to do it. I encourage my students to do it.

THE COLLAPSE OF REPO

Region: Let's go back to causes of the crisis, if we could. Why did the repo market collapse? What caused the transition from insensitivity to sensitivity of debt? Why did what seemed to be a house of bricks turn into a house of cards?

Gorton: It looks a lot like the 19th century banking panics in that sense. Those panics tended to happen at business cycle peaks. Information arrived, told you that a recession was coming. And if that shock was above a certain threshold, there was a panic. There was never a panic when that shock wasn't over the threshold, but every time it was over the threshold, there was.

The same thing happened this time. There was a shock. The shock by itself wasn't big enough to cause a global financial meltdown. The shock was that house prices didn't rise.

Region: And that was reflected in the **ABX index**. That was the new information.

Gorton: Yes, the house price decline had the biggest impact on subprime mortgages, and that's the information that was revealed by trading the ABX index, although I think it was widely known and understood, probably, beforehand. But the question is, again: How could

that shock lead to such a big crisis?

Remember: At the time, subprime mortgages outstanding totaled about \$1.5 trillion. If all of that had defaulted with zero recovery, that would not have been a global financial crisis. That would have been a problem, because poor and minority people received a disproportionate share of these subprime mortgages. And surely there were problems with all sorts of other things—underwriting standards, broker incentives—but they didn't constitute or cause a global financial crisis. So what happened?

What happened, I think, is that the depositors in the repo market got nervous to the extent that the only way to protect themselves against agents producing private information was to ask for a buffer. Let's go back to the repo market. In the repo market, I give you \$100 million; you give me \$100 million worth of bonds. Let's say those bonds are AAA, credit-card-linked bonds, an asset-backed security. The only way I can lose as a depositor is if you fail. I am then allowed to unilaterally terminate the agreement, and I go to sell my bonds and I fetch less than \$100 million.

Now, if the shock causes me to worry that when I sell my bonds somebody will have produced private information (because now, unlike before, it's profitable to do that), then I can protect myself by saying, "I'm not going to give you \$100 million. I'm only going to give you \$80 million, and you give me \$100 million of bonds as collateral."

So that gives me a 20 percent buffer against that possible loss. For you, however, that's a big problem because you were financing \$100 million with me before and now you're only financing \$80 million, and so now you have to finance the other \$20 million somewhere else.

Region: This was the increase in haircuts that occurred in the early stages of the crisis.

Gorton: Right. This was the increase in haircuts. An increase in haircuts is a

withdrawal from this banking system. There are several studies that allow us to put some numbers on this. With Andrew Metrick, I've estimated the size of the repo market; two economists at the BIS [Bank for International Settlements] have estimated the size of the repo market independently and in a separate way; and there's an IMF [International Monetary Fund] economist who has also estimated the size of the repo market, again, with a third method. And we have another important piece of information, a very good survey of the European repo market, which is widely viewed as being much smaller than the U.S. market. So, if you look at all of this information, the size of the repo market, conservatively, was \$10 trillion.

Region: This is *just* repo?

Gorton: Right, just repos. Never mind about asset-backed commercial paper or the rest of it.

Region: So shadow banking is—or was—huge. Possibly even larger than standard, regulated banking.

Gorton: The total assets in the regulated banking sector in the U.S. are \$10 trillion.

Let's do just a back-of-the-envelope calculation: If haircuts go from 0 percent to 30 percent, on average, that's \$3 trillion the shadow banking system has to raise. The run is that depositors want \$3 trillion. There's no place to get \$3 trillion. And we know what happened over the course of the crisis. The Fed ends up buying \$2 trillion, and commercial banks end up buying \$1 trillion. But the process of transferring these assets is very painful.

Region: What's the current status of shadow banking?

Gorton: Regulated banks are sitting on over \$1 trillion of reserves and really don't lend. And since they're not lending, there's not a lot to securitize, and

Regulated banks are sitting on over \$1 trillion of reserves and really don't lend. And since they're not lending, there's not a lot to securitize, and the securitization market is a shadow of its former self. ... It's not that the system is healthy and it won't lend. It's not healthy—either the traditional system or the shadow banking system.

the securitization market is a shadow of its former self. The banking system is really in a shambles. You can see in all the current issues about foreclosure that the bleeding is continuing. It's not that the system is healthy and it won't lend. It's not healthy—either the traditional system or the shadow banking system.

But I would emphasize that there are some constructive, positive things that we could do in this area.

REGULATORY REFORM

Region: Good, let's talk about regulatory reform. In your paper with Andrew Metrick, you say that the Dodd-Frank Act takes some positive steps but that there continue to be three major gaps, and you offer what I'll call the Gorton-Metrick proposal of narrow-funding banks.² Could you elaborate on what you see as gaps in Dodd-Frank and tell us why NFBs could address that? Also, what are your thoughts about Fed Governor Tarullo's response to your proposal?³

Gorton: A constructive policy I think would be a reform that did two things. First, it would remove the vulnerability of the repo market to runs. And second, it would also re-create confidence in securitization so that we could get the banking system functioning again. Those would be the two things that you need to accomplish for a constructive reform.

Now, Dodd-Frank doesn't do that. Dodd-Frank addresses some things that perhaps needed to be addressed: some infrastructure issues, consumer protec-

tion. For these things, it depends on how the rules are written. We'll see what happens. But with regard to the core issue, I think it's like what happened after every panic in the 19th century. Reforms were passed, and we went on to the next crisis.

Region: And we tend to fight the last battle.

Gorton: Not really fight the last battle. I don't think it is understood how we won the last battles—that is, how deposit insurance worked or why the National Banking acts worked. Today there is no need to fight these battles again. We should have learned, and we should not just repeat the 19th century, during which we had ineffective reforms after every panic.

Region: The historical quotations that you often use to begin your papers are amazing in their similarity to current events.

Gorton: Right. People point to the failure of certain firms. They point to speculative activity in certain railroad stocks or land. And the structural commonalities they miss. That's why it's so ironic, and almost tragic, that deposit insurance was passed as a populist mandate, over the objections of bankers, economists and FDR.

So, Dodd-Frank is well meaning, it's well intentioned, it does some good things. But does it solve the problem? No. Does it understand the problem? No. Metrick and I propose, broadly speaking, that we address three things: money market mutual funds, where we have nothing new to say so we leave that one aside, but we want to bring securitization under the regulatory umbrella because it's used as collateral. If the government doesn't oversee it, then we won't have high-quality collateral that's created that people will have confidence in, in the sense that it's information-insensitive.

We want all securitized product to be sold through this new category of banks:



We want all securitized product to be sold through this new category of banks: narrow-funding banks. The NFBs can only do one thing: just buy securitized products and issue liabilities. The goal is to bring that part of the banking system under the regulatory umbrella and to have these guys be collateral creators.

narrow-funding banks. The NFBs can only do one thing: just buy securitized products and issue liabilities. The goal is to bring that part of the banking system under the regulatory umbrella and to have these guys be collateral creators.

A reasonable question would be: Why doesn't the government create collateral? Well, the Treasury has fiscal issues, and that's what determines whether they borrow or not, and we don't want to mix these things up. And the Fed in principle could create collateral, and we talk about that in the paper. But short of the Fed creating all the collateral, it seems desirable to oversee the creation of collateral by the private sector.

The second part is also straightforward. If we're going to have private money creation in the form of repo, we want it to be done in regulated entities, just like demand deposits. We don't want nonbanks to do a lot of repo.

However, repo is sort of a lifeblood of the financial system, and it has lots of other uses. So we don't want to outlaw its use by hedge funds and all sorts of other firms. But we then want to regulate that. There are many details to be worked out in this proposal. We omitted a lot of the details in order to get out some of the big ideas.

One of the responses we got was that this was a radical proposal. And I would point out that the National Banking Act was also a radical proposal. And FDIC insurance was also a radical proposal. When we have an event as extreme as the crisis, a nonradical proposal probably isn't going to work. So I don't take that as a criticism. I take that as sort of a superficial response.

Region: You don't want a bandage when you need surgery.

Gorton: Exactly. Now, Governor Tarullo's response, I thought, was fantastic. I found it very thoughtful. He brought up great points. I don't disagree with many of those points.

I *would* disagree with the notion that it might have unintended consequences so we should not adopt the NFB proposal. Anything you do might have unintended consequences. Right now, I think, if we don't act, we *will* have a lost decade. Getting the banking system functioning; well, there's some urgency to that. So I'm willing to go for that and deal with the unintended consequences rather than not do anything. I'm not sure that he would disagree with that, but he refers to unintended consequences.

Region: He also said, I believe, that we need to do a cost-benefit analysis of the proposal. How do the benefits compare with the costs of reforming securitization and major changes in regulatory law?

Gorton: Yes, but how long is that going to take? Twenty million Americans are out of work, so they'll be waiting for the study.

Region: So you're saying this is ER surgery, not elective.

Gorton: Right. There's some urgency to thinking about this. People in Washington would, I hope, be open-minded to these kinds of ideas just because the alternative seems so bleak.

DODD-FRANK, THE FSOC AND MEASUREMENT

Region: A big concern at the Minneapolis Fed is whether Dodd-Frank deals adequately with **moral hazard**. It sets up **resolution authority**; it establishes the Financial Stability Oversight Council, which had its first meeting about a month ago. The FSOC's mandate is "responding to emerging risks to the stability of the United States financial system."

Given what you know about the history of U.S. regulatory efforts and banking panics, what's your take on whether the FSOC is likely to be able to respond to emerging risks, rather than looking at the old ones, specifically in terms of moral hazard?

Gorton: Let me set moral hazard aside for a moment. The question you raise is one that I think of in terms of measurement. Measurement is at the root of science, and it ought to be at the root of economics. One of the problems that I think we've been aware of for a while is that when you have derivatives, traditional methods of measuring are not effective.

Think about how we measure things now. We have the **call reports**; we have **Flow of Funds**; we have **national income accounting**; we have **GAAP**. And these methods are fine when you live in a world where the risks of cash flows are put together in a security. But that's not the world that we live in. So having a picture of the economy now that's consistent with these innovations—derivative securities—is very important, and that means that these measurement systems need to be rethought.



When you have derivatives, traditional methods of measuring are not effective. ... So having a picture of the economy now that's consistent with these innovations—derivative securities—is very important. ... An oversight council like the FSOC has no chance of understanding anything if we don't have better measurement systems.

I have a paper with Markus Brunnermeier and Arvind Krishnamurthy where we broach these issues.⁴ I think these issues ought to be at the top of economists' agendas, but they're not issues that anybody thinks about, really.

An oversight council like the FSOC has no chance of understanding anything if we don't have better measurement systems. That's why in Dodd-Frank, they set up the Office for Financial Research. And this goes to the roots of economics, right? Think of Burns and Mitchell on business cycles. Think of Kuznets on national income accounting. And there are economists who think about measuring productivity. Now it's time for us to work on measuring risk.

Go back to macroeconomics. Macroeconomics as a paradigm in large part is determined by what is measured. If I told you that I had a 30-year panel data set of firms by sector and I had the deltas of the change in value with

respect to certain systemic risks and idiosyncratic risks, people would calibrate models to measures of risk, right?

The way models are built, and the way people think, is determined in large part by what we measure. It's determined by Kuznets, basically. So it's hard to even imagine how you're going to build models if we don't measure things that are more directly associated with what we would like to know.

So we wrote this little paper about measurement—it's really half a paper at the moment; it's a draft. And my coauthors organized this NBER [National Bureau of Economic Research] conference a couple of weeks ago in New York. (I told them they should do it; they're younger than me [laughs].) And it was a really interesting conference, I must say. But the reason it was so interesting is that everybody was totally confused. People had all kinds of interesting ideas, I thought, about what to measure.

Region: That's how new the idea was.

Gorton: Exactly, that's how new it was. You go to most conferences and you're hearing finished papers, and you can kind of agree or disagree, whatever, but it's going to be sent off to a journal to be published, if it's not already sent off, and pretty much the disagreement is very predictable. We all know who disagrees with whom about what.

This was one of the few times, I think, that generated a really productive discussion. I think it's great that people are thinking about these things. This is absolutely critical. This is critical to everything. And it's unfortunate that young people aren't interested in this. You can't get tenure working on measurement. You can't get published in top journals working on measurement. It's not theory.

So I think the oversight council has this problem. Now, they're not going to be able to prevent crises, because you can't prevent a banking panic by identifying risks. You need to prevent the bank money from being vulnerable to panic. If you had had this oversight

council in 1930, or even 1920, would it have prevented the banking panics of the Great Depression? No.

But it's still a good thing. I think it's a good thing to understand where risk is and to be able to think about it and to be foresightful. But it's not going to work if you don't have new measurement systems.

But I should get back to your question about moral hazard ...

CREATING COLLATERAL, NOT INSURANCE

Region: Is your idea of narrow-funding banks essentially opting to create collateral rather than insuring repo markets, which might generate moral hazard?

Gorton: Yes, because collateral is the other way of thinking about it. It's easy to just insure everything [laughs].

Metrick and I have the view that it would be better to go for the model of the National Banking Act or the Free Banking Act, to try to create viable collateral, rather than to try to create charter value, in order to keep moral hazard in check.

Now, narrow-funding banks may have charter value as well, but we're not relying on that. The interesting thing about moral hazard is that it's, I think, kind of a lazy argument. No one has ever said that moral hazard was at the root of all the 19th century banking panics.

Region: But that was before deposit insurance.

Gorton: Yes, it was before deposit insurance, but there were clearinghouses and you could free-ride clearinghouses, and no one has argued that anybody did. And it's also, I think, important to explain why deposit insurance *worked* from 1934 to 2007. And the argument in the literature is that there was positive charter value. So the argument is not that you had moral hazard; it's that charter value went down. That was the problem. You had these innovations in finance that decreased charter value.

So the issue is to somehow accept the



After the fact, things always look clearer, don't they? Monday morning. People make statements like, "Obviously, there was too much leverage." That's like saying the patient died because his heart stopped beating or inflation is caused by prices going up. Obviously, there was leverage. That's why I said before that you need a theory of debt; you need to explain why there's this debt and what is the purpose of having this debt.

fact that the world was different—and in fact, better—because of shadow banking, but to aim at the vulnerability of shadow banking. The way we saw that before was with either insurance or collateral.

It's a similar thing with terms like "too big to fail." The banking system was too big to fail. That's why we allowed suspension of convertibility [in the 19th and early 20th centuries]. Suspension of convertibility by banks, prior to the Fed, was always illegal, but it was never enforced because nobody wanted to liquidate the banking system.

Now you could say, "Well, it's just a matter of commitment." If we could commit to liquidate the banking system, just one time, then they would never create private money. We would just

have currency. Well, that was the whole problem in the 19th century: the inelasticity of currency. So if you don't want private money, why don't you just come out and say it? We don't want private money.

We could eliminate private money, at least for a year or two until it popped up in some other form. So the too-big-to-fail argument, again, it's not clear to me that it's really a moral hazard issue so much as it is that when you have a banking panic, the system is insolvent.

After the fact, things always look clearer, don't they? Monday morning,

People make statements like, "Obviously, there was too much leverage." That's like saying the patient died because his heart stopped beating or inflation is caused by prices going up. Obviously, there was leverage. That's why I said before that you need a theory of debt; you need to explain why there's this debt and what is the purpose of having this debt. Does that security, which is optimal, have consequences that are socially suboptimal or not? What's the problem? To make progress, we need to say more rather than just repeating these things.

FINANCIAL INNOVATION

Region: In your writing, you draw an analogy between banking and electricity. When these systems work well, we don't care how they work. But when they fall apart, then we suddenly realize that we don't understand them. That's certainly become clear in the recent crisis as researchers like you have explained the complexity of financial innovations.

Is the pace of financial innovation so overwhelming that it inevitably leads to

More About Gary B. Gorton

Current Positions

Professor of Finance, School of Management, Yale University, since 2008

Professor of Economics (secondary appointment), College of Arts and Sciences, University of Pennsylvania, since 1996

Sloan Fellow, Wharton Financial Institutions Center, since 2000

Research Associate, National Bureau of Economic Research, since 1990

Previous Positions

Robert Morris Professor of Banking and Finance, Wharton School, University of Pennsylvania, 2003–08; Liem Sioe Liong/First Pacific Company Professor of Finance, 1998–2003; Professor of Finance, 1995–98; Associate Professor of Finance, 1990–95; Assistant Professor of Finance, 1984–1990

Director, Banks and the Economy Program, Federal Deposit Insurance Corp., 2003–04

Adviser, Federal Reserve Bank of Philadelphia, 1994–95; Senior Economist, 1984; Economist, 1981–84

Houblon-Norman Fellow (first non-English winner), Bank of England, 1994

Visiting Associate Professor of Finance, Graduate School of Business, University of Chicago, 1992–93

Professional Activities

Member, American Finance Association, American Economic Association, Economic Society

Consultant, Board of Governors of the Federal Reserve System, Bank of England, Bank of Japan, Central Bank of Turkey, various private firms

Member, Moody's Investors Service Academic Advisory Panel, 2003–07

Foreign Editor, *Review of Economic Studies*, 2002–07

Editor, *Review of Financial Studies*, 1997–2000

Director, Western Finance Association, 1997–2000

Editorial Board Member and Referee, numerous professional journals, since 1993

Publications

Author of scores of theoretical and empirical articles on banking and bank regulation, securitization, stock markets, commodity futures, asset pricing and corporate control issues, including the following:

Slapped by the Invisible Hand: The Panic of 2007, Oxford University Press, 2010

"Security Price Informativeness with Delegated Traders" (with Ping He and Lixin Huang) in *American Economic Journal: Microeconomics*, November 2010

"SEC Regulation Fair Disclosure, Information, and the Cost of Capital" (with Armando Gomes and Leonardo Madureira) in *Journal of Corporate Finance*, June 2007—winner of the Geewax, Terker & Co. Prize in Investment Research and the Distinguished Paper Prize, special issue of the *Journal*

"Equilibrium Asset Prices under Imperfect Corporate Control" (with James Dow and Arvind Krishnamurthy) in *American Economic Review*, June 2005—winner of the Western Finance Association Best Corporate Finance Paper Prize

"Capital, Labor, and the Firm: A Study of German Codetermination" (with Frank Schmid) in *Journal of the European Economic Association*, September 2004—winner of the Hicks Tinbergen Medal from the European Economic Association for the best paper published in its *Journal* during 2003 and 2004

Liquidity, Efficiency, and Bank Bailouts" (with Lixin Huang) in *American Economic Review*, June 2004

Education

University of Rochester, Ph.D. in economics, 1983

University of Rochester, M.A. in economics, 1980

Cleveland State University, M.A. in economics, 1977

University of Michigan, M.A. in Chinese studies, 1974

Oberlin College, B.A. in Chinese language and literature, 1973; Tunghai University (Republic of China), 1971–72

information asymmetries that can cause panics?

A more positive way to put it might be: How can we get the benefits of financial innovation with less risk?

Gorton: The electricity example had another step to it, which is that once the electricity grid fails—a crisis—and you have a blackout, the answer is not that we want everybody to become an electrician. We don't want to post complicated diagrams of electrical circuitry on the Web for everyone to study. The answer is to create—to re-create—a world where nobody needs to know about electricity. And that's saying, in terms of finance, that you want to want to re-create this world of information insensitivity for many securities.

In the crisis, when investors really started to think about how subprime securitization works, it turns out to be extremely complicated, even compared to a standard securitization. You don't want to have to study that. Not everybody needs to know that.

So this kind of reaction that we need more transparency is not, I think, the right approach, and I would point out that deposit insurance did not take that approach. Deposit insurance said to depositors ...

Region: "Don't worry about it."

Gorton: Exactly. A traditional finance approach might be: If we give depositors lots of information, every day they'll move their deposits to the strongest bank and then banks will have the incentive to be strong, and then everyone will have to spend lots of time doing due diligence on banks.

That's insane, basically, and that's not the approach we adopted, and that's not the approach we should adopt now.

That's why our proposal about narrow-funding banks in large part is to say, "Let's create a system of oversight that doesn't put investors in a position where they have to worry about this." They're going to rely, hopefully, on oversight to do it.



So all this infrastructure: measurement, narrow-funding banks, who does repo. This kind of infrastructure has to be built. It'll take a long time, but it is important that it be done. The power of recent financial innovation—structured products, credit derivatives—is awesome. I don't think that it's really appreciated. This is a global financial system.

In terms of financial innovation, remember that the trend is toward institutional money management, delegated portfolio management.

Region: Which raises **principal-agent problems**.

Gorton: True, it does. But it also means you and I don't have to worry about whether we want to do a "**vol swap**," right? Somebody else will worry about that. There are, of course, problems with innovation, and these problems, I think, are exactly the things that we need to detect by the measurement system I was talking about earlier. And I think if you have the measurement system, and you have confidence that you've removed the vulnerability of repo, you're in a world where you can manage this innovation.

So all this infrastructure: measure-

ment, narrow-funding banks, who does repo. This kind of infrastructure has to be built. It'll take a long time, but it is important that it be done. The power of recent financial innovation—structured products, credit derivatives—is awesome. I don't think that it's really appreciated. This is a global financial system.

VULNERABILITY TO PANIC

Region: But if somebody invents a financial instrument and the economists or data geeks don't know about it because it's brand new, they're not going to know they should measure it, true?

Gorton: In our proposal for measurement, we propose a big supplement to, essentially, the call report, but it's for all financial firms, where we say, "We want to know the change in the value of your firm and your liquidity positions," which we define in a certain way. If the following happens—housing prices go down by 2 percent, 5 percent, 10 percent, 15 percent, 20 percent and so on—how does your value change? And we ask you 200 questions. We also drafted a questionnaire. I won't bore you with all the details, but it's the sensitivity to different risks. So we don't ask you about the actual financial instrument; but if that financial instrument causes your sensitivity to this risk to go up, and we see that that happens to every bank, then we know something.

It's not perfect, but getting the measurement system into the 21st century is the logic of it. But, again, I would point out that the overriding issue here, I think we should understand, is the vulnerability of bank money to panic. That's the issue. It's not that other things are unimportant. But we haven't had trouble with the other things in the sense of a global financial crisis.

If you had brokers cheating people, predatory lending, declines in underwriting standards, or you don't like credit derivatives or something, whatever,



The overriding issue here, I think we should understand, is the vulnerability of bank money to panic. That's the issue. It's not that other things are unimportant. But we haven't had trouble with the other things in the sense of a global financial crisis.

er it is, those things per se are not a global financial crisis. And it's the global financial crisis that is the first-order effect to be dealt with. And I think we know, we *should* know by now, what the problem is and what to do. My concern is that we'll go another 77 years before we figure it out.

Region: That's a good place to stop. Let's hope your concern is not well founded.

Gorton: Yes, let's hope.

Region: Thank you so much.

—Douglas Clement
Nov. 5, 2010

Endnotes

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For the complete interview, including Gorton's thoughts on asset price bubbles and the future of economics, go to minneapolisfed.org.

For further reading, see

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Glossary

AAA

The highest credit rating given by debt agencies such as Standard & Poors and Moody's. An AAA rating allows a corporation or government to borrow at low interest rates.

ABX index

An index that tracks the performance of a basket of credit default swaps based on 20 bonds that consist of U.S. subprime home mortgages. Credit default swaps are like insurance contracts that allow buyers and sellers to trade risk. ABX contracts allow traders and investors to take positions on subprime securities without actually holding them. A decline in the ABX suggests a decline in confidence that the underlying subprime mortgages will be repaid as expected.

Asset-backed securities

Bonds backed by cash flows from a pool of specified assets in a special purpose vehicle rather than by the general credit of a corporation. The asset pools may be residential and commercial mortgages, automobile loans, credit card receivables, student loans and other asset classes.

Call report

A quarterly report of income and financial conditions that commercial banks are required to file with their designated federal and state regulatory agencies.

Flow of Funds

A set of accounts used to follow the flow of money within the economy. The Flow of Funds analyzes data on borrowing, lending and investment among households, businesses and government bodies. In the United States, the Federal Reserve tracks and analyzes the flow of funds and provides reports about 10 weeks after the end of a quarter.

GAAP

Generally accepted accounting principles. GAAP is a code of accounting rules and procedures established by the American Institute of Certified Public Accountants.

Haircut

A percentage reduction from an asset's stated value (e.g., book value or market value) to account for pos-

sible declines in value that may occur before the asset can be liquidated. Haircuts are often applied to collateral pledged in repo contracts; the collateral is valued at less than market value in reflection of its perceived underlying risk.

Jimmy Stewart problem

Referring to the predicament faced by George Bailey, a character played by Jimmy Stewart in the 1946 Frank Capra film, "It's a Wonderful Life." Bailey is a small-town banker whose depositors have run on his bank, demanding their deposits back because they're worried that the bank is insolvent. Bailey explains to them that he has only a fraction of their actual cash on hand because most of it has been loaned out in the form of home mortgages and personal loans.

M3

M1, M2 and M3 are (or were) measures of the nation's money supply reported by the Federal Reserve System. M1 includes currency and demand deposits at commercial banks. M2 is a broader measure that incorporates M1 but also includes assets such as commercial bank savings deposits, deposits at credit unions and noninstitutional money market funds, among other components. M3 was broader still, but publication of M3 figures ceased in March 2006 when the Fed determined that M3 no longer conveyed "any additional information about economic activity ... not already embodied in M2." The Fed also ceased publishing one of M3's components, repurchase agreements.

Moral hazard

When persons or institutions protected from risk are thereby encouraged to take greater risks than they would if not protected.

National income accounts

An accounting framework used to measure a nation's aggregate economic activity. National accounts broadly present the production, income and expenditure activities of all economic actors (firms, households and government bodies). They present both flows during a period and stocks at the end of that period. In the United States, the national income and product accounts (NIPA) provide estimates for the money value of income and output respectively, including GDP.

Principal-agent problems

The difficulty of motivating one person, an agent, to act in the best interests of another, the principal. Problems arise because the agent's incentives differ from the principal's, and the principal is unable to fully monitor and direct the agent's actions.

Rehypothecation

From "hypothecate"—to pledge collateral. Rehypothecation is the reuse (or pledging) of collateral received in one transaction in an entirely unrelated transaction.

Repo

An abbreviation for (sale and) repurchase agreement. A repo is a contract that combines the sale of a security with an agreement to repurchase the same security at a specified price at the end of the contract period. Effectively, a repo is a secured or collateralized loan—that is, a loan of cash against a security as collateral. The party that buys the security is operating as a lender; the party that sells it is borrowing. The repurchase price will usually be somewhat higher than the initial sale price; the difference is the interest earned on the loan, and is referred to as the repo rate.

Resolution authority

Power to liquidate, in an orderly manner, the assets and liabilities of a failed financial institution. The Dodd-Frank Act designates the FDIC as the resolution authority for most financial institutions.

Securitization

The process of financing whereby interests in loans and other receivables are packaged, underwritten and sold in the form of "asset-backed securities" (defined above). This is done through the creation of a "special purpose vehicle" (defined below) by segregating specified cash flows from loans originated by a firm and selling claims to these cash flows through the SPV to investors. Asset securitization began in the 1970s with the structured financing of mortgage pools. Since the mid-1980s, similar techniques have been used to finance a variety of nonmortgage assets, including car loans and credit card receivables.

Special purpose vehicles

Legal entities established for narrow and often temporary objectives related to regulation, taxation or risk. SPVs are set up by a sponsoring firm specifically to

achieve those objectives. An SPV is not an operating company in the usual sense, but rather a "robot" company—a set of rules without employees or a physical location.

An SPV can only carry out a specified purpose, a circumscribed activity or a series of such transactions. Sponsoring firms create SPVs with the specific purpose of selling specified cash flows to it. The SPV purchases rights to those cash flows by issuing securities. The sponsor ensures that the cash flows arrive.

But if cash flows are inadequate to meet obligations on the securities, the SPV cannot become legally bankrupt. Instead, it makes principal payments ahead of schedule, but extended over time. An essential feature for an SPV, then—and a source of value to the sponsoring firm—is that it is "bankruptcy remote."

Vol swap

An abbreviation for "volatility swap," a futures contract based on the realized volatility of an underlying asset. In this instance, Gorton is simply providing an example of a financial instrument that most investors don't use or understand.