

**IS SIMPLER BETTER? LIMITING FEDERAL SUPPORT
FOR FINANCIAL INSTITUTIONS**

HEARING
BEFORE THE
SUBCOMMITTEE ON
FINANCIAL INSTITUTIONS AND CONSUMER
PROTECTION
OF THE
COMMITTEE ON
BANKING, HOUSING, AND URBAN AFFAIRS
UNITED STATES SENATE
ONE HUNDRED TWELFTH CONGRESS
SECOND SESSION
ON
EXPLORING POLICIES TO FURTHER LIMIT FEDERAL SUPPORT FOR
LARGE, COMPLEX FINANCIAL INSTITUTIONS

MAY 9, 2012

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WEDNESDAY, MAY 9, 2012

U.S. SENATE,
SUBCOMMITTEE ON FINANCIAL INSTITUTIONS
AND CONSUMER PROTECTION,
COMMITTEE ON BANKING, HOUSING, AND URBAN AFFAIRS,
Washington, DC.

The Committee convened at 2:03 p.m. in room 538, Dirksen Senate Office Building, Hon. Sherrod Brown, Chairman of the Subcommittee, presiding.

OPENING STATEMENT OF SENATOR SHERROD BROWN

Senator BROWN. The Subcommittee on Financial Institutions and Consumer Protection will come to order.

I thank Senator Corker for, always, his cooperation. Senator Merkley, thank you for joining us. Mr. Volcker, nice to see you.

We have three panels today. Opening statements, I always give moderately short ones. It will be even shorter today, and Senator Corker always gives thoughtful and even shorter statements, so we will begin briefly with that.

I want to thank everybody involved for helping pull together this important hearing. Getting such excellent and qualified individuals to discuss such an important but, admittedly, broad set of topics was not easy, so I appreciate the cooperation of all of you who are major players in your own right throughout our financial system.

As I said, I will keep my message brief. I would simply say it is vital we take the necessary steps sooner rather than later to end Government policies that support and encourage large, complex institutions. That is why today I am introducing my legislation, the SAFE Banking Act. It was known formerly as the Brown-Kaufman bill and amendment. The ideas we will explore today have traction on both sides of the aisle. For instance, we know that the full Committee's Ranking Member, Senator Shelby, voted both against the Gramm-Leach-Bliley Act and in favor of Brown-Kaufman when it was an amendment to the Dodd-Frank bill. And thanks again to the witnesses.

Senator Corker, your comments.

STATEMENT OF SENATOR BOB CORKER

Senator CORKER. Thank you, Mr. Chairman, and Dr. Volcker, thank you for being here. I enjoyed talking to you prior to and I enjoyed reading your testimony yesterday evening as it came in.

I think we all agree that we need a safe banking system and we want one that also meets the needs of a 21st century economy, and that is the balance, I think, that we are all looking for.

I want to thank you, in particular, in your testimony for pointing to the fact that Congress still has not dealt with the GSEs, and I know as a man who was under extreme stress during the early 1980s and made a lot of tough decisions that have caused you to be highly honored by people all across this country, you must look at amazement on a U.S. Congress that fails to deal with an evident huge problem in our country but has lacked the courage to deal with that. So I appreciate you pointing that out.

I was thinking as we read a lot of materials getting ready for this hearing, and I certainly appreciate all the witnesses that have come, you know, the most dangerous thing that a bank does is make a loan. At the end of the day, without sound underwriting, all the things that we do here do not make a lot of sense.

But I sure thank you for your testimony. I look forward to hearing it orally and then the questions, and we are honored to have you here.

Senator BROWN. Thank you. Thank you, Senator Corker.
Senator Merkley.

STATEMENT OF SENATOR JEFF MERKLEY

Senator MERKLEY. Thank you, Mr. Chair.

Just very briefly, welcome. It is so good to have you, Mr. Volcker, and for your leadership in helping establish the concept that there needs to be a firewall between ordinary banking activities and hedge fund-style investment activities by banks in order to create a safer and sounder banking system. I certainly look forward to your comments.

Thank you.

Senator BROWN. Thank you, Senator Merkley.

Our first panelist, and I do not normally do cliches, but he is a man who needs no introduction. I appreciate so much Chairman Volcker joining us. He has dedicated his life to ensuring, as Senator Corker said, the American financial system is safe and sound, first as President of the Federal Reserve Bank of New York and as the Chair of the Board of Governors of the Federal Reserve System. Through your efforts, Dr. Volcker, to reform our financial system, though they may have frustrated some bankers on Wall Street and some lobbyists in Washington, there is no doubt our country is a better place because of your hard work.

Thank you for your decades of service. You have the floor.

STATEMENT OF PAUL A. VOLCKER, CHAIR, PRESIDENT'S ECONOMIC RECOVERY ADVISORY BOARD, AND FORMER CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM

Mr. VOLCKER. Thank you, Mr. Chairman, and I want to thank you for holding this hearing. We are kind of in midstream on banking reform and banking regulation and I think this is a good time to review where we are and where we are going, so it is a useful service.

I know in writing to the panelists, you raised a series of questions. I will not attempt to answer them all, but you are certainly right in the underlying premise that banking has changed a lot in the past 20 years. It has changed very broadly from a, I guess what I used to think of as a profession that concentrated on relationships with its customers in very important ways. It has moved generally toward a much more transaction-oriented concentration. That is particularly true of the bigger banks. And it has certainly in the process become a lot more complex, a lot more opaque, very complicated.

For a while, it was thought that with all the wisdom and engineering and expertise brought to the table, banking would be, if not failsafe, safer. That turned out to be an illusion when we had the great breakdown. And, obviously, reform is necessary, and I think that reform properly has to go into structural aspects of banking as well as raising capital requirements, better supervision. All that kind of thing is important, but I do think we need some structural changes and they revolve very fundamentally around this issue of too-big-to-fail and the moral hazard that was involved and is involved if the Government is bailing out failing financial institutions and particularly banks, big banks.

And that is kind of the central issue that runs through a lot of the structural changes which are incorporated basically in the Dodd-Frank. I do not think there has been any legislation in other countries as comprehensive as the Dodd-Frank bill. They all have the same problem. All the regulators and governments are worried about the same thing because this has been a worldwide breakdown of finance. And the United States, I do think that I can fairly say that it has been in the lead on actual legislative changes.

It deals, one way or another, in almost all the factors bearing on relevant structural changes. First of all, it deals directly to reduce the risks involved. Senator Brown, you are absolutely correct that making loans can be the most risky thing in banks. It becomes even riskier when they lose the capacity to deal with the relationship one-on-one with adequate credit controls. It should not necessarily be all that risky, but if you are making subprime mortgages and farming them off to other people, it is indeed an exceedingly risky proposition.

Just take that where it is. Banks must make loans, it is essential to the economy, but look at other activities they have gotten into in recent years. Dodd-Frank deals with the problem of derivatives. They have just been exploding all over the place, continue to explode after the crisis, maybe at smaller volume, but everything is relative. I am told there is \$700 trillion of derivatives outstanding in the world today—\$700 trillion. And you wonder whether they are all directed toward some explicit protection against some explicit risk that can be dealt with by derivatives or whether they have not been themselves a kind of trading operation.

Dodd-Frank does call upon its simplification in that area, tries to put as much of it as possible through clearinghouses and organized settlement arrangements, which are fiercely contested by the banks, but if that can be done for the great mass of derivatives, that will be a help.

Other institutional factors concerning what banks can do or not do, of course, is the restraint on proprietary trading, the restraint on ownership of hedge funds and equity funds, the kind of thing that somehow has my name attached to it. I would only say in that connection that is sometimes talked about as purely a risk factor. It is a risk factor, there is no question. This is speculative trading. But its influence goes far beyond the particular risks involved in particular transactions. It is a cultural issue.

Hedge funds, equity funds, and propriety trading itself are necessarily involved in big banks' conflicts of interest, almost continuously. And traders get to be richly rewarded. That affects the compensation practices and the culture of the bank throughout, leading to, in my view, unnecessarily dangerous behavior.

The other part of Dodd-Frank I just mentioned, because in a way it is the heart of it, Dodd-Frank says no failing financial institution is going to be rescued. It will be liquidated, merged, sold, but the stockholders will be gone, creditors will be at risk, the management will be gone, and that is different, obviously, from what happened in 2008, 2009, in the midst of the crisis that raised all the questions about too-big-to-fail.

There is a lot of skepticism in the market, as you are aware, as to whatever the law says, when push comes to shove, the Government will act, presumably against the law, to continue rescuing them with Government money. I think that skepticism is overdone, but it has got to be dealt with. And in the case of these big banks, the management of the bank after its failure, by any resolution authority gets very complicated internationally.

And I just want to say that while I am obviously on the sidelines here, I have been impressed by the amount of effort going on, particularly between the FDIC and the U.K. authorities on this issue, where there is a meeting of minds as to the general approach. The legal systems may be different, but there is a meeting of the minds as near as I can see in the Euro zone generally. But getting that down in a very complicated way so that the authorities can work together when you have an incipient failure is very important and I do think considerable progress is being made in that area.

So I will just stop there, touching on some of the points that I think are critical.

Senator BROWN. Thank you, Chairman Volcker, very much.

Senator Johanns, welcome to the Subcommittee.

I will take 5 minutes in questions, turn it to the Ranking Member, and then we will go from there.

You have often talked today and many other times about the moral hazard issue, the pattern of Government support for the largest institutions breeds greater risk taking. In December at that Committee table, Sheila Bair—who had resigned by then, was former FDIC Chair Sheila Bair—told the Subcommittee, quote, “It is important for the Government to be sending all the right signals that we do not view it as good in and of itself to keep these institutions alive just because they are big.”

Your comments a minute ago that the skepticism might be overdone about the view of the Government stepping in, legally or not, what should regulators do to send messages to the markets that these institutions will not be propped up, especially when

these institutions do have an advantage in the money markets, the capital markets?

Mr. VOLCKER. Well, the first point I want to make is when you are talking about the biggest commercial banking institutions, you have a degree of regulation. You have the proposals on proprietary trading, hedge funds, equity funds, and derivatives, and better capital standards to minimize the chance that those biggest institutions are really going to get in trouble to the point that they need to be rescued. But if they do need to be, they are on the brink of failure or actually failing, the law provides authority, I understand in this case the FDIC that has experience in this area, will act as conservator or liquidator of that institution, will have sufficient authority to keep the institution running in essential ways in the short run so that there is a continuity in the marketplace and you do not incite a spreading, contagious kind of panic or connections because the FDIC will have the authority—sufficient authority—to keep it operating in the short run in areas that are essential.

I think that is possible. It is done now with smaller institutions. But as I said before, to make that effective, I think, for some of these biggest institutions that have very substantial operations overseas, those operations tend to be centered in the U.K. So I think you do want to get consistency between the U.K. and U.S. authorities.

And you also have the provision in the law for so-called living wills, where the banks should organize themselves in a way that makes it easier to break them up than is the case now. And that will be a continuing supervisory challenge, to make sure the banks are properly creating these so-called living wills.

Senator BROWN. Thank you. Bloomberg released a study recently that the banking sector is becoming larger, more concentrated, they said having grown seven times faster than GDP since the beginning of the financial crisis. Its growth has been concentrated, as you know, in the largest banks. The top 10 banks in the United States grew from 68 percent of all bank assets in 2006 to 77 percent of all U.S. bank assets in 2010.

Based upon these numbers and no sort of end in sight to this that I can see, do you—are the regulators doing enough? How concerned should we be about this continuing—if, in fact, it is a continuing level of—this continuing increase in concentration?

Mr. VOLCKER. Well, I think there has, obviously, been a great increase in concentration. Most of it took place before 2006, whatever the figures you—

Senator BROWN. Right. Right.

Mr. VOLCKER. It took place in the 1990s and the early part of this century. It was aided and abetted by the end of Glass-Steagall. But before that, it seems like yesterday I was in the Federal Reserve—it wasn't yesterday, it was a good many yesterdays ago—but at that time, banks could not branch outside their home States, by and large. And the United States had one of the most decentralized banking systems. And it has suddenly gone from a very decentralized system into a rather concentrated system, which I think is unfortunate. In the midst of the crisis, it got worse because the big commercial banks were joined with big investment banks.

Now, how to deal with that, you may have people on this panel that are much more aggressive than I. I do not know how to break up these banks very easily. But some of the things we are talking about, reduced trading, for instance, will reduce the overall size of the bank reasonably. Some of the restraints on derivatives will reduce their off balance sheet liabilities significantly. So these modest steps, there is a provision in the law they cannot grow beyond certain limits by merger or acquisition.

So there are some limits here, but as you say—you asked me whether I prefer a banking system that had less concentration. I would, but I think we can live, more or less, with what we have.

Senator BROWN. Thank you, Mr. Chairman.

Senator Corker.

Senator CORCKER. Thank you, Mr. Chairman and Dr. Volcker. Thanks again for being here.

I have read some of the comments that you have made specifically about the Volcker Rule, and I know we had a chance to talk in advance of this—

Mr. VOLCKER. I am glad somebody has read those comments.

Senator CORCKER. Yes, sir. I read them all the time.

[Laughter.]

Senator CORCKER. There has been a—what has happened here, I think there has been consensus around the fact that prop trading is out the door, and I think that is one of the major contributions that you have made to this debate. What is happening as the regulators wrestle with this, and some of the regulators have differing agendas than others, there really have been attempts by some to really do away with market making itself. I think you have had some comments about that and I wonder if in front of this Committee you might differentiate between the two. It is my sense that you had no intentions to do away with the legitimate market making, but prop trading was really the focus of what you were trying to do.

Mr. VOLCKER. That is correct. I am not involved, obviously, in writing the rules, and I am sure it got very complex, and it may be an effort to try to identify particular transactions in a way that is difficult unless you are sitting on the trading desk, but I think can be identifiable.

My view all along has been two things. One, I think it is important that the management of the banks, and I include not only chief executive officers but the directors of these banks, do understand what the law says, and the law says no proprietary trading. Now, all banks, unless they are totally irresponsible, and I do not think these big banks are totally irresponsible, will have strong controls on their trading desks in their own interest. They do not want rogue traders sitting around jeopardizing billions of dollars of their capital, so they will have, I am sure, rather detailed controls on their traders, and what is important is those controls take account of the fact that no longer should there be proprietary trading and a special proprietary desk, which I think they do understand. And no longer should the traders on the market making desk be taking proprietary risks under the disguise of market making.

I think that can be identified as a problem by adequate so-called metrics afterwards. You look at the size of the trading relative to

the size of their position and you look at the volatility and you look at measures like value at risk and whether they are suitably narrow for a trading operation or very broad, which suggests a proprietary trading operation. If you see those telltale signs, there is no question the regulator ought to get in there, the supervisor ought to go in there and raise questions with the board of directors whether the bank is sufficiently charged in what the law says.

Senator CORKER. Some of the—we have looked at some of the rules, and by the way, I have always understood that what you intended was to keep banks from being involved in prop trading, but that legitimate market making was something you thought they should continue to do. Some of the rules that are being created, though, there is one rule that we just read yesterday where the regulators were saying if you engage in market making and you make any profit on it, then it is really prop trading. Now, I do not know many institutions that are involved in businesses where they can only lose money. You would consider that, I assume, to be an overreach or not what was intended.

Mr. VOLCKER. It is nonsense, frankly.

Senator CORKER. Nonsense. I am glad—

Mr. VOLCKER. You can make money on market making. You can certainly make money on responding to customer requests. And until recently—you know, prop trading in banks is a recent phenomenon. Banks did not do that historically. And somehow, they did not go out of existence.

Senator CORKER. So keeping—

Mr. VOLCKER. Proprietary trading is not a necessary ingredient of bank profits. It is a very volatile ingredient of bank profits. You know, I have read—I think it is appropriate—that all the money that was made on trading in this century by banks up until 2007 disappeared in 2008, which gives you a sense that this is not a risk-free business.

Senator CORKER. So an institution that would hold a very small amount of inventory, a very small amount, that was legitimately held for their customers' use, you think that is a legitimate thing for banks to be involved in, and I appreciate you saying that. I wish that you could sit down with the Federal Reserve and some of these other institutions and cause them to very simply lay out what it was that you intended when you began this process, because I think they are making it overly complicated and I think a lot of institutions are in a place right now where they have no idea as the ticker is going where they are going to end up.

Mr. VOLCKER. Well, I do not want to get involved in the detailed regulatory process. I had enough of that in my lifetime. But the general principle that you describe, I believe, is consistent with my position. You emphasize a small position. I always wonder, when they tell me it is just like running a corner dress shop or Christmas sales, whether the market is so predictable as Christmas sales and do you really need a big inventory.

You said small inventory. I sometimes wonder, if they want to be prepared for market making and customer trading, why do they not have a short position, because the customer may want to sell. So they ought to have a balanced position, it seems to me, and the position is very unbalanced. It raises a question.

Senator CORKER. Yes. Well, listen. Thank you so much. I wish I had more time to talk to you, and hopefully, we will do that in person in either my office or your office soon. Thanks a lot.

Mr. VOLCKER. Thank you.

Senator BROWN. Thank you, Senator Corker.

Senator Merkley.

Senator MERKLEY. Thank you, Mr. Chair, and thank you, Mr. Volcker.

I thought I would ask about a couple of issues that have been raised in the context of the Volcker Rule. One argument that has been made is that it will result in decreased liquidity in the trading world and that will be a very bad thing. Is that an issue? Is that a problem?

Mr. VOLCKER. Well, I do not think it is a problem. Put it the other way around. It would be, I was going to say, a little extreme, but I do not think it is really extreme. The markets seemed to become very liquid before the crisis. There were a lot of complaints from the banking system itself that the markets were too liquid and it was hard to make money in very liquid markets. Now, I am not worried about being hard to make money, but it led to some behavior that I think is not very constructive.

You would not have had all these subprime mortgages tied up in CMOs and CDOs if they were not so easily traded. These are long-term obligations. If you are buying one of those obligations, you should be prepared to keep it for a while. That would be the normal investor's reaction, normal banking reaction. If you think you can trade it tomorrow at no loss, then it becomes a trading proposition and a speculative proposition. And if the markets are too liquid, it can give rise to behavior that is not very useful in terms of the basic fitness of banking or finance markets generally.

Now, I am not alone in this thinking at all, obviously. There is a big movement in Europe to tax transactions to make the market less liquid. The fullest analysis I know of this is by the chief English regulator who examined this pro and con very carefully and came to a conclusion that, yes, beyond a certain point, liquid markets—highly liquid markets are not in the public interest. I could give you another analyses, but it is a matter—obviously, you want to be able to buy and sell reasonably. That does not mean you will have to be able to buy and sell a long-term security 10 minutes after you bought it at no risk.

Senator MERKLEY. Well, thank you. Another issue that has been raised is that the Volcker Rule creates a handicap for American financial institutions *vis-a-vis* European financial institutions. Any insights on that issue?

Mr. VOLCKER. Well, when I sat at this table many times when I was Chairman of the Federal Reserve, the complaint that I would hear all the time was American banks are at a disadvantage to foreign banks because they are too small and we want to be big like Japanese banks. That was the favorite example that was taken. We want to be big like Japanese banks because we are at a disadvantage and we have to carry more capital than Japanese banks.

I would rather have smaller banks and stronger banks, and we see what happened in Japan with their big banks. It was not all a great treat.

So my answer is very simple. If we want to make some rules that are consistent with banks doing their basic job, I would not worry that foreign banks can do some things that we think do not contribute to a safe and sound banking system.

And I—you know, the English authorities, the U.K. authorities, are always told by their banks, you cannot do this, you cannot do that because we will be at a disadvantage to American banks. You are told all the time, you cannot do this or that because you are going to be disadvantaged with the English banks. Well, the fact is, the approaches are not that different and capital requirements should not be that different. And there is a lot of effort to make sure the capital requirements are not that different.

Now, in this trading operation, the British looked at what we are doing and at one point they expressed sympathy, and now they are at the same point with a different law. They say no investment banking, no trading, no proprietary trading, no hedge funds, no equity funds in a bank, in a commercial bank. You can have it in the same holding company, but it has got to be in a separate part of the holding company and we are going to make a great wall between one side of the holding company and the other side of the holding company.

I do not know whether that is any easier. The banks, obviously, do not like that. I do not know what they like least. But they are after the same problem and they have a somewhat different approach. You could argue their approach is much more rigorous than what we have. So, the banks can choose whether they like that poison or our poison, but there is not—I do not think either of them are poison, frankly, but we found it difficult in the Federal Reserve and it became even more difficult in the midst of the crisis to maintain a distinction between parts of the holding company, because when you are in crisis, everybody leaps over those boundaries and the authorities say, OK, we have had a crisis. Go ahead and leap.

I would like to think of this ring fencing. That is the favorite British term. You are going to ring fence the—I do not know if the commercial bank is going to ring fence both of them. My experience with ring fences is the gophers go underneath and the deer jump over—

[Laughter.]

Mr. VOLCKER.—and you have got a lot of lawyers to help them.

But the point I am making is they are somewhat different approaches to the same problem, and you could argue all day as to which is better or which is worse from the standpoint, more restrictive from the standpoint of the banks.

Senator MERKLEY. Well, both are focused on the same issue of insured deposits and access to discount windows being separated from the hedge fund-style investing.

I am out of time. Thank you very much for your commentary and your leadership. Thank you.

Mr. VOLCKER. Well, the British proposal, fiercely contested by the banks, is to separate it by putting the hedge funds away from the banks. Never should there be any contact between them. We say you can have limited—it turned out to have limited ability to sponsor hedge funds and equity funds. The original proposal was not to have any sponsorship. So it is limited, but it is pretty much

under control. And I think the banks—my impression is, during the process, pretty much giving up their hedge funds, equity funds.

Senator MERKLEY. Thank you.

Senator BROWN. Thank you, Senator Merkley.

Senator JOHANNNS.

Senator JOHANNNS. Mr. Chairman, good to see you again.

Mr. VOLCKER. Thank you.

Senator JOHANNNS. One of the last times you appeared before the Banking Committee, the full Committee, was prior to the passage of Dodd-Frank and it was at a point in time where the Volcker Rule was just kind of unveiled, if you will, the concept, at least. I remember during that hearing, and I do not have the exactly language in front of me, but we were kind of debating back and forth, all of us, what is this going to involve? What is going to be covered by the Volcker Rule? What is proprietary trading, *et cetera*? And I remember you, maybe somewhat exasperated with me at the time, said, you know, if you do not do something, this will haunt you. And then the second thing you said—

[Laughter.]

Senator JOHANNNS.—which is fine. The second thing you said was that, even though it is hard to define, we will know it when we see it. And again, those are not your exact words, but very clearly, that was the impression I had.

Mr. VOLCKER. I recall both of those.

Senator JOHANNNS. Yes. Now, we have the 300-page rule—go ahead. Did I misstate that?

Mr. VOLCKER. You have got a 35-page rule accomplished in 300 pages of explanation, questions, comments—

Senator JOHANNNS. Yes. I was getting to the fact that I think there are 1,300 questions, and it just kind of goes on and on and on.

Really, on both sides of the aisle, there has been concern about its complexity. You have expressed concern about its complexity. As I have talked to those kind of at the ground floor level who have got to administer this thing, they are kind of saying, gee, how do we administer this? How do we take whatever is here and put this in a real life situation and administer it?

And here is what I am concerned about. My concern is, number one, it is going to be very difficult for the people in the field to say, you have violated the rule or you have not violated the rule.

Number two, it seems to me that the very goal here was to try to deal with these very large institutions that were doing irresponsible things, but at the end of the day were making this so complicated that I think we are forcing more consolidation, not less.

And I would like your opinion on those two points. Are we making this so complicated that the big are going to get bigger and the small are just going to sell out?

Mr. VOLCKER. This is a matter that, with some exceptions, broadly, these prohibitions apply to six, seven, eight institutions. The typical regional banks, certainly the particular community bank, is not doing proprietary trading. If they doing it, it is a very rare kind of transaction.

So you are talking about a very concentrated number of banks, very sophisticated. They have trading desks. They do have, as I

said before, their own interests, I am sure, strict controls over their trading desks, maybe not as strict as they should be sometimes, but they have them, because once in a while, even with those controls, they found out some rogue trader fell into a ditch and cost the bank \$9 million, billion dollars or something, which has happened on a number of occasions either here or abroad.

I think you do not have to trace every transaction in real time. I do not think that is the purpose of regulation, at least not the way I would write it. The regulation should describe generally a characteristic of proprietary trading. Then it should have some very sophisticated, but I do not think all that complex, measures of the bank activity.

Now, all these banks will have daily reports on their trading activity anyway. If they do not, they ought to be put in jail for having unsafe and unsound banking practices. These trading desks are all controlled, daily. You know, in general, what the characteristics are of proprietary trading. You can look at those reports weekly, monthly, whatever you want to look at them, as set down by the Federal Reserve or whoever is doing it. If you see characteristics of those trading patterns that suggest proprietary trading, then you go look at it.

In the last extreme, go to the trading desk and see what they are doing. If they say it is a customer trade, who is the customer? Why were you buying all these securities? You were not making a market when you are in the market buying the same security all morning. You are not in the market if there is no customer on the other side, or you are not market making for a customer. You do not have to look at it in that detail unless you were very suspicious, and I assume that, in good faith, with the management understanding what is at stake, that their reputation is at stake with the regulator, they will take due care.

Senator JOHANNIS. I am out of time. Thank you, Mr. Chairman.

Senator BROWN. Thank you, Senator—

Mr. VOLCKER. I have had traders, people who ran trading desks in the past, tell me—in effect, they said, do not believe all this stuff. I ran a trading desk. It was the policy of the institution not to do proprietary trading. We were an active trader, but we did not do proprietary trading and our daily reports showed it.

Senator BROWN. Thank you.

With the fact there are two other panels after you in mind, I have one question I want to ask. Certainly, the other Members of the Subcommittee can ask a question or two in addition, if you want, maybe not a whole second round. But Senator Merkley asked the question that you answered in terms of British banks tell their regulators that the Americans will have the advantage, and the American banks tell their regulators the British banks will have an advantage. In light of that, we know that the Swiss and the U.K. financial sector was significantly larger, their concentration, and banks in both nations were bailed out with billions of dollars from their governments and from others, including us, too. Both have taken dramatic action.

I would just like your brief comment on, or your comments generally on what you think about Switzerland's considering 19 percent capital requirements. U.K. has established firewalls, as you

said, between banks' risky activities and traditional banking. Give me your thoughts on those two approaches.

Mr. VOLCKER. Well, I will make one point. Those countries, their banks are no bigger than our banks, but the countries are smaller so they are more concentrated, much more concentrated than we are. So they feel even more vulnerable than we feel, I think, to these problems.

Switzerland was obviously very concerned because they have two big banks. Both were in trouble. One was in severe trouble. They took strong measures, including exceptionally high capital standards and other measures, and my understanding is, and you can find out more directly, my understanding is that the biggest of those banks has practically given up proprietary trading. Whatever the law said, I am sure that they were under pressure from the central bank. And they have moved away from some of these activities to nonrisky activities, to investment—basically, toward investment banking, traditional banking on the one side, investment management on the other side. And they have been de-risked substantially.

There has been some reaction along the same lines at some of the British banks. The British are still open as to how they apply the proposed regulation. It may be not insignificant. I was invited, and I will go, to have a little session with the European Parliament, with the British regulators and the commission. I say the British regulators. Mr. Vickers, who made the proposal about the British banking system. So we are going to have a better feel for how coordinated we are next month. I think the obvious purpose of the invitation was to try to get a maximum amount of coordination.

Senator BROWN. Thank you.

Senator CORKER, any comment?

Senator CORKER. In your written testimony, you alluded to the Government-Sponsored Enterprises, in particular, Fannie and Freddie. As you know, it has been 4 years and 95 percent of the mortgages originated today are dependent upon them. How important is it, in your opinion, that we move away from that reliance, and should they exist in their current forms?

Mr. VOLCKER. Well, it is important if you think the free market financial system is important. Here we are sitting here with half of the capital market under the control of the two institutions, both of which at this point are Government owned. It is kind of ridiculous when you look at it.

Senator CORKER. I assume you think having a free market system is—

Mr. VOLCKER. Well, I think not only you, but I think some other people are, too. So right now, unfortunately, the residential mortgage market is dependent on two de facto governmental institutions, Fannie Mae and Freddie Mac. So how do we wean away from that? It is going to take years, frankly. But, please, let us not make the same mistake of having these quasi-governmental institutions, half private, half public—they are public when they get in trouble and they are private when they are making money.

Senator CORKER. That is right.

Mr. VOLCKER. And that is a recipe for a not very disciplined, effective mortgage market, in my opinion. And that is a big issue of how we reconstruct the mortgage market. And, literally, it will take years.

Senator CORKER. Thank you very much.

Senator BROWN. Senator Merkley.

Senator MERKLEY. Thank you, Mr. Volcker. The group of regulatory agencies working on the Volcker regulations, those 30 pages that you referred to, have indicated that they might not be prepared to implement them in July, the 2-year time period after the passage of Dodd-Frank. Should they hold their deadline solid and get those rules implemented in July?

Mr. VOLCKER. Well, I am not clear, frankly, on just what their attitude is. I have seen a couple of statements that confused me a little bit, and my understanding of the basic situation is they are aiming to get the final rule out by July, whatever the date is. They recognize it will take some time to adapt. They recognize that over a 2-year period, you may find particular things in the regulation you want to change. But the law also says after July whatever it is, no proprietary trading. So, I do not know, somebody told me, some law firm said if they do not carve out, they can do proprietary trading. That is a very strange reading of the law, but I—it is a very—I do not know. I will not get into the legal profession at this point. It does seem to me a rather strange, contrived reading. I do not even see how it is contrived, but there we are.

Senator MERKLEY. Thank you.

Senator BROWN. Senator Johanns.

Senator JOHANNNS. It just occurs to me with the passage of Dodd-Frank, it incorporates the Volcker Rule and a whole host of other things—it is a very lengthy, complex piece of legislation—that at the end of the day, we still have a very small number of financial institutions that control an enormous amount of the capital of the United States and we just have not impacted that very much. Do you disagree with my assessment of that?

Mr. VOLCKER. No. No. We do have a much more concentrated financial system than we used to have. I do think that skepticism about dealing with institutions outside of the banking organization itself, the protected sector of the market, I think the idea that they can and will fail is totally credible to me. When you talk about the biggest banking institutions, they get a lot of Government support in the ordinary course of business. I think they should be regulated to the point, including what we are talking about in derivatives and proprietary trading, that the risk of those institutions failing will be very remote. But they, you know, you say they have gotten quite concentrated. I agree with you.

Senator JOHANNNS. Yes. Thank you, Mr. Volcker.

Senator BROWN. Thank you very much for your testimony—

Mr. VOLCKER. Thank you.

Senator BROWN.—and for your service for so many years.

Mr. VOLCKER. I do appreciate you took this initiative. Thank you.

Senator BROWN. Thank you.

The Chair will call up Tom Hoenig and Randall Kroszner, if you would join us.

[Pause.]

Senator BROWN. Tom Hoenig—perhaps there is no stronger advocate for America’s community banks than Thomas Hoenig. Dr. Hoenig is a Member of the Board of Directors of the Federal Deposit Insurance Corporation. For two decades, he has served as President and Chief Executive Officer of the Federal Reserve Bank of Kansas City. He spent 18 years as a bank supervisor at the Kansas City Fed.

Randall Kroszner is the Norman R. Bobins Professor of Economics at the Booth School of Business at the University of Chicago. Dr. Kroszner served as Governor of the Federal Reserve System from 2006 until early 2009. During his time as a member of the Federal Reserve Board, he chaired the Committee on Supervision and Regulation of Banking Institutions and the Committee on Consumer and Community Affairs.

Dr. Hoenig, you first. Thank you again for joining us.

STATEMENT OF THOMAS M. HOENIG, VICE CHAIRPERSON AND MEMBER OF THE BOARD OF DIRECTORS, FEDERAL DEPOSIT INSURANCE CORPORATION

Mr. HOENIG. Well, thank you very much, Chairman Brown and Ranking Member Corker and Senator Johanns. Thank you for the opportunity to testify on issues relating to improving the safety and soundness of the Nation’s banking system.

Having joined the Board of the FDIC less than a month ago, it is a privilege to serve and to be part of a board that can draw from the depth of collective experiences and diverse backgrounds that I think will inform our discussions and our decisions going forward.

This Subcommittee has asked me to discuss a paper titled, “Restructuring the Banking System to Improve Safety and Soundness” that I prepared with my colleague Chuck Morris in May of 2011 when I was President of the Federal Reserve Bank of Kansas City. I welcome this opportunity to explain the recommendations in that paper.

One note—while I am a Board member of the FDIC, on this, I speak for myself today.

First, banking organizations should be allowed to conduct the following activities: commercial banking, underwriting securities and advisory services, and asset and wealth management services. Most of these latter services are primarily fee-based and do not disproportionately place a firm’s capital at risk. They are similar to the trust services that have long been part of banking itself.

But in contrast, dealing and market making, brokerage, and proprietary trading extend the safety net’s coverage and yet do not have much in common with core banking services. Under the safety net and the incentives that follow from it—risks are created that are difficult for management and the markets to assess, to monitor, and to control.

Thus, under the proposal, banking organizations would not be allowed to do trading, either proprietary or for customers, or make markets which requires the ability to do trading. Allowing customer trading makes it easy to game the system by concealing proprietary trading as part of the customer trading. Also, prime brokerage services require the ability to trade and essentially allow

companies to finance their activities with highly unstable, uninsured deposits.

This combination of factors, as we have recently witnessed, leads to unstable markets, financial crises, and Government bailouts. Furthermore, these actions alone would provide limited benefits if the newly restricted activities migrate to the shadow banks without that sector also being reformed. We need to change the incentives within the shadow banking system through reforms of money market funds and the repo market.

The first change to the shadow banking system addresses potential disruptions coming from money market funding of shadow banks to fund long-term assets. Money market mutual funds and other investments that are allowed to maintain a fixed net asset value of a dollar should be required to have a floating net asset value. Shadow banks' reliance on this source of short-term funding would be greatly reduced by requiring share values to float with their market values.

The second recommendation is to change the bankruptcy law to eliminate the automatic stay exemption for mortgage-related repurchase agreement collateral. This exemption allowed all of the complicated and often risky mortgage securities to be used as repo collateral just when the securities were growing rapidly and just prior to the busting of the housing price bubble. One of the sources of instability during the crisis was the repo runs, particularly on repo borrowers using subprime mortgage related assets as collateral. Essentially, these borrowers funded long-term assets of relatively low quality with very short-term liabilities.

The proposal would not eliminate risk in the financial system. It would shift it away from the incentives of the safety net. This plan would return U.S. banks to a position of financial clarity and strength from which the country enjoyed decades of its greatest global economic advantage. It would improve the stability of the financial system by clarifying for management and regulators where risks reside; improving the pricing of risk; and, thus, enhancing the allocation of resources within our economic system. It would promote a more competitive financial system as it levels the playing field for all financial institutions in the United States.

Finally, it will raise the bar of accountability for actions taken, and to an important degree give further credibility to the supervisory authorities' commitment to place these firms into bankruptcy or FDIC receivership when they fail, thus reducing the likelihood of future bailouts.

I am pleased to provide you these comments and I am happy to take your questions. Thank you.

Senator BROWN. Thank you, Dr. Hoenig.

Dr. Kroszner, thank you for joining us.

STATEMENT OF RANDALL S. KROSZNER, PROFESSOR OF ECONOMICS, UNIVERSITY OF CHICAGO, BOOTH SCHOOL OF BUSINESS

Mr. KROSZNER. Thank you very much. I am delighted to be here, Chairman Brown, Ranking Member Corker, Senator Johanns.

My general approach to these very important issues that you have convened this hearing on is to try to clearly state objectives

what regulation and regulatory reform are about and then try to weigh the costs and benefits of alternatives in order to decide which regulations and which reforms are most effective in trying to address those objectives. My priorities and objectives, I think, are very much shared by the Committee and in the discussion that we heard earlier, enhance the stability of the financial system and its resilience to shocks since its shocks are going to be inevitable. In other words, we can talk about it as trying to make the markets more robust to those shocks, and I go into much more detail in the contribution to the book that I have with Bob Shiller on reforming U.S. financial markets, on trying to make markets more robust.

Second, obviously, we have to mitigate taxpayer exposure and moral hazard incentives, as was discussed in the previous panel, and I certainly applaud and share the objectives of the recent regulatory reforms, but I perhaps want to raise some questions about whether some of the proposed means are the most effective means possible to try to achieve those ends. Would they be the ones that would be the highest in a cost-benefit test?

I think it is extremely important to identify the fragilities in the system and address those as directly as possible rather than rely too much on any one regulatory instrument or one regulatory intervention because I think that opens up the greatest possibilities for unintended consequences. I think some of the greatest fragilities in the system are leverage, liquidity, and interconnectedness. Our focus today seems to be primarily on interconnectedness issues, too big or, as I would like to characterize it, too interconnected to fail. Chairman Volcker in his testimony also characterized things that way.

And so what we need to do is think about exactly where are those fragilities in the markets and address them directly. One of those fragilities which Dodd-Frank takes steps toward is trying to clarify contracts and contract enforcement, something that is very important in thinking about resolution of the large, complex financial institutions. New authority is given to the Treasury and the FDIC, but that authority has not really been clarified yet by the regulators. I think that is of the utmost importance. One of the challenges that we saw during the crisis was the uncertainty about contract enforcement, uncertainty about what is mine and what is thine in customers' accounts, and that is a recipe for an implosion of the business model and for just uncertainty where people in general pull back. So I urge greater clarity on that.

Second, as has already been discussed, over-the-counter derivatives markets, trying to migrate those to cleared platforms, providing more information to market participants, more information to supervisors, and better incentives to avoid risk concentrations, as we saw in AIG.

Third, I wanted to think about activity restrictions. And interestingly, Chairman Volcker in his testimony says that his first principle is that risk of failure of large interconnected firms must be reduced, whether by reducing their size, curtailing their interconnectedness, or limiting their activities. So it is interesting that he sees those as alternatives, and I think in thinking about it from a cost-benefit perspective, that is the appropriate way to think

about it. What is the best way to try to limit those kinds of risks to both the taxpayer and to the system overall?

I am not 100 percent convinced that trying to draw the lines on what is and is not different types of trading activities will be the most effective way of getting there. As was discussed in earlier questioning, there is a lot of uncertainty about where the line should be drawn, and I think the greater clarity, the better. I was very heartened that former Chairman Volcker said that he did not want to exclude market making. I think it is very important not to exclude that very important function that provides liquidity and robustness to the markets in general. We would not want to have the unintended consequence of producing rules that actually make markets less robust rather than more robust. But I think it is very difficult to draw those lines clearly and crisply and ensure that we do not have unintended consequences of pushing activities off balance sheet or into the shadows, and so I think it is incumbent upon the supervisors and regulators to have much greater clarity when it comes to those issues.

Also, something that has been mentioned is the culture of institutions and the culture of risk taking if these activities are there. I think it is important to remember that there were many institutions that were much more narrowly focused, primarily on mortgage lending, institutions like Washington Mutual, Countrywide, Indy Mac, that were not engaged in proprietary trading, not engaged in these other activities that may involve risks. But we are reminded that even their core activity of mortgage lending was extremely risky and brought these institutions down. So it is not clear to me that simply removing these activities will be things to change the culture or make institutions more stable. In some cases, as we have seen, very focused institutions actually could be quite unstable.

Thank you very much.

Senator BROWN. Thank you, Dr. Kroszner.

Dr. Hoenig, let me begin with you. I want to follow up on the concentration question that we discussed with Chairman Volcker. You and I have talked in the past about the importance of manufacturing. Your region was obviously a major manufacturing center and other things. The last 35 years, the share of GDP of manufacturing and financial services basically flipped. Thirty years ago, manufacturing was 25 percent plus of GDP and financial services about 10. Those numbers have more or less reversed in more modern days.

To what do you attribute this growth of finance versus manufacturing in the real economy? Has this benefited our country? Give me thoughts on sort of how it happened and how Federal policy may have contributed to it.

Mr. HOENIG. Well, relative to the manufacturing side, there are a whole host of considerations in terms of international competitiveness and all these sorts of things. But in terms of the growth of the financial industry, I think it is clear that if you provide a subsidy to an industry, as we have the financial industry in terms of these largest institutions, that is, when we passed the Gramm-Leach-Bliley Act, we allowed these high-risk activities, broker-dealer activities, into the safety net, which is a subsidy.

We allowed them to, number one, leverage up and to become larger than they otherwise would have because they could take on, number one, greater risk with less capital required. Therefore, they could balloon their balance sheets, and they did. And I think those are the kinds of things that contributed to their very rapid growth and very strong drive toward mergers, consolidation—and the effect was concentration in the industry.

It is partly the subsidy that is provided through the protection of the safety net that contributed to their advantage. You did not have the same, and, I think, wisely so, subsidies going into necessarily these other industries, although subsidies is a big issue in the United States, I realize, for other industries, as well. But I think for the financial industry, it was a big factor allowing them to grow and take on greater risk.

Senator BROWN. Thank you. Before I move on, Dr. Hoenig, I would like to submit for the hearing record a speech that Dr. Hoenig gave in Prague in 1999. You talked about the wave of mega-mergers and the problem of too-big-to-fail. Your prescience, unfortunately, was pretty accurate there, and without objection, I would like to submit that for the record, the speech.

Senator BROWN. Three years ago or so, Dr. Hoenig, you said that when Gramm-Leach-Bliley passed in 1999—this was now 10 years later, you said this in 2009—the five biggest banks held 38 percent of the assets in the financial industry. That, by then, had grown to 52 percent. I would like to ask you both, each of you, a three-part question. I will start with Dr. Hoenig.

Tell me what this growth and consolidation has meant in three ways. One, for the management seeking to understand the companies they are running, so this huge growth, what it means to people actually in charge of running these institutions. Second, to the authorities monitoring these risks, how the regulators have been able to both understand and regulate these much larger entities. And, third, what it has meant to the community banks that are competing with these ever-growing mega-banks.

Dr. Hoenig, I will start with you on the three-part question, then Dr. Kroszner.

Mr. HOENIG. If I can, Senator, I would go back to my confirmation hearing when it was pointed out that if a bank is well capitalized, well managed, and well supervised, it will not fail. And if you think about the decade following Gramm-Leach-Bliley, allowing these institutions, these broker-dealer activities and institutions to be brought into the safety net, it encouraged through the safety net, enormous increases in leverage and debt. We saw the capital levels of our financial institutions decline, or the leverage increase, and so we had weaker capital, very thin capital levels when the crisis emerged in 2007 and 2008.

Second, we allowed the scope, if you will, of management to, I think, go beyond its capacity. It was not just these very important activities of lending and payment system intermediation that were there. Now you had all these new high-risk-oriented broker-dealer activities. So the scope of management had to be able to cross over and manage these activities. That was an enormous additional level of responsibility that clearly was beyond management's ability

to monitor and to control the risk. Had they been able to, we would not have had the crisis. So it was outside their bounds.

And I think in terms of bank supervision, if it is beyond the management and directors' ability to control this risk and monitor this risk, I think it is a lot to ask the supervisors to fill the gap when you are pushing this risk off balance sheet and other ways of doing it. It is a lot to ask the supervisor.

So what is the effect on the community bank? It is important because when you give one sector an advantage of this very significant too-big-to-fail safety net. Then, where are you going to put your funds as a major or as a medium-sized company or corporation? You are going to put it with the institution that will not be allowed to fail, and that is a nice advantage if you want to grow and become more, I would say, dominant in the industry.

And the other thing about it is—in that sense, it is unfair because it does make consolidation even more important to the largest institutions—maintains too-big-to-fail—and that is a disadvantage to the regional banks and, I think, to the community banks, as well. That is how I have judged it over the last decade watching this emerge.

Senator BROWN. Dr. Kroszner.

Mr. KROSZNER. I will try to be brief. On the management issue, going back to the examples I had given of institutions that were very focused on a narrow set of activities, mortgage lending, that did not necessarily make them better managed or less risky, and there are some very large complex institutions that seem to have done well in the crisis internationally, both in the United States and outside of the United States, banks that have been more universal banks.

We can find examples on either side. So I am not saying that it is consistent that diverse banks are always better managed and focused banks are always worse managed. That is certainly not the case. But I think it is very hard to generalize. I really think it depends upon the structure of the institution itself and the supervisory process over it.

Senator BROWN. So these banks are not necessarily—sorry to interrupt, but—

Mr. KROSZNER. Sure.

Senator BROWN. These banks, as I think Dr. Hoenig implied, if not said directly, in your mind are not by nature of their size too big to manage, if I could—

Mr. KROSZNER. Not necessarily, because we could see that there were some smaller institutions that were more focused that I think were very poorly managed and badly managed. So there are certainly some institutions that were not very well managed that were very large, so I do not want to say that in all cases they have gotten it right. In most—I should not say most, but in many cases they got it right.

Senator BROWN. In essence, they are not too big to manage.

Mr. KROSZNER. Not in principle too big to manage, that is right. But they certainly could be. Just the small institutions could be very poorly managed. Focused institutions like the ones that we are focused on, the mortgage market, many examples where they were, unfortunately, very poorly managed.

That brings us to the next step about the authorities and the regulators, and this gets back to one of the issues that I had mentioned in my oral remarks about pushing things off into the shadows. So in principle, if you can make things very transparent, very simple, they are easier for the regulators to monitor. The challenge is that even if we try to do that for one set of organizations, that does not mean that the risks disappear.

As Tom Hoenig made very clear in, I think, his very interesting proposal, he wanted to focus on not just the banking system, but also the shadow banking system, because when you put restrictions on one piece, there is a natural tendency for some of those activities to occur elsewhere. We sometimes would joke about the whack-a-mole problem, that you push down the mole that pops up from this game in one spot, but it pops up somewhere else. The risk does not disappear even if you get it out of one particular set of institutions because of the interconnections. Those activities typically are done either off balance sheet or very close to the bank as other funders are funded by the banks.

So it is not clear to me that we actually can make the system easier for the regulators if one set of institutions may have fewer activities but a lot of those other activities do not actually disappear but are taking place in the shadows.

The issue of the community banks. I very much share Tom Hoenig's view that we should not be having subsidies to one type of institution versus another institution. To use the public fisc to try to unbalance the competitive landscape is inappropriate, inconsistent with free markets, unfair, and not good policy. So we certainly want to try to rein in any particular subsidies that are being given to one type of institution versus the other to maintain the robustness of the 6,000 community banks that continue to exist in the United States today.

Senator BROWN. And do you agree—I was not clear on how far your agreement with Dr. Hoenig was in terms of the advantages that large banks get over small banks in terms of the way the system has been built, that the less expensive the financial market, the advantages they get that way, in borrowing and other things.

Mr. KROSZNER. Well, I think the community banks are largely in different markets than the largest five or six institutions, or three or four institutions, that are really focused internationally on very large lending. So there is a lot of separation in the activities that they undertake. There are concerns on both sides that there are some subsidies on the smaller bank side from some of the safety net as well as on the larger bank side, and I think a careful cost-benefit analysis should be done to identify where those subsidies may be and, as much as possible, eliminate them, because I think both it is unfair and not good policy.

Senator BROWN. And do you agree that there are different consequences if a small bank fails versus a larger bank fails?

Mr. KROSZNER. There may well be different consequences. The key is whether you have correlation of the risk. So if it is just an isolated institution, just that there is a problem with that one institution, that is one issue. But if you have 1,000 institutions that are all doing the same business, exposed to the same risks, and if one goes down, that is effectively the same as a thousand of them going

down, then it may not make that much of a difference whether we have a few larger institutions or a thousand that may go down simultaneously.

Senator BROWN. Thank you.

Senator Corker.

Senator CORKER. Thank you, Mr. Chairman, and thank both of you for being here, and Dr. Hoenig, thank you for the time we spent yesterday. I appreciate it and am looking forward to the Hoenig Rule someday.

[Laughter.]

Senator CORKER. But, look, you had made some comments earlier on. We had gone back, talking about Dodd-Frank itself, and I want to get to the model that you propose to have. It is really Glass-Steagall on steroids in many ways. But you talked about Dodd-Frank and the fact that it actually made our banking system, our financial system, less safe, and I am just—and you went on to say, “I do not see a system that is more safe. I see it as less safe. What about it has made it more safe?” When you say that, what is it in particular that you are referring to, if you can generalize?

Mr. HOENIG. OK. What I am saying is if we have the elements of the resolution, which I think is extremely important, we also have the view that this new legislation will eliminate future crises that we have out there. And I think—I said I am skeptical, and I think skeptical is healthy in the sense that 30 years of asserting that we have no institution too-big-to-fail and then bailing them out is something that we need to be aware of. But, the real advantage is it makes us more resolute to make sure that we do take them into either bankruptcy or receivership going forward, and I think that is extremely important.

Now, Dodd-Frank does give us the mechanism to do that. It is whether we have the will going forward. Now we have even larger institutions accumulating greater risk and concentration, so the “will” part will be even more difficult come forward.

What the proposal I put forward says is, let us take these high-risk activities and let us move them out into the market and let the market be the judge there, and the part that was meant to be protected by the safety net—the payment system, the settlement system, the intermediation process—let us allow that to continue to be protected, but we take these others where the subsidy has allowed the leverage to move up and take that away. Then Dodd-Frank becomes even more, I think, powerful in the sense of resolving institutions that, in fact, fail with the next crisis. And I think that is where we have an opportunity to strengthen our hand going forward.

And I want to comment on the fact that if, as some people say, if you take this away, we will not be as competitive. But in the 1980s and 1990s before the repeal of Glass-Steagall, the United States had the most vibrant banking and capital markets in the world. People came to us to get the financing, every bit as much as anywhere else in the world. When I say move them out, I do not mean let us eliminate market making. I do not mean, let us eliminate trading. I am saying, let us put it into the market where it can meet the market test, where it can be competitive and where the greatest innovation will come from. By putting them together

and putting that subsidy around it, I think you inhibit our ability to compete in the world today in a vigorous and in a capitalistic sort of way, and that is my whole point for this proposal.

Senator CORKER. I know we had a lot of discussion around the Federal Reserve Rule 23(a), and I know we are going to talk about that some more later—

Mr. HOENIG. Right.

Senator CORKER.—because there is a firewall that is being created there from the standpoint of money flowing back and forth and I look forward to future conversations there.

But your approach is—what you are saying is you do not think Congress should even consider arbitrarily limiting the size of an institution. You think that separating one type of activity from the basic activities that banks did originally, you think separating those two is probably the best route to take, and over time, because of that separation, the size issue will resolve itself, is that correct?

Mr. HOENIG. Yes. I am saying that if you try and resolve it by arbitrarily putting a size limit on, what is your principle for that? Is it antitrust? What is it? When you say, let us move these out, if you take these high-risk activities and move them out and make them subject to the market where they can fail, I think that becomes its own, if you will, control system.

In commercial banking, now, we are going to have large institutions. We always have. But at least it allows the regional bank and the community bank to compete on a more equal footing. And this country has always had a range of very large institutions to very small in the financial side and it has paralleled our industrial side—large industrial to small. And we have been able to have a broad cross-section of each.

We are now moving this into fewer and fewer institutions where everything has to take place and I think that disadvantages the vibrance of the United States, our entrepreneurial spirits that come from local financing, and I think it compromises that because it focuses everything on fewer and fewer banks over time, and that is what we want to avoid. I think we will always have large institutions, but when you level the playing field, I think you also allow for continuation of having small to medium to regional institutions competing and providing credit in the market. I think that not separating out the subsidy to the largest institutions handicaps the rest of the industry and, I think, handicaps, if you will, Main Street America.

Senator CORKER. Well, listen, thank you, and again, I really enjoyed the time and look forward to furthering our conversations. I know the last two witnesses have referred to the resolution piece, and while it did not end up perfectly, that is certainly an area that I know myself and Senator Warner spent a lot of time on, and hopefully, officials will have the courage to put a bank out of its misery if it fails. I know the tools certainly have been given there. And I think there are some more evolutions that need to occur. I mean, some of the bankruptcy components that we were not able to get into the bill should be there.

Dr. Kroszner, you spoke about—in your testimony, you made comments about cost-benefit analysis. I am hearing out there in sort of the world of people dealing with regulators that there really

are not appropriate cost-benefit analyses being done on these rules and there are many people who are predicting a plethora of lawsuits down the road as these rules actually come into play because the regulators are not adhering to Congressional mandates of ensuring that there are cost-benefit analyses. I am wondering if you are hearing the same thing.

Mr. KROSZNER. Well, I think it is extremely important to focus on cost-benefit analysis. I mean, if you—and it has bipartisan support. I was actually recently reviewing the Executive Orders from President Reagan and from President Obama on exactly this issue and it is really quite surprising how similar they look. So I think there is agreement across the aisle that to make good policy, you have to think about the cost and the benefits.

Obviously, there have been a number of lawsuits that some regulators have lost recently because they have not properly done economic analysis. I think it is very important to do that. I think that should be the focus of both thinking about what the objectives are, thinking about what the relevant alternatives are, and then doing as best a job as possible. It is never going to be perfect because you are trying to predict the future. You do not have the future data. But you can draw on historical analogies, international analogies, and different economic theories to try to get a feeling for what would make the most sense to try to address the objective you have.

And I think that is very important, because one of the disciplines that cost-benefit analysis does, it asks you, what are you trying to achieve? Sometimes people just have various objectives that are not well specified, not well focused. But it forces the policy process to address that. And so the more that they do, the better it will be.

Senator CORKER. Let me ask you this. What is driving many of the regulators that are promulgating these rules? What is driving them, especially around Dodd-Frank, not to be doing what they have been mandated to do as it relates to cost-benefit analysis? And, Dr. Hoenig, if you want to weigh in on that, because I do think these rules are going to be on their way for years. We have done anything but create predictability—

Mr. KROSZNER. Yes.

Senator CORKER.—at a time when people talk about predictability. As a matter of fact, you would have to wonder what Congress's intent was with all of Dodd-Frank when it was put in place from that standpoint. But what do you think is driving regulators to ignore this cost-benefit analysis and set themselves up for major setbacks down the road?

Mr. KROSZNER. Well, I am hoping that they are not. I am not privy to the internal processes, so I do not want to say anything specific about any particular process. But I think a lot of regulations—a lot of regulatory processes, more than 100, I believe, were set in train by Dodd-Frank with a relatively tight time table. And so that perhaps may have put some constraints on the ability to take as much time to gather the data and do the analysis that is necessary.

This is one of the issues, I think, that has come up with the many questions that were in the Volcker Rule proposal. A lot of them involved requests for data, which I think is exactly the right

thing for the regulators to do. And if it need be that it takes a little bit more time to do the analysis, to be able to draw the lines appropriately to really try to minimize unintended consequences and increase the robustness of the system, I would be very sympathetic to allowing more time for that.

Mr. HOENIG. I would offer this. I am only getting involved in it in the last month, but I would share this observation, that there are two complaints that I see coming forward, that they are not moving fast enough and that they are moving—

Mr. KROSZNER. Too fast.

Mr. HOENIG.—too fast.

[Laughter.]

Mr. HOENIG. I do think that they are being very careful, because I think most of the regulatory authorities understand the law of unintended consequences, have seen it and are worried about it, and, therefore, are trying to be very deliberate. And I know from experience that cost-benefit analysis is very time consuming and very slow and I think that is one of the reasons that, for some, this has been going slower than people would like.

So I think there is a sincere effort to get this right, but it is a big piece of legislation. There are a lot of moving parts in it. And it is probably going to be hard to satisfy everyone when we get through with this.

Senator CORKER. Thank you both very much.

Senator BROWN. Thank you both for joining us. Dr. Hoenig, thank you and thanks for your service. And Dr. Kroszner, thank you very much for joining us.

Mr. KROSZNER. Thank you.

[Pause.]

Senator BROWN. The third and final panel—thank you for joining us. Thank you very much for your patience and for waiting through two panels. They were interesting. I know we all learned—at least, I think, Senator Corker and I learned some things.

Tom Frost is a lifelong banker, the fourth generation of his family to oversee the Frost Bank, which was founded in 1868 in San Antonio, Texas. He is the Chief Executive of the Board of Frost National, with 78 financial centers across Texas.

Marc Jarsulic is no stranger to this Committee. He worked as an economist on the JEC, the Joint Economic Committee, and was a senior staffer for the Senate Committee on Banking under Chairman Dodd during the crafting of Dodd-Frank. Mr. Jarsulic currently serves as Chief Economist at Better Markets, an organization that promotes the public interest in the capital and commodities markets.

James Roselle is the Executive Vice President and Associate General Counsel of Northern Trust Corporation, a global financial services firm based in Chicago. He is focused on regulatory changes resulting from Dodd-Frank and briefs his firm's Board of Directors on these issues.

And Mr. Anthony Carfang is the Director of Treasury Strategies. Mr. Carfang has helped some of the world's largest banks and securities firms to position their services in the marketplace. He has advocated for the interests of his clients with regard to regulatory issues and liquidity management.

Thanks to all four of you. Mr. Frost, would you begin.

STATEMENT OF TOM C. FROST, CHAIRMAN EMERITUS, FROST NATIONAL BANK

Mr. FROST. Well, thank you for inviting me. It is a real honor for you to have me here, and I especially note that except for my compatriot from Northern Trust, we are the only people who are actually practicing in the industry that you are listening to. And I would hope that you would, in the future, hear more from us who are in the business than just listen to educators and regulators, many of whom I agree with, but I think to hear practitioners—banking has been in my DNA, as you said, for now 5 years [sic].

I am from San Antonio, Texas, and I served for 57 years, 26 of them as Chief Executive Officer of a commercial bank established by my Great-Grandfather. The institution grew and prospered through money panics, wars, and depressions, now with \$20 billion in assets and now 115 offices, all of them in Texas. The Frost Bank did not take Government funds from the issuance of preferred stock in 1933 and was one of the first banks to refuse TARP money in 2008.

I personally survived the very difficult times of Texas in the 1980s where many lessons were learned and the Frost Bank was the only one of the top 10 commercial banks in Texas to survive through a period when a significant number of banks failed and most of the savings and loans were closed.

I will start out with my first days as a young college graduate and a fresh employee of the institution I have just described, and I want to say as an aside, one of the things I am going to be talking about here is a difference in cultures, and I want you to focus on that. We have all talked about where people came from, how big they are, what kind of people, where we have not talked about the culture in which they lived and worked.

My Great Uncle Joe, who was then CEO—this is 1950 when I got out of college—I was a young, inexperienced banker. I had been there in the summers. He told me that the very first goal we had was to be able to return the deposits received from the customers—the first goal we had. Our obligation was to take care of the community's liquid assets and to manage them in a safe and sound fashion for the use—loans—of the community to grow.

Uncle Joe told me in 1950 that we were not big enough to be saved by the Government, that we would need to always maintain strong liquidity, safe and sound assets, and adequate capital. I was impressed by the fact that the need to make money was not high on this list but does occur if sound banking practices are observed.

Uncle Joe was not a fan of the FDIC. He told me it took his money to subsidize his inefficient competition. I personally support the FDIC as a protector for the depositor, but want to suggest that this safety net apply only to banks which receive FDIC-insured deposits. I am convinced that offering the safety net to other financial institutions which provide services not deemed appropriate for deposit loan commercial banking institutions is not sound public policy.

The deposit facilities of financial institutions which provide primarily investment, hedging, and speculative services should have

no taxpayer safety net. These institutions should be governed by market forces with investors understanding what can be earned and what can be lost. This would involve the need to separate two cultures, the one which Uncle Joe articulated and our family has followed for 144 years, by establishing long-term customer relationships and building our community and preserving its liquid assets. Other financial institutions can provide the other services that are not authorized to insured deposit banks at a potential good profit, but without a taxpayer risk through a Federal safety net.

I would suggest that the two types of institutions have separate ownership, separate management, and separate regulation. My conviction comes after seeing both systems, which were separated but now have been joined to create a situation which in 2008 brought about the near catastrophe of collapse of the world financial systems. Following the path that we are on currently will not only provide opportunity for the same occurrence to be—consequences to be repeated, but also mean the end of a banking system consisting of many providers.

It seems we are rapidly approaching a system which will be an oligopoly of a few major institutions whose management will not only have the same concerns and dedications as emphasized by Uncle Joe. So if both cultures are separated, the clients of both will prosper, but without the inordinate risk of a potential massive cost to the taxpayer.

I thank you for giving me the opportunity to express my opinion, which has been developed over a half a century's experience and has led me to the conviction that the insured deposit banking system we had was effective, worked well, and did not require any significant Federal support until 2008 when other activities of large institutions involved in so-called investment activities nearly destroyed the financial system and imposed enormous costs on taxpayers to the present day.

Gentlemen, what we are talking about is a conflict of cultures, and I would like to ask you to even stop and talk about doing something differently than what is proposed to you in Dodd-Frank and talking about the separation of the cultures, the absence of a Federal safety net for one, different regulation, different ownership, and the market activity organized—supported by one, and to take a look at a different way to do things, because if we keep things doing the same way over and over and expecting different results, I think, facetiously, that is called insanity, and I think we are on the level of going to do the same thing over and over and over again with what we are proposing.

Thank you.

Senator BROWN. Thank you, Mr. Frost. We appreciate your comments.

Mr. Jarsulic, welcome again back to the Committee.

**STATEMENT OF MARC W. JARSULIC, CHIEF ECONOMIST,
BETTER MARKETS**

Mr. JARSULIC. Thank you, Chairman Brown, Ranking Member Corker. Thank you for the invitation to Better Markets to testify today.

Let me start with the observation that the very largest bank-holding companies, which for convenience we can think of as the 10 largest, are now distinctly different from the rest of the banking industry. They are more highly leveraged than other banks. They are far more likely to operate large and complex broker-dealers. And they are more likely to be directly dependent on unstable sources of short-term financing. Each of these characteristics made the large bank-holding companies vulnerable during the financial crisis and each of these characteristics needs to be addressed by effective implementation of relevant sections of the Dodd-Frank Act.

During the crisis, high leverage, that is, a high ratio of assets-to-equity, increased the likelihood that the large bank-holding companies would become insolvent if asset prices declined significantly. During the period 1990 to 2000, the 10 large bank-holding companies had a leverage ratio of about 20-to-1, which in itself is fairly high. By the end of 2000, the leverage ratio had risen to 34, and this put the large bank-holding companies at approximately the same level of the five largest stand-alone investment banks, who had a leverage ratio of 36.

Thus, in 2007, large bank-holding companies, like the large investment banks, could see their equity wiped out by a 3-percent decline in asset values. Their funding sources and assets were not identical to the investment banks, but on the important dimension of leverage, they were in the same ballpark.

Proprietary trading made them less safe because the speculative positions can quickly produce large unexpected losses which may not be backed up by sufficient capital. I think the trading losses at Citigroup are a case in point. As part of its trading operations, Citigroup was one of the largest issuers and traders of CDOs in the world, many of them backed by subprime mortgage-backed securities. But Citigroup was unwilling to sell the so-called super senior tranches of these CDOs at market clearing prices, so between 2003 and 2007, they accumulated \$43 billion worth of these securities which they held in conduits and in the trading book. But in 2007, when the subprime mortgage market tanked, Citigroup had to start writing things down, and by the end of 2008, they lost \$39 billion on these CDO-related positions. So very early in the crisis, proprietary trading did significant damage to a big bank-holding company.

A final area of instability comes from the dependence of the large bank-holding companies on short-term very unstable financing. This makes the banks less safe because creditor runs can force asset sales and realization of losses. And during the crisis, there were runs on both repo borrowing and asset-backed commercial paper. The trading operations of the large bank-holding companies and investment banks are often highly dependent on repo funding, which is collateralized short-term borrowing, often for periods as short as a day. It is estimated that in 2007, the five largest investment banks funded as much as 42 percent of their assets on repo funding. That is, they were borrowing every day to support their book, and I do not think there is a good reason to believe that bank traders were operating differently.

Second, the banks commonly use conduits, which issue short-term commercial paper backed by a pool of assets, because it allows

them to increase their leverage at a relatively low cost. But again, there was a run on asset-backed commercial paper during the crisis and ultimately the Federal Reserve had to step in to rescue this market.

Given the scale of the large bank-holding companies, these vulnerabilities also threaten the financial stability of the system as a whole. No large bank-holding company failed, but I think if you look back to the scale and scope of the rescue effort at Citigroup, we can see that it was a very close thing.

So to prevent the recurrence of near catastrophes in the future, regulators need to use the tools created by Dodd-Frank to eliminate the threats to financial stability that are caused by large bank-holding companies. In particular, we need, one, effective leverage limits for the largest bank-holding companies. Section 165 of the Dodd-Frank Act gives the Federal Reserve the option to impose much higher capital requirements on the banks. The Fed is imposing Basel III requirements, and these, for reasons we could talk about, seem relatively inadequate.

Second, effective implementation of the Volcker Rule would do a lot to reduce the risk created by bank trading operations, and I think that there are two parts to this. One is a well defined definition of market banking so that it cannot be gamed and cannot become a source of risk. But of equal importance are significant leverage limits on trading operations because they are based on a funding model which is highly leveraged and highly unstable.

And finally, there needs to be an effective regulation of shadow banking activity, in particular, aspects of the shadow banking industry that cause potential creditor runs on these big bank-holding companies, for example, the behavior of the conduit market.

Taking these steps, I think, will go a long way to containing the risk posed by the size and complexity of the largest bank-holding companies. Thank you.

Senator BROWN. Thank you.

Mr. Roselle, thank you for joining us.

STATEMENT OF JAMES E. ROSELLE, EXECUTIVE VICE PRESIDENT AND ASSOCIATE GENERAL COUNSEL, NORTHERN TRUST CORPORATION

Mr. ROSELLE. Thank you, Chairman Brown, Ranking Member Corker. I appreciate the opportunity to testify before you today on behalf of Northern Trust.

Northern Trust supports the very positive efforts of Congress and this Committee to put in place reforms that reduce risk to the financial system, and many of those are included in the Dodd-Frank Act. Those are all very good reforms. However, it is essential that efforts to reduce risk are carefully calibrated so they do not inadvertently restrict or harm core banking activities that serve the needs of customers in the United States and around the world, that provide employment for our citizens, and that promote the economy.

I would like to focus my testimony on specific provisions contained in the Volcker Rule to show why it is so important to consider the full impact of regulatory reforms in order to avoid unin-

tended negative consequences for individual banks and for the economy more generally.

Northern Trust does not engage in the types of activities the Volcker Rule intended to prohibit. In fact, we heard from Chairman Volcker earlier that he thought the proprietary trading rules would only impact maybe six to eight institutions. I wish that were true. Specifically, Northern Trust does not engage in high-risk proprietary trading and investment activities. Because of the traditional nature of our core banking business, we anticipated the Volcker Rule would have little or no impact on our business. The rules as currently proposed, however, will adversely impact traditionally low-risk business activity that investors rely on for investment management purposes. If not corrected in the rulemaking process, a core banking business of Northern Trust and other banking companies will be adversely impacted, which may ultimately impair the competitiveness of U.S. banks in a business where we are the acknowledged global leaders.

Today, I want to summarize three parts of the proposed rule to implement Volcker that go beyond what the law requires and that may significantly impact Northern Trust and our clients. First, the proposed rule unnecessarily includes a broad range of funds that banking entities will be restricted from sponsoring or investing in. The definition of a covered fund would capture nearly all foreign funds, as well as many other entities that do not have traditional hedge fund or private equity fund characteristics. This definition is important, because if a bank is deemed to be a sponsor or an advisor to a covered fund, then the proposed rule—then under the proposed rule, the bank is prohibited from providing any credit whatsoever to the fund under the super 23(a) provisions.

Ordinary custodial and administrative services provided to our clients must include the provision of intra-day or short-term extensions of credit to facilitate securities settlement, dividend payments, and similar custody-related transactions. These payment flows are expected in order for transaction settlements to operate smoothly and they have been encouraged by global financial supervisors. Nevertheless, these low-risk extensions of credit appear to be considered as prohibited covered transactions under the proposed rule.

Second, the proposed inclusion of foreign exchange swap and forward transactions within the proprietary trading prohibitions will result in damage to a traditional and low-risk activity with no offsetting benefit to the U.S. financial system. As a significant global custodian and asset manager, Northern Trust carries on an active foreign exchange trading operation that is directly related to our core client services. In essence, these currency transactions are simple cash management transactions used by our clients to efficiently manage cross-currency needs. The agencies should exclude these transactions from the trading restrictions for the same reason that the Treasury Secretary proposed to exclude them from Title VII of Dodd-Frank.

Third, the compliance requirements in the proposed rule are unduly burdensome and will unnecessarily increase compliance costs for banks with little or no offsetting benefit. The proposed rule essentially requires the bank to prove that each transaction does not

fall within the prohibited category and requires banks to produce a large number of compliance metrics which will result in considerable systems expenditures and ongoing costs of compliance. We believe the agencies could carry out the intent of Congress more effectively and with less cost to the banking system with a simpler rule that is supplemented by a few key metrics and active supervision of bank trading risks and practices.

We urge this Committee to encourage the agencies to adopt final regulations that carry out Congressional intent to prohibit high-risk trading and investment activities but not to adversely impact those traditional business activities that played no role in causing the financial crisis. Preserving our business models will ensure that U.S. banks can operate effectively and competitively while protecting against negative impacts on the broader economy and U.S. employment.

Thank you, Chairman Brown, Ranking Member Corker, for allowing me to present Northern Trust's views on this critically important topic.

Senator BROWN. Thank you, Mr. Roselle.

Mr. Carfang, welcome. Thank you for joining us.

STATEMENT OF ANTHONY J. CARFANG, PARTNER AND DIRECTOR, TREASURY STRATEGIES, INC., ON BEHALF OF THE U.S. CHAMBER OF COMMERCE

Mr. CARFANG. Thank you, Chairman Brown, Ranking Member Corker. I am delighted to be here today on behalf of the U.S. Chamber of Commerce, the three million members, each of whom are customers of banks. So we are representing the customer side this afternoon, as well.

My name is Tony Carfang and I am partner with Treasury Strategies. We are a leading consulting firm in the area of Treasury and cash management. We help corporate treasurers day in and day out manage their risk, raise their capital, fund their accounts, and meet their payrolls. We also work with the financial institutions, large and small, in fact, around the globe, who provide services to businesses to make productive use of their capital.

I would like to leave you with four messages today. Number one is that the U.S. economy is the most capital efficient in the world. None comes close, and I will share with you some statistics in a second. But I want to say that this is a delicate balance and we need to make sure as we move to the next generation of financial services we do not destroy the capital efficiency that we have worked two centuries to achieve.

Number two is that the U.S. financial system is a very delicate mosaic of banks, money market funds, securities firms, institutions large and small serving corporations large and small who have needs that in some cases are regional, in some cases are global, some are industry specific, and what we have is actually a very beautiful mosaic of all of this coming together, and we need to understand how this all works before we begin changing it.

The third point I would like to make today is that risk is like energy in that it can neither be created nor destroyed. It can only be transferred. So please do not be lulled into thinking that if you eliminate a risk in a particular institution that that risk goes

away. It goes somewhere else and we need to understand where it goes. So, for example, if a bank is unable to help a client hedge commodities, let us say, and there is a farmer out there somewhere whose profit, whose crop is at risk, so we have taken the risk out of the bank and put it back on the farm. We need to be careful about that. Similarly, a manufacturer who cannot hedge foreign exchange may choose not to export and may actually shrink the size of the company. There is an interconnectedness here that we need to be very careful to preserve.

The fourth point I would like to make is that we are in the midst of an uncontrolled experiment. Now, we are not arguing against regulation at all, but what is happening is that there are a number of regulations being promulgated around the world right now that are directed at financial institutions, things like Basel III, things like derivative regulation, new talk of another round of money market fund regulations. All of these are untested and they are all designed, oriented toward financial institutions, but, frankly, they all land on the desk of the corporate treasurer. The financial institutions are the intermediaries. It is the consumer, it is the business person, it is the corporate treasurer that is dealing with all of these simultaneously.

Senator, you raised the question of cost-benefit analysis earlier, and frankly, not only do each of these need to have a much more thorough cost-benefit analysis, but they need to be analyzed in the context of their interrelationship and what it means to simultaneously change a liquidity requirement, add a capital requirement, eliminate a trading business, and throw in a little bit of risk management or whatever you want. We have an experiment that is moving out of control.

I would like to go back to the point of capital efficiency because that is a hallmark of American business. U.S. companies are sitting on a record amount of corporate cash, and I am sure you see those headlines, \$2.2 trillion at the end of the last quarter. That represents 14 percent of U.S. GDP. A similar ratio in Europe is 21 percent. That is, European corporations hold cash on their balance sheets equal to 21 percent of the total GDP of the Euro zone. You might say we are 50 percent more efficient. Should we lose this capital efficiency and companies move to this 21 percent range as a result of some regulations that are not totally thought through, that \$2.2 trillion on Americans' balance sheets at 14 percent, 21 percent, that translates to \$3.3 trillion.

We are, in effect, taking \$1.1 trillion out of the U.S. economy, putting it in cash on balance sheets and effectively sidelining it. So we have the potential here of destroying capital efficiency that has a magnitude that is greater than the entire stimulus program, \$1.1 trillion. That is more than QE II. That is more than the entire TARP program. So I think we are playing with fire here and we need to be very, very careful, hence the point on an appropriate cost-benefit analysis not only on one regulation but across the board.

We want to make sure that America's businesses can continue to have access to the capital markets and raise capital as efficiently as possible so that they can grow their businesses, so that they can create jobs, so that they can manage their risk.

And I would say to you the real threshold question and what we are putting at risk here is when a business's treasurer calls a bank to raise capital or to manage risk, is there going to be a U.S. banker there to answer the call?

Thank you very much.

Senator BROWN. Thank you, Mr. Carfang.

I am a little confused. I was going to go in a different place, but I want to follow up with your last statement there.

Mr. CARFANG. Sure.

Senator BROWN. The \$2.2 trillion, the 14 percent of GDP that sits as cash reserves, these are not just banks. These are—you are talking about all American companies? You are talking about Alcoa, any large manufacturers that sit on large cash reserves?

Mr. CARFANG. I am talking about all of America's nonfinancial corporations. This is published each quarter—

Senator BROWN. Yes. I guess—that seems—I know of that. I think we hear that often—

Mr. CARFANG. Yes.

Senator BROWN.—and I guess I do not think that it is a regulatory issue as much as it is these companies do not see, for reasons of uncertainty or reasons of lack of demand, do not see it as good economics for their companies, good policies for their companies to invest back in job creation, invest in capital equipment. That is my understanding.

Mr. CARFANG. Well, and they also need that for working capital and precautionary needs, as you just pointed out. And my point is that the comparable number in Europe is 50 percent higher—

Senator BROWN. Right. I got that, the 14 versus 21. I guess when I talk to—and my State, Ohio, has a large number of major manufacturers. They tell me, 5 years ago, that a company might have had \$100 million in cash reserves, now has \$400 million. That is not a question of they need more in order to potentially protect themselves as much as it is they do not see the demand in the marketplace for them to reinvest in the company, or they use those dollars to buy other companies or stockpayer—stocks, whatever. OK. Let me go somewhere else with this, and thank you for that insight, Mr. Carfang.

Mr. Frost, you had mentioned, I thought, importantly so, that you and Mr. Roselle are the only people that are working actually in banks on any of three panels of the seven of you here today. Let me ask you a question based on that. You are \$20 billion in assets, 48th largest bank in the United States. That is one-one-hundred-fifteenth the size of the largest bank in the United States. The former executive of a trillion-dollar bank told the Financial Crisis Inquiry Commission that it is impossible for executives to understand the balance sheet of an institution of that size—that size, 115 times your size—on a daily basis.

I asked Mr. Kroszner and Mr. Hoenig about that. Do you think those institutions, those five, six, seven, those institutions that are a \$1.5, \$2 trillion in assets, are they too big to manage? We had that question on the last panel. In your mind, from your experience of 60 years at the bank and your family's experience, are these too big to manage?

Mr. FROST. I think, because of the cultures, they are impossible to both be managed by the same manager. Now, you have read, maybe, about *Built to Last* and *Good to Best* [sic], the books, and those books say that the most effective corporations in all of America that were built to last did not have profit as a major objective of the company, and the ones that went from good to best reduced the level of profit making. So you have got a culture with the large investment financial firms that deal only with transactions, where the transactions work out to a direct impact on the pocket of the person who is dealing with the customer. That is what investment banking does, and they do it beautifully.

When you talk about Uncle Joe and talking to me, profit was down at the bottom of the list, and our present mission statement is we will grow and prosper by building long-term relationships based on good service and high ethical standards and safe and sound assets. But I want to tell you, the reason our mission statement is that way has nothing to do with profit. It tells everybody what to do when they come to work every day. Build relationships. We build them with each other to have the ability to take care of customers. We build the customers to take care of us.

So I do not think when you have the transactional businesses that we are—Mr. Volcker talked all about them, the man from the Federal Reserve of Kansas City later on talked about it. When you have a manager that is basically thinking about his own pocket-book and what he is going to gain by the dollars and cents that are coming down and not thinking of the customer, you have a different culture than the one that I have grown up in, the Kemper in St. Louis—I mean, in Missouri, there are two of them in Kansas City, run beautiful banks, there is a man in Oklahoma who runs the Bank of Oklahoma, same way. When you are working to take care of the relationships with your customers for what will be of value and benefit to them and taking care of them and great value to the whole economy, the whole community, and profit comes if you do that well without starting out and saying, I am making a deal today because it is going to bring \$500,000 into my pocket at the end of this year by the bonus I am going to get.

So my answer is you cannot have the two cultures in one entity. They have got to be in separate entities. And I am, in all due deference to the U.S. Chamber of Commerce, we had big financial institutions, Goldman Sachs and others, that were doing very well taking care of big companies internationally and we had big banks that we could take care of and compete with very satisfactorily, even though we are in different markets with the smaller entities, and that system worked.

So in answer to your question, I think if we have the cultures that do not understand, that operate differently, I think you cannot possibly succeed, and that is what 2008 brought us. Two-thousand-eight brought us the disaster of the culture that had profit at the top of what they wanted to do. They did not care who ended up with those mortgage bonds. They only cared about the interest to them. And every single step felt that way in those mortgage things, right down to the last poor dumb guy that bought them without doing anything but looking at the ratings, and what we had was

a disaster because everybody down the line was just making some money off of it and had no vigorish in the game.

So, to me, your answer—my answer is, you cannot put the two together. That is what we have demonstrated by getting away from Glass-Steagall. You cannot put them together. You will have a disaster. You will keep doing the same thing over again, and that is the definition—and expecting a different result, and that is the definition of insanity.

Senator BROWN. Thank you, Mr. Frost. A 144 years of success is hard to argue with.

Senator CORKER.

Senator CORKER. Thank you, Mr. Chairman, and I thank all of you for your testimony.

If I understand you, Mr. Frost, what you are, I think, advocating, generally speaking—I know it is a very general statement—but basically, Dodd-Frank did everything but address the core issue from your perspective. It went around the world trying to address all these little things that at the end of the day you think best could be resolved by sacking Dodd-Frank and just going back to Glass-Steagall, or maybe what Mr. Hoenig was referring to, Glass-Steagall on steroids. Is that a generalization of what you are saying?

Mr. FROST. Well, yes, both of them are, but Dodd-Frank, of course, had a big package of things that, I think, were a big mistake and ought to have been dealt with separately, and I am only talking about one of them and the one of them is the separation of the two financial systems, the one with the safety net which worked and we had—we solved in this country every single commercial bank failure, including all the large banks in Texas. And I do not care what Governor Perry said running for President. Texas has had a few things that were not exactly perfect—not very many, but the banks were one. And what we have done is we had a system that worked and not a single penny of taxpayer money went to solve one of those banks. The taxpayer money went to take care of those savings and loans that you allowed to go in and do things that—you, the Congress, allowed to go in and take interest in entities to which they were lending.

So what I am saying is we had a system that worked. It can continue to work regardless of the size of the two if you separate the cultures. Let one have a safety net and have a regulation that does not allow it to do certain things and the other has no Government safety net, but has different regulation that makes them lose money and not ruin the system.

Right now, the Dodd-Frank is just a real mish-mash of things to do, including protect consumers, protect mortgages, manage big banks, and let me tell you, we have all been hearing today about how to handle the big banks, and the unintended consequences which many people here mention is what is happening to us in the smaller banks. We are getting killed by this thing because you are not paying attention, Mr. Chamber of Commerce, to the mosaic and the change in the mosaic. It ain't the mosaic that we saw before we took away Glass-Steagall. It is a different mosaic.

We have got 52 percent of the banking assets inside about four or five banks, and if we make separate businesses of them, about

one-half the assets of those two large banks are at the at risk part of investment banking and only one-half are in deposit insured things, and why do you have the taxpayer insuring deposits to give to somebody to go out and use it for something else. That does not make any sense at all. We made a big mistake in putting these two things together. I supported it. I have made a few mistakes in my life and that is one of them I will admit, and I will make some more, I am sure.

But we are on the wrong path. That is my message to you all. And we are on the wrong path because the cultures are different and you are trying to regulate them together with a thing that no human being can either manage or regulate, in my opinion.

Senator CORKER. Mr. Roselle, you run a really boring operation yourself and it does a different—is involved in different kinds of activities than was just described, and you are the other true practitioner that is here, although the others obviously have a lot of wisdom. How would you respond to what Mr. Frost just said?

Mr. ROSELLE. That is a challenge, Senator. Let me say this. I think we are not going down the wrong path. I believe that Dodd-Frank has a lot of very positive aspects to it. I think improvement of capital ratios, capital planning, resolution planning, liquidation authority, improvements in governance and risk management, those are all very positive aspects of the Dodd-Frank Act and I think the financial system is much better off for many of those.

There are a lot of details in the Act that do create issues for us, and—

Senator CORKER. What about—and I—

Mr. ROSELLE. Sure.

Senator CORKER.—and you did a great job in your testimony of laying out some of those, but from the standpoint of Mr. Frost's real solution to this, I mean, I just wonder if your point of view—if you share his point of view regarding the total separation and really returning to Glass-Steagall.

Mr. ROSELLE. I do not share that point of view. I—

Senator CORKER. I thought you might not. That is why I asked the question.

[Laughter.]

Mr. ROSELLE. But even though we are not in a lot of those businesses, Senator, I think it is a mistake to try to put in place a separation that is based on a decision made at a point in time that becomes immutable. Things change. Financial markets change. Client needs change. And I think we as institutions and as the financial system need to be in a position to meet those changes.

I will give you an example. Northern Trust used to be primarily almost exclusively in the wealth management area. We serviced private clients, and out of that we found a lot of those clients needed us to keep custody of their assets. We started doing that. We started doing that around the world as they invested globally. That emerged, or that evolved into the need for foreign exchange transactions to support those clients. Securities lending came out of custody. Things evolve, and I think it is a mistake to try to have an artificial separation.

Absolutely, we should have tight controls and good oversight, and that is why I referred to a lot of the good parts of Dodd-Frank that

I think do that. But I think to have an artificial separation that says, this one set of activities are going to be here and another are going to be over there does not make sense, and frankly, I do not know that it really does anything to reduce risk. It drives those activities, perhaps, into a less regulated environment that may create much higher risk as we go down the road. So I would be very careful about any kind of separation like that.

Mr. FROST. May I make one comment on that?

Senator BROWN. Very brief, Mr. Frost.

Mr. FROST. All right. I want to make clear that I did not say that there would be total separation. There would be overlaps of things that those banks can do. We did that with Glass-Steagall. So I think a lot of the things he is talking about could be done by the commercial banks and they could be done by the investment banks and there could be overlaps.

One of the very significant things we all did years ago was the banks did—underwrote and handled the markets on Government bonds and tax supported municipals and so did the investment bankers. So I am not talking about where you would take a total separation of everything. I am talking about only those things that we have had to pay for and the taxpayer should not have to pay for and should be done by markets instead of by an underwriting that we now have on deposits and using the Federal underwriting. That is why people go to the big banks. They have got the Federal underwriting of money, that if they want, they can take it and put it in these other things.

I am saying too much. I know that it is a thing that we all feel very strongly about and you do, too, and thank you for listening to me.

Senator BROWN. Thank you all. Mr. Frost, thank you, and Mr. Roselle, thank you, and Mr. Carfang, thank you very much.

Before calling the hearing to a close, I would like to make one comment about a program that is especially important to community banks that are forced to compete with Government, in my mind, subsidized mega-banks. The FDIC's Transaction Account Guarantee, or TAG program, expires at the end of the year. It has been a valuable tool for America's community banks and it has not cost taxpayers a dime. I believe we must extend this program. I look forward to working with both the Chairman and the Ranking Member of the full Committee and with Senator Corker to extend the TAG program so community banks can continue to compete.

Thank you all for joining us. Some Members of the Subcommittee may have questions for any of the four of you or the three on the first two panels. We may send you questions, and they will be submitted within a few days and we would like your answer within a week if they do that.

So thank you very much for being with us. The hearing is adjourned.

[Whereupon, at 4:04 p.m., the hearing was adjourned.]

[Prepared statements and additional material supplied for the record follow:]

PREPARED STATEMENT OF PAUL A. VOLCKER

CHAIR, PRESIDENT'S ECONOMIC RECOVERY ADVISORY BOARD, AND
FORMER CHAIRMAN, BOARD OF GOVERNORS OF THE FEDERAL RESERVE SYSTEM
MAY 9, 2012

“Too Big To Fail”—the Key Issue in Structural Reform

The greatest structural challenge facing the financial system is how to deal with the wide-spread impression—many would say conviction—that important institutions are deemed “too large or too interconnected” to fail. During the crisis, creditors—and to some extent stockholders—were in fact saved by injection of official capital and liquidity in the aggregate of trillions of dollars, reinforcing the prevailing attitudes.

Few will argue that the support was unwarranted given the severity of the crisis, and the danger of financial collapse in response to contagious fears, with the implication of intolerable pressures on the real economy. But there are real consequences, behavioral consequences of the rescue effort. The expectation that taxpayers will help absorb potential losses can only reassure creditors that risks will be minimized and help induce risk-taking on the assumption that losses will be socialized, with the potential gains all private. Understandably the body politic feels aggrieved and wants serious reforms.

The issue is not new. The circumstance in which occasional official rescues can be justified has long been debated.¹ What cannot be in question is that the prevailing attitudes and uncertainties demand an answer. And that answer must entail three elements:

First, the risk of failure of “large, interconnected firms” must be reduced, whether by reducing their size, curtailing their interconnections, or limiting their activities.

Second, ways and means must be found to manage a prompt and orderly financial resolution process for firms that fail (or are on the brink of failure), minimizing the potential impact on markets and the economy without massive official support.

Third, key elements in the approach toward failures need to be broadly consistent among major financial centers in which the failing institutions have critical operations.

Plainly, all that will require structural change embodied in legislation. Various approaches are possible. Each is difficult intellectually, operationally, and politically, but progress in these areas is the key to effective and lasting financial reform.

I think it is fair to say that in passing the Dodd-Frank legislation, the United States has taken an important step in the needed directions. Some elements of the new law remain controversial, and the effectiveness of some of the most important elements are still subject to administrative rule writing. Most importantly, a truly convincing approach to deal with the moral hazard posed by official rescue is critically dependent on complementary action by other countries.

In terms of the first element I listed to deal with “too-big-to-fail”—minimizing the size and “interconnectedness” of financial institutions—the U.S. approach sets out limited but important steps. The size of the major financial institutions (except for “organic” growth) will be constrained by a 10 percent cap on their share of bank deposits and liabilities. That cap is slightly higher than the existing size of the largest institutions, and is justified as much to limit further concentration as by its role as prudential measures.

The newly enacted prohibitions on proprietary trading and strong limits on sponsorship of hedge and equity funds should be much more significant. The impact on the sheer size of the largest U.S. commercial banking organizations and the activities of foreign banks in the United States may be limited. They are, however, an important step to deal with risk, conflicts of interest, potentially compensation practices and, more broadly, the culture of banking institutions.

The justification for official support and protection of commercial banks is to assure maintenance of a flow of credit to businesses and individuals and to provide a stable, efficient payment system and safe depository. Those are both matters entailed in continuing customer relations and necessarily imply an element of fiduciary responsibility. Imposing on those essential banking functions a system of highly rewarded—very highly rewarded—impersonal trading dismissive of client relationships presents cultural conflicts that are hard—I think really impossible—to successfully reconcile within a single institution. In any event, it is surely inappropriate that those activities be carried out by institutions benefiting from taxpayer support, current or potential.

¹Alan Greenspan, 1996.

Similar considerations bear upon the importance of requiring that trading in derivatives ordinarily be cleared and settled through strong clearing houses. The purpose is to encourage simplicity and standardization in an area that has been rapidly growing, fragmented, unnecessarily complex and opaque and, as events have shown, risk prone.

There is, of course, an important legitimate role for derivatives and for trading. The question is whether those activities have been extended well beyond their economic utility, risking rather than promoting economic growth and efficient allocation of capital.

There is one very large part of American capital markets calling for massive structural change that so far has not been touched by legislation. The mortgage market in the United States is dominated by a few Government agencies or quasi-governmental organizations. The financial breakdown was in fact triggered by extremely lax, Government-tolerated underwriting standards, an important ingredient in the housing bubble. The need for reform is self-evident and the direction of change is clear.

We simply should not countenance a residential mortgage market, the largest part of our capital market, dominated by so-called Government-Sponsored Enterprises. Collectively, Fannie Mae, Freddie Mac and the Home Loan Banks had securities and guarantees outstanding that exceed the amount of marketable U.S. Treasury securities. The interest rates on GSE securities have been close to those on Government obligations.

That was possible because it was broadly assumed, quite accurately as it has turned out, that in case of difficulty those agencies would be supported by the Treasury to whatever extent necessary to maintain their operations. That support was triggered in 2008, confirming the moral hazard implicit in the high degree of confidence that Government-Sponsored Enterprises would not be allowed to fail.

The residential mortgage market today remains almost completely dependent on Government support. It will be a matter of years before a healthy, privately supported market can be developed. But it is important that planning proceed now on the assumption that Government-Sponsored Enterprises will no longer be a part of the structure of the market.

It is evident that there is not yet full international agreement on elements of the basic structural framework for banking and other financial operations. Some jurisdictions seem content with what is termed “universal banks”, whatever the conflicts, risks and cultural issues involved. In the United States, there are restrictions on the activities of commercial banking organizations, particularly with respect to trading and links with commercial firms.

Financial institutions not undertaking on commercial banking activities will be able to continue a full range of trading and investment banking activities, even when affiliated with commercial firms. When deemed “systemically significant”, they will be subject to capital requirements and greater surveillance than in the past. However, there should be no presumption of official support—access to the Federal Reserve, to deposit insurance, or otherwise. Presumably, failure will be more likely than in the case of regulated commercial banking organizations protected by the official safety net. Therefore, it is important that the new resolution process be available and promptly brought into play.

In the U.K., another approach has been supported by the current government: a “pure” deposit taking and lending bank would be separated from an investment bank within the holding company. A “ring fence” would strictly limit contact between the two businesses.

As an operational matter, some interaction between the retail and investment banks is contemplated in the interest of minimizing costs and facilitating full customer service. American experiences with “fire walls” and prohibitions on transactions between a bank and its affiliates have not been entirely reassuring in practice. Ironically, the philosophy of U.S. regulators has been to satisfy itself that a financial holding company and its nonbank affiliates should be a “source of strength” to the commercial bank. That principle has not been highly effective in practice, and does not appear to be a part of the U.K. approach.

More broadly, a comprehensive approach internationally is seen to be developing in which systemic oversight is coupled with resolution authority for both banks and nonbanks. A dividing line between those activities worthy of government support and those that are not is common to both the U.S. and U.K. approaches.

The Volcker Rule is a part of this formula, and should not be considered in isolation against the total task at hand. Coupled with increased capital requirements, the Dodd-Frank legislation, if fully enforced, is a solid step toward reigning in “too-big-to-fail”.

The regulators are still hard at work completing the important rulemaking, and will soon turn their attention to constructing the supervisory manuals and other tools of enforcement. After the transition period when the legislation and new capital requirements are a functioning part of our financial and supervisory system, not only should risk be reduced but important cultural issues will begin to be addressed.

Unfinished business remains. Money Market Mutual funds are another example of moral hazard, and seem to me more amenable to structural change. By grace of an accounting convention, shareholders in those funds are permitted to meet requests for withdrawals upon demand at a fixed dollar price so long as the market valuation of fund assets remains within a specified limit around the one dollar “par” (in the vernacular “the buck”). Started decades ago essentially as regulatory arbitrage, money market mutual funds today have trillions of dollars heavily invested in short-term commercial paper, bank deposits, and notably recently, European banks.

Free of capital constraints, official reserve requirements, and deposit insurance charges, these MMMFs are truly hidden in the shadows of banking markets. The result is to divert what amounts to demand deposits from the regulated banking system. While generally conservatively managed, the funds are demonstrably vulnerable in troubled times to disturbing runs, highlighted in the wake of the Lehman bankruptcy after one large fund had to suspend payments. The sudden impact on the availability of business credit in the midst of the broader financial crisis compelled the Treasury and Federal Reserve to provide hundreds of billions of dollars by resorting to highly unorthodox emergency funds to maintain the functioning of markets.

The time has clearly come to harness money market funds in a manner that recognizes both their structural importance in diverting funds from regulated banks and their destabilizing potential. If indeed they wish to continue to provide on so large a scale a service that mimics commercial bank demand deposits, then strong capital requirements, official insurance protection, and stronger official surveillance of investment practices is called for. Simpler and more appropriately, they should be treated as an ordinary mutual funds, with redemption value reflecting day by day market price fluctuations.

I call your attention to another piece of unfinished business. It should be simpler because it has already been passed into law: specifically a member of the Federal Reserve Board should be designated as Vice Chairman for Supervision. Supervision of the banking and financial system should have a strong and visible place on the agenda at the Federal Reserve. It should have a proper focus in Congressional oversight. That the position remains unfilled, 2 years after its authorization and in the midst of financial uncertainty, is a mystery to me.

THE “VOLCKER RULE”, SOVEREIGN DEBT, AND INTERNATIONAL COOPERATION

February 8, 2012

By Paul A. Volcker

I confess total surprise about the vehement complaints by some European and other foreign officials about the restrictions on proprietary trading by American banks embedded in the Dodd-Frank Act—now dubbed the “Volcker” Rule.

It made me think—think all the way back to my years in the U.S. Treasury and Federal Reserve, years when the Glass-Steagall Act was in full force. The practical effect was to ban *all* securities trading by American banks—not just “proprietary” trading, but also “market making” and “underwriting” (except when involving U.S. Government and certain municipal securities). I do not recall, and I am morally certain it never happened, receiving a single complaint that that American law was discriminatory, that it damaged other sovereign debt markets, or that it limited the ability of foreign governments to access capital markets.

There is a certain irony in what I read. In Europe, there are plans to introduce a financial transaction tax, justified in part by officials because it puts “sand in the wheels” of overly liquid, speculation prone securities markets. For reasons analogous to the Volcker Rule, the U.K. is planning to “ring fence” trading and investment banking from retail banking, attempting to create airtight subsidiaries of larger organisations. The commercial banks responsible for what is deemed essential services to the economy will be insulated from all trading and only then be protected by the official safety net of access to the central bank, deposit insurance, and perhaps assistance in emergencies.

That approach, as a matter of regulatory philosophy and policy, resembles the seemingly less draconian U.S. restrictions on proprietary trading.

The simple fact is that Dodd/Frank specifically permits both “market making” in response to customer needs and “underwriting”. No doubt American banks will, upon request, be happy to provide those services to the U.K. and other governments. They can continue to purchase foreign sovereign debt for their investment portfolios—should I say *a la* MF Global? What would be prohibited would be “proprietary” trading, usually labeled as “speculative”. How many times in the past have we heard complaints by European governments about speculative trading in their securities, particularly when markets are under pressure?

Is there really a case that proprietary trading is of benefit to the stability of commercial banks, to their risk profile, and to their compensation practices and desirably fiduciary culture? I think not, and we need to look no further than Canada for a system in which its large banks have been much less committed to proprietary trading than a few American giants. In any event, there are and should be thousands of hedge funds and nonbank institutions ready, willing and able to undertake proprietary trading in unrestricted securities in large volumes. The point is those traders should not have access to the taxpayer support implicit in the safety net of commercial banks.

In addressing liquidity, can it really be of concern that some of the largest banks in Europe, in Japan, in China, and indeed in Canada cannot maintain effective markets in their own sovereign debt? U.S.-chartered commercial banks could remain participants “making markets” for their customers wherever they are.

Let’s get serious.

National regulatory (and at least as important, accounting and auditing) authorities should, to the extent practical, seek common understanding and common approaches. In the past, I participated in that process, helping to initiate the effort to achieve common capital standards for banks. I am today encouraged by efforts underway by the United States, the United Kingdom, and other authorities to reach the needed degree of consensus with respect to resolution authority—in plain English how to practically end the “too-big-to-fail” syndrome. That’s really complex. The major banks are international, and managing their orderly merger or liquidation will necessarily involve cooperation among jurisdictions. That is a key challenge, arguably the key challenge for banking reform. It needs to be dealt with.

Meanwhile, let us not be swayed by the smoke screen of lobbyists dedicated to protecting the interests of some highly compensated traders and their risk-prone banks.

The American regulators are now considering what adjustments should be made in their preliminary rules with respect to market-making and proprietary trading, while hopefully reducing the inevitable complications imposed by the very complexity of modern finance. I regret that the effect, if not the intent, of much of the lobbying has been to add complications rather than to clarify the principles involved. As with any new regulation, there will be, with experience, opportunities to deal with unnecessary frictions or unintended consequences. But I certainly take comfort with the stated confidence of the authorities that the rule adopted will be both workable and effective.

PREPARED STATEMENT OF THOMAS M. HOENIG*

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MAY 9, 2012

Restructuring the Banking System to Improve Safety and Soundness

Over the past 30 years, the U.S. banking system has changed dramatically from the stylized view of banking that arose from the banking panics of the early 1930s. The structure of the banking industry that emerged from the 1930s separated investment banking and other financial services from “traditional” commercial banking—making loans and taking deposits to provide payment, liquidity, and credit intermediation services. Because these core banking services are a critical part of the economic infrastructure and banks are susceptible to disruptions from depositor

Co-authored by Charles S. Morris Vice President and Economist, Federal Reserve Bank of Kansas City in May 2011.

This document does not represent the views of the Board of Governors of the Federal Reserve or the Federal Reserve System. Michal Kowalik, an Economist in the Banking Research Department at the Bank, contributed substantially to the proposal. The authors would like to thank Viral Acharya, Matt Richardson, Larry White, Richard Sylla, Thomas Philippon, Lasse Pedersen, Jacob Goldfield, and Nada Mora for helpful comments and suggestions.

runs, the structure also included a public safety net to protect depositors and their banks.

The current financial structure is vastly different. Leading up to the financial crisis, the financial system had become dominated by a handful of large, complex financial organizations and it is even more so since the crisis. These companies combine traditional banking activities with a variety of nonbank activities. Banks benefit from additional activities, for example, if they increase the diversification of their assets and revenue streams. However, additional activities can also increase banks' riskiness and create complexity that makes it more difficult for the market, bank management, and regulators to assess, monitor, and/or contain risk taking that endangers the public safety net and financial stability. Thus, the social costs of additional activities and the associated complexity can greatly exceed the private benefits to an individual bank.

This paper offers a proposal to reduce the costs and risks to the public safety net and financial system and reintroduce accountability by restricting bank activities. The designation of allowable activities is based on the principle that banks should not engage in activities beyond their core services of loans and deposits if those activities disproportionately increase the complexity of banks such that it impedes the ability of the market, bank management, and regulators to assess, monitor, and/or control bank risk taking. Such activities are not essential for conducting the socially valuable core banking activities and lead to unnecessary risk to the safety net and financial system.

Specifically, in addition to their traditional business of providing payment and settlement services, granting loans, and offering deposits, banks also would be allowed to underwrite securities, offer merger and acquisition advice, and provide trust and wealth and asset management services. They would not be allowed to conduct broker-dealer activities, make markets in derivatives or securities, trade securities or derivatives for either their own account or customers, or sponsor hedge or private equity funds.

The benefits of prohibiting banks from engaging in high-risk activities outside of their core business, however, would be limited if those activities continue to threaten stability by mostly migrating to the "shadow" banking system. Shadow banks are financial companies not subject to prudential supervision and regulation that use short-term or near-demandable debt to fund longer-term assets. In other words, shadow banks essentially perform the same critical, core functions as traditional banks, but without an explicit safety net or prudential regulation. As a result, the shadow banking system is susceptible to disruptions that threaten financial and economic stability and lead to additional implicit Government guarantees and the associated moral hazard to take greater risks.

To mitigate the potential systemic effects and moral hazard of shadow banks or other financial companies, this paper makes two additional recommendations. First, money market mutual and other investment funds that are allowed to maintain a fixed net asset value of \$1 should be required to have floating net asset values. Second, bankruptcy law for repurchase agreement collateral should be rolled back to the pre-2005 rules, which would eliminate mortgage-related assets from being exempt from the automatic stay in bankruptcy when the borrower defaults on its repurchase obligation.

Evolution of current financial structure

- The 1930s financial structure that lasted largely until the end of the century was shaped by three major legislative and regulatory changes: the Glass-Steagall Act, creation of Federal deposit insurance, and Federal Reserve's Regulation Q.
- The Glass-Steagall Act refers to four provisions of the Banking Act of 1933 that separated commercial and investment banking. Deposit (*i.e.*, commercial) banks were prohibited from conducting securities activities (underwriting and dealing) or affiliating with companies that conducted securities activities. The rationale was that banks are crucial for a well-functioning economy because they settle payments, provide deposits that are available at par value on demand, and are the primary source of credit for vast majority of businesses and individuals. These functions are a critical part of the economy's financial infrastructure.
- Banks are provided access to a public safety net because of their importance and susceptibility to runs from using demand deposits to fund longer-term, illiquid loans. Prior to the 1930s, the Federal Reserve's discount window pro-

vided a limited safety net for solvent banks.¹ The public safety net was significantly enhanced in 1933 by passage of the Federal Deposit Insurance Act and the associated provision of limited deposit insurance because it protected depositors of banks that failed.

- Access to a safety net, however, increases the incentive for banks to take greater risks. Given the importance of a stable banking system, the necessity of a public safety net to provide the stability, and an incentive to take greater risk, a mechanism is needed to prevent banks from taking excessive risks and endangering the safety net. The market cannot be solely relied upon to prevent the risk taking because some deposits are insured and banks are inherently opaque. As a result, prudential supervision and regulation must be used to prevent excessive risk taking.
- One of the key regulations of the Banking Act of 1933 was the prohibition of paying interest on demand deposits and the authority to impose ceilings on savings deposit rates, which was implemented through the Federal Reserve's Regulation Q. The rationale for Regulation Q was to prevent competition for deposits from causing instability in the banking system.
- The combined effect of the Glass-Steagall Act, bank access to a Government safety net, prudential supervision and regulation, and deposit rate ceilings was a fairly stable, profitable banking industry with a positive franchise value for many years. The franchise value was protected to the extent banks were protected from outside competition and competition among themselves.
- Over time, banks faced increasing competition on both the liability and asset sides of the balance sheet. The increase in competition was spurred by advancements in portfolio theory, investment and money management techniques, and information technology combined with greater volatility of the economic environment.
- On the liability side, banks had to compete with money market mutual funds (MMMFs) and savings association NOW accounts that paid interest on close substitutes for bank demand deposits. They also faced greater competition for household savings from mutual funds, pension funds, and insurance companies.
- MMMFs started in 1971 as a competitive alternative to bank deposits because they paid a market interest rate and were allowed to maintain a net asset value (NAV) of \$1 a share as long as they met certain accounting (net asset value has to be greater than 99.5 cents) and investment (quality and maturity) requirements. They allow investors to withdraw funds on demand and have limited check-writing privileges. MMMF shares are held by individuals, institutional investors, and corporate and noncorporate businesses as an alternative to bank deposits for cash management and payments purposes. MMMFs started out investing in highly rated financial and nonfinancial company commercial paper (CP) and short-term Treasury securities, and then over the years expanded to other money market instruments (MMIs), such as asset-backed commercial paper (ABCP), and short-term repurchase agreements (repo).
- It is important to note that although an MMMF investor technically owns equity shares of the fund (*i.e.*, there is zero leverage), the investor is more like a depositor because the expectation is that funds can be withdrawn at a par value of \$1 a share (*i.e.*, there is no equity and leverage is infinite). As a result, MMMF investors act more like depositors and will run whenever they are concerned about a fund's safety so they can redeem their shares for \$1 before the fund "breaks the buck" and reduces the value of the shares.
- NOW accounts were developed by savings and loans in the early 1980s as a competitive alternative to demand deposits that paid interest. NOW accounts essentially were just like demand deposits—funds were available upon demand and had unlimited checkwriting privileges—but they could pay interest because the depository institution reserved the right to require notice before allowing funds to be withdrawn or transferred by check.
- On the asset side, banks faced competition in making loans from investment banks (junk bonds, securitization and nonfinancial commercial paper), mortgage brokers, and specialty lenders such as unaffiliated finance companies (primarily consumer lending), captive lenders (auto financing, retailers), and factors (trade receivable lending).

¹Also, only members of the Federal Reserve could borrow from the discount window until the Monetary Control and Depository Institutions Deregulation Act of 1980.

- Banks have long faced competition in making loans from unaffiliated and captive finance companies and factors. Commercial paper became a competitive alternative to bank operating loans for large, highly rated nonfinancial companies in the late 1960s and early 1970s.
- Competition for bank loans increased substantially beginning in the 1980s with the growth of junk bonds and an ability to originate and distribute loans through the development of mortgage-backed securities (MBS), followed by other types of asset-backed securities (ABS), which are typically backed by consumer loans (credit cards, auto, student).
- The combination of alternatives to bank deposits and loans created an alternative system for providing complete end-to-end banking—from gathering funds to making loans—which collectively comprises the so-called shadow banking system.²
 - In contrast to a typical bank that conducts the entire process of borrowing funds from savers, making loans to ultimate borrowers, and holding the loans to maturity, credit intermediation through the shadow banking system is a vertical process that takes place through a series of entities—collectively called shadow banks—similar to a supply chain manufacturing process.
 - Funding for each of the entities takes place in wholesale markets. Money market instruments—specifically CP, ABCP, and short-term repos—are a major source of funds at virtually each step in the process.³ The major investors in the MMIs are MMMFs and other short-term investment funds that have a fixed NAV of \$1.⁴ At some steps of the process, major funding sources also include medium-term notes and ABS that are purchased by long-term investors, such as mutual funds, pension funds, and insurance companies.
 - A typical example of the shadow banking intermediation process is as follows:
 1. A loan is made by either a nonbank financial company or a bank. The nonbank companies finance the initial loans with CP or medium-term notes (MTN).
 2. The loan is sold to a bank or broker-dealer conduit, which is an intermediate entity that temporarily warehouses the individual loans until it has enough to package together as an MBS or ABS. The conduits are funded with ABCP.
 3. The loan warehouse sells the package of loans to a securitization sponsor that sets up a trust to hold the loans, which is financed by selling MBS/ABS backed by the loans. This is the only step in the process not financed by MMIs.
 4. The ABS are purchased by a variety of entities that are funded by a variety of sources.
 - a. Entities that tend to fund ABS with longer-term sources of funds include mutual funds, pension funds, and insurance companies.
 - b. BHCs may purchase ABS and hold them on bank balance sheets funded by deposits. However, prior to the financial crisis, they generally held them in off-balance-sheet entities, such as structured investment vehicles (SIVs) or other conduits, that were funded by CP or ABCP. The CP or ABCP, in turn, was typically funded by MMMFs and other MMI funds with \$1 NAVs.
 - c. Investment banks and FHCs purchased ABS for a variety of reasons. They may have been held by a securities subsidiary as a proprietary trading asset, in inventory for filling customer trades, or warehoused for creating collateralized debt obligations (CDOs). The ABS were typically funded with repo and sometimes ABCP, which again were funded by MMMFs and other MMI funds with \$1 NAVs.
- Increased competition for banks from the shadow banking organizations combined with regulatory capital requirements (stemming from the first Basel Accord) that were higher than for their competitors led to reduced profits and declining franchise values. As a result, banking organizations looked for alternative activities, revenue streams, and business models, which included the

²The description of the shadow banking system and the process described below is largely from “Shadow Banking” by Zoltan Pozsar, Tobias Adrian, Adam Ashcraft, and Hayley Boesky, Staff Report no. 458, Federal Reserve Bank of New York, July 2010.

³The one exception is the step that actually securitizes loans into MBS/ABS.

⁴There are also direct investors in these money market instruments, such as securities lenders.

originate-to-distribute shadow banking business model. Whereas the traditional banking model of making loans and holding them to maturity earned profits from loan-deposit rate spreads, the shadow banking model earned profits from fees and trading gains.

- Some banks responded to the increased competition by focusing first on being able to engage in investment banking and securities activities and later more broadly on broker-dealer and shadow banking activities.
 - Banks were able to whittle away at the Glass-Steagall Act restriction on investment banking activities in the 1990s by creating Section 20 securities subsidiaries and through Federal Reserve Board approvals of higher thresholds for being “principally engaged” in securities activities.⁵
 - To fully participate, however, banks needed the Glass-Steagall Act prohibition on affiliation with securities companies to be repealed, which was achieved with the passage of the Gramm-Leach-Bliley Act (GLBA) in 1999. The GLBA allowed the formation of financial holding companies (FHCs), which were BHCs engaged in certain nonbanking activities, such as securities underwriting, broker-dealer activities, and insurance underwriting, not permitted for BHCs.
- Significant changes in the investment banking industry also occurred to take full advantage of the opportunities of the shadow banking industry. With the growth of bond markets and the development of MBS securities in the 1980s, investment banks moved from partnership structures to public corporate structures. The corporate structures essentially allowed the investment banks to engage in riskier activities that put the firm’s capital at risk, such as proprietary trading, leveraged lending, and hedge fund sponsorship, that the partners were not willing to do when their own money was at risk. In addition, the risks were exacerbated by relying on debt financing, *i.e.*, leverage, much of which was short-term repo. In fact, it became much easier to use debt after 2004 when the SEC allowed broker-dealers to use their internal risk management models to compute the haircuts for calculating their net capital.⁶

Implications for financial structure, risk, and stability

- The sharp line between commercial and investment banks is significantly blurred as each has engaged in shadow banking activities.
- The larger banking organizations engage in activities traditionally limited to investment banks, which exposes them to investment bank risks. Traditional banks that take in deposits and make and hold loans to maturity have to manage credit and interest rate risk. As FHCs have expanded activities to earning fees from trading and ABS underwriting, their risk exposures expanded to include market risk from trading and the risk from having to roll over uninsured wholesale money market funding risks.
- Similarly, the larger investment banks now engage in activities traditionally limited to commercial banks, which exposes them to commercial bank risks. By switching from a partnership to public corporate structure, taking on leverage, and making direct investments and loans that were held on the balance sheet, investment banks expanded their risk exposures beyond market risk to credit and funding risk.
- With the largest financial companies—both banking and investment banking organizations—being the key players in shadow banking activities, both types of organizations play a special role in the economy that once was limited to commercial banks. Through shadow banking activities, both types of organizations ultimately provide the same credit intermediation function of traditional banks—lending long term using funds available to creditors upon demand.

⁵ One of the Glass-Steagall Act provisions was Section 20 of the Banking Act of 1933. Section 20 prohibited Federal Reserve member banks from affiliating with organizations that “engaged principally in the issue, floatation, underwriting, public sale, or distribution of stocks, bonds, debentures, notes, or other securities.” For many years, the administrative limit for not being “principally engaged” was that underwriting and dealing accounted for 5 percent or less of a subsidiary’s gross revenue. As banks became larger, underwriting and dealing became cost effective even with the 5 percent revenue limit. Overtime, banking organizations began petitioning for larger limits, which the Federal Reserve agreed to based on assessments of the risks and benefits to the economy, with the limit eventually rising to 25 percent in 1997.

⁶ Prior to the 2004 SEC ruling, the SEC determined the haircuts used to calculate the leverage ratios of broker-dealers. The 2004 ruling allowed the broker-dealers to use their internal risk management models to compute these haircuts. The ruling followed a similar change to the Basel I Accord from 1996, under which commercial banks could compute their capital requirements for trading positions using their own models.

- The expansion of activities by commercial and investment banks has led to a less stable financial system because it is dependent on wholesale, money market funding without an explicit safety net of insurance and access to central bank lender-of-last-resort facilities.
- Just like banks were subject to depositor runs that created liquidity crises before deposit insurance was available, virtually every step of the shadow banking process is dependent on uninsured investments in MMMFs and other MMI funds with NAVs of \$1.
- Investors in these money market funds have full access to their money as long as the underlying NAV is \$1 or more, so once concerns arise about the quality of the underlying assets, *i.e.*, that the underlying NAV will drop below \$1, investors have an incentive to withdraw their funds before others. A loss in funding at any step of the process will cause the system to break down just like a loss in funding at a traditional commercial bank.
- The heavy involvement of large banking organizations (in the form of FHCs) and investment banks in shadow banking activities exposes them to similar risks that previously had been eliminated by deposit insurance in retail banking.
- Bank subsidiaries are still protected from insured depositor runs, but the holding companies and banks are now exposed to money market fund runs.
- The bank subsidiaries are exposed to the money market runs because the banks often provide credit lines on the ABCP that fund ABS held by affiliated holding company subsidiaries, such as off-balance-sheet conduits and SIVs. The ABCP often needs a credit line or guarantee so that it has the AAA rating needed to make it an eligible investment for MMMFs. So if MMMFs decide not to roll over their ABCP investments in an SIV and the underlying ABS had fallen below par value, the SIV would sell the ABS to the bank guarantor at par, which means the bank takes the loss and has to fund the ABS on balance sheet. In other words, the credit and funding risk to the bank from guaranteeing the off-balance-sheet funding of ABS with ABCP is the same as if it held the underlying ABS on its own balance sheet.
- To make matters worse, even though the risks to the bank of holding assets on balance sheet or guaranteeing them off balance sheet are the same, FHCs had an incentive to move the assets off balance sheet because it can fund those assets with much less capital.⁷ Specifically, the risk-based capital requirements of FHCs had a much higher risk weight for holding the loans or ABS on balance sheet than for guaranteeing the ABCP funding of an off-balance-sheet entity. As a result of this arbitrage of regulatory capital requirements, FHCs are much riskier because they can fund the credit risk with much higher leverage.
- FHCs also are exposed to runs by money market investors even if the MMIs are not fully guaranteed because of reputational risk. Although subsidiary conduits and SIVs that hold ABS are technically bankruptcy remote, FHCs either purchase assets and bring them on balance sheet or provide capital to avoid the negative reputational effects of defaulting on the securities funding the subsidiaries.
- Finally, the broker-dealer subsidiaries of investment banks and FHCs also are exposed to MMI runs. As already noted, broker-dealers use repo and ABCP to fund ABS held as part of their proprietary trading business, as inventory for filling customer trades, or for creating CDOs.
- Overall, the largest financial companies conduct a variety of traditional and nontraditional banking activities, many of which have increased the complexity of their operations and portfolios. These companies benefit from additional activities, for example, if they increase the diversification of their assets and revenue streams. However, these benefits are outweighed by the significant complications it poses for the market, bank management, and regulators to assess,

⁷In a September 2010 working paper “Securitization Without Risk Transfer,” Viral Acharya, Philipp Schnabl, and Gustavo Suarez provide evidence consistent with regulatory arbitrage being a reason for the use of ABCP programs by banks. They also document changes in regulatory rules that enabled banks to perform this type of regulatory arbitrage. In July 2004, the OCC, Federal Reserve, FDIC, and OTS exempted assets in ABCP programs from the calculation of risk-weighted assets. As a result, assets moved from banks’ balance sheets to ABCP programs did not have to be considered when calculating risk-weighted assets for capital requirements. Moreover, under the Basel I and Basel II Accords, assets placed in ABCP programs carried lower capital charges than the same assets carried on balance sheets.

monitor, and/or contain risk taking that endangers the public safety net and financial stability. Specifically, as explained below, combining banking and non-banking activities makes it more difficult to supervise and regulate banks, to price deposit insurance, and for bank management to manage risks. It also reduces market discipline by making banks less transparent.

- Some activities make it more difficult to supervise banks.
 - The goal of prudential supervision is to control bank risk taking so that they are safe and sound and do not endanger the safety net. This is done by monitoring a bank's financial condition, lending, operational, risk management, and other practices and enforcing regulatory rules. Due to the periodic nature of bank supervision, supervisors are able to get only a snapshot of bank processes, risk exposure, and capital positions at a given point in time. These snapshots are useful only as long as they are able to predict the bank's processes, risk exposure, and capital positions between the supervisory examinations. The flexibility to adjust risk profiles between exams depends to some extent on the activities banks engage in and the nature of the risks.
 - Many of the nontraditional activities that the large, complex banking organizations engage in are difficult to supervise effectively because they are very risky in the short term and can be used to quickly change a bank's risk profile. For example, trading and market-making are high frequency activities that can take place between exams with little evidence that they ever occurred. As a result, a snapshot of positions of these activities on one day has no predicative value for the positions, for example, a week later. Monitoring these activities on a high-frequency basis would be very costly for banks and supervisors. Moreover, it requires substantial transparency that banks are likely to strongly oppose. Thus, while examiners may err in their judgment on the riskiness of any activity, they do not have the tools to monitor the riskiness of many traditional nonbanking activities.
- Banks with a variety of activities require much more complex regulations.
 - The history of the Basel capital requirements provides a good example of the difficulty in effectively regulating complex financial companies. The increased variety and complexity of bank activities required much more complex capital standards, which the financial crisis showed were not very effective. Complex capital requirements are very difficult to monitor and understand for banks, supervisors, and the market.
 - One problem is that the various capital requirements under Basel are essentially relative prices, which generally will be incorrect when they are administratively set. As a result, the regulatory capital requirements did not adequately align bank risks with capital levels. In particular, it created opportunities for regulatory arbitrage that was a major contributor to the risk taking of the large, complex banking companies and the financial crisis. For example, the capital charge for an MBS based on a pool of subprime loans was lower than that for a portfolio of mortgages held on the balance sheet. Capital charges were also lower for an MBS held in off-balance-sheet conduits than on the balance sheet.
 - The difficulty in determining appropriate requirements is even more difficult when banks face a variety of risks, such as credit, market, and interest risk. Understanding and formally modeling these risks and their relationships is very difficult, especially after a systemic shock or during a financial crisis. In addition, the variety of assets held by the complex banks meant regulators had to rely on bank internal models, which provided banks opportunities to game the capital regulations. The incentive to game regulations is a problem particularly for banks suffering large losses because it buys them more time to find a way out of their problems.
 - Complexity of activities makes it difficult to price deposits insurance: Deposit insurance would not create moral hazard if the premiums were priced appropriately to reflect a bank's risk. However, pricing deposit premiums correctly is difficult for the same reasons that it is difficult to determine capital requirements.
- To the extent it is possible, resolving large, complex banks is much more difficult and costly.
 - Complex financial institutions are hard to resolve in a quick and orderly manner. Lehman Brothers is a good example of the difficulty in resolving a complex company. The number of transactions and complexity of interconnections made it very difficult to determine the company's value over a weekend,

which made it difficult to find a buyer. And Lehman Brothers was a relatively simple company as compared to a bank like Citigroup, which has more than 2,000 majority-owned subsidiaries that include a “Lehman Brothers” equivalent. It would be much harder to wind down or find the number of separate buyers necessary to transfer Citigroup’s operations to third parties.

- In addition to the difficulty in resolving complex banks, the fallout from the Lehman Brothers failure shows that complex institutions are more likely to be bailed out in the future. The probability of an implicit Government guarantee from a bailout creates additional moral hazard. Moreover, if the market and banks expect bailouts, banks have an increased incentive to become more complex, and it will be supported by a lack of market discipline.
- Banks with a variety of activities are less transparent. Relative to nonfinancial companies, it is difficult for investors to evaluate the condition of banks and their riskiness because their balance sheet assets and activities are opaque and easily changed.⁸ Traditional banking is opaque because only the bank knows the risk and quality of its loans. Banks that engage in nontraditional activities such as trading, hedge funds, private equity, and market making are even less transparent because the success of these strategies depend on the confidentiality of the positions and speed with which the banks are able to change their exposures. Given the lack of transparency, regulators must play a larger role relative to the market in monitoring and disciplining banks. However, as already discussed, regulators are also at a disadvantage when dealing with banks engaging in complex activities.
- Complexity makes risk management much more difficult.⁹
 - Risk management is particularly difficult when there are many different operation and activities divisions in a bank. Examples include understanding all of the different business lines and their interactions, having appropriate management information systems, and appropriately allocating and pricing capital across activities.
 - The risk management of a complex institution will also vary with the background of the senior leadership. For example, the risk tolerance is likely to be lower if the senior leadership of a large, complex bank has a commercial banking background than a trading background.
 - To the extent that a bank’s senior management has difficulty understanding and managing its risks, it is even more difficult for supervisors to scrutinize and monitor its risks.
- In summary, the financial system has become less stable over the past 30 years as banks and other financial companies have expanded into more complicated activities that are not supported by a public safety net or subject to prudential supervision. The root of the problem is that large, complex financial companies are funding long-term, illiquid assets with liabilities available upon demand. In addition, after the crisis, the concentration of the industry and complexity of activities at the largest banks have increased. The industry is dominated by a handful of companies that combined are as large as half of annual U.S. economic output, of which the failure of any could cause financial instability. Finally, because these companies are so large and complex, they and other institutions that could be deemed systemically important receive an implicit Government guarantee on their debt—and sometimes on their equity—they have an incentive to take extra risk, which further increases systemic risk (the too-big-to-fail problem).

Proposal to Reduce Costs and Risks to the Safety Net and Financial System

This proposal to reduce costs and risks to the safety net and financial system has two parts. The first part proposes to restrict bank activities to the core activities of making loans and taking deposits and to other activities that do not significantly impede the market, bank management, and regulators in assessing, monitoring, and/or controlling bank risk taking. However, prohibiting banks from engaging in activities that do not meet these criteria and that threaten financial stability would provide limited benefits if those activities migrate to shadow banks. The second part proposes changes to the shadow banking system by making recommendations to re-

⁸ Donald Morgan provides evidence on the increased opacity of banks from combining lending and trading activities in “Rating Banks: Risk and Uncertainty in an Opaque Industry,” *American Economic Review*, September 2002.

⁹ All aspects of managing a large, complex financial company is difficult, but given the context of this paper, the focus is on risk management.

form money market funds and the repo market. Following the proposal, alternative proposals are discussed and critiqued.

Restricting activities of banking organizations

- The financial activities of commercial, investment, and shadow banks can be categorized in the following six groups:¹⁰
 - Commercial banking—deposit taking and lending to individuals and businesses.
 - Investment banking—underwriting securities (stocks and bonds) and advisory services.
 - Asset and wealth management services—managing assets for individuals and institutions.
 - Intermediation as dealers and market makers—securities, repo, over-the-counter (OTC) derivatives.
 - Brokerage services—retail, professional investors, and hedge funds (prime brokerage).
 - Proprietary trading—trading for own account, internal hedge funds, private equity funds, and holding unhedged securities and derivatives.
- Based on the criterion that permissible activities should not significantly impede the market, bank management, and regulators in assessing, monitoring, and/or controlling bank risk taking, banking organizations should be able to conduct the following activities: commercial banking, investment banking as defined above, and asset and wealth management services. Investment banking and asset and wealth management services are mostly fee-based services that do not put much of a firm’s capital at risk. In addition, asset and wealth management services are similar to the trust services that have always been allowable for banks.
- In contrast, the other three categories of activities—dealing and market making, brokerage, and proprietary trading—do not have much in common with core banking services and create risks that are difficult to assess, monitor, and/or control. Banking organizations would not be allowed to do any trading, either proprietary or for customers, or make markets because it requires the ability to do trading.”¹¹ In addition, allowing customer but not proprietary trading would be conducive to “concealing” proprietary trading as part of the inventory necessary to conduct customer trading. Prime brokerage services not only require the ability to conduct trading activities, but also essentially allow companies to finance their activities with highly unstable uninsured “deposits.”
 - Prohibiting these activities would make banks more transparent and would enable better market discipline, supervision, regulation, and resolution.
 - Because these activities involve taking positions that can be continuously adjusted and manipulated, they are inherently opaque and difficult for supervisors to monitor and regulate and for investors to understand.
 - Moreover, regulatory arbitrage between balance-sheet and off-balance-sheet activities and between banking and trading books is difficult to prevent with regulation.
- The proposed activity restrictions also will improve the management of banks by focusing their activities solely on the traditional banking business with exposure only to risks inherent in these activities.
 - There is an inherent difference in the underlying factors that make commercial banking and securities firms successful. Banking is based on a long-term customer relationship where the interests of the bank and customer are the same. Both the bank and loan customers benefit if borrowers do well and are able to pay off their loans. In contrast, trading is an adversarial zero-sum game—the trader’s gains are the customer’s losses. Thus, restricting these activities removes a conflict of interest between a bank and its customers, which could produce a more stable, less risky company.
 - The inherent riskiness of securities trading, dealing, and market-making attracts, and in fact requires, people who are predisposed to taking short-term

¹⁰This categorization of financial activities is from Matthew Richardson, Roy Smith, and Ingo Walter in Chapter 7 of *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, edited by Viral V. Acharya, Thomas F. Cooley, Matthew Richardson, Ingo Walter, New York University Stern School of Business, John Wiley & Sons, Inc., 2010.

¹¹Banking organizations would be allowed to purchase and sell derivatives to hedge their assets and liabilities.

risks rather than lenders with a long-term perspective. The combination of securities with commercial banking activities in a single organization provides opportunities for the senior management and boards of directors to be increasingly influenced by individuals with a short-term perspective. As a result, the increased propensity of these corporate leaders to take risk leads to more of a short-term-returns culture throughout the organization.

- Historically, bank investments were restricted to loans and investments in investment-grade securities. As demonstrated in the financial crisis, the complexity of many asset-backed securities made it very difficult to determine their credit quality. As a result, banking organizations should be prohibited from holding “complicated” securities, such as multilayer structured securities (*e.g.*, CDOs) because it is difficult to determine and monitor their credit quality.
- Off-balance-sheet holdings and exposures should be supervised and regulated as if they were on-balance-sheet because, as was also demonstrated in the crisis, they ultimately put a bank’s capital at risk.
- Restricting banks to the activities mentioned above will allow capital regulation to be simplified and improved. As noted in the previous section, the complexity of Basel capital regulation is necessary but still ineffective because there is no ability to satisfactorily model the wide range of complexity and risk characteristics of current allowable activities. Capital regulation will be simpler and more effective because there is less need for complicated risk-based requirements if the balance sheet is largely limited to loans and investment grade securities, *i.e.*, a relatively high simple leverage ratio would be effective.¹²
- Critics of restricting bank activities argue it would reduce the economies of scale and scope that are critical for the largest banks to be successful in global markets and that large corporations want one-stop shopping for their financial services. These arguments, however, are not persuasive.
 - First, there is no strong evidence of economies of scale. There are many conceptual and empirical problems with studies of economies of scale.¹³ Nevertheless, older studies from the 1990s show that there are no economies of scale when banks are larger than about \$250 million in assets, although the threshold is likely to be higher in today’s economy because of inflation and advancements in information technology. In fact, a more recent study from the mid-2000s suggests there are economies of scale for the largest banking organizations, but the results are highly questionable because there are so few banks at the sizes in question and the study uses data prior to the problems that banks had during the financial crisis.
 - Second, there is even less evidence of economies of scope.¹⁴ In fact, there is evidence that multiple functions of large, complex banks actually increase systemic risk and anecdotal evidence that if bank activities are restricted as suggested here, a nonbank financial industry would emerge and thrive.
 - Third, large corporations would still be able to do one-stop shopping for commercial and traditional investment banking services, although they would have to go to securities dealers to purchase swaps and other derivatives for hedging purposes.
 - Finally, even if there are economies of scale or scope, it does not necessarily mean that banks should be allowed to continue to conduct all of their current activities. Whether they should depends on comparing the marginal benefits from the reduced private costs of operation to the social costs associated with

¹²Anat R. Admati, Peter M. DeMarzo, Martin R. Hellwig, and Paul Pfleiderer provide an excellent discussion of the reasons for substantially increasing bank capital requirements in “Fallacies, Irrelevant Facts, and Myths in the Discussion of Capital Regulation: Why Bank Equity is Not Expensive,” August 2010, Rock Center for Corporate Governance at Stanford University Working Paper No. 86, Stanford Graduate School of Business Research Paper No. 2065. Martin Hellwig provides arguments for abandoning risk-sensitive capital requirements in “Capital Regulation after the Crisis: Business as Usual?” Reprints of Max Planck Institute for Research on Collective Goods 2010/31.

¹³Robert DeYoung comments in the Federal Reserve Bank of Minneapolis *Region* (2010) that it is not really possible to provide empirical evidence for or against existence of economies of scale in large and complex financial institutions because there are too few of them for a meaningful statistical analysis to be conducted.

¹⁴A survey of empirical studies on economies of scale is provided by Matthew Richardson, Roy Smith, and Ingo Walter in Chapter 7 of *Regulating Wall Street: The Dodd-Frank Act and the New Architecture of Global Finance*, edited by Viral V. Acharya, Thomas F. Cooley, Matthew Richardson, Ingo Walter, New York University Stern School of Business, John Wiley & Sons, Inc., 2010.

financial crises. Given the large costs of the 2007–9 crisis, the efficiencies and cost benefits of size and scope would need to be extremely large.

- Critics of restricting activities also question how we would go about divesting the prohibited activities. The divestitures that were required by the Glass-Steagall Act and the breakup of AT&T in the 1980s suggest that divestitures can be conducted in an orderly manner in a relatively short period of time.
- Critics of restricting activities also are concerned that it would cause two major problems for U.S. banks because they would face a competitive disadvantage relative to universal banks, mostly from Europe, that are allowed to conduct the full range of activities.
 - One problem is it would drive U.S. banks to move to other countries. However, it seems highly improbable that any other country would be willing or able to expand its safety net to new large and complex banking organizations.
 - Second, the competitive disadvantage of U.S. banks would lower their franchise values, which would provide an incentive to take even greater risks to raise lost revenues and maintain ROEs. However, the virtue of restricting activities is that it is easier for the supervisors and the market to detect and punish excessive risk taking.

Reforming the shadow banking system

- Restricting the activities of banking organizations alone, however, does not completely address the stability of the financial system. In fact, it could worsen the risk of financial instability by pushing even more activities from the regulated banking sector to large, interconnected securities firms, which would expand the sector that was an integral part of the financial crisis.
- As previously discussed, the source of this instability is the use of short-term funding for longer-term investment in the shadow banking market, *i.e.*, the maturity and liquidity transformation conducted by a lightly regulated/unregulated sector of the financial system. We believe this source of systemic risk can be significantly reduced by making two changes to the money market.
- The first recommendation addresses potential disruptions coming from money market funding of shadow banks—money market mutual and other investment funds that are allowed to maintain a fixed net asset value of \$1 should be required to have floating net asset values.
 - The primary MMIs today are MMMFs and repo (ABCP has largely disappeared as a funding instrument for financial companies since the financial crisis). Individuals, institutional investors, and nonfinancial companies are the primary holders of MMMF and other MMI funds with a \$1 NAV, which in turn are major investors in repo along with other financial companies.
 - Some have suggested that MMMFs should be backed by Government guarantees. We see no reason why the safety net should be extended and the taxpayer put at risk when other solutions are feasible. In addition, providing Government guarantees would require prudential supervision to prevent excessive risk taking, but it would not be effective because of the ability of funds to rapidly shift their risk profiles.
 - The runs during the crisis on MMMFs occurred because of concerns about the quality of their investments and because of the promise to maintain a \$1 NAV. MMMF investment rules have been strengthened by increasing the minimum average quality and decreasing the maximum average maturity of their investments.¹⁵ However, because of the difficulty in calibrating these requirements, it is not clear that the vulnerability of MMMFs to runs in a systemic event would be significantly reduced as long as the \$1 NAV is maintained. We believe reliance on this source of short-term funding and the threat of disruptive runs would be greatly reduced by eliminating the fixed \$1 NAV and requiring MMMFs to have floating NAVs.
- Critics of eliminating a \$1 NAV for MMMFs argue that this limits cash management options for large corporations. However, MMMFs were first introduced to evade interest rate ceilings on deposits, and the only remaining Regulation Q deposit rate ceiling—the prohibition of paying interest on business transactions deposits—was eliminated by the Dodd-Frank Act. Some may be con-

¹⁵Some of the new rules for MMMFs are: 30 percent of assets must be liquid within 1 week, no more than 3 percent of assets can be invested in second-tier securities, the maximum weighted-average maturity of a fund's portfolio is 60 days, and MMMFs have to report their holdings every month.

cerned that their deposits will be largely uninsured, but they were uninsured when invested in MMMFs.

- The second recommendation addresses potential disruptions stemming from the repo financing of shadow banks—the bankruptcy law for repurchase agreement collateral should be rolled back to the pre-2005 rules. This change would eliminate mortgage-related assets from being exempt from the automatic stay in bankruptcy when a borrower defaults on its repurchase obligation.
- One reason for the runs on repo during the crisis was because of the prevalence of repo borrowers using subprime mortgage-related assets as collateral. Essentially, these borrowers funded long-term assets of relatively low quality with very short-term liabilities. The price volatility of subprime MBS rose sharply when subprime defaults started reducing MBS income flows. As a result, haircuts on subprime repo rose sharply or the repo was not rolled over.
- The eligibility of mortgage-related assets as collateral exempt from the automatic stay in bankruptcy in case of default by the borrower is relatively recent. The automatic stay exemption allows the lender to liquidate the collateral upon default as opposed to having to wait for the bankruptcy court to determine payouts to secured creditors.
- Prior to 2005, collateral in repo transactions eligible for the automatic stay was limited to U.S. Government and agency securities, bank certificates of deposits, and bankers' acceptances. The Bankruptcy Abuse Prevention and Consumer Protection Act of 2005 expanded the definition of repurchase agreements to include mortgage loans, mortgage-related securities, and interest from mortgage loans and mortgage-related securities. This meant that repo collateralized by MBS, CMOs, CMBS, and CDOs backed by mortgage-related assets were exempt from the automatic stay.
- We believe the threat of runs by repo lenders would be significantly reduced by rolling back the bankruptcy law for repurchase agreement collateral to the pre-2005 rules.
- Overall, these two changes to the rules for money market funds and repo would increase the stability of the shadow banking system because term lending would be less dependent on “demandable” funding and more reliant on term funding. Term wholesale funding would continue to be provided by institutional investors such as mutual funds, pension funds, and life insurance companies. While this might increase the cost of funds and, therefore, the cost of mortgages and other consumer loans, it would be less risky and more reflective of the true costs.

Alternative proposals

- A variety of alternative policy reforms, which are not necessarily mutually exclusive, have been proposed to improve the stability of the financial system. These proposals address the structure of banking organizations (size limitations), bank regulation and supervision (stronger resolution authority, stronger capital regulation, systemic risk fees, improved supervision) and institutional changes (Government guarantees for repo similar to deposit insurance).
- Size limit
 - Banking organizations have been prohibited from merging if the new company would hold more than 10 percent of national deposits since 1994, and the Dodd-Frank Act prohibits mergers of financial companies if the new company would hold more than 10 percent of financial industry liabilities. These provisions do not limit organic growth.
 - We are not in favor of a strict size limit because it is not clear what the size limit should be or how it should change over time.
- Resolution authority (would only address the too-big-to-fail problem and not systemic risk more generally)—the Dodd-Frank Act includes a provision for resolving systemically important companies.
 - We believe resolution authority is necessary but it may not be sufficient for very large, complex financial institutions. The resolution authority is too political because the Treasury secretary makes the final decision to close a failing company as opposed to independent supervisory authorities.
 - But even if it were up to the supervisory authorities, it is not clear they would use it when faced with the failure of a systemically important company. Liquidating a large and complex financial company will always impose costs and disruptions even under ideal circumstances, but is more likely to cause systemic problems. Given the tradeoff between costs and economic disruption that are large, highly visible, and immediate versus benefits that may

take years to be recognized, the more likely scenario is that regulators will choose to bail out the company. This decision is even more skewed to avoiding the short-run costs because of pressures on regulators from politicians and the big banks.

- Improve capital regulation—this is the approach taken by the Basel Committee in developing the Basel III capital requirements. The Dodd-Frank Act also has provisions to improve capital regulation.
 - Basel III attempts to correct the problems with Basel II and is an improvement. It increases the minimum capital requirement (capital to risk-weighted assets), introduces a leverage ratio and capital conservation buffer, tightens restrictions on what counts as capital so that common equity is the predominant source of capital, improves the treatment of off-balance-sheet exposures and funding, and includes a proposal for counter-cyclical capital requirements.
 - Some countries require an even higher minimum capital requirement than the recommended 7 percent (Tier 1 common equity base plus capital conservation buffer) in Basel III. For example, Switzerland is requiring a 10 percent Tier 1 equity risk-based ratio and a 19 percent total capital risk-based ratio. The preliminary report of the U.K.'s Independent Commission on Banking, the Vickers report, also recommends a 10 percent Tier 1 common equity risk-based capital requirement for British banks.
 - Nevertheless, we do not believe Basel III capital rules will be effective largely because of the complexity of the largest financial companies and the variety of their activities. The complexity and variety of activities requires complex, risk-based capital rules, which were reflected in the 1996 revision to Basel I and the 2004 Basel II requirements. However, the requirements depend on regulators setting relative prices in the form of risk weights for the various asset classes, or for the firms to set their own requirements based on internal model risk calculations. Basel III is an extension of these previous standards, and the underlying problems causing instability remain. In addition, the leverage ratio is based on Tier 1 capital instead of common equity and is only 3 percent. Stronger minimum leverage ratios have been recommended by economists and some regulators.
 - The Dodd-Frank Act requires regulators to set more stringent capital requirements for BHCs and FHCs with more than \$50 billion in assets and nonbank financial companies determined to be systemically important than for other banking organizations. The capital requirements, however, are based off the Basel III requirements.
- Systemic risk fee
 - These proposals are based on the traditional economic policy of taxing externalities. Market data on financial companies and historical data on financial crises are used to assess the expected cost of financial crises and the individual contributions of financial institutions to these costs. Based on these estimates, a fee is charged so that financial institutions internalize the systemic impact of their decisions.¹⁶ Presumably, the fee would also account for the increased systemic risk of being too-big-to-fail. By charging the appropriate fee, companies would reduce or even divest activities that are no longer profitable.
 - Charging a fee clearly is an appropriate policy option, but we believe it would be very hard to implement in practice for the same reasons as implementing the risk-based capital requirements along the lines of Basel II. It is extremely hard in practice to calibrate the risk-weights and fees in such a way that the banks are not able to arbitrage them away. In addition, because it is impossible to always charge the right fee on a continuous basis, some firms will still end up taking too much risk. While the likelihood of a crisis would be reduced, the cost of a crisis may still be too large.
- Improve supervision
 - The Dodd-Frank Act made the Federal Reserve the consolidated supervisor for BHCs and FHCs with more than \$50 billion in assets and nonbank financial companies determined to be systemically important. The Act also requires the Federal Reserve to establish more stringent prudential standards for these organizations than for other banking organizations.

¹⁶The New York University Stern School of Business V-Lab project proposes a method to assess the systemic relevance of financial institutions.

- We do not believe enhanced supervision will be effective without restricting the activities of the largest financial companies. First, there is evidence that the largest financial companies did not fully understand the extent of their risk exposures for a variety of reasons.¹⁷ If the organization does not fully understand the risks, it is infeasible for the regulatory authority to understand the risks and effectively supervise the organization.
- Second, many of the activities that pose the greatest risks to the organization and to the broader financial system and economy are not conducive to prudential supervision because of the short-term nature of the risks. As noted earlier, activities that have high short-term risks cannot be effectively monitored because supervision and regulation occurs periodically at potentially irregular intervals.
- Essentially, the overall regulatory system for the largest financial companies broke down by not keeping up with the evolution of the financial system. Commercial and investment banking organizations began engaging in activities that the market, bank management, and regulators cannot assess, monitor, and/or control very well. As a result, expanding supervision to the same activities that cannot be supervised well will not fix the problem.
- Guaranteeing repo—a variety of proposals have been made, many of which include provisions to limit Government liability, such as limiting collateral to very safe securities and charging a fee.¹⁸
 - The idea behind this approach is that repo is a primary source of funds for much of the shadow banking system, but also provides value to large financial and nonfinancial companies that have a demand for repo because they want a risk-free asset for cash management purposes and bank deposits are only insured up to \$250,000.
 - We see no reason why the Government and taxpayer should step in and insure positions taken by sophisticated investors with abilities to analyze the risk of securities that back their loans. Therefore, there is no rationale for the Government to provide guarantees even in exchange for heavier regulation and supervision of repo markets.

¹⁷The Senior Supervisors Group provides a number of reasons for poor risk management practices in complex financial institutions in the March 2008 report “Observations on Risk Management Practices during the Recent Market Turbulence.”

¹⁸Gary Gorton and Andrew Metrick propose a system of insurance for money market mutual funds combined with strict regulation of securities used as collateral in repo transactions in “Regulating the Shadow Banking System.”

Stability, growth and regulatory reform

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An enormous effort has gone into banking and financial regulatory reform following the recent financial crisis. The paper is an attempt to describe some key open questions about the relation among stability, growth, and regulatory reform and then raise some concerns about overemphasis on some instruments and underemphasis on others in the ongoing reform process.

An enormous effort has gone into banking and financial regulatory reform following the recent financial crisis. I could not begin to cover a small fraction of the key aspects of the ongoing worldwide debate. Instead, I will try to describe some key open questions about the relation among stability, growth, and regulatory reform and then raise some concerns about overemphasis on some instruments and underemphasis on others in the ongoing reform process. (The next three sections draw heavily on Kroszner forthcoming).

1 | DOES GREATER FINANCIAL DEPTH AND DEVELOPMENT INCREASE OR REDUCE VOLATILITY?

As with any time of reform, it is crucial to clearly articulate the goals or objectives of banking and financial regulatory reform, including both public and private forms of regulation. I believe that the goal of banking and financial development and regulation should be to support and enhance sustainable economic growth, consistent with consumer protection that maintains the integrity of the markets. A large body of research suggests that a deep and developed financial system is a driving force behind economic development and growth (see, e.g., the summary in Levine forthcoming that I draw on here). Cross-country evidence suggests that such systems can be particularly helpful for those at the lower end of the income distribution. The primary mechanism for the positive growth impacts appears to be through increasing the efficiency of the allocation of capital to the highest return projects and giving the less affluent access to capital that they would not have in a less developed system.

This line of research, however, generally does not address a fundamental issue: Might there be a trade-off with volatility? (See Kroszner and Strahan, 2011.) That is, to obtain a higher growth "return" through financial development, is there a cost in terms of greater "risk" in the system? Following the crisis, this is a critical issue to investigate. For this reason, I included "sustainable growth" rather than simply "growth" as part of the goal of regulatory reform. This issue raises a further and much more vexing question: If there is such a trade-off, then

how would we determine the "optimal" size of the financial sector in an economy?

Theoretically, greater financial depth and development could either increase or decrease stability. On the one hand, a larger and more developed financial sector could improve risk sharing and diversification and thereby reduce volatility. On the other, a larger and more developed financial sector could allow greater concentrations of risk and generate interconnections, thereby potentially making the entire system more fragile and vulnerable to shocks. Policy makers engaged in financial regulatory reform need to consider these opposing forces in the financial system.

Unfortunately, little research exists to help guide policy makers. In earlier work with Luc Laeven and Daniela Klingebiel on banking crises (2007), for example, we indirectly addressed this by looking at whether firms that relied more on sources of external finance were hit harder during banking/financial crises than firms that relied more on internally generated cash flows. Not only did we find this generally across countries, we found that this affect was most pronounced in countries with the deepest financial systems. (See also Kroszner, 2007.) This evidence thus hints at the possibility of a trade-off. The deeper financial system might create more connections between the real and the financial sectors that could make the firms that rely most heavily on the financial system more vulnerable in a banking crisis. Our analysis, however, did not allow us to address in detail the welfare question of whether these types of firms or the economy as a whole was better off in the long run.

The data from branching deregulation across US states, however, suggests that there is no trade-off but that deepening of the financial sector is a "win-win." The evidence suggests that state growth rates tend to increase following branching deregulation. Examining the quarter century during which states removed barriers that had prevented banks from branching across states, Morgan, Rime, and Strahan (2004) and Kroszner and Strahan (forthcoming) find that measures of state economic volatility fell as the banking system integrated across state lines. The variability of state employment growth and the growth of gross state product, for example, decreased after interstate branching was permitted. Interestingly, both growth shocks and

trend growth rates become more alike across states as the degree of commonality of the ownership of banks in those states increased.¹

The relationship between the financial sector and volatility, thus, is an open question that more work on the most recent financial crisis may help to shed light upon.

2| HOW TO JUDGE THE COSTS AND BENEFITS OF FINANCIAL INNOVATION?

Although I believe that financial innovations are crucial in a dynamic, growing economy, in some cases these innovations may be Janus-faced. The "good" face of credit default swaps (CDS), for example, is that they are brilliant innovations that permit market participants to hedge default risk and give supervisors one metric to measure market perceptions of a firm's or a sovereign's risk in real time. The "bad" face of CDS, however, is that they can permit astonishing risk concentrations (e.g., AIG) that can generate fragile interconnections and systemic risk when such contracts are traded over-the-counter and not centrally cleared (see Kroszner and Shiller, 2011).

The possible two-faced nature of innovation raises the question of how a supervisor (or market participant) can determine in advance the risks associated with a new instrument or the market structures that would be necessary to reduce those risks. Obviously, with a new instrument, it is difficult – if not impossible – to undertake the empirical testing to assess the two faces that such an innovation may have. The cost of stopping all types of financial innovation due to insufficient data, however, seems too great. Developing a framework for evaluating the costs and benefits of innovation is another crucial issue raised by the recent crisis. How to do this, however, remains a fundamental challenge.

Even in cases where we do have relatively long data sets, it is possible that the innovation itself can change the historical correlations and risks – that is, they may be endogenous to the innovation. (See Kroszner, 2010a.) For most of the 20th century, for example, the mortgage market in the United States

was relatively fragmented geographically, so geographic diversification of a mortgage portfolio could reduce risk. Interstate banking as well as geographically diversified pools of mortgage-backed securities (MBS) helped to provide a national source of financing. In principle, banks could then diversify away from local housing risk concentrations and individual home owners could tap a national rather than localised market for financing their mortgages.

These innovations, however, changed the historical correlations and risks by helping to increase the integration, hence correlation, of housing markets across the country. Thus, the benefits of geographical diversification waned precisely as instruments such as MBS rose to provide that diversification. As this example shows, trying to assess the faces of a financial innovation is a particularly vexing task but one that deserves much attention.

3| COULD HIGH CAPITAL REQUIREMENTS PROVIDE A FALSE SENSE OF SECURITY?

The crisis revealed that both the quantity and quality of capital held by banking and financial institutions were clearly inadequate to deal with shocks to the system. I want to state unambiguously that I believe that imposing higher capital requirements following the crisis is the right response. My concern, however, is that raising capital requirements is not a cure-all and in some cases seems to be relied upon as a substitute for directly addressing fragilities in the system.

High capital requirements, I worry, can provide a false sense of security to regulators and to the public about the safety and soundness of the financial system and lead to complacency in crucial areas of regulatory reform. (See also Tucker, 2012.) A high capital requirement, for instance, is not a substitute for developing orderly resolution procedures, both domestically and cross-border, or for improving market infrastructure, such as central-clearing of over-the-counter derivatives (see Kroszner and Shiller, 2011). I believe that it is best to address problems and vulnerabilities directly rather than indirectly in order to reduce the likelihood of unintended consequences.

¹ In more recent work, however, Loukrina and Strahan (2011) find that financial integration raised the sensitivity of local economies to housing price shocks during the 1990s and 2000s, thus amplifying volatility.

Relying too heavily on any one instrument, such as capital requirements, may not be a prudent approach for regulators and supervisors – much as we would not want banks to put too many of their eggs in one basket! Very high capital requirements can generate incentives to the owners of the financial institution to try to take on more risk in order to reach return on equity goals (see Levine forthcoming). More generally, the higher the requirement, the more incentive there is to find ways around it. These incentives can lead to a number of unintended consequences.

A very high capital requirement, for example, can lead to more off-balance-sheet activity and risk exposures by a regulated institutions that may be harder for supervisors and the public to detect. Second, it can push activities off into the ‘shadows,’ to markets and institutions that are not directly regulated but that may be closely interconnected to the regulated institutions, e.g., borrowers, funders, and counterparties. Third, it can channel efforts in financial innovation to create instruments that may evade particular capital requirements but not reduce risks to an individual institution or to the system as a whole. It is quite difficult for the Basel Committee as well as national regulators to get the risk pricing ‘right’ in a dynamic market. Thus, rather than conserving supervisory resources and providing greater cushions against shocks, very high capital requirements could paradoxically require greater vigilance by supervisors, generate more fragile interconnections, and thereby potentially reduce the overall safety and soundness of the system.

I will draw an analogy with the Maginot Line: the more heavily you rely on any one instrument, the more incentive there is to evade it and the fewer resources may be allocated to other instruments of defense (or offense). Following the large losses of life in World War I, the French debated the most effective way to prevent a repeat of that tragedy. Charles de Gaulle argued that France should invest in new types of armored mobile vehicles, airpower, and the training of large standing army to deter a German invasion and allow a rapid and flexible response if one did occur. André Maginot countered

that resources would be more effectively used to build a heavily fortified barrier to deter and slow a German invasion. If an invasion were to begin, he argued, this defense would give sufficient time for France to mobilise and call up reserves, thereby substituting for a large standing army and investment in new means of rapid response.² Maginot of course won the argument, and France built what came to be known as the Maginot Line along its eastern border in the 1930s.

In response, the Germans naturally tried to find ways around the fortification and invested heavily in innovative armored mobile vehicles (Panzer Divisions) and airpower (Luftwaffe). The Germans made a lightning fast strike (Blitzkrieg) through the Ardennes forest, the weakest point of the Maginot Line. Given the denseness of the forest and their fortifications, however, the French military did not believe that a quick invasion through the Ardennes was possible.³ Obviously, they were wrong and soon the Maginot Line was surrounded, and France fell to Germany two months after the initial invasion.

In regulatory reform, it is important to try to avoid the false sense of security and excessive reliance on one instrument. Capital ‘barriers’ can be helpful but they can also create strong incentives to find innovative ways to evade them. As the crisis demonstrated, what may have been seen as a well-capitalised institution can have this ‘fortification’ erode extremely quickly in tumultuous market conditions. ‘Prompt corrective action’ relied on capital layers above the regulatory minimum to provide sufficient time for remedial action, but the rapid decline of Washington Mutual’s capital ratios, for instance, demonstrates that the capital ‘fortification’ may not give supervisors sufficient time to act. In addition, activities that were thought to be relatively low risk, such as housing (as evidenced by low Basel I risk weights), could actually be the places of greatest vulnerability, much like the Ardennes.

The lesson for supervisors and regulators is not to rely on very high capital as a substitute for dealing with fragilities and vulnerabilities throughout the system. The unintended consequences of doing so

² The purpose of the Maginot Line ‘was to halt a German attack long enough for the French Army to mobilise and then to serve as a base for a counter-offensive’ (Romanych and Rupp 2010, p. 8).

³ ‘Reluctant permanent defenses would compensate for shortcomings in training and equipment, the divisional commander [in the Ardennes where the Germans first invaded] emphasized the construction of fortifications rather than training.’ (Romanych and Rupp 2010, p. 33).

have the potential to reduce, rather than enhance, stability of the system. Capital requirements should be understood as a complement to supervisory vigilance and not a source of complacency. I am concerned that so much emphasis in the supervisory community has been put on capital that other reforms, such as cross border resolution and moving OTC derivatives onto centrally cleared platforms, have not been receiving the priority they deserve.

4| WILL MACROPRUDENTIAL APPROACHES BE EFFECTIVE?

Supervisors and central banks around the world are being asked to do more, and being given more authority, to engage in ‘macroprudential’ policy. In particular, central banks are being asked to act not only in their traditional role as ‘fire extinguishers’ as the flames of a financial crisis have begun to burn but also to act as macroprudential ‘smoke detectors’ before the flames appear. (The following draws on Kroszner, 2010b and 2011, and Kroszner and Strahan, 2011.)

The ‘fire extinguisher’ role is the classic one that central banks have played as lenders of last resort and liquidity creators in times of financial stress and tumult. Once the flames of the crisis appear, the central bank can then douse them with liquidity to prevent the fire spreading from one institution or market to another in order to avoid a system-wide conflagration. By moving beyond institution-specific regulations, this ‘macroprudential approach’ may lead to less regulatory arbitrage.

The ‘smoke detector’ or ‘macroprudential’ role emphasises that the central bank has a fundamental responsibility to act early to prevent the under from igniting into flames. Being proactive in monitoring individual institutions and interconnected markets for signs of froth and fragility is what macroprudential policy should focus upon. In some cases, it may involve effective credit allocation but raising the costs of funding in some sectors relative to others. The macroprudential role certainly does not conflict with the more traditional ‘fire extinguisher’ role, but

it requires a much expanded set of authorities and activities on the part of the central bank.

The macroprudential approach, however, has at least three challenges. First, what metrics of financial stability or systemic risk will trigger macroprudential actions? Following the financial and currency crises in the 1980s and 1990s, academics and researchers at the International Monetary Fund and World Bank tried to develop ‘early warning’ systems to anticipate where a crisis might occur. This exercise has proved difficult, and there are no generally accepted early warning indicators to allow authorities to act early enough to avoid the next crisis.

In addition, can financial economics provide a straightforward and theoretically grounded benchmark to assess if risks are being improperly managed or priced? Reasonable people could disagree about appropriate assumptions about or shifts in risk aversion, discount rates, ‘tail risks,’ and other factors in asset pricing. Regulators thus may face criticism of being arbitrary and attempting to substitute their judgment for those of investors who are putting their own money on the line. Such assessments are particularly difficult in new and innovative areas where data histories are short.

Finally, will a central bank’s independence be challenged if it engages in macroprudential policymaking?⁴ In the case of housing in the United States, many programs subsidise home ownership, by lowering down payments or subsidising securitisation. The large costs of these subsidies have become clear as losses at Fannie Mae and Freddie Mac mount. Yet neither the 2010 Dodd-Frank Act nor any subsequent acts have been taken to address these issues. If a central bank again becomes concerned about ‘frothiness’ in housing, policies to reduce loan-to-value ratios, restrict securitisation, or raise capital might run into political headwinds. The unelected body of the central bank could be accused of overruling an elected body. This certainly could put the central bank in the political cross hairs and lead to questions about its judgments and demands for greater political oversight. Effective macroprudential policies thus may involve risks for central bank independence and good governance.

⁴ Charles Goodhart (2010) suggests that ‘the combination of operational independence to set interest rates and liquidity management together with prospective macroprudential regulation just vests too much power in a non-elected body.’

5] WILL RESTRICTIONS ON BANK ACTIVITIES, SUCH AS THE VOLCKER RULE, IMPROVE STABILITY?

In response to the financial crisis of the early 1930s, the United States adopted a separation between investment banking and commercial banking with the Glass-Steagall Act. This Act prohibited a commercial bank or commercial bank holding company from having any affiliates engaged in a variety of activities such as securities underwriting. The 1999 Gramm-Leach-Bliley Act relaxed parts of the Glass-Steagall Act to allow bank holding companies to have separately incorporated and capitalised subsidiaries engage in investment and merchant banking activities, even though the commercial bank itself is still prohibited from doing so directly or through its own subsidiary. During the last decade, a few large US banks have become significant global players in, for example, market making and securities underwriting through their investment banking subsidiaries.

In response to the most recent crisis, the Dodd-Frank Act included a form of activities restriction called the Volcker Rule. The Volcker Rule strictly limits commercial bank activities in proprietary trading, private equity, and hedge funds. The prohibitions on private equity and hedge funds have not created much controversy because these activities are relatively easy to define and had not become an important part of commercial bank operations. Proprietary trading, however, involves much greater challenges to define and implement. The recent notice of proposed rulemaking from the US regulatory agencies ran more than two hundred pages and asked for comments on 383 questions!

Depending upon what the regulators choose to define as "proprietary" (the Dodd-Frank legislation provided little concrete guidance and, hence, the long list of questions), the Volcker Rule has the potential to reduce rather than increase risk at the banks in the markets. First, natural hedging activities of banks could be curtailed. Second, the role that banks play as market makers in key global markets, such as those for government securities, could be reduced or eliminated. The unintended consequence could be

to reduce liquidity and increase bid-ask spreads. A number of international regulators, in addition to the banks, have raised the concern that the Rule may make important markets less liquid and less stable.

In addition, it is difficult to find systematic evidence from the recent crisis that involvement in proprietary trading increased the risk of failure.⁵ In the United States, the major banks that collapsed did so primarily because of high exposure to mortgages, not due to proprietary trading. Internationally, "universal" banks did not fare worse than their more "traditional" brethren and in many cases benefited from the diversification of income sources that are associated with engagement in a wide variety of activities (Kroszner and Melick, 2011).

As we have experienced from earlier episodes of regulatory arbitrage, restrictions that apply to one set of institutions may just move risks to other institutions or markets and may, at the same time, increase inter-linkages and market opaqueness. Depending upon what constitutes "proprietary" trading, pushing risk-taking activities just outside of the commercial banking system could have the unintended consequence of making the entire system more, rather than less, fragile. Making markets more, not less, robust is crucial for the stability of the financial system and must be an important factor taken into account in the debate over activity restrictions on banks (see Kroszner, 2010c and Kroszner and Strahan, 2011).

6] CONCLUDING REMARKS

The relation among stability, growth, and regulation is crucial for assessing reform proposals and priorities. I have sketched a framework for thinking about these issues and touched on a few specific reforms. Policy-makers should clearly articulate goals and trade-offs, avoid overreliance on any one regulatory instrument, and be sensitive to potential unintended consequences of regulatory reforms. Identifying fragilities and then addressing them as directly as possible would be an effective way to enhance the robustness of the financial system.

5. The historical evidence also does not support an argument in favour of the Glass-Steagall separation (see for instance, Kroszner and Rajon, 1994 and Kroszner, 1998).

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PREPARED STATEMENT OF TOM C. FROST

CHAIRMAN EMERITUS, FROST NATIONAL BANK

MAY 9, 2012

My name is Tom Frost. I am from San Antonio, Texas and served for 57 years, 26 of these as Chief Executive Officer of a commercial bank established by my great-grandfather. The institution grew and prospered through money panics, wars and depressions. Now with \$20.3 billion in assets at year end 2011 and 115 offices all in Texas, the Frost Bank did not take Government funds from the issuance of preferred stock in 1933 and was one of the first banks to refuse TARP money in 2008. I personally survived the very difficult times in Texas of the 1980s where many lessons were learned. The Frost Bank was the only one of the top 10 commercial banks in Texas to survive through a period when a significant number of the banks failed and most of the savings and loans were closed.

But, I will start out with my first days as a young college graduate and a fresh employee of the institution I have just described. My great Uncle Joe, then CEO, told me that the very first goal we had was to be able to return the deposits received from customers. Our obligation was to take care of the community's liquid assets and to manage them in a safe and sound fashion for the use (loans) of the community to grow. Uncle Joe told me in 1950 that we were not big enough to be saved by the Government. That we would need to always maintain strong liquidity, safe and sound assets, and adequate capital. I was impressed by the fact that the need to make money was not high on this list, but did occur if sound banking principles were observed. Uncle Joe was not a fan of the FDIC saying that it took his money to subsidize his inefficient competition. I, personally, support the FDIC as a protection for the depositor, but want to suggest that this safety net apply only to banks which receive FDIC insured deposits. I am convinced that offering this safety net to other financial institutions which provide services not deemed appropriate for deposit/loan commercial banking institutions, is not sound public policy. The deposit facilities of financial institutions which provide primarily investment, hedging and speculative services should have no taxpayer safety net. These institutions should be governed by market forces with investors understanding what can be earned and what can be lost.

This would involve the need to separate two cultures. The one which Uncle Joe articulated our family has followed for 144 years by establishing long-term customer relationships, building our community and preserving its liquid assets. Other financial institutions can provide the other services that are not authorized to insured deposit banks at a potential good profit, but without a taxpayer risk through a Federal safety net.

I would suggest that the two types of institutions have separate ownership, separate management, separate regulation. My conviction comes after seeing both systems which were separate, but now have been joined, to create a situation which in 2008 brought about the near catastrophe of collapse of the world financial systems. Following the path that we are on currently will not only provide opportunity for the same consequences to be repeated, but also mean the end of a banking system consisting of many providers. It seems we are rapidly approaching a system which will be an oligopoly of a few major institutions whose management will not have the same concerns and dedication as evidenced by my Uncle Joe. If both cultures are separated, the clients of both will prosper, but without the inordinate risk of a potential massive cost to the taxpayers.

I thank you for giving me the opportunity to express my opinion which has developed through over half a century experience and has led me to the conviction that the insured deposit banking system we had was effective, worked well, and did not require any significant direct Federal support until 2008 when the other activities of large institutions involved in so called investment activities nearly destroyed the financial system and imposed enormous costs on taxpayers to the present day.

Marc Jarsulic
Chief Economist
Better Markets, Inc.

Testimony on "Is Simpler Better? Limiting Federal Support for Financial
Institutions."
Senate Committee on Banking Housing and Urban Affairs
Subcommittee on Financial Institutions and Consumer Protection
May 9, 2012

Good afternoon Mr. Chairman Brown, Ranking Member Corker and members of the committee. Thank you for the invitation to Better Markets to testify today.

Better Markets is a nonprofit, nonpartisan organization that promotes the public interest in the domestic and global capital and commodity markets. I won't take the time or space here to list everything it does, but would refer you to our website at www.bettermarkets.com.

My name is Marc Jarsulic and I am the Chief Economist at Better Markets. Prior to that, I was a senior staffer in the Senate. Prior to working in the Senate, I was an attorney concentrating on antitrust and securities law, and an academic economist.

INTRODUCTION

The very largest bank holding companies are now distinctly different from the rest of the banking industry. They are more highly leveraged than other banks, are far more likely to operate large and complex broker dealers, and are more likely to be directly dependent on unstable short term financing.

Each of these characteristics made the large bank holding companies vulnerable during the financial crisis:

High leverage made them less safe because the ability of a bank to survive a significant decline in the value of its assets depends on the market value of its equity. Other market participants will continue to deal with a bank only if, after the loss, it is perceived to have sufficient remaining equity to remain solvent in the event of another shock. So the bank's leverage – together with the market value and liquidity of its assets – is a key determinant of its ability to function during times of financial stress.

Proprietary trading made them less safe because speculative positions can quickly produce large losses. Trading losses at Citigroup are a case in point.

Dependence on unstable short term financing made them less safe because creditor runs (which materialized in both the repo and asset-backed commercial paper markets) can force the sale of assets and the realization of losses.

Given the scale of the large bank holding companies, these vulnerabilities also threatened the stability of the financial system as a whole. The failure of Lehman produced a huge financial shock and panic. The failure of one of the largest bank holding companies would have been even more serious.

The federal government managed, through massive intervention, to prevent any of the largest bank holding companies from failing. In the case of Citigroup, for example, that

rescue included the Troubled Asset Relief Program (“TARP”) capital injections, direct asset guarantees, support for its broker dealer through the Term Asset Securities Lending Facility and the Primary Dealer Credit Facility, and purchase of its commercial paper through the Commercial Paper Funding Facility.

To prevent the need for such rescues in the future, regulators need to use the tools created by the Dodd-Frank Act to eliminate the threats to financial stability created by the large bank holding companies. In particular there should be:

Effective leverage limits for the largest banks

Effective implementation of the Volcker Rule

Effective regulation of shadow banking activity

Taking these steps will go a long way toward containing the risks posed by the size and complexity of the largest bank holding companies.

1. What makes large bank holding companies distinctive?

In addition to their size, large bank holding companies (“LBHCs”) – which for convenience we can think of as the 10 largest – are distinguished from the rest of the banking industry in at least three ways.

First, they are very highly leveraged. As can be seen from Figure 1 (below), which uses the ratio of tangible assets to tangible common equity as the measure of leverage, the 10 largest bank holding companies had a collective leverage ratio of 21.2 during the 1990-

2000 period. The remaining BHCs had a collective leverage ratio of 15.6 during that same period. It is also apparent that in the run-up to the financial crisis leverage ratios of the LBHCs increased dramatically. At the beginning of the crisis in 2007 the leverage of the LBHCs was nearly equal to that of the five largest stand-alone investment banks, and at the end of 2008 the LBHC leverage had risen to 47.5.

Second, several of them are heavily engaged in trillions of dollars of complex proprietary trading in equity, debt and derivatives. For example, five LBHCs – Bank of America, Citigroup, Goldman Sachs, J.P. Morgan, and Morgan Stanley – are so-called “G14 institutions”: the 14 firms that do most of the trading in OTC derivatives world-wide.¹

Third, several of them have been and apparently remain dependent on short term, unstable financing. They sponsor and guarantee securitization conduits – which are part of the “shadow banking system.” These conduits allow sponsors to finance significant volumes of assets using short term asset-backed commercial paper (“ABCP”).² In 2007, for example, Citigroup, Bank of America and JPMorgan were among the top 10 bank sponsors of conduits. The ratio of sponsored ABCP to their total Tier 1 capital was 102%, 50.2%, and 52.7 % respectively.³

Several of them also rely heavily on very short term repo financing to operate their broker dealers. Outstanding repo finance by primary dealers – which today include Bank of America, Citigroup, Goldman Sachs, JPMorgan Chase, and Morgan Stanley – reached a

¹ The G-14 includes Bank of America-Merrill Lynch, Barclays Capital, BNP Paribas, Citi, Credit Suisse, Deutsche Bank, Goldman Sachs, HSBC, J.P. Morgan, Morgan Stanley, The Royal Bank of Scotland Group, Société Générale, UBS, and Wells Fargo. See <http://www.ft.com/intl/cms/s/0/5957e7e2-1e3e-11e0-bab6-00144feab49a.html#axzz1u1CH2PLP>

² Z. Poznar et al. (2010). Shadow Banking. Federal Reserve Bank of New York, Staff Report No. 458, July.

³ See V. Acharya et al. (2010). Securitization without risk transfer, Table 1, available at <http://ssrn.com/abstract=1364525>.

peak of \$4.6 trillion in early 2008, and remains significant at approximately \$2.7 trillion in February 2012.⁴

Both the ABCP and repo markets experienced massive runs during the financial crisis.

2. Why large bank holding companies were vulnerable during the financial crisis

The distinguishing characteristics of LHBCs – high leverage, heavy involvement in complex trading, and reliance on short term and shadow banking finance – helped make them vulnerable to shocks in the financial crisis. By virtue of their size, these vulnerabilities made the LBHCs potential threats to overall financial stability. This forced the federal government to commit massive resources to rescue them.

Leverage

High leverage ratios make individual banks less safe. The ability of an individual bank to survive a significant decline in the value of its assets will depend on the market value of its equity at the moment of the loss. Other market participants will continue to deal with the bank only if, after the loss, it is perceived to have sufficient remaining equity to remain solvent in the event of another shock. So the bank's leverage – together with the market value and liquidity of its assets – is a key determinant of its ability to function during times of financial stress.

⁴ Data from the Federal Reserve Bank of New York, available at <http://www.newyorkfed.org/markets/statrel.html>

Higher leverage ratios also make the financial system as a whole less stable. The ability of the banking system as a whole to absorb losses – through acquisition of the weak by the healthy – will be a function of the overall leverage of the banking system.⁵ Since the LBHCs hold a majority of banking assets, and a large share of the assets of all financial intermediaries, equity declines at one or more such bank will have a large effect on the overall equity of the banking system.

Moreover, revelation of insufficient equity at even one large bank can produce a Lehman moment when generalized panic sets in. Even if the failed bank is resolved in an efficient manner under the Orderly Liquidation Authority of the Dodd-Frank Wall Street Reform and Consumer Protection Act (“Dodd-Frank Act”), contagion to other large banks is then likely.

Concerns about equity positions of large banks led the entire federal government to provide extraordinary aid to banks during the financial crisis. The Troubled Asset Relief Program, a small part of the overall emergency federal assistance, provided massive injections of equity capital. Banks were able to avoid equity losses because the government helped them borrow and avoid write-downs from asset sales in distressed markets – through the Term Auction Facility, and the Temporary Liquidity Guarantee Program, the Term Securities Lending Facility, the Primary Dealer Credit Facility, and the Commercial Paper Funding Facility.

⁵ For a discussion of the relationship between leverage, entity stability and overall financial stability see Archaya et. al. (2010). Measuring Systemic Risk, *available at* <http://ssrn.com/abstract=1573171>; Browlee and Engle (2011). Volatility, Correlation and Tails for Systemic Risk Management, *available at* vlab.stern.nyu.edu.

It is important to recognize that risk-based capital requirements and market discipline did not restrain bank leverage during the run-up to the crisis. In fact, leverage at LBHCs was essentially the same as that of the 5 largest stand-alone investment banks by the end of 2007, and continued to rise for a substantial period thereafter. (See Figure 1, below) There can be no doubt that the high leverage of the large bank holding companies made them vulnerable to the losses they experienced after the house price bubble burst.

Trading

The damage inflicted on Citigroup by its broker dealer subsidiary vividly illustrates the threat that proprietary trading poses to even the largest banks. During the run-up to the crisis, Citigroup traders were among the largest creators and sellers of collateralized debt obligations ("CDOs"). The CDO business required traders to acquire a pool of assets, "structure" a new set of securities based on that pool, and then sell some or all of these newly structured securities to third parties. Creating and pricing the new securities required some expertise, but at its heart the CDO business was a convoluted proprietary trade in which the traders acquired assets, held them as inventory, and planned to resell them later at a higher price.⁶

These CDO securities differed in their credit ratings, the rate of interest paid to investors, and in their payment priority in the event of default. The quantity and

⁶ The securities comprising the CDO asset pools were varied -- including RMBS, high grade bonds, and tranches from other CDOs. However, many of the underlying securities were constructed from subprime residential mortgages. The Office of the Controller of the Currency estimates that 70 percent of the assets underlying Citigroup CDO's issued between 2003 and early 2006 were subprime-related. See U.S. Office of the Comptroller of the Currency (2008). Memo from John Lyons, Examiner-in-Charge, Citibank, N.A., Subject: Subprime CDO Valuation and Oversight Review -- Conclusion Memorandum, July 17, 5. Available at <http://fcic.law.stanford.edu/resource/index/Search.Videos:0/Search.Documents:1/Search.endmonth:02/Search.endyear:2012/Search.Footnotes:10.42>

characteristics of each class of security were chosen by the Citigroup traders to maximize their profits. They found it profitable to create a class of "Super Senior" securities which were nominally highly-rated and which paid relatively low interest rates. Citi traders found that investors were unwilling to buy the Super Seniors. But instead of offering the securities at a lower price and higher interest rate – which would have required lowering the rates paid on the other CDO securities and reduced their price – the Citigroup traders continued to create Super Seniors and to hold them. They would only have created and held unsalable Super Senior securities to maximize their overall returns.⁷

To boost the return from holding the Super Senior positions, Citigroup relied on leverage. During 2003 and early 2006, Citigroup financed \$25 billion in Super Senior securities through conduits. These special purpose vehicles ("SPVs") issued asset-backed commercial paper, for which Citi provided "liquidity guarantees." The guarantees meant that Citi would buy the commercial paper issued by the conduit if no one else would.⁸ Liquidity guarantees meant that third party purchasers of the commercial paper faced default risk only if Citigroup itself failed to honor its guarantee, regardless of the market value of the Super Senior securities.

Citigroup ceased to issue liquidity guarantees in early 2006. However, between early 2006 and August 2007 another \$18 billion in Super Senior securities were added

⁷ The Controller of the Currency recognized this motive for the Citigroup trading strategy in its January, 2008 review of Citigroup's CDO-related losses, noting that "The bank built up [Super Senior] positions because they are hard to sell in the primary issuance market at the nominal spreads available for [Super Senior] once deals were completed (10-20bps) and the bank was unwilling to give up some of the inception profits." See *Ibid*.

⁸ The amount of leverage on the Citi conduits is not clear from available data. If the SPVs were entirely financed by commercial paper, the leverage was infinite.

directly to Citigroup's trading book positions. Because the securities were held in the trading account, little or no capital was required to back them.⁹

In late 2007 it became clear that the Super Senior securities were worth far less than their face value. To avoid having to make good on its liquidity guarantees, Citigroup bought \$25 billion of commercial paper that had been issued by the Super Senior conduits, and placed those Super Senior securities on the books of the Citigroup commercial bank.

Beginning in November 2007, Citigroup was forced to recognize huge losses on the Super Senior securities and other positions.¹⁰ In a remarkably understated 2007 annual inspection report on Citigroup, the Federal Reserve Bank of New York observed that "[m]anagement did not properly identify and assess its subprime risk in the CDO trading books, leading to significant losses. Serious deficiencies in risk management and controls were identified in the management of Super Senior CDO positions and other subprime-related traded credit products."¹¹ By the end of 2008 Citigroup had written off \$38.8 billion related to these positions and to ABS and CDO securities it held in anticipation of constructing additional CDOs.¹²

⁹ Financial Crisis Inquiry Commission (2011). Final Report of the Financial Crisis Inquiry Commission, U.S. Government Printing Office, 196-197.

¹⁰ Citigroup, Inc. (2007). Press release, November 4 (announcing losses of approximately \$8 billion to \$10 billion), available at http://www.sec.gov/Archives/edgar/data/831001/000110465907079495/a07-28417_1ex99d1.htm

¹¹ Federal Reserve Bank of New York (2008). Summary of Supervisory Activity and Findings for Citigroup, January 1, 2007 - December 31, 2007, 5, available at <http://fcic.law.stanford.edu/resource/index/Search.keywords:fcic-085390/Search.Videos:0/Search.Documents:1/Search.Interviews:0/Search.endmonth:02/Search.endyear:2012>

¹² See Citigroup, Inc., Form 10K for the period ending December 31, 2007, 48; Form 10K for the period ending December 31, 2008, 68.

These losses reduced Citigroup's capital, helped to bring the company to the brink of failure, and made a federal rescue necessary. The amount of federal help required to prevent Citigroup from failing was stupendous, including capital injections, debt guarantees, and asset guarantees.¹³

Citigroup was also the heaviest user of the Term Securities Lending Facility ("TSLF"), and a very heavy user of the Primary Dealer Credit Facility ("PDCF"), two emergency lending facilities set up to halt a destabilizing collapse of broker dealers generally. Reliance on these facilities indicated that a broker dealer was having difficulty funding its positions in repo markets. So the fact that Citigroup went to the PDCF 279 times for overnight loans averaging \$7.2 billion each, and used the TSLF to execute 43 swaps of "investment grade" collateral averaging \$3.7 billion each, are clear signs that its broker dealer was in a very difficult shape. (see Appendix, below).

The debacle at Citigroup is merely illustrative of the harm that bank proprietary trading produced and threatened to produce. The heaviest users of TSLF and PDCF funds includes several other bank-based broker dealers, among them Bank of America, Deutsche Bank, Credit Suisse and Barclays. (see Appendix, below). Although they did not create wreckage on the scale of Citigroup, they were clearly on the brink of doing so.

¹³ See Special Inspector General for the Troubled Asset Relief Program (2011). Extraordinary Financial Assistance Provided to Citigroup, Inc., January 13.

Unstable short term financing**LBHCs as conduit guarantors and sponsors**

Asset conduits are special purpose vehicles, created by commercial and investment banks, and other financial firms securitized lending. In general they issue ABCP and other short-term liabilities that are used to fund the purchase of less liquid assets of longer maturity. Some conduits had liquidity or credit guarantees provided by commercial banks, while others such as the structured investment vehicles (“SIVs”) had no formal guarantees from their creators.

Among all conduits rated by Moody’s as of January 1, 2007, the mean asset size was \$4.1 billion. In this sample, around 73 percent of conduits by assets were sponsored by commercial banks.¹⁴ However, these conduits held over \$1.2 trillion in assets, which meant that they were collectively a very significant part of the financial system.¹⁵

As noted earlier, LBHCs were important guarantors of conduit ABCP. Bank of America, Citigroup and JPMorgan Chase guaranteed ABCP the value of which exceeded 50% of their total Tier 1 capital.

When it became clear in mid-2007 that the house price bubble had burst and that subprime mortgage assets would sustain significant losses, the market for ABCP began to contract rapidly. Outstanding financial ABCP began to plummet from its peak value of \$1.2

¹⁴ *Ibid*, Table 2.

¹⁵ It should be noted that the Moody’s sample omits collateralized debt obligations and may be otherwise incomplete.

trillion in August 2007. By December it had collapsed by approximately a third to \$833 billion.¹⁶

This run on conduits had significant effects on the financial system. Banks that had provided liquidity and credit guarantees had to make good on them and took losses. Other banks, such as Citibank, absorbed losses on SIVs they had sponsored, even though they were not legally compelled to do so.¹⁷ Given a lack of publicly available data, the extent of conduit-related losses is difficult to calculate. However, the run created the possibility that conduit management or guarantors would be forced into a fire sale of assets. The resulting effect on prices would have spread losses to other financial actors, leading to downward price spiral.

This threat explains the efforts of then-Treasury Secretary Paulson to organize an SIV rescue through a private-sector “Master Liquidity Enhancement Conduit” in late 2007. This effort failed. In the end, the Federal Reserve was compelled to support the ABCP market to prevent a downward asset price spiral. It created the AMLF, CPFF, and Money Market Investor Funding Facility (“MMIF”) to do so, which at peak operating levels added more than \$340 billion to the Federal Reserve balance sheet.¹⁸

Although the asset-backed commercial paper market is now much smaller than it was in 2007, it is still important to the financial system. At the end of April 2012

¹⁶ V. Acharya et al., op. cit., 3.

¹⁷ See <http://www.marketwatch.com/story/citigroup-to-take-49-bln-of-siv-assets-onto-balance-sheet>.

¹⁸ See <http://www.federalreserve.gov/releases/h41/20090102/>.

outstanding ABCP amounted to \$327 billion, comprising more than a third of all outstanding commercial paper.¹⁹

LBHC dependence on repo finance

Broker dealer use of repo financing

Repo borrowing is an important source of funding for broker dealers, including those inside the LBHCs. The 19 U.S. primary dealers, which is a subset of all repo market borrowers, reported repo financing of \$4.6 trillion in fixed income securities on March 4, 2008. It has been estimated that in mid-2008, the (then) five largest broker dealer/investment banks collectively financed 42 percent of their assets through repo borrowing.²⁰ While primary dealer repo borrowing is now approximately \$2.7 trillion, it is still a huge source of finance for these firms.

Repo allows a borrower to become highly leveraged. In a repo transaction the asset serves as collateral for the loan. So the borrower needs to provide equity funding for the asset only to the extent that the lender insists that the value of the collateral exceed the value of the loan. These repo "haircuts" can be very low. Haircuts for private label MBS and corporate bonds were estimated to be 3-4 percent in 2007 in the tri-party repo market.²¹ In the bilateral dealer bank market, haircuts on unpriced and subprime MBS and corporate bonds are estimated to have been zero in the first half of 2007.²²

¹⁹ See <http://www.federalreserve.gov/releases/cp/>.

²⁰ M. King (2008). Are the brokers broken? Citibank Global Markets Ltd.

²¹ A. Krishnamurthy et al. (2011). Sizing Up Repo, 27.

²² G. Gorton and A. Metrick, Securitized Banking and the Run on Repo, 12. Table II, Panel D, available at <http://ssrn.com/abstract=1440752>.

When haircuts are low – as they were for highly-rated subprime MBS and many other types of securities in early 2007 – it is possible to obtain very high leverage (at relatively low short-term interest rates) to support a trading position in assets with long maturities. The high leverage of the large broker dealers is explained in significant part by their use of repo borrowing as a source of debt finance.

Positions that are financed using very short-term borrowing create the potential for a rapid run by the lenders. Repo funding is cheap because any individual lender can change the rate and collateral requirements of a loan very quickly, or simply decide not to roll it over, when a borrower or an asset class becomes less desirable to them. But when things go wrong and lenders as a group decide against a borrower or the collateral he holds, that borrower can see his repo funding vanish in short order. A significant increase in haircuts, for example, means that the borrower must have adequate equity to cover the lost financing, or sell off the position.

If the borrower has used repo to create significant leverage, a run on repo can spell disaster. If the assets he has supported are illiquid or have declined in value, he can be forced to recognize losses and perhaps become insolvent. And of course there may be spillover effects to other firms and to repo financing in general. These dynamics were very important during the financial crisis.

Runs on repo financing during the crisis

Once it became clear that there would be large losses on subprime and other non-Agency MBS in mid-2007, repo runs soon followed. There is evidence that non-Agency ABS and MBS securities – which were used as collateral in the tri-party repo market by several

large broker dealers prior to the crisis – ceased to be acceptable repo collateral as the financial crisis intensified. This hit particular LBHC dealers especially hard.

According to Krishnamurthy et al.²³:

While the repo contraction on non-Agency MBS/ABS appears small for the shadow banking system, we find evidence that it played a more significant role for some dealer banks. For Merrill Lynch, Goldman Sachs, Morgan Stanley and Citigroup, nearly 50% of the [tri-party] repo transactions with [money market funds] prior to the crisis were backed by non-Agency MBS/ABS and corporate debt, and almost all of this repo from [money market funds] disappears in the crisis.

In the bilateral repo market – where secured loans are made between large financial institutions with no intermediary – there is evidence of a huge increase in haircuts for a wide range of non-Treasury assets after the middle of 2007. By one estimate the average haircut rose from zero in the beginning of 2007 to 45 percent by the beginning of 2009.²⁴ Many bilateral repo borrowers are hedge funds and other firms seeking cash from the prime brokerage operations of broker dealers. However, dealers also fund themselves through this market.²⁵ So the rise in haircuts had an impact on leveraged dealer positions.

The liquidity crises and dramatic failures of Bears Stearns and Lehman Brothers were in significant measure caused by the disappearance of repo financing on which they

²³ A. Krishnamurthy et al., *op. cit.*, 4.

²⁴ G. Gorton and A. Metrick, *op. cit.*, 20-21.

²⁵ T. Adrian et al. (2012), *Repo and Securities Lending*, Federal Reserve Bank of New York, Staff Report No. 529, December, 4-5.

were heavily dependent. In the run-up to their respective failures, various tri-party repo counterparties cut their exposures, required larger haircuts and higher interest rates, and ultimately ceased dealing with them.²⁶ The bilateral repo market also turned against Bear Stearns and contributed to its demise. According to the Financial Crisis Inquiry Commission report, repo lenders to two Bear Stearns internal hedge funds increased collateral haircuts or refused to roll over their loans before the funds filed for bankruptcy on July 31, 2007.²⁷

The Federal Reserve was forced to support broker dealers to stem the run on repo financing

The Federal Reserve was so alarmed by the crisis in the repo market that it established two separate rescue facilities. The Primary Dealer Credit Facility (PDCF) provided overnight repo financing to primary dealers for tri-party eligible collateral. The Term Securities Lending Facility (TSLF) provided 28-day swaps of tri-party-eligible collateral for Treasury securities. The Treasury securities then could be used as collateral for repo borrowing.

Both these facilities were widely used by very large broker dealers, including those housed in major banks. Summary data on broker dealer borrowing from the PDCF and TSLF – which show large scale borrowing by several important broker dealers – are presented in Tables 1 and 2 in the Appendix. Borrowing from the TSLF was highly

²⁶ Financial Crisis Inquiry Commission (2011). Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States. Government Printing Office, 280-91, 324-31; D. Duffie (2010), The failure mechanics of dealer banks, Bank for International Settlements, Working Paper No. 301, March, 16; A. Copeland et al (2010), The tri-party repo market before the 2010 reforms, Federal Reserve Bank of New York, Staff Report No. 477, November, 55-63.

²⁷ Financial Crisis Inquiry Commission (2011). Final Report of the National Commission on the Causes of the Financial and Economic Crisis in the United States. Government Printing Office, 280-91.

correlated with broker dealer financial weakness – as measured by leverage and cumulative stock price declines,²⁸

3. Policy implications

The financial crisis was arrested through massive intervention by the federal government. The demonstrated willingness of the government to take such actions continues to reassure financial markets. However, many of the underlying structural problems that led to the crisis remain unresolved. The leverage of LBHCs is not yet constrained. Effective limitations on bank trading, much of which takes place in LBHCs, have yet to be put into place. Steps have not been taken to prevent runs on short term finance from putting the LBHCs in jeopardy once again.

The Dodd-Frank Act gave regulators the tools to achieve many of these necessary changes. Properly utilized, many of the existing threats to financial stability can be significantly limited.

Effective leverage limits for the largest banks

The Federal Reserve should use its authority under Section 165(b)(1)(A)(i) of the Dodd-Frank Act to impose significant new leverage requirements on the largest banks. These leverage ratios should rise with bank asset size, since the combination of size and high leverage increases the risk to financial stability.

²⁸ V. Archaya et al. (2011). Dealer Financial Conditions and the Term Securities Lending Facility: Was Bagehot Right After All, December 29, 5.

Required leverage ratio should be calculated using tangible common equity and tangible assets. During the financial crisis, market participants focused the market value of the equity of financial firms under stress. Of the available accounting measures of firm equity, tangible common equity comes closest to the values that market participants take seriously.

As can be seen in Figure 1, the leverage ratios for smaller banks are consistently and significantly lower than those of the large bank holding companies. A natural hypothesis is that this reflects the differential treatment that lenders give to big banks that have an implicit guarantee from the federal government because they are “too big to fail.” Some have suggested that leverage limits for the big banks should be set at the level that market forces have determined is appropriate for banks without implicit government guarantees. That would imply a leverage limit of about 16.

However, there is good reason to believe that the leverage ratio of smaller banks would be inadequate for large banks. While smaller banks may not have the same “too big to fail” guarantee, they are still inside the federal safety net. They have access to discount window, and they have sticky sources of funds because their depositors are federally insured. This exempts them from substantial market discipline.

Moreover, to the extent that leverage ratios at smaller banks do reflect the effects of market discipline, that discipline will never take externalities into account. That is, large equity losses at several smaller banks can have an important impact on overall financial stability. The failures of WaMu, Wachovia, and IndyMac certainly contributed to overall financial distress during the financial crisis. But market forces do not take account of such

externalities when funding the borrowing of individual banks, precisely because they are externalities.

In fact, recent research by the Centre for Economic Policy Research indicates that an upper bound for the leverage ratio should be much lower – approximately 5.²⁹ This research indicates that this significantly reduced leverage ratio will deliver significant net economic benefits:

We conclude that even proportionally large increases in bank capital are like to result in a small long-run impact of the borrowing costs faced by bank customers....In light of the estimates of costs and benefits we conclude that the amount of equity funding that is likely to be desirable for banks to use is very much larger than banks have had in recent years and higher than the minimum agreed Basel III framework.”³⁰

The Federal Reserve has proposed adopting the Basel III capital requirements as part of its implementation of Section 165 of the Dodd-Frank Act. This will allow the large bank holding companies to maintain very high leverage ratios.³¹ To reduce threats to financial stability, permissible leverage should be significantly lower.

²⁹ D. Miles et al. (2011). Optimal Bank Capital, Centre for Economic Policy Research Discussion Paper 8333, 38, available at www.cepr.org/pubs/dps/DP8333.asp.

³⁰ D. Miles et al., op. cit., 3.

³¹ Basel III calls for a phased-in capital to risk-weighted-assets ratio of 10.5 percent, of which 7 percent is common equity. Large so-called G-SIB's are to have a maximum 3.5 percent additional capital surcharge. So if a G-SIB were assessed the full additional 3.5 percent surcharge, the common equity/risk-weighted asset ratio would be 10.5 percent. Since risk-weighted assets are on average significantly less actual assets – by one estimate approximately 40 percent less – the ratio could be less than 6.3 percent, giving a leverage ratio of nearly 16 relative to common equity.

Effective implementation of the Volcker Rule

LBHC trading created significant losses and threats to financial stability during the financial crisis. Section 619 of the Dodd-Frank Act (the “Volcker Rule”) requires that those risks be eliminated, through the elimination of proprietary trading, and necessary restrictions on permitted trading.

Rules on market making, which remains permissible under the statute, must eliminate incentives to disguise proprietary trading as market making. The risks posed by trading in Treasury securities and certain other assets, which also remains permissible under the statute, need to be reduced by effective leverage requirements.³²

Limit firm revenue and trader compensation to observable bid-ask spread

To eliminate trader incentives to take large, high-risk positions in hopes of large bonuses, revenue for permitted market making activity must be strictly limited to an observable and meaningful bid-ask spread or fees and commissions.

An observable and meaningful bid-ask spread will exist only where traders continuously offer to buy or sell a well-defined asset and actively do so, allowing the

³² Better Markets has filed three comment letters in connection with the proposed Volcker Rule: *See* Better Markets Comment Letter, November 5, 2010 on Study Regarding Implementation of the Prohibitions on Proprietary Trading and Certain Relationships with Hedge Funds and Private Equity Funds (“Better Markets 11/5/10 Comment Letter”) available at <http://www.bettermarkets.com/sites/default/files/FSOC-%20Comment%20Letter-%20Volcker%2011-5-10.pdf>; Better Markets Comment Letter, February 13, 2012 on Prohibition on Proprietary Trading and Certain Relationships with Hedge Funds and Private Equity Funds (“Better Markets 2/13/12 Comment Letter”) available at <http://www.bettermarkets.com/sites/default/files/SEC-%20CL-%20Volcker%20Rule-%202-13-12.pdf>; and Better Markets Comment Letter, April 16, 2012 on Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Covered Funds (“Better Markets 4/16/12 Comment Letter”) available at <http://www.bettermarkets.com/sites/default/files/CL%20CFTC%20FINAL%20Volcker%20Rule%204-16-12.pdf>.

calculation of the spread from contemporaneous, executed purchases and sales with non-dealer customers. The existence of such a bid-ask spread shows that market making services – the provision of immediacy to customers who desire to buy or sell – are actually being provided.

This limitation will have the effect of eliminating trader incentives to hold unhedged asset inventories. Because by definition significant income from the price appreciation of positions will be a signal that the traders are not engaged in market making, they will have a strong incentive to carefully hedge the inventories that they do hold to meet client demand.

In addition, requiring observable and meaningful bid-ask spreads will prevent banks from using the market making exemption to take positions in assets that are:

- traded so infrequently that bid-ask spreads cannot be calculated from contemporaneous purchases and sales; or
- so-called Level 3 assets that are “marked to model”, such as “structured” securities or complex bespoke derivatives.

During the crisis, trader inventories of these assets proved to be worth far less than their reported values indicated. Firms such as Citigroup and Merrill Lynch were forced to write down their positions and recognize losses that severely weakened them.³³

Eliminating the accumulation of positions in these highly risky assets in the banks will in

³³ The effects of impossible to value CDO securities on Citigroup are discussed in the Better Markets 2/13/12 Comment Letter, op. cit.

itself make them more stable. Moreover, it will meet the requirement of Section 619(d)(2) of the Dodd-Frank Act, which prohibits trading activity that exposes a banking entity to high risk assets and high risk trading strategies, or threatens financial stability.

In addition, by eliminating impossible-to-value assets from trader balance sheets, market participants will be better able to assess the risk of transacting with bank dealers. This should increase market discipline of the market makers. Moreover, regulators will have a more accurate idea of the solvency of the traders they oversee.

Finally, an obvious but nonetheless important benefit of limiting permissible market making income is that it provides an easily monitored, market generated metric that will give bank traders clear guidance on what they may do. This will clearly satisfy any demand for bright lines or safe harbors for trading activity.

Establish leverage limits for permitted trading

Although the Volcker Rule specifically permits a few enumerated non-proprietary trading activities, such as market making, from the prohibition on proprietary trading, even those few permitted activities are qualified. In particular, subsection 619(d)(2)(A) removes the permitted status of any activity that

“

(ii) would result, directly or indirectly, in a material exposure by the banking entity to high-risk assets or high-risk trading strategies (as such terms shall be defined by rule as provided in subsection (b)(2);

(iii) would pose a threat to the safety and soundness of the banking entity; or

(iv) would pose a threat to the financial stability of the United States.”

Events of the financial crisis have demonstrated that the financial model still used by bank broker dealers is highly unstable and poses significant threats to bank safety and soundness, and to overall financial stability. Broker dealers historically have been highly leveraged, willing to depend on repo and other short term borrowing to fund longer maturity and less liquid assets, and subject to fatal lender runs in times of stress. These weaknesses required the Federal Reserve to create the TSLF and PDCF in order to bail out the broker dealers during the crisis.

Because of the demonstrated threat posed by the broker dealer funding model, any rule implementing the Volcker Rule needs to address its weakness directly. By doing so the rule would decrease the likelihood that otherwise undeterred proprietary trading would create significant threats to a bank or to overall financial stability. Unfortunately the proposed rule does not do so. Instead, it merely restates Section 619(2)(A) in slightly altered form.

What the rule ought to do is place meaningful leverage and liquidity requirements on bank broker dealers. The lower the permitted leverage, the smaller the impact of an asset price decline on the equity of any one trader. The higher the liquidity requirements, the less likely that an asset price decline would result in a forced asset sale.

It must be recognized that unless leverage and liquidity requirements are very tough, the threats created by bank trading operations will persist. Runs by bank depositors are not deterred by fractional capital requirements alone, because depositors know that they can take losses if the bank's assets lose sufficient value. Depositor runs are prevented

by deposit insurance, which assures depositors that they will not lose by continuing to fund the bank. But there is at the moment nothing analogous to deposit insurance for repo lenders. So it is entirely predictable that in a period of market turmoil repo lenders will reduce the acceptable leverage ratio for assets they fund from fifty to two, or exit the repo market altogether, at a moment's notice, just as they did during the financial crisis. Therefore, to meet the requirements of 619(d)(2)(A) the proposed rule must mandate low leverage and high liquidity for bank broker dealers.

Effective regulation of shadow banking system.

The Financial Stability Oversight Council has adopted rules to implement Section 113 of the Dodd-Frank Act, which provides authority for designating systemically significant nonbank financial firms for supervision by the Federal Reserve.³⁴ That is, Section 113 gives the federal government the power to bring the shadow banking system into the light of regulation. The runs on repo and on asset-backed commercial paper during the crisis demonstrate that asset conduits and the repo market need to be designated and supervised to prevent a repetition of these events in the future.³⁵

³⁴ See Comment Letter filed by Better Markets December 19, 2011 on Authority to Require Supervision and Regulations of Certain Nonbank Financial Companies *available at* <http://www.bettermarkets.com/sites/default/files/CL%20FSOC%20SIFIs%2012-19-11.pdf>

³⁵ Federal Reserve Governor Daniel Tarullo has publicly acknowledged that the tri-party repo market – where some but certainly not all repo lending takes place – needs oversight. See <http://www.federalreserve.gov/newsevents/speech/tarullo20120502a.htm>.

Appendix

Figure 1

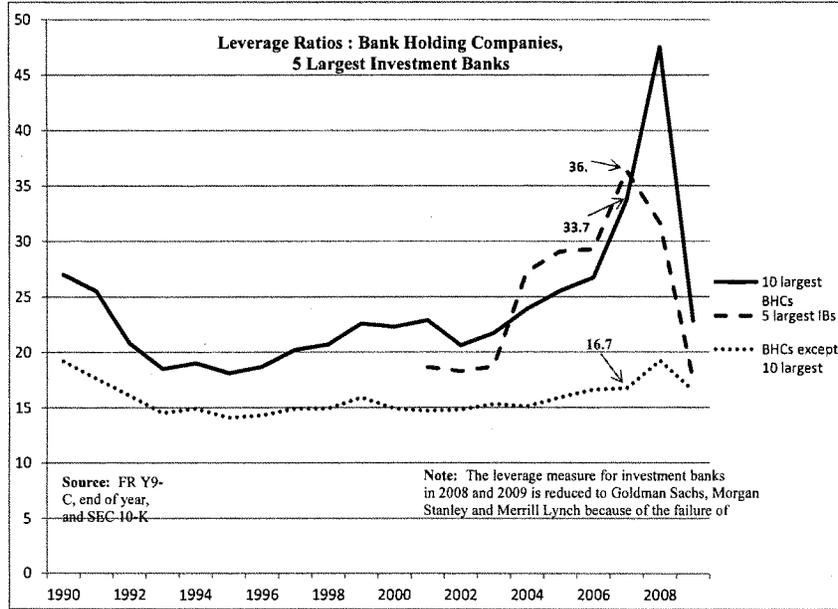


Table 1

Borrowing from PDCF

Dealer	Number of Borrowings	Average Amount Borrowed (\$M)	Total Amount Borrowed (\$M)
Merrill Lynch Government Securities Inc.	226	9210	2081388
Citigroup Global Markets Inc.	279	7241	2020219
Morgan Stanley & Co. Incorporated	212	9022	1912625
Bear, Stearns & Co., Inc.	69	13915	960102
Banc of America Securities LLC	118	5414	638856
Goldman, Sachs & Co.	85	6933	589308
Barclays Capital Inc.	74	5546	410437
Lehman Brothers Inc.	10	8332	83322
Countrywide Securities Corporation	75	1027	77035
BNP Paribas Securities Corp.	43	1544	66375
Mizuho Securities USA Inc.	108	392	42312
UBS Securities LLC.	8	4425	35400
Cantor Fitzgerald & Co.	61	460	28060
J. P. Morgan Securities Inc.	3	1007	3020
Credit Suisse Securities (USA) LLC	2	750	1500
Deutsche Bank Securities Inc.	1	500	500
Daiwa Securities America Inc.	1	440	440
Dresdner Kleinwort Securities LLC	1	93	93

Source: http://www.federalreserve.gov/newsevents/reform_pdcf.htm. Dealers ranked by total amount borrowed.

Table 2

Borrowing from TSLF

Dealer	Schedule 1		Schedule 2		Total Borrowings (\$M)
	Average Amount Borrowed (\$M)	Number of Borrowings	Average Amount Borrowed (\$M)	Number of Borrowings	
Citigroup Global Markets Inc.	2,086	20	3,781	43	204,282
RBS Securities Inc.	1,610	14	3,298	43	164,370
Credit Suisse Securities (USA) LLC	1,592	11	2,966	41	139,094
Deutsche Bank Securities Inc.	2,746	20	2,546	31	133,866
Barclays Capital Inc.	1,733	21	1,700	43	109,508
Goldman, Sachs & Co.	1,221	15	2,445	36	106,328
Merrill Lynch Government Securities Inc.	610	5	2,298	33	78,891
Morgan Stanley & Co. Incorporated	517	6	1,224	25	33,706
UBS Securities LLC.	438	4	1,631	17	29,477
Lehman Brothers Inc.	395	5	1,276	13	18,560
Bank of America Securities LLC	838	8	820	14	18,177
J.P. Morgan Securities LLC	575	7	580	14	12,144
BNP Paribas Securities Corp.	718	9	99	10	7,458
Countrywide Securities Corporation	97	5	60	5	782
HSBC Securities (USA) Inc.	0	0	52	11	569
Cantor Fitzgerald & Co.	61	4	10	5	294
Bear, Stearns & Co., Inc.	0	0	35	2	69
Dresdner Kleinwort Securities LLC	33	2	0	0	65

Notes: The table reports the average amount borrowed and the number of borrowings by dealer for the 33 Schedule 1 and 58 Schedule 2 operations. Borrowings through the TSLF Options Program are excluded. Dealers that never borrowed from the program are excluded. Dealers are ordered in the table based on the weighted average quantity borrowed across the Schedule 1 and Schedule 2 operations, with weights based on the number of Schedule 1 and Schedule 2 operations (i.e., 33 and 58).

Source: Archaya et al. (2011), dealers ranked by total borrowing.

PREPARED STATEMENT OF JAMES E. ROSELLE
EXECUTIVE VICE PRESIDENT AND ASSOCIATE GENERAL COUNSEL
NORTHERN TRUST CORPORATION

MAY 9, 2012

Good afternoon Chairman Brown, Ranking Member Corker, and Members of the Committee:

My name is James Roselle; I am the Associate General Counsel for Northern Trust Corporation, a global financial services firm that provides investment management services, asset and fund administration, and fiduciary and banking solutions to corporations, institutions, and individuals worldwide. As of March 31, 2012, Northern Trust has over \$4.6 trillion in assets under custody and \$700 billion in assets under management. I appreciate the opportunity to testify before you today on behalf of Northern Trust.

Northern Trust supports the very positive efforts of Congress and this Committee to put in place reforms that reduce systemic risk to the financial system and prohibit high-risk activities that contributed to the financial crisis. As regulators and market participants continue work on implementing and complying with the new financial reform law ("Dodd-Frank Act"), I would like to focus my testimony on specific provisions contained in the Proposed Rule¹ issued pursuant to the so-called "Volcker Rule."²

The restrictions and prohibitions set forth in the Volcker Rule were intended to limit banking organization exposure to high risk proprietary trading and investment activities. As a global custody bank and asset manager, Northern Trust does not engage in the types of activities that the Volcker Rule intended to prohibit. Specifically, Northern Trust does not engage in high-risk proprietary trading and investment activities. Because of the traditional nature of our core banking business, we anticipated that the Volcker Rule would have little or no impact on our business. Before the Dodd-Frank Act was passed, former Federal Reserve Board Chairman Volcker stated that "[c]ustody and safekeeping arrangements for securities and valuables" are among the core banking functions that must remain permissible under the Volcker Rule.³

The rules as currently proposed, however, will adversely impact traditionally low-risk business activity that investors rely upon for investment management purposes. This impact is contrary to the stated intention of Congress; it will not promote the safety and soundness of the U.S. financial system and may in fact increase systemic risk. If not corrected in the rulemaking process, a core banking business of Northern Trust and other U.S. banking companies will be adversely impacted, which may ultimately impair the competitiveness of U.S. banks in a business where we are the acknowledged global leaders.

Today I will discuss three parts of the Proposed Rule to implement the Volcker Rule that may significantly affect Northern Trust and our clients. Our key concerns are: (1) the overly broad definition of "covered fund" and the impact that so-called "Super 23A"⁴ prohibitions will have on custody-related transactions with many clients; (2) the proposed inclusion of foreign exchange swaps and forwards in the proprietary trading restrictions; and (3) the unnecessary and onerous proposed compliance requirements.

First, the Proposed Rule unnecessarily includes a broad range of funds that banking entities will be restricted from sponsoring or investing in. The definition of "covered fund" would capture nearly all foreign funds (including those that are similar to U.S. regulated mutual funds that are exempt from the Volcker Rule), all funds that trade futures, swaps or other commodity interests to any extent (including U.S. mutual funds)⁵, as well as many other entities that do not have traditional hedge fund or private equity fund characteristics. This definition is important because, if a bank is deemed to be a "sponsor" or "adviser" to a "covered fund," then under the

¹ Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 76 Fed. Reg. 68,846 (Nov. 7, 2011).

² Section 619 of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Section 13 of the Bank Holding Company Act of 1956, as amended).

³ See *Prohibiting Certain High-Risk Investment Activities by Banks and Bank Holding Companies* before the S. Comm. On Banking, Housing & Urban Affairs, 111th Cong. 2 (February 2, 2010)(testimony of the Honorable Paul Volcker, Chairman, President's Economic Recovery Advisory Board).

⁴ Section 13(f) of the Bank Holding Company Act, as amended.

⁵ See attached comment letter from Vanguard dated February 13, 2012, on prohibitions and restrictions on proprietary trading and certain interests in, and relationships with, hedge funds and private equity funds. <http://1.usa.gov/IrG535>.

Proposed Rule the bank is prohibited under the Super 23A requirements from providing any credit whatsoever to the fund.

Custody banks such as Northern Trust are among the leading global providers of asset management and custody services to the many foreign funds that do not share the characteristics of hedge funds or private equity funds but nevertheless fall within the proposed definition of “covered fund.” Moreover, our custody services often include ancillary services that may cause us to be deemed a “sponsor” for a client’s fund under the Proposed Rule. If large numbers of sponsored or advised foreign funds become subject to the Volcker Rule, the custody banks will be prohibited from providing traditional operational extensions of credit and will need to satisfy onerous compliance requirements that in some cases may conflict with laws in certain non-U.S. jurisdictions.

Such a sweeping approach is inconsistent with Congressional intent as well as the findings and recommendations of the Financial Stability Oversight Committee (“FSOC”) in its study on the Volcker Rule. The legislative history of the Volcker Rule indicates that Congress intended and expected the Agencies to use their rule-making authority to implement the Volcker Rule in a way that focuses its prohibitions and restrictions on traditional hedge funds and private equity funds. The Proposed Rule expands the universe far beyond the intended scope of the law.

To compound the problem, the Proposed Rule adopts an extremely rigid interpretation of the Super 23A restriction that will put at risk traditional payment and settlement services that custody banks provide for their clients. Ordinary custodial and administrative services provided to our clients of necessity must include the provision of intra-day or short-term extensions of credit to facilitate securities settlement, dividend payments and similar custody-related transactions. These payment flows are expected in order for transaction settlements to operate smoothly and they have been encouraged by global financial supervisors. Northern Trust and other banks have a robust risk framework to deal with these types of payments, and our risk framework and exposure limits are regularly examined by bank supervisors. Nevertheless, even these low-risk extensions of credit appear to be considered as prohibited “covered transactions” under the Proposed Rule. It is unfortunate that the Proposed Rule has not followed the framework of Section 23A of the Federal Reserve Act⁶ and Regulation W, which contain provisions that permit these low-risk operational exposures subject to well-established risk management standards.

These custody-related transactions simply do not give rise to the type of risk that the Volcker Rule was intended to address. Prohibiting them will encourage covered fund clients to make alternative arrangements for custodial and administrative services with non-U.S. banks, which will damage the competitive position of Northern Trust and other U.S. banks. Moreover, prohibiting these transactions could result in market disruption and elevated levels of risk in global payment and settlement systems, with no corresponding systemic or firm-specific risk reduction.⁷ Northern Trust believes the agencies have ample authority to craft a rule that does not have these unintended and adverse consequences for a traditional core banking activity.

Second, the proposed inclusion of foreign exchange swap and forward transactions within the proprietary trading prohibitions will result in damage to a traditional and low-risk activity, with no offsetting benefit to the U.S. financial system.⁸ As a significant global custodian and asset manager, Northern Trust carries on an active foreign exchange trading operation that is directly related to our core client services. Foreign exchange transactions typically are generated as a result of the routine purchase or sale of securities, or the receipt or payment of income, dividends or redemptions, by or for our clients. In essence, these currency transactions are simple cash management transactions used by our clients to efficiently manage cross currency needs.

Secretary Geithner cited the key differences between foreign exchange transactions and other types of derivatives in his proposed determination to exclude foreign exchange swaps and forwards from the clearing and settlement requirements of Title VII of the Dodd-Frank Act.⁹ The proposed determination correctly concluded that foreign exchange swaps and forwards “already reflect many of Dodd-Frank’s ob-

⁶ 12 U.S.C. Section 371c.

⁷ See comment letter from BNY Mellon, Northern Trust, and State Street dated February 13, 2012, on proposed rulemaking implementing the Volcker Rule—Hedge Funds and Private Equity Funds. <http://1.usa.gov/Jjgh9b>.

⁸ See attached comment letter from Northern Trust dated February 13, 2012, on proposed rulemaking implementing the Volcker Rule—Proprietary Trading. <http://1.usa.gov/LJVcsd>.

⁹ “Determination of Foreign Exchange Swaps and Foreign Exchange Forwards under the Commodity Exchange Act” issued by the Department of the Treasury on April 29, 2011.

jectives for reform including high levels of transparency, effective risk management, and financial stability.” Foreign exchange swaps and forwards have fixed payment obligations, are physically settled, and are predominately short-term instruments; therefore the risk profile is different from other derivatives. This is a traditional banking activity that is clearly not required by statute to be included in the Volcker Rule’s proprietary trading ban and, for the reasons stated above, should be excluded from the Rule’s trading restrictions.¹⁰

Third, the compliance requirements of the Proposed Rule are unduly burdensome and will unnecessarily increase compliance costs for banks with little or no offsetting benefit. The Proposed Rule essentially requires the bank to prove that each transaction does not fall within the prohibited category. At Northern Trust, a very high percentage of trading assets reported on our Call Report are foreign exchange transactions that, for the reasons given above, should be excluded from the trading restrictions. We have very small mark-to-market exposures in “plain vanilla” derivatives and securities. Yet, under the Proposed Rule, we would be required to produce a large number of compliance metrics, many of which are poorly designed to reveal evidence of prohibited proprietary trading, resulting in considerable systems expenditures and ongoing costs of compliance. We believe these costs have not adequately been considered by the Agencies in issuing the Proposed Rule. We believe the Agencies could carry out the intent of Congress more effectively and with less cost to the banking system with a simpler rule that is supplemented by active supervision of bank trading risks and practices.

Northern Trust has submitted comments on the Proposed Rule to implement the Volcker Rule restrictions, and we have had meetings with the Agencies to discuss our concerns. I am confident that the Agencies will seriously consider the comments received, and that the final rule, or a re-proposal of the Proposed Rule, will deal more effectively with the intended purpose of the Volcker Rule and avoid adverse unintended consequences.

We believe that our conservative and highly focused business model is one that contributes to financial stability and long-term benefits for our clients, shareholders and employees. As the rulemaking phase continues, we urge this Committee to encourage the Agencies to adopt final regulations that do not adversely impact those traditional business activities that played no role in causing the financial crisis. These activities provide market participants with efficient and safe investment management services. Preserving such business models will ensure that U.S. banks can operate competitively while protecting against negative impacts on the broader economy and U.S. employment.

Thank you Chairman Brown, Ranking Member Corker, and Members of the Committee, for allowing me to present Northern Trust’s views on this critically important topic.

PREPARED STATEMENT OF ANTHONY J. CARFANG

PARTNER AND DIRECTOR, TREASURY STRATEGIES, INC.
ON BEHALF OF THE U.S. CHAMBER OF COMMERCE

MAY 9, 2012

The U.S. Chamber of Commerce is the world’s largest business federation, representing the interests of more than 3 million businesses of all sizes, sectors, and regions, as well as State and local chambers and industry associations.

More than 96 percent of the Chamber’s members are small businesses with 100 or fewer employees, 70 percent of which have 10 or fewer employees. Yet, virtually all of the nation’s largest companies are also active members. We are particularly cognizant of the problems of smaller businesses, as well as issues facing the business community at large.

Besides representing a cross-section of the American business community in terms of number of employees, the Chamber represents a wide management spectrum by type of business and location. Each major classification of American business—manufacturing, retailing, services, construction, wholesaling, and finance—is represented. Also, the Chamber has substantial membership in all 50 States.

¹⁰With respect to the proprietary trading portions of the Volcker Rule, Northern Trust concurs with the attached comment letter submitted by SIFMA’s Asset Management Group dated February 13, 2012, on restrictions on proprietary trading and certain interests in and relationship with hedge funds and private equity funds. <http://1.usa.gov/1B2ldf>.

The Chamber's international reach is substantial as well. It believes that global interdependence provides an opportunity, not a threat. In addition to the U.S. Chamber of Commerce's 115 American Chambers of Commerce abroad, an increasing number of members are engaged in the export and import of both goods and services and have ongoing investment activities. The Chamber favors strengthened international competitiveness and opposes artificial U.S. and foreign barriers to international business.

Positions on national issues are developed by a cross-section of Chamber members serving on committees, subcommittees, and task forces. More than 1,000 business people participate in this process.

Good afternoon Chairman Brown, Ranking Member Corker, and Members of the Subcommittee. Thank you for the opportunity to testify, on behalf of the U.S. Chamber of Commerce, at today's hearing: *"Is Simpler Better? Limiting Federal Support for Financial Institutions"*. This is a timely hearing and is a unique opportunity to discuss the capital markets that fuel business expansion and the concurrent economic growth and job creation that occurs as a result.

I am Anthony J. Carfang, a founding partner of Treasury Strategies, Inc. Treasury Strategies is one of the world's leading consultancies in the area of treasury management, payments and liquidity. Our clients include the CFOs and treasurers of large and medium sized corporations as well as State and local governments, hospitals and universities. We also consult with the major global and regional banks that provide treasury and transaction services to these corporations. In thirty years of practice, we have consulted with businesses and financial institutions of every size and complexity on a global basis.

Last year, the Chamber of Commerce issued a report, *Sources of Capital and Economic Growth: Interconnected and Diverse Markets Driving U.S. Competition*, a copy of which is attached as part of this testimony for today's hearing. The purpose of the report was to demonstrate the wide variety and diversity of capital needed to fuel business expansion and job growth. This diverse quilt includes debt markets, equity markets, bank loans, trade finance, angel investing, venture capital, credit cards, home equity loans and the list goes on and on.

It has been my experience that all of these capital raising methods are needed as options for businesses because flexibility will allow them to meet their needs depending on the maturity of the firm, business cycle, regulatory pressures and counterparty positions. Global financial systems are needed for large corporations, but also small businesses that engage in international trade. Community banks assist small businesses, while credit cards help fuel the entrepreneurial spirit that continually reinvigorates the economy.

So while the premise of the hearing is that our financial systems need to be plainer and simpler, the fact is that we need a mosaic of interconnected products of varying size and complexity to meet the capital needs of a 21st century economy. Constraining our financial systems to look plainer and simpler would be as beneficial as reestablishing the horse and buggy as the foundation of our transportation systems. There is no guarantee that plainer and simpler translates to safer. The opposite, because of lack of diversification, might well be true. Furthermore, the loss of productivity, speed and communication would cause our economy to shrink and businesses to disappear.

Consideration of financial systems and products cannot be divorced from the way that the markets work and the purposes they serve. Viewed from this practical perspective, financial institutions and systems are a conduit—a means of transferring capital from investors to the businesses that need it. A well-regulated conduit will efficiently and reliably provide businesses with the resources needed to grow and thrive. Inappropriately restricting that conduit is analogous to blocked blood vessels that deprive the heart of needed oxygen, causing a heart attack and coronary disease.

Many aspects of our financial system are in fact already being circumscribed by legislators and regulators today. Just consider the rapid succession of far-reaching regulations that have flowed from the Dodd-Frank Act and other responses to the 2008 financial crisis—the Volcker Rule, new derivatives regulations, potential money market regulations, Basel III capital standards, systemic risk mandates, to name a few, all have one thing in common—they will impact the ability of businesses to raise capital and the ability and willingness of investors to provide it.

If we judge these regulatory initiatives in light of my earlier-stated premise that businesses need access to a mosaic of financial products and systems to raise capital number of questions must be considered: How do these initiatives impact that mosaic? How would placing artificial caps on these systems or institutions impact cap-

ital-raising for companies and the return that investors expect to receive? How would restricting diversification reduce risk? Ultimately, how could U.S. businesses compete and hire workers in a global marketplace, if their ability to raise capital is impaired?

Economic Consequences

Up to now, businesses operating in the United States have been the most capital efficient and productive in the world. Thanks to our financial institutions and existing banking frameworks, businesses and the U.S. economy benefit greatly from:

- The broadest, deepest and most resilient capital markets,
- The best risk management products and tools,
- The most robust and liquid markets,
- The most technologically advanced cash management services, and
- The most efficient and transparent payment systems.

As a result, U.S. businesses are extremely efficient. Consider the following Treasury Strategies analysis: companies doing business in the United States operate with approximately \$2.2 trillion of cash reserves. That represents only 14 percent of U.S. gross domestic product. In contrast, corporate cash in the Eurozone is 21 percent of Eurozone GDP. In the UK, the ratio is even higher at 50 percent.

The availability of highly liquid capital pools allows Treasurers to keep less cash on hand and use a just-in-time financing system that allows companies to pay their bills and raise the capital needed to expand and create jobs.

Using this analysis to look at just two items posed by today's hearing—placing caps on the size of financial institutions or the imposition of the Volcker Rule as currently drafted—shows that America's capital efficiency will decline. This will result in corporations having to maintain larger cash buffers. Were cash reserves to rise to the Eurozone level of 21 percent of GDP, that new level would be in excess of \$3 trillion.

Stated differently, CFOs and Treasurers would need to set aside and idle an additional \$1 trillion of cash that could otherwise be used for expansion and hiring. \$1 trillion dollars of idle cash is a staggering number. By way of comparison:

- It is greater than the entire TARP program.
- It is more than the Stimulus program.
- It is even greater than the Federal Reserve's quantitative easing program, QE II.

This would seriously slow the economy to the detriment of businesses, workers and consumers. To raise this extra \$1 trillion cash buffer, companies may have to downsize and lay off workers, reduce inventories, postpone expansion and defer capital investment. Obviously, the economic consequences would be huge.

Why would treasurers have to idle so much more cash?

Artificial caps and the Volcker Rule, as currently proposed, will create a subjective regulatory scrutiny of trades, making a company's ability to raise capital more expensive and time consuming. They will increase administrative expenses for banks which will translate into a higher cost of capital for businesses. Real-time financing will no longer be possible for many companies. This will raise costs for most companies and make foreign capital markets more attractive for some companies, while shutting other companies out of debt markets entirely.

This is also not happening in a vacuum.

Corporate treasurers must also contend with looming money market fund regulations that may imperil 40 percent of the commercial paper market, Basel III capital and liquidity requirements and expected derivatives regulations.

As I said earlier all of these efforts simultaneously converge on the desk of the corporate treasurer, adversely impacting business's ability to raise capital and mitigate risk. It is unclear how well these proposals have been vetted and the extent to which their cumulative impacts have been considered and analyzed. Never before have so many unproven, high stakes regulations been imposed simultaneously. This is a dangerous experiment.

In January, Federal Reserve Governor Tarullo testified before the House Financial Services Committee that the regulators did not know or understand what normal market making or underwriting practices are. Market making and underwriting are used by nonfinancial firms to raise money. Yet the regulators admit that they don't understand the activity or products they are attempting to regulate—three months after the three hundred page Volcker Rule regulation has been proposed.

Similarly, no economic analysis has been performed regarding the potential impacts on our economy and job growth that may flow from capping the size of financial institutions. For instance, where will community banks go for liquidity?

There is a very close relationship between large banks and community banks that could be jeopardized by ill-considered, arbitrary regulations. Large banks are a major source of liquidity for community banks and their business and consumer customers.

For example, large banks lend to community banks via the fed funds market so that community banks will have funds to invest locally. Often, large banks will participate in loans originated by community banks, allowing that bank to better serve the community. Typically, community banks will access services of larger banks in order to meet occasional customer needs such as international wire transfers, foreign currency orders or letters of credit. Breaks in this chain can have direct adverse consequences for Main Street businesses and the smaller financial firms that service them. If community banks lose access to liquidity, by extension, Main Street businesses lose access to capital.

Similarly, if a company must go to multiple institutions to raise capital for a deal, rather than one institution, market efficiency and capital formation are impaired. Economies of scale must be considered for the ease and efficiency of the overall economy.

The nature of financial risk

I would like to add a statement about managing financial risk. A common understanding among our clients is that, like energy, risk can neither be created nor destroyed but only transferred. So when you consider ways to reduce banking system risk, do not be tricked into thinking that risk disappears. It simply moves elsewhere. Our system relies on the presence of actors who view the potential rewards of accepting this risk as sufficient to prompt them to do so. If they should come to view the costs and risks as outweighing any potential reward, the flow of capital will come to a standstill.

To truly minimize the probability of future financial crises, we must understand how this risk moves and where it will show up next. Risk is managed most efficiently when it is transparent, properly understood and the market responds with robust, efficient and liquid hedging solutions.

A corporate CFO whose company imports a raw material from the Far East, for example, must manage currency risk, commodity price risk, interest rate risk and operational shipping risks. By simply precluding a bank from helping a company to hedge these risks, the Volcker Rule or size limitations does not make those risks go away.

CFOs and Treasurers will undoubtedly conclude that some risk management techniques and some heretofore efficient transactions will no longer be available, or, if they are available, they will no longer be cost effective. They will decide to “go naked” and retain more risk internally. The upshot of this is that they will hold even more precautionary cash on their balance sheets as a buffer. This will take money out of the real economy, stall economic growth, stunt the creation of new jobs, and destroy existing jobs.

The corporate treasury is the financial nerve center of a business, which must make countless decisions on a daily basis to identify and manage the complexities of the company’s cash-flow in global as well as local markets. To assist them in this critical and ongoing task, some companies require a bank that can deliver global economies of scale. Other companies require a broad array of services that only a full service bank can provide. Still others require specific knowledge of local markets that regional and community banks best provide. Most companies required all of the above at some point in their life cycle. The Volcker Rule and size caps would virtually eliminate U.S. banks from offering both the scale services, scope services and localized specialties that today’s U.S. businesses need.

Many companies have recently engaged Treasury Strategies to assist in upgrading their treasury technology. Their intent is to get a real time view of their cash, and implement automated tools to easily move that cash around the globe. In this frictionless environment, cash can easily move to the most favorable jurisdictions.

Thus, regulations that limit a financial institution’s ability to provide a full range of services erode the dominance of the U.S. banks. Many companies have already established regional treasury centers for functions traditionally housed in the United States. All of this leads to capital flowing out of the United States and competitiveness declining.

Let me also state that Treasury Strategies and our clients fully support well thought out efforts to improve economic efficiency and to reduce the likelihood of another systemic failure. The U.S. Chamber’s position is the same and it has advo-

cated for stronger capital rules, rather than a unilateral ban on proprietary trading, as a pro-growth means of stabilizing the financial system and avoiding systemic failure.

However, we are in danger of developing an overly complex hodgepodge of unproven regulations that will be extraordinarily vague and create regulatory risk and legal uncertainty. In short we may deprive the American economy of one extraordinary advantage—the efficiency associated with predictability and legal certainty in the rules governing our financial systems.

We could deprive our economy of competitive advantages at the same time that it must become more globally competitive to grow our economy and put America back to work.

Conclusion

I appreciate the opportunity to appear before you today on behalf of the U.S. Chamber of Commerce.

Financial regulatory reform is an unfinished project that must take into account the needs of treasurers and businesses to meet the demands needed to grow and operate in an increasingly competitive and global environment. Proposals to impose artificial and arbitrary caps on the financial industry, or the Volcker Rule (as currently proposed), or additional money market regulation will not reduce systemic risk. Instead they will only shift that risk. They will force the nonfinancial companies that are the engines of our economy to retrench, enhance their cash positions and face a much tougher time raising the capital needed to operate, grow and create jobs.

This is about a grand tradeoff: are we willing to jeopardize America's capital raising and job creating engine in exchange for a vague, unproven hope of reducing financial risk? As stated earlier, risks can only be shifted, not eliminated. We believe that these regulations will make U.S. capital markets less robust, U.S. business less competitive and ultimately harm all Americans by slowing America's economic activity.

In thinking through these difficult problems, I would respectfully suggest that policymakers ask this question before proposing new laws or approving new regulations governing America's financial system:

When a business' treasurer calls a U.S. bank or financial firm to raise the cash needed to meet the pay bills or fund expansion, will someone be there to answer that phone call?

If not, the business will suffer, as will the economy and job creation.

I am delighted to discuss these issues further and answer any questions you may have.



CENTER FOR CAPITAL MARKETS
COMPETITIVENESS

SOURCES OF CAPITAL AND ECONOMIC GROWTH:

Interconnected and Diverse Markets Driving U.S. Competitiveness

Spring 2011



*By Anjan Thakor, John E. Simon Professor, Finance and Director, PhD Program
Washington University in St. Louis and European Corporate Governance Institute*



CENTER FOR CAPITAL MARKETS
COMPETITIVENESS

Since its inception, the U.S. Chamber's Center for Capital Markets Competitiveness (CCMC) has led a bipartisan effort to modernize and strengthen the outmoded regulatory systems that have governed our capital markets. Ensuring an effective and robust capital formation system is essential to every business from the smallest start-up to the largest enterprise.

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Executive Summary

This paper provides a broad overview of the U.S. financial system. It describes the variety of financing sources available to both individual consumers and businesses, and the considerations that lead a consumer or a business to choose a specific financing source. It then discusses how this variety of financing sources provides benefits to the economy. Five main conclusions emerge from this analysis.

First, a robust, efficient, and diverse financial system facilitates economic growth. Research has shown that the level of financial development is a strong predictor of economic growth. This research is based on a study of a large number of countries. Even with the unprecedented economic crisis, the growth in the U.S. financial services industry has been accompanied by a robust growth in our economy, as measured by growth in gross domestic product (GDP). The financial system facilitates economic growth by providing four basic services:

- facilitating trade;
- facilitating risk management for various individuals and businesses;
- mobilizing resources; and
- obtaining information, evaluating businesses and individuals based on this information, and allocating capital.

It is through the provision of these services that the financial system ensures that investment capital is channeled most efficiently from the providers of capital to the users of capital, so that both the economy and employment grow.

Second, in terms of their financing choices, individuals are largely limited to debt financing for raising capital. For individuals, these

sources include family and friends, credit cards, home equity loans, and other types of bank loans. Consumer credit provided through these diverse sources is a large segment of our economy. The major providers of consumer credit—commercial banks, finance companies, credit unions, the federal government, savings institutions, and nonfinancial businesses—provided over \$2.4 trillion of consumer credit as of year-end 2010. The efficient availability of this credit is critical in an economy so dependent on domestic consumption. It is important to note that for many smaller businesses, especially start-ups, these consumer credit products are often the only available sources of new or even working capital. Entrepreneurs often rely on access to personal credit, including credit cards and home equity loans, to launch their new businesses.

Third, as businesses grow they can access both debt and equity financing, and the mix of these two, called the “capital structure” decision, is an important choice every business makes. Three broad categories of financing sources are available to businesses for either debt or equity capital. One source of capital involves raising funds without using any intermediaries like banks or going to the public capital market. Included in this category are family and friends, employee ownership, retained earnings generated by the operating profits of the business, customers and suppliers, and angel investors. A second category is intermediated finance that does not involve going to the capital market. Included in this are loans from intermediaries like banks and insurance companies, funding by private-equity firms and venture capitalists, small business investment companies that provide Small-Business-Administration-sponsored financing, and

factoring companies that provide financing against receivables. While all these financing sources are important, venture capital has played an especially vital role in helping launch new businesses: venture capital financing accounts for 21% of GDP. Many famous companies like Apple were financed in their infancy by venture capital. For more mature business, bank loans are an essential source of finance. In 2009, U.S. banks made more than \$7 trillion in loans. The third category of financing available to businesses is direct capital market access, whereby the firm uses an investment bank and sells debt or equity claims directly to capital-market investors. These include commercial paper, initial public offerings (IPOs), bond sales, and secondary equity offerings.

Fourth, a rich diversity of financing sources is provided by the U.S. financial system.

This diversity helps U.S. consumers and businesses to better manage their risks and lowers their cost of capital. Diversity enables consumers and businesses to effectively match their financing needs to the financing sources, with each financing source providing a different set of services. Since the needs of those seeking financing differ, it is beneficial to have specialized financiers catering to different needs. The result is better risk management and higher investment in the economy, leading to an increase in GDP and employment.

Fifth, the U.S. financial system is highly inter-

connected. What happens to one financing source typically affects a host of other financing sources as well as those seeking financing. These spillover effects cause any change in the part of the system to be propagated through the entire system, often in ways that are difficult to predict. For example, if our public equity markets were to diminish in the future—say due to excessively onerous regulation—it is very likely that the supply of private equity and venture capital

financing would decline as well. Hence, assessing the risks associated with regulatory changes in the financial system is a notoriously difficult task. This often leads to unintended consequences when changes are introduced in some part of the financial system. Disturbing examples of this can be found in the impact of the Sarbanes-Oxley Act and the litigation environment faced by U.S. companies. These changes have contributed to a slowdown of the rate at which new public companies are formed and an increase in the rate at which existing public companies are leaving the market, leading to a substantial decline in the number of publicly listed U.S. companies.

A well-developed financial system goes hand-in-hand with robust economic growth and increased employment.

A well-developed financial system goes hand-in-hand with robust economic growth and increased employment. The better the financial system functions, the more new companies are launched, the larger the number of publicly listed companies, the better the overall management of risk, the greater the availability of consumer credit, and the higher aggregate investment.

I. Introduction

In the early 1980s, the financial services industry accounted for about 10% of total corporate profits in the United States. In 2007, it was 40%. Some have used statistics like this to argue that financial services are becoming excessively important at the expense of other parts of the economy, such as manufacturing and services that produce obviously tangible economic value. However, nothing could be further from the truth. Given the economic crisis we have witnessed over the past three years, it is easy to forget that growth in financial services over the past two decades was also accompanied by some of the most spectacular economic growth we have ever witnessed. In the 1980s, U.S. gross domestic product (GDP), the most commonly used measure of the size of the economy, stood at under \$3 trillion. In 2007, when the share of total corporate profits accounted for by financial services was four times as large as in the 1980s, it was around \$14 trillion. Today the U.S. financial services industry employs more than 5.77 million people, about 6% of total private non-farm employment, and this number is projected to grow to 12% by 2018. The wealth generated by the financial services industry contributed nearly 6% (\$828 billion) to U.S. GDP in 2009.¹

In the wake of the recent financial crisis, some have argued that the economic growth we witnessed was merely an unsustainable bubble, and that when the bubble burst, the economy came crashing down. While the causes of this crisis are not the topic of this paper, it is worth noting that the crisis was a consequence of a *variety* of factors in the United States: an excess supply of liquidity due to a global

¹ U.S. Financial Services Industry: Contributing to a More Competitive U.S. Economy, SIFMA, <http://www.ifa.doc.gov/td/finance/publications/U.S.%20Financial%20Services%20Industry.pdf>, (July 2010).

liquidity-imbalance, an easy-money monetary policy, a political desire for widespread home ownership, and various developments in the financial sector. All of these factors need attention if we are to have a well-regulated, transparent, efficient, and robust financial system consisting of a diversity of financing sources. Thus, financial reform must go hand in hand with a strong financial services sector. The recently passed Dodd-Frank Wall Street Reform and Consumer Protection Act tackles a variety of financial reform issues, but many of the specific regulations have yet to be written, so time will tell about how effectively the Act will deal with the causes of the crisis. Nonetheless, an important point to remember is that the data show a strong correlation between economic growth and strength of financial services.

Financial markets and the financial service firms that operate in those markets help individuals and businesses raise capital of various sorts, as they channel money from savers to those with investment ideas.

It was not a coincidence that the U.S. economy grew so rapidly during a time that financial services grew in importance. Financial markets and the financial service firms that operate in those markets help individuals and businesses raise capital of various sorts, as they channel money from savers to those with investment ideas. The more well developed the financial system, the better lubricated this channel, and the lower the transactions costs and other impediments to investment and economic growth.



Indeed, one of the roadblocks to economic growth in the former eastern-block Communist countries in Europe, such as Romania, has been the lack of developed financial systems. The fact that the U.S. financial system is well developed and innovative has been a big boon to individuals and businesses, as they have been able to access a variety of financing sources to raise relatively low-cost capital to grow. Even within the United States, the number one reason

When small businesses do succeed and create employment and growth, an important factor in their success is access to the financing needed to support growth.

for the failure of small businesses is lack of access to funding. Put differently, when small businesses do succeed and create employment and growth, an important factor in their success is access to the financing needed to support growth. The strength of the financial system has also been a significant factor in the creation of prominent new firms that have been launched in the past 25 years and have gone on to become global powerhouses. Starbucks, Yahoo, Google, and eBay are but a few examples. No other country in the world can match this, in large part because no other country in the world has such a deep and vibrant financial system.

What is the U.S. financial system composed of and how does it work? What makes it so deep and vibrant? These are the main questions addressed in this research paper. Section II discusses the role of the financial system in promoting economic growth. Section III provides an overview of the financial system and addresses the question of how the financial system functions. The focus is on the types of businesses that are involved in raising capital, the types

of financing sources available to them, and the financial instruments/contracts that are used to raise capital. Section IV discusses how different parts of the financial system are connected and the role of the large diversity of financing sources in making the financial system deep and vibrant, and facilitating economic growth.

II. The Role of the Financial System in Promoting Economic Growth

There is a rich body of research on the role of the financial system in promoting economic growth, much of it from comparisons of different countries. For example, in a study of 56 developing countries, the level of financial development in 1960 was a strong predictor of economic growth over the next 30 years, after controlling for a variety of economic and political factors.² This and other studies provide ample evidence that robust financial development is followed by healthy economic growth. This section will discuss this research to develop an understanding of what the facts say and why they say what they say. But first, it is useful to understand the basic economics behind how the financial system promotes economic growth.

The Conceptual Link Between the Financial System and Economic Growth

A simple example illustrates this link. Suppose we have a community in which four people own productive resources: Mary, Peter, Paul, and Sally. Mary has saved some money that she keeps in a safe in her house. Peter owns an orchard and some apple seeds that he can plant to grow trees and harvest apples. Paul has a farm on which he naturally produces fertilizer. Sally owns some farm equipment that can be used for tilling the land and digging holes for planting trees.

Neither Paul nor Sally is willing to sell any goods or services for the promise of a future return. They will sell only if they get paid now. But Peter has no money to pay anyone now. Mary, on the other

hand, is patient and would not mind giving her money to someone now in exchange for a larger payment in the future. However, she does not know Peter well and is concerned that he might be a crook who will simply abscond with her money if she lends it to him.

Without a financial system in this community, Peter will be limited to planting whatever apple trees he can using his own seeds and labor, but without any fertilizer or farm equipment. Suppose he can plant a few trees and harvest 500 apples a year. That then defines his economic output.

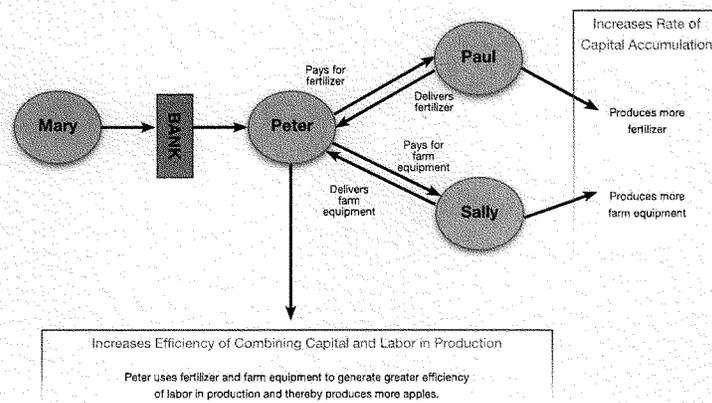
Now suppose the community's financial system includes a bank and a financial market where financial securities are traded. Now Peter can go to the bank and request a loan that would be repaid from future sales of apples. The bank will conduct a credit analysis and determine whether Peter is a good credit risk. The bank will also monitor Peter to make sure that he is not a crook who absconds with the bank loan. With the assurances provided, Mary will be willing to deposit her money in the bank. This is better for her than keeping the money idle in a safe in her house and earning zero interest. With the bank loan, Peter will buy some fertilizer from Paul and some farm equipment from Sally on a cash-on-purchase basis. He can now plant more trees to produce more apples, so he ends up with 10,000 apples rather than 500. The economic output of this economy has gone up due to the financial market. A further increase in economic output may arise from the fact that Paul and Sally may use the money Peter pays them to produce more fertilizer and farm equipment. This output may have uses in other parts of the economy, leading to further increases in economic output, and so on (see figure 1).

² See Levine (1996).

This simple example illustrates three important ways in which the financial system contributes to economic growth:

- it increases trade and the flow of goods and services;
- it increases the rate of physical capital accumulation; and
- it increases the efficiency of combining capital and labor in production.

Figure 1: How the Financial System Promotes Growth



The Services the Financial System Provides and How They Help Economic Growth

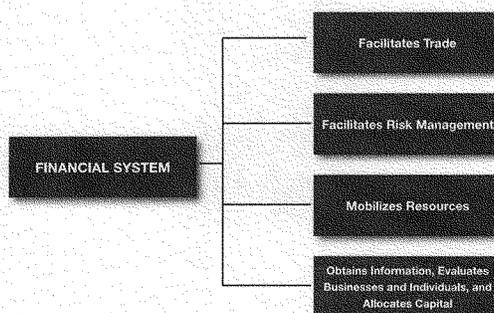
There are four basic services provided by financial systems that help spur economic growth³ (see figure 2).

The Financial System Facilitates Trade: In primitive economies, trade was based on barter, something that Peter and Paul could not do in our example because Peter had no apples in his inventory to trade. The invention of money minimized the

to move money from one party to the other and often across national boundaries. Without these systems, companies would be greatly impeded in their ability to do business with each other, and economic growth would suffer.

The Financial System Facilitates Risk Management: Financial systems help individuals and businesses improve their management of various sorts of risks. This is important for economic growth because increased risk reduces investment. In our example, Peter faces some risk when he buys fertilizer and farm equipment to increase his apple

Figure 2: The Basic Services Provided by a Financial System



need for barter trade, thereby increasing commercial transactions and trade. In modern economies, it is not enough to have money to facilitate transactions—this money needs to be moved around. Financial systems, with the appropriate hubs and spokes for recording and clearing multilateral financial transactions, help

crop. If it does not rain as much as Peter expects, he may have a lean harvest and be unable to fully repay his bank loan. This may cause him to lose his farm to the bank. Or there may be enough rain, but new apple orchards may spring up in neighboring communities and the market may be flooded with apples, pushing the price of apples well below normal. These risks may cause Peter to cut back on how much

³ See Levine (1996).



he invests in buying fertilizer and farm equipment. A financial system *prices* risk and provides mechanisms for pooling, ameliorating, and trading risk. It provides producers like Peter a way to manage risks. For example, Peter could use the financial system to purchase insurance against a low harvest or could hedge apple price risk in the futures market. The financial system also gives investors like Mary better risk management opportunities. For example, Mary may be concerned about *liquidity risk* if she lends directly to Peter. Once the money is loaned, Mary may be unable to get any of it back until the apples are harvested and sold. But what if a medical emergency arises and Mary needs the money before then? With a financial system, Mary would simply withdraw her deposit from the bank when she needs it. Thus, a financial system, by facilitating improved risk management for both borrowers and savers, spurs long-run investments that fuel economic growth.

A financial system, by facilitating improved risk management for both borrowers and savers, spurs long-run investments that fuel economic growth.

The Financial System Mobilizes Resources: As our example shows, without a financial system, Mary's savings would have stayed locked up in her safe. It took a financial system to mobilize those resources and get them to Peter, who could put them to productive use. Almost 150 years ago, the famous economist Walter Bagehot described how the financial system helps to mobilize resources and spur economic growth:⁴

⁴ See Bagehot (1873), reprinted 1962, as noted by Levine (1996).

"We have entirely lost the idea that any undertaking likely to pay, and seen to be likely, can perish for want of money; yet no idea was more familiar to our ancestors, or is more common in most counties. A citizen of Long in Queen Elizabeth's time...would have thought that it was no use inventing railways (if he could have understood what a railway meant), for you would not have been able to collect the capital with which to make them. At this moment, in colonies and in all rude countries, there is no large sum of transferable money, there is not fund from which you can borrow, and out of which you can make immense works."

What Bagehot was referring to was the ability of the financial system to mobilize resources that would permit the development of better technologies that lead to economic growth.

The Financial System Obtains and Processes Information and Allocates Capital: Individual savers, like Mary, may not have the resources or expertise to evaluate firms, projects, and managers before deciding whether to invest in them. Financial intermediaries, like banks and investment banks, have a cost and expertise advantage in collecting and processing such information, and then helping the capital-allocation process based on that information.⁵ This, in turn, encourages investors to supply capital to these intermediaries, which channel the capital to businesses that make investments that fuel economic growth.

For example, imagine that someone comes to you and asks for a loan to finance a new restaurant. While you have the money to lend, you are not sure this is a good investment for you. But if your friend goes to a bank for the loan, the bank can gather the

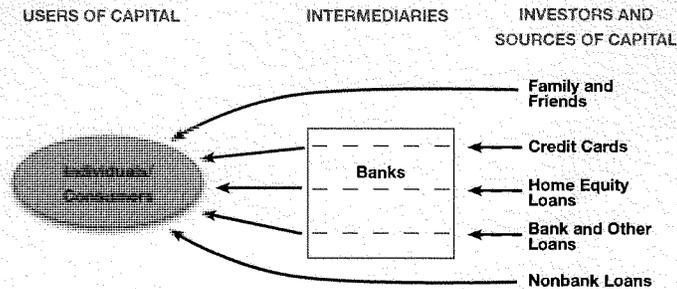
⁵ See Greenbaum and Thakor (2007).

necessary information about potential future income and the assets purchased with the loan that can be used as collateral, conduct the necessary credit analysis with this information, and decide whether to lend and how to structure the loan. Such expertise is part of the bank's business skill set. Knowing that the bank will do this, you may be willing to deposit your money so that the bank can, in turn, use it to make loans.

In a different context, venture capitalists are also information-processing experts. When a venture capital firm like Sequoia Capital evaluates a start-up firm, it uses its expertise in assessing the firm's growth potential and odds of success on the basis of the firm's business plan. It then uses this assessment to decide whether to provide financing. Promising new ventures that survive this screening are able to obtain more financing than they might receive from family and friends.

In summary, the financial system provides four key services—facilitates trade, facilitates risk management, mobilizes resources, and acquires and processes information that helps in the allocation of capital. These key services help to increase the flow of goods and services, increase the rate of physical capital accumulation, and increase the efficiency of combining capital and labor in production. The result is more economic growth.

Figure 3: The U.S. Financial System: Individuals/Consumers



III. An Overview of How the U.S. Financial System Works

The U.S. financial system is a complex mosaic of institutions, markets, investors (businesses and individuals), savers, and financial contracts, all of which are interconnected. Before we can understand the role played by each part of the financial system, it is necessary to understand some key distinctions between the contracts by which financial capital is raised and the differences between individuals/consumers and businesses with respect to how these financing contracts are used.

Figure 4: The U.S. Financial System: Businesses Raising Equity Financing

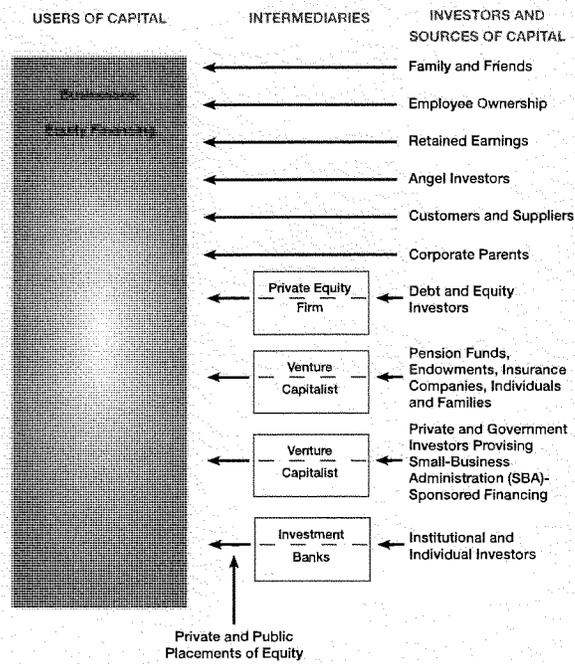
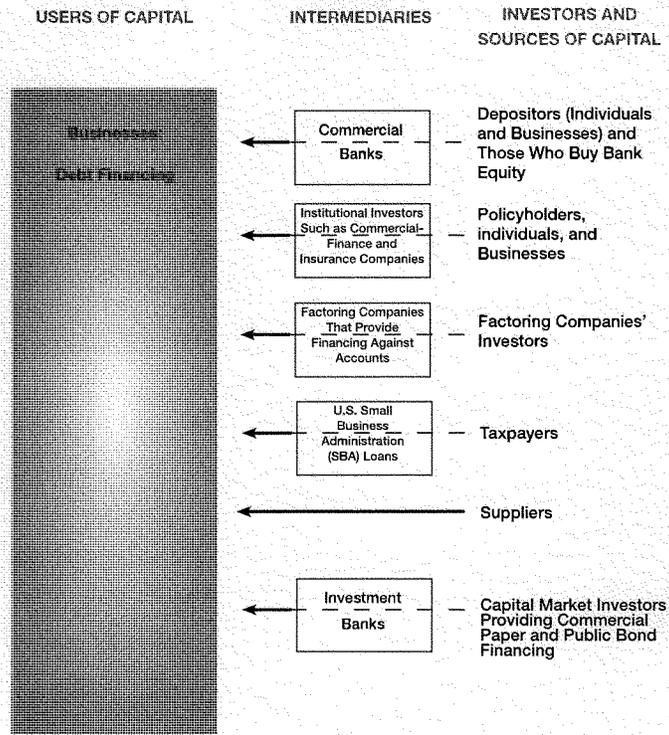


Figure 5: The U.S. Financial System: Businesses Raising Debt Financing



Debt Versus Equity and Use by Consumers and Businesses

Although a highly developed financial system like the United States has a plethora of financial contracts, the contracts by which individuals and businesses raise capital can be divided into two main groups: equity and debt.

With an equity contract, a business wishing to raise capital would sell an ownership stake in the business to investors, who would provide the external financing the business needs. In the example discussed earlier, Peter might go to Mary and offer her a 30% ownership share in his apple business in order to raise the money to buy fertilizer and farm equipment, rather than taking a bank loan. How much money Mary would make on her investment would depend entirely on the profitability of the business. If Mary invested \$100,000 for a 30% ownership share and Peter made a profit of \$15,000 in the first year after paying off all his operating expenses, Mary would be entitled to receive 30% of that, which is \$4,500. If Peter's business made a profit of \$50,000, Mary would get \$15,000 in the first year alone, and if the business made no profit in the first year, Mary would get nothing in the first year. Each year, Mary would receive 30% of the profits, assuming all profit is distributed as dividends. Moreover, Mary's investment has no stated maturity. That means Peter never has to return her original investment of \$100,000 to her as a lump sum. The only way for Mary to recover that original investment is to sell her ownership stake to someone else.

With a debt contract—for example, a bank loan—the lender is promised a repayment of the original loan amount plus some interest. A debt claim has both a *stated maturity* and *priority over equity*. "Stated maturity" means that the lender must be fully repaid by a certain date. "Priority over equity" means that debt holders must be fully repaid before

shareholders can be paid. In our example, if Peter finances with a bank loan, he must first use all of the profit from selling apples to repay the bank, even before he pays taxes. Only after he repays the bank and pays his taxes can he keep what is left over for himself as the owner of his business.

Consumers finance primarily with debt contracts.

Consumers finance primarily with debt contracts. Bank loans, home mortgages, and credit card borrowing are all forms of debt contracts. There is a good reason why equity is not used in consumer financing. A loan taken by a consumer is essentially a financial claim by the lender on the borrower's future labor income. It is relatively easy for the borrower to simply withhold the supply of this labor income—for example, by quitting work—and make the lender's claim worthless. A debt contract, with a requirement to repay by a certain date and penalties for not repaying, provides better incentives for the borrower to repay.

Businesses finance with both debt and equity. In fact, the mix of debt and equity financing is an important decision for any business. Equity

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financing is viable for businesses because the financial system provides corporate governance to keep managerial actions roughly aligned with the interests of the financiers of the business. Further, businesses have powerful incentives to keep producing profits,

so they are unlikely to withhold the supply of productive inputs like labor.

Individual/Consumer Financing

Consumers can tap a variety of sources for financing, most of which is in the form of debt (see figure 3).

Friends and family provide a potentially significant source of capital. Often these loans have vaguely defined maturity with specific purposes, for example, a student loan that will be repaid sometime after graduation or a car loan. Many people rely on this form of financing in emergencies or for purposes for which bank loans are difficult to get.

Credit card financing is unsecured debt, which means there is no specific collateral backing the loan. Since it is largely used as a means of transaction financing, the issuer expects to be repaid from the borrower's income within a relatively short time. Interest rates and late-payment fees tend to be high to encourage prompt payment. The viability of credit card financing rests on a well-developed financial system with a high level of trust and a deep financial market in which banks can raise financing by securitizing their credit card receivables and selling the claims to investors. The volume of credit card finance, and hence the enormous payment-transactions convenience afforded to consumers, both decline exponentially as one moves from well-developed financial systems (like the United States) to less-developed financial systems.

Home equity loans are a convenient way for consumers to borrow against the price appreciation in their homes. For example, say you need \$75,000. Your home is worth \$300,000 and you owe the bank \$200,000. Then your home equity is \$100,000 (\$300,000 minus \$200,000), and you can borrow the \$75,000 you need against the home equity.

Of course, once you take the loan, you will be faced with additional monthly payments on the loan.

Before the subprime financial crisis, home equity loans were a significant source of finance for many consumers. The average U.S. homeowner extracted 25–30 cents for every dollar increase in home equity during 2002–2006, and home-equity-based borrowing was equal to 2.8% of GDP every year from 2002 to 2006.⁶

Bank and other loans represent a significant portion of the financing available to individuals. These loans include borrowing from commercial banks, finance companies (e.g., car loans), credit unions, the federal government, and so on. The amount of this borrowing is huge. As of year-end 2010, consumer credit outstanding was \$2.41 trillion, having grown at an annual rate of 2.5% in the fourth quarter of 2010 (see table 1).

Nonbank loans are provided by a wide array of lenders. Perhaps the biggest nonbank financial intermediary is the U.S. government. From Fannie Mae and Freddie Mac to Sally Mae (the Student Loan Marketing Association), the amount of credit provision that involves the U.S. government dwarfs that by any bank.

Various other lenders also exist on the “periphery” of the financial services industry and serve as “bankers” to the poor and the excluded. **Pawnbrokers** are one such group of lenders. Pawnbroking is a form of asset-backed (secured) lending. The lender makes a loan that typically is small, say \$50–\$100, for a few weeks or months, and is secured with merchandise (e.g., jewelry, electronics) that has a resale value roughly twice the debt. Interest rates tend to be high, roughly 25–30% per month in some states. Default rates range between 10%

⁶ See Mian and Sufi (2010).

Table 1: Consumer Credit Outstanding

Major Providers of Consumer Credit	Consumer Credit in \$ Billions by Year				
	2006	2007	2008	2009	2010
Commercial banks, finance companies, credit unions, federal government, savings institutions, and nonfinancial business	\$2,384.80	\$2,522.20	\$2,561.10	\$2,449.90	\$2,410.40

Source: Federal Reserve Statistical Release, February 7, 2011.

and 30%. In 2004, there were 15,000 pawnbrokers in the United States.⁷

Payday lenders represent another source of nonbank credit. They provide unsecured, short-term loans to customers. The loan arises in one of two ways. The first is a "traditional" payday loan, in which the borrower writes a post-dated (or undated) personal check to the lender, and the lender makes a loan equal to the check amount minus a finance charge. The lender usually deposits the check and gets paid the day the borrower receives his pay. The second involves the lender directly debiting the borrower's bank checking account on a future date for the amount of the loan plus the finance charge. The typical loan has a two-week maturity. Payday lending is legal and regulated in many states, but is illegal or infeasible given the law in some states.

Title lenders are similar to payday lenders, the difference being that title lenders make secured loans rather than unsecured loans. That is, the title holder (lender) holds collateral against the loan. Car title loans are quite common, and in this case the lender holds the title to the borrower's car until the loan is repaid. Title lending is an extension of pawnbroking. A key difference is that while a pawnbroker keeps possession of the collateral during the term of the loan, the title lender may permit the collateral to

remain with the borrower while the loan is outstanding and repossess it only upon default.

Attention will be turned next to business financing. While for purposes of discussion, it is useful to create a clean separation between consumer and business financing, in practice this dividing line is often fuzzy. In particular, many individuals will use their access to consumer financing to raise the money they need to invest in their businesses. For example, someone may charge a business purchase to a personal credit card or use a home equity loan to make the investment needed to expand the business.

Business Financing: Equity

Businesses can raise equity financing from a richly diverse set of sources (see figure 4).

Internal Equity Financing

Family and friends represent an important financing source for start-up businesses. The typical family or friend investor is someone who has been successful in his own business and wishes to invest both to help a family member or friend and/or because someone had made a similar investment in his business when it was a start-up. For example, a health care private equity firm was launched about 10 years ago in St. Louis, MO, with financing provided entirely by family and friends because the founders discovered that no Wall Street firm was willing to

⁷ See Greenbaum and Thakor (2007).

provide start-up financing to a group of individuals who had operating experience in the industry but no private-equity experience. Similarly, Facebook was launched from a Harvard dorm room and eventually expanded with family and friends financing. Typically, family and friends will invest up to \$100,000 each.

Employee ownership is another way in which firms can raise equity financing. Employee stock ownership plans (ESOPs) give employees the opportunity to become shareholders in the company. As shareholders, employees can experience increased pride and security, and may become more productive. Employees can participate via stock purchases, by receiving a portion of their compensation as stock rather than cash, and sometimes by providing personal assets to the business. There are more than 11,500 ESOPs in place in the United States, covering 10 million employees (10% of the private-sector workforce). The total assets owned by U.S. ESOPs were estimated at \$901 billion at end of 2007.⁸

Retained earnings represent a vital source of internal equity financing for businesses. When a firm makes a profit at the end of a year after settling all its expenses, paying creditors, and paying taxes, it will typically pay out a portion of the profits as a dividend to its shareholders. The amount remaining after the dividend payment is called *retained earnings*, and it augments the firm's equity. Retained earnings may be viewed as a "sacrifice" made by the shareholders in the sense that they forgo some dividends in order to build up the firm's equity. Companies generally retain 30% to 80% of their after-tax profit every year.

External Equity Financing

Angel financing involves raising equity capital from individual investors, known as "angels." These individuals look for companies that have high

growth prospects and some synergies with their own businesses, and operate in an industry that the individuals have successfully worked in or are bullish about. Angel financing is quite often tapped by early-stage companies that have yet to establish a track record of revenues or earnings that would enable them to obtain institutional financing from venture capital firms or banks. In our apple-orchard example, if Peter cannot get a bank loan to buy fertilizer and farm equipment, he might seek out angel investors (typically investors who, unlike Mary, know him and something about his business) to provide the financing in exchange for an (equity) ownership stake in the business.

Angel financing is quite often tapped by early-stage companies that have yet to establish a track record of revenues or earnings that would enable them to obtain institutional financing from venture capital firms or banks.

Angel financing is often quite expensive. Capital from angel investors can cost the entrepreneur anywhere from 10% to 50% of the ownership in the business. In addition, many angel investors charge a monthly management fee.

Businesses can sometimes raise equity financing from **customers, suppliers, and sales representatives**. These parties may be motivated to provide financing because they believe that the business has growth potential that may not be realized without the financial support provided by the equity input, and also that the equity position may become a profitable investment down the road. For example,

⁸ The ESOP Association Industry Statistics, http://www.esopassociation.org/media/media_statistics.asp (March 2011).

IBM once invested enough in Intel to own 20% of Intel's equity. It made this investment to financially boost Intel, a key supplier whose microprocessors were used in all IBM personal computers.

Corporate parents represent another significant financing source for some institutions. A holding company may provide its subsidiary with capital rather than incurring the cost of raising external capital. For example, when ABN-Amro, the Dutch banking giant, acquired LaSalle Bank in Chicago in 1979, it infused \$300 million of capital into its newly acquired subsidiary.

Intermediated Equity Capital

Thus far we have discussed non intermediated sources of equity capital, in which the user obtains capital directly from the investors (who represent the sources of capital). Other forms of equity capital involve financial intermediaries that help to link the sources and users of capital.

The first of these is **private equity**. The term private equity (PE) is used to refer to a firm whose equity is not publicly traded on a stock exchange or capital that is not quoted on a public exchange. PE firms specialize in buying firms, some of which may be publicly owned, and holding them as part of a portfolio of privately-owned firms. After they improve the management of these firms, the PE firms either sell them to other firms or take them public through a sale of stock in the market. For example, the Blackstone Group's PE unit recently acquired theme park operator Busch Entertainment Corp. (previously owned by the Anheuser-Busch Corp.) and renamed it SeaWorld Parks & Entertainment. Blackstone also acquired frozen-foods maker Birds Eye Foods in a PE transaction.

PE firms are typically organized as limited partnerships to hold investments in which investment

PE firms specialize in buying firms, some of which may be publicly owned, and holding them as part of a portfolio of privately-owned firms.

professionals serve as general partners, and investors serve as passive limited partners and provide the capital. The PE firm usually collects a management fee of 2% or less plus 20% of the capital gain from the investment. Many PE firms deliver attractive returns to their investors, net of these charges.

The largest PE firm in the world is Kohlberg Kravis Roberts & Co. (KKR), which had more than \$230 billion in completed and pending acquisitions during 2005–2010. Other big PE firms include the Blackstone Group LP, Carlyle Group, Cerberus, Clayton Dubilier and Rice, Goldman Sachs Capital Partners, Bain Capital, TPG Capital, and Permira. While these are the largest PE firms, they represent a mere fraction of the total number of PE firms in the business. There are more than 2,500 PE firms worldwide, and they raise many billions of dollars in capital every year. In 2006, PE firms bought 654 U.S. companies for \$375 billion, and U.S.-based PE firms raised \$215.4 billion in investor commitments.⁹

PE firms use a variety of strategies to acquire firms: leveraged buyouts (LBO), growth capital, distressed investments, mezzanine capital, and venture capital. In a typical LBO deal, the PE firm acquires majority control of an existing or mature firm and finances the acquisition with a relatively high amount of debt. The assets of the acquired firm serve as collateral for the debt used by the PE firms to acquire it.

⁹ Robert J. Samuelson, The Private Equity Boom, Washington Post, <http://www.washingtonpost.com/wp-dyn/content/article/2007/03/14/AR2007031402177.html> (March 17, 2007).

Over time, the cash flows generated by the acquired firm help to pay off the debt used for the acquisition.

Venture capital will be discussed shortly as a distinct source of equity capital because there are also specialized venture capitalists that do not do private equity deals. Growth capital refers to equity investments, quite frequently minority investments, made by PE firms in mature companies that are seeking capital to expand or restructure operations or fund some other major investment. By obtaining this capital from a PE firm, the firm that acquires the capital avoids the dilution in the capital market that would occur if it were to issue equity. There is ownership dilution with a PE firm as well, but the minority ownership of the PE firm represents a (monolithic) block ownership as opposed to a more diffused dilution in the capital market.

Distressed investments are investments (either debt or equity) that PE firms undertake in financially distressed companies. Occasionally, PE firms will take more senior positions than equity in either distressed or healthy firms. These may be subordinated debt or preferred stock (which has seniority over common equity but is junior to debt). The objective in taking such positions would be to reduce the PE firm's risk exposure.

Mezzanine capital refers to a subordinated debt or preferred equity claim on the firm's assets that is senior to the firm's common equity, but junior to other claims. Such capital has a lower return but less risk for the PE firm providing the financing.

Venture capital (VC) is an enormously important source of finance for start-up companies. The fact that the United States has the most well-developed VC market in the world—with Silicon Valley setting the "gold standard" for a VC community—has often been singled out as a key reason for

the successful launch of so many new companies in the United States. Numerous famous firms, such as Apple, Google, and Microsoft, were launched with the help of VC financing.

VC-backed companies account for 21% of U.S. GDP and thus play a vital role in job creation in our knowledge economy. Two million new businesses are created every year in the United States, of which about 600 to 800 get VC funding.¹⁰

VC financing is provided by both government-sponsored and private entities. In fact, an initial step in the development of this industry was the passage of the *Small Business Investment Act of 1958*, which allowed the SBA to license private "Small Business Investment Companies" (SBICs) to help fill the gap between the availability of VC and the needs of small businesses in start-up and growth situations. The structure of the program is unique in that SBICs are privately owned and managed investment funds, licensed and regulated by SBA, that use their own capital plus funds borrowed at favorable rates with an SBA guarantee to make equity and debt investments in qualifying small businesses.

There is also a substantial institutional VC industry in the United States. These privately owned financial intermediaries typically invest in high-growth companies that are capable of reaching sales of at least \$25 million in five years. According to recent estimates based on surveys from the National Venture Capital Association, U.S. venture capital firms invest between \$5 billion and \$10 billion per year. Since 1970, VC firms have reportedly invested in more than 27,000 start-ups to the tune of \$456 billion. Some of the major VC firms include Sequoia Capital, Benchmark Capital, Mitsubishi UFJ Capital, and Kleiner, Perkins, Caufield & Byers.

¹⁰ *Venture Impact: The Economic Importance of Venture Backed Companies to the U.S. Economy*, (National Venture Capital Association) (2009).

VC firms raise their own financing from investors (sources of capital). These include pension funds (42% of funds), insurance companies (25% of funds), endowments (21% of funds), individuals and families (10% of funds), and others (2% of funds). VC firms typically stay invested in their portfolio companies for five to eight years before selling them off.

Investment banks also act as intermediaries that help businesses raise capital from a variety of sources. An investment bank is a financial institution that assists individuals, corporations, and governments in raising capital by underwriting and/or acting as the client's agent in the issuance of securities. An investment bank may also help companies involved in mergers and acquisitions by providing a host of services, such as market making, trading of derivatives, bonds, equity, foreign exchange, and commodities.

Unlike commercial banks, investment banks do not finance themselves with deposits, although most major Wall Street investment banks have become parts of Bank Holding Companies since the subprime financial crisis. Investment banks may have VC subsidiaries that provide VC financing to businesses.

Investment banks also help businesses with **private placements of equity**, whereby new equity capital can be raised without having to issue equity on the public stock exchanges. A firm that wishes to raise equity hires an investment bank to locate institutional and individual investors who wish to invest in the company. These investors purchase the equity being offered for sale in privately arranged transactions. For a private firm, the benefit of this is obvious—because it is not publicly listed, a private placement allows it to raise equity capital beyond what is available from retained earnings. The additional capital can help to finance expansion, business growth, and additional employment. But sometimes

even public firms take advantage of private placement, because it helps to raise equity capital without additional information disclosure of the kind required for a public offering. This can be beneficial for firms that wish to protect the confidentiality of product information or technology.

Facebook is a good example of how private placement of equity can help a firm raise financing for growth. A relatively new company that is at the vanguard of the social-network phenomenon, Facebook's initial equity funding came from private-equity placements with Peter Thiel (co-founder of PayPal), Accel Partners, and Greylock Partners. The first round of private-equity investment in Facebook came in September 2004 when Peter Thiel invested \$500,000 (valuing the company at \$5 million). Since then, PE firms have continued to invest in Facebook. In early 2011, a fund organized by Goldman Sachs invested more than \$1 billion in Facebook. General Atlantic recently agreed to purchase 0.1% of Facebook from its employees at a price that values Facebook at \$65 billion.

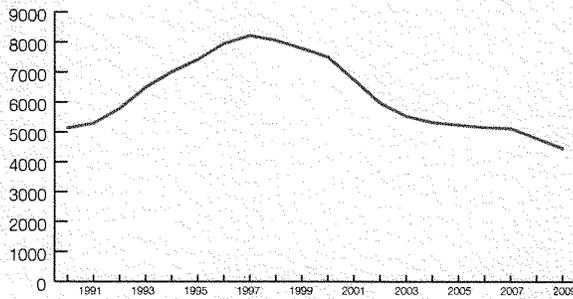
In terms of public offerings of equity, investment banks help to take private firms public through **initial public offerings (IPOs)** of stock. An IPO involves the sale of common stock to the public for the first time. Through the IPO, part of the ownership of the company transfers from the entrepreneur(s) who launched the company to capital-market investors. In exchange, the firm is able to raise hard cash as it sells its shares to investors. The firm will typically hire an investment bank to help with the IPO. Among the many services the investment bank provides are the pricing of the IPO, the "road shows" during which the company is publicized to potential investors prior to the IPO, and the actual underwriting of the equity issue. The investment bank receives a percentage of the proceeds of the IPO as compensation for its services.

A number of large IPOs have been in the news. AT&T Wireless did a \$10.6 billion IPO in 2000, and in 2010 General Motors re-emerged from post bankruptcy privatization with a \$23.1 billion IPO. We all remember Google's IPO in 2004, which turned its 1,000 employees (who were shareholders) into instant millionaires, and its founders, Sergey Brin and Larry Page, into billionaires. Moreover, with its publicly traded stock from the IPO serving as currency, Google was able to acquire video-sharing service YouTube in 2006 for \$1.6 billion.

Apart from a short rebound of a couple of years before the subprime crisis, IPO volume has been declining since 2004.

Companies rely on these **secondary equity offerings (SEOs)** when they need equity capital beyond what is provided by retained earnings. For example,

Figure 6: The Decline in Publicly Listed U.S. Companies



Source: Letter by James Angel, dated January 14, 2011, to the Securities and Exchange Commission.

Apart from a short rebound of a couple of years before the subprime crisis, IPO volume has been declining since 2004. There was also a decline prior to 2004, in part due to the more stringent and costly corporate governance stipulation contained in the Sarbanes-Oxley Act. IPOs are one of many indicators of the competitiveness of U.S. capital markets.

In addition to IPOs, investment banks also help publicly traded companies raise additional

equity capital after they have already gone public. Companies rely on these **secondary equity offerings (SEOs)** when they need equity capital beyond what is provided by retained earnings. For example, in 2009 many U.S. banks made secondary equity offerings to raise equity capital to satisfy regulatory capital requirements, because their equity was depleted during the crisis.

IPOs and SEOs allow publicly traded companies to raise capital, grow, and increase employment. The number of publicly traded companies and the amount of capital that they raise are both good indicators of the health of the economy and the prospects

for future employment. From this standpoint, recent developments in U.S. capital markets cause concern. The number of domestic U.S. companies listed on our exchanges has been declining for the past 15 years or so. At the end of 1997, about 8,000 domestic companies were listed on the New York Stock Exchange (NYSE), American Exchange (AMEX), and NASDAQ. This number had dropped to fewer than 5,000 by the end of 2009, and there are now fewer than 4,000 companies in the Wilshire 5000 index of U.S. public companies (see figure 6).¹¹ This decline, combined with the sputtering volume of U.S. IPOs, suggests that we are creating new public companies at a slower rate than before and that existing public companies are vanishing at a higher rate than new public companies are being created. Although many factors are contributing to this decline, the litigation environment and regulatory and compliance burdens faced by U.S. companies, as well as the passage of Sarbanes-Oxley Act, are significant issues.

Business Financing: Debt

Nonmarket, Intermediated, and Direct Debt

Businesses raise large amounts of financing from debt from a variety of sources. **Commercial banks** are traditionally an important source of debt financing. For example, Avolon, an aircraft leasing group, announced in January 2011 that it had raised \$2.5 billion in debt since May 2010, the latest coming in the form of \$465 million debt raised from a consortium of three leading U.S. banks: Wells Fargo Securities, Citi, and Morgan Stanley. Businesses use banks to obtain short-term, intermediate-term, and long-term debt financing.

Short-term bank financing (typically with loan maturities under one year) is used by businesses to finance *working capital needs*, that is,

the cash-on-hand that is needed to pay suppliers, support inventories, and pay other daily bills. Intermediate-term and long-term debt-financing take the form of *bank-term loans*. These are the standard commercial loans with fixed interest rates, set maturity dates, and monthly or quarterly repayment schedules.

Intermediate-term loans usually have a maturity of three years or less. They are generally repaid in monthly installments (in some cases with balloon payments) from the cash flows generated by the sale of goods and services and the collection of cash. In our apple orchard example, Peter would pay off an intermediate-term loan by selling apples and collecting cash from his customers.

A long-term loan typically has a maturity of between three and ten years. These loans are secured (collateralized) by some assets in the business. Operating cash flows are still relied on for making either monthly or quarterly repayments.

In 2009, U.S. banks made more than \$7 trillion of commercial and industrial, real estate, and consumer loans, as well as other loans and leases. (see figure 7). This is a very important source of debt financing for businesses.

In addition to making loans, banks also make **loan commitments** to businesses. In a bank loan commitment, a bank promises to lend the borrower up to a predetermined amount at a contractually determined interest rate in the future. Typically, commitments are provided for specific uses, such as meeting working capital financing needs or financing an acquisition. As of March 2001, outstanding (unused) bank loan commitments to U.S. corporations stood at \$1.6 trillion, so this is a large source of financing.

¹¹ Letter by James Angel, to the Securities and Exchange Commission (SEC) <http://www.sec.gov/comments/s7-02-10/s70210.shtml> (January 14, 2011).

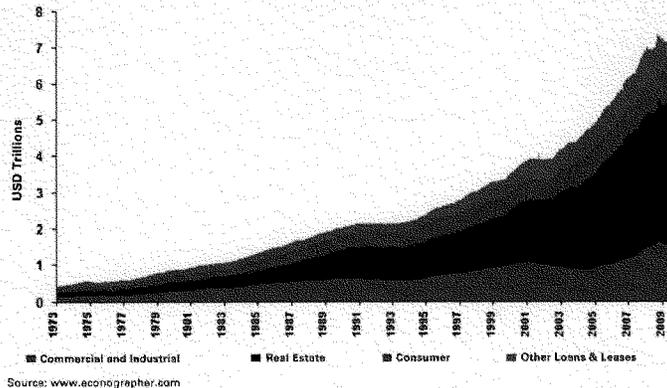
Insurance companies are interested in making long-maturity loans because they need to balance the risk of their long-maturity liabilities, like life insurance policies.

Institutional lenders, such as commercial-finance companies like GE Capital and insurance companies, have been a major source of long-term debt financing for U.S. businesses. Institutional lenders make loans that may be more than 10 years in maturity and thus fill a need at the longer end of the debt maturity spectrum (term loans are typically less than 10 years in maturity). Insurance companies are interested in making long-maturity loans because they need to balance the risk of their long-maturity liabilities, like life insurance policies. By making such long-term loans available to companies, insurance companies help their borrowers improve their risk management. For example, many companies make

long-term investments in manufacturing plants (such as Ford or Caterpillar), networks (such as AT&T), and so on. These investments produce cash flows over a long time horizon. The risks in these investments are best managed by financing them with relatively long-maturity liabilities, such as loans from insurance companies. Absent such loans, the management of risks inherent in long-term investments would not be as efficient.

The **factoring of accounts receivables** is another source of debt financing that is available to businesses. Every business that sells to customers on credit—the customer purchases the good or

Figure 7: U.S. Aggregate Lending: Commercial Banks (Seasonally Adjusted)



service but pays at a later date—generates “accounts receivables” when it makes sales. In our apple orchard example, Peter might sell \$1,000 of his apples to the school in his town but the school may not pay Peter until three weeks later. Peter would then record \$1,000 as a sale on his income statement and \$1,000 as an account receivable on the asset side of his balance sheet. The problem with accounts receivables is that even though a sale has been recorded, there is no cash coming in at that time. Sometimes, a company will “factor” its receivables. Specialized factoring companies will provide cash to the manufacturer against that manufacturer’s accounts receivables, with a reserve payment set aside, that is, the factoring companies purchase the receivables. After the manufacturer’s customers have paid, the factor pays the manufacturer the balance minus an amount representing the factor’s discount and interest on the funds originally paid to the manufacturer.

Accounts payable is a similar source of financing provided by the firm’s suppliers. Most firms do not pay their suppliers as soon as they receive the goods. It is fairly common practice for firms to pay their suppliers within 30 days of receipt of the goods (e.g., Dell has followed this practice), but some companies take even longer. For example, AB-Inbev, the beer company, has a 90-day payment policy for its suppliers. Whenever a company purchases something but does not pay for it right away, it records the purchase as an expense on its income statement and the amount yet to be paid as a liability, called accounts payable, on its balance sheet. This liability is essentially a form of short-term debt.

The U.S. Small Business Administration (SBA) provides another source of debt financing. The SBA offers long-term financing for purchasing fixed assets. Typically these loans require a personal guarantee from any investor with a stake in the business exceeding 5%.

Public Debt

Thus far we have discussed nonmarket, intermediated, and direct (non intermediated) forms of debt. Companies that have publicly traded debt can also directly access the capital market for borrowing by issuing *public debt* with the help of investment banks. Two main forms of public debt are available to U.S. firms: commercial paper and long-term debt.

Companies that have publicly traded debt can also directly access the capital market for borrowing by issuing public debt with the help of investment banks.

Commercial paper is usually short-maturity (less than one year) unsecured debt financing that is available only to the highest-credit-quality firms. It is typically used for financing accounts receivable and inventory. This is a huge market, with almost \$1 trillion in outstanding commercial paper predicted for 2011. At the end of 2009, there were more than 1,700 commercial paper issuers in the United States. Commercial paper is available in a variety of denominations and usually ranges in maturity from 2 to 270 days. It is relatively low-cost (currently, commercial paper rates are less than 0.5% per annum) and hence attractive to companies that can access the commercial paper market. For these companies, it is often an alternative to a short-term bank loan. However, it is also risky because its availability and cost are highly dependent on volatile market perceptions of the firm. For example, in March 2002, Bill Gross, manager of PIMCO Total Return, the world’s largest bond fund, said that General Electric (GE) was excessively reliant on commercial paper and that his fund would not buy any GE commercial paper “for the foreseeable future.” GE’s stock price fell 3.5% after

the announcement.¹² More recently, when the credit market experienced stress during the subprime crisis, the commercial paper market was one of the first to dry up.

Commercial paper is usually a very safe investment because the issuer's financial condition can be reliably predicted over a short time horizon and because only companies with relatively high credit ratings issue commercial paper. The typical denomination for a commercial paper issue is \$100,000 or more, which makes direct investment in commercial paper difficult for retail investors. To deal with this, *money market mutual funds* have emerged that invest in commercial paper, allowing investors to invest indirectly by purchasing shares in the mutual fund.

Long-term debt involves bond issues with maturities exceeding one year. While commercial paper is typically used to satisfy short-term liquidity needs of the firm (e.g., financing inventories), long-term debt is used to finance the purchase of fixed assets like machines or acquisitions of other companies. Companies rely on long-term bond financing for a variety of uses and typically pay higher interest rates than on commercial paper. For example, McKesson, the biggest U.S. drug distributor, issued \$1.7 billion of 5-year, 10-year and 30-year bonds, as reported in its February 23, 2011, filing with the SEC. Tracking the upward-sloping yield curve, the interest rates were 3.25% on the 5-year bonds, 4.75% on the 10-year bonds, and 6% on the 30-year bonds.¹³ As of 2007, the amount of U.S. corporate bonds outstanding exceeded \$5 trillion.

In both cases, commercial paper as well as long-term debt, investment banks help firms with the process of issuing debt to capital market investors.

¹² CNNMoney, "GE Drops on Gross Comments", <http://money.cnn.com/2002/03/21/News/companies/ge/index/index.htm> (March 21, 2002).

¹³ McKesson Corp. Form 8-k, EdgarOnline, <http://yahoo.brand.edgar-online.com/displayfilinginfo.aspx?FilingID=7757832-4769-12827&type=sect&dcn=0000950120-11-019414>.

IV. The Interconnectedness of the Financial System

Two important messages emerge from the description of the financial system. One is that there is a great *diversity* of financing sources available to individuals and businesses seeking financing. And the other is that the different components of the financial system are *interconnected*.

Why do we need such a diverse set of financing sources? The simple reason is that the greater the diversity, the more effectively the financial system can meet the needs of individuals and businesses. For example, suppose that the only mortgages available were 30-year fixed rate mortgages. These might meet the needs of individuals who wish to lock in an interest rate for a long period of time. But what about the person who believes interest rates might fall in the future or whose financial condition is likely to improve over time so he would be able to afford higher interest rates in the future? Such a person would prefer a variable or adjustable rate mortgage, in which the interest rate fluctuates with market rates, or one that has a lower initial rate and a higher subsequent rate. A greater variety of mortgages accommodates a greater variety of individual preferences and needs.

Like individuals, businesses have a diverse set of needs. Some face a great deal of uncertainty in their core business model and prefer to finance largely with equity in order to limit the bankruptcy risk associated with debt. Other firms invest heavily in R&D and have substantial intellectual property that they wish to protect. Such firms will also tend to finance primarily with equity to minimize bankruptcy risk. Microsoft is one example. Other examples are drug companies such as Merck that invest heavily in R&D. These firms tend to have low debt/equity ratios in their financing mix.

Why do we need such a diverse set of financing sources? The simple reason is that the greater the diversity, the more effectively the financial system can meet the needs of individuals and businesses.

The reason that firms such as Microsoft and Merck, which have intellectual property to protect, tend to use relatively low amounts of debt is that an increase in debt financing brings with it a higher likelihood that the firm will be unable to meet its repayment obligation or violate certain debt covenants. For example, as we saw in the subprime crisis, homeowners who defaulted on their mortgages were those who had higher loan-to-value ratios than others, because higher indebtedness meant larger monthly mortgage payments and hence a lower ability to make the payments when faced with a decline in income. The same is true for companies. When there is a covenant violation or default on a repayment obligation, the firm may be forced to either sell assets (some which may have valuable intellectual property) or declare bankruptcy (in which case ownership of the intellectual property might transfer to the creditors).

Even within the spectrum of a specific form of financing like equity or debt, diversity plays an important role. Consider equity first. Some firms prefer to finance primarily through retained earnings because it is important for them to avoid the ownership dilution associated with issuing equity. Yet others, especially those firms that are growing rapidly, will

find that relying solely on internally generated equity is not enough to support their growth. Such firms will wish to use external equity financing. And in this respect, the more diverse the sources of external equity finance, the better. For example, a firm may be seeking equity to help finance its growth in a market in which it is selling a product for which it has developed a proprietary technology. Such a firm may not wish to issue equity in the *public* market because it would have to disclose sensitive information about its technology, due to the information disclosure requirements of the securities exchange. While the information is disclosed primarily for investors, it is also necessarily revealed to competitors at the same time. To avoid this, the firm may wish to use a private placement of equity to raise external equity capital. If the private placement option were not available, the firm might prefer to forgo issuing equity and expanding in order to protect the confidentiality of its proprietary technology. It is easy to think of examples. Facebook raised private equity at a time when it would have found it difficult to raise public equity. Similarly, Intel raised private equity from IBM, a customer, rather than issuing public equity. Although IBM has divested most of its holdings in Intel, at one time it owned 20% of the company.

By contrast, other firms might be more interested in a public sale of equity—either through an IPO or an SEO—because publicly traded equity provides greater liquidity and typically has a lower cost of capital associated with it than private equity. Moreover, public equity also helps with employee motivation and retention. For example, having publicly traded equity allows companies like Microsoft and Starbucks to compensate their employees with shares of stock. When Microsoft's stock price was rising rapidly in the 1990s, this was very attractive to its employees and it allowed Microsoft to attract and retain high-quality talent. Starbucks takes stock ownership right down to the employees in its retail stores.

These employees understand that if they work hard and provide the best customer service, Starbucks' stock price will go up. Such employee stock ownership is valued more by employees when they can sell their stock in a liquid public market than when it is privately held.

Diversity of financing sources is also important for businesses seeking debt financing. Sometimes firms have short-term borrowing needs. They would tend to satisfy these needs through accounts payable financing, accounts receivable factoring, or bank loan commitments. Larger firms with impeccable credit ratings may choose to augment these short-term financing sources with commercial paper financing. The availability of diverse short-term financing sources permits firms to match quite precisely their specific needs to the financing source. The result is that more short-term financing needs are met than would be possible with fewer financing sources. Consequently, firms invest more.

At other times, firms have longer-term debt financing needs. A firm may be investing in a new factory that has an anticipated economic life of 20 years. For such a long-term investment, it will seek a long-term loan. If only short-term debt financing were available, the firm might pass up the investment opportunity.

Firms sometimes finance acquisitions with debt. For example, InBev's purchase of Anheuser Busch, the largest U.S. beer manufacturer, was financed predominantly with debt. In such cases, the firm may wish to match the maturity structure of its debt with the pattern of cash flows it anticipates generating after the acquisition. This, too, typically calls for long-term debt financing.

A diverse set of financing sources also enables firms to strike the appropriate balance between the cost of debt financing and liquidity

A diverse set of financing sources also enables firms to strike the appropriate balance between the cost of debt financing and liquidity risk.

risk. Since long-term debt financing is usually more expensive than short-term debt financing, pure cost considerations would push the firm in the direction of short-term debt like commercial paper or a short-term bank loan. But short-maturity debt also exposes the firm to liquidity risk because it may not be able to roll over its short-term debt. A recent example of this is Bear Stearns, the investment bank. It was financing itself with debt of one-month maturity that was rolled over every 30 days. When concerns about its hedge-fund losses became sufficiently grave, this 30-day debt financing evaporated, and the bank was on the brink of insolvency before its government-assisted takeover by JPMorgan Chase. Firms are constantly trying to balance the cost of borrowing against liquidity risk, and a diverse set of financing sources helps them to achieve the right balance.

A greater diversity of financing sources helps individuals and businesses to:

- improve their management of risk and achieve a better balance between the cost of financing and risk; and
- increase investments, and thus employment in the economy.

It is useful to note that the different parts of the financial system are intimately interconnected. For example, venture capital and private equity are available in part because we have such deep and relatively efficient capital markets. PE and VC firms make their investments with the expectation that

they will eventually exit by taking these firms public and selling off their ownership shares. If our public equity markets were to diminish in the future, perhaps because of excessively onerous regulation, it is very likely that the supply of PE and VC financing would decline as well. Without the attractive "exit option" provided by the public equity market, PE and VC firms would view their investments as lacking the potential to be "liquefied" in the future via an IPO, and would therefore scale back on their investments. Clearly, some capital market regulation is necessary to ensure transparency and integrity, and this improves the efficiency and attractiveness of the market. But when it becomes excessive, it can drive firms away. Thus, more onerous capital market regulation might reduce investment in small and mid-sized companies and lower aggregate employment.

Similarly, good public equity and debt markets allow banks to raise debt and equity capital to support their own growth. This, in turn, enables banks to extend loans that support the financing needs and growth plans of individuals and businesses. If burdensome new regulatory requirements made bank capital more expensive, bank lending would decline. The consequence would be lower GDP growth and employment.

Indeed, given the interdependence between banks, markets, and among the different components of the market, if one financing source were to disappear, it would have potentially devastating consequences for other parts of the financial system.¹⁴ This can be seen most vividly in emerging markets. When Romania converted from a centrally planned, Communist-run economy to a free-market economy, the housing market was underdeveloped. It was difficult to jump-start this market even in the new free-market economy because banks were reluctant to lend to consumers to buy houses. This reluctance

¹⁴ See Song and Thakor (2010).

arose from the inability of banks to securitize home mortgages because the securitization market did not exist in Romania the 1990s.¹⁵ Thus, the absence of the securitization market stunted the growth of the home mortgage market.

Even within the United States, we have seen numerous examples of this. Many U.S. corporations, especially non-depository financial companies, rely on the repo market for their short-term funding needs. The repo market, whose precisis size is estimated at between \$10 trillion and \$20 trillion, involves a firm taking a short-term loan (typically overnight loans) from another firm under a repurchase agreement in which eligible securities are used as collateral. So, I might have \$100 worth of marketable securities against which I might borrow \$100 from you for, say, a day. When I repay the loan, I get my securities back (I "repurchase" them). If I default, you keep the securities. Repos have "haircuts" associated with them. If I can borrow \$100 against \$100 worth of securities, the haircut on the repo is 0. If I can borrow only \$90 against \$100 worth of securities, the haircut is 10%, and so on. It is estimated that between early 2008 and early 2009, the haircut on repos went from 0 to 45%.¹⁶ If one takes the simple average of these two numbers as the average haircut during this period, then one can estimate that about \$2.25 trillion in short-term borrowing capacity vanished fairly quickly from the market as companies were now able to borrow that much less using the same collateral as before. This led to a significant decline in lending to individuals and businesses, as a major part of our financial system found itself to be liquidity constrained.

This example illustrates both interconnect- edness and the danger in making changes in one part of the financial system. One reason that repo haircuts went up is that bad news began to trickle

¹⁵ See Meyendorff and Thakor (2002).

¹⁶ See Gorton and Metrick (2010).

in about defaults on home mortgages, and many of the securities being used as collateral in repos were mortgage-backed securities. Thus, what happened in home mortgages affected short-term credit availability to financial firms, which then spilled over into a general decline in the credit available to businesses and individuals.

Imagine what would happen to U.S. credit card lending if the market for credit card securitiza- tion were to disappear. Millions of consumers would find themselves without access to credit cards. Simi- larly, imagine what would happen to entrepreneurs if venture capital were to disappear. Scores of new businesses would fail to be launched.

When the components of the financial system are so interconnected, even small initial changes in one part of the system can reverberate through the entire system and manifest as big eventual changes.

The "theory of unintended consequences" says that it is difficult to predict how the financial system will react if one of its components is tinkered with via regulatory changes. When the components of the financial system are so interconnected, even small initial changes in one part of the system can reverberate through the entire system and manifest as big eventual changes. For example, when the Federal Reserve injected substantial liquidity into the economy from 1995 through 2005, it was hard to imagine that this would contribute to a housing price bubble and crisis. Such unintended consequences are also encountered in other parts of the economy.

For example, not many would have predicted that the “cash for clunkers” stimulus initiative would have the unintended consequence of hurting automobile parts suppliers and putting many of them out of business. Interconnectedness magnifies the errors embedded in regulatory missteps and increases the uncertainty generated by them.

The effects of this interconnectedness can spill over into different types of financing. For example, suppose that banks find their equity capital has been depleted because of credit and trading losses such as those that we witnessed during the recent crisis. At the same time, it might be more difficult to access public equity markets for more capital because the market is stressed and investors are averse to purchasing additional equity in banks. A consequence of this would be a decline in bank lending, similar to the 7.5% decline in U.S. bank lending witnessed in 2009.¹⁷ Another consequence would be a decline in new lines of credit (or loan commitments) extended by banks. Because companies use lines of credit from banks extensively to back up commercial paper issues, U.S. corporations would suffer a “double whammy” in the sense that they would not only have diminished access to bank loans, but also lesser access to the public debt market. In this way, adverse developments for banks in the market for bank equity capital can spill over into the debt market for other firms. Aggregate investment, employment, and GDP suffer as a result.

This interconnectedness is one of the main reasons why regulatory intervention in one part of the financial system so often generates unpredictable and undesirable consequences in some other part of the financial system. Consider what happened when the Dodd-Frank Act effectively expanded the

legal liability on credit rating agencies for “rating misrepresentation.” The three major U.S. credit rating agencies responded by asking debt issuers to not use their ratings. However, by SEC regulation, these debt issues needed ratings, so the market for these issues essentially froze for a few months. Scores of debt issuers were denied access to much needed funds. Such are the workings of the theory of unintended consequences.

This interconnectedness is one of the main reasons why regulatory intervention in one part of the financial system so often generates unpredictable and undesirable consequences in some other part of the financial system.

¹⁷ Statement of Martin J. Gruenberg, Vice Chairman FDIC, on Condition of Small Business and Commercial Real Estate Lending in Local Markets, FDIC, <http://www.fdic.gov/news/news/speeches/other/spleb2610.html> (February 26, 2010).

V. Conclusion

This paper has surveyed the U.S. financial system from the standpoint of the various types of financing sources available to individuals and businesses and the different types of financing arrangements (contracts) by which capital is raised. The main messages emerging from this discussion are as follows.

First, the financial system helps economic growth. This is achieved through the provision of four basic services: facilitating trade; facilitating risk management for various individuals and businesses; mobilizing resources; and processing information about individuals and businesses and allocating resources.

Second, individuals (consumers) are largely limited to debt financing for raising capital. Nonetheless, consumers can use a large number of sources to raise this financing, including banks, finance companies, and the federal government.

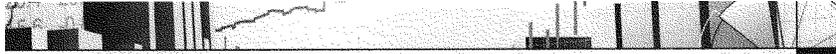
Third, businesses regularly access both debt and equity capital, and the appropriate mix of debt and equity, called the "capital structure" decision, is a key strategic choice for any company. Businesses have three basic sources of capital: private, intermediated sources, and public markets. These three categories exist for both debt and equity capital. In private non-intermediated sources, the firm raises financing outside the public capital market without using a financial intermediary like a bank. Included in this are sources like friends and family, cash generated from the firm's operating profits, customers, and suppliers. Private intermediated sources include bank loans, borrowing from finance companies and insurance companies, and loans from the parent company. Public market

access includes going directly to the capital market to raise money, such as through a commercial paper or public debt issue.

Fourth, a rich variety of debt and equity financing sources is available in the United States. This diversity is crucial for helping our economy to keep its competitive edge because it enables businesses to improve their management of risk and lower their cost of capital, so that both investment and employment increase.

Finally, the U.S. financial system is highly interconnected. This interconnectedness means that any changes in one part of the financial system—either through a shock like a crisis or through regulatory intervention—can reverberate throughout the entire system, often in unpredictable ways. As a result, well-intentioned initiatives may produce more harm than good.

This paper has not addressed some questions. What does the future hold for financial services? What effect will the Dodd-Frank Act have on the financial services industry? Will the industry experience an increase or decrease in the diversity of financing sources in the future? How will the regulatory structure evolve? These are interesting questions to ponder, and the answers will not only influence how we deal with global challenges but also determine the magnitude of future economic growth because of the close relationship between financial system development and economic growth, discussed in this paper. The world's population is growing and is likely to hit 9 billion in this century. This growth will put substantially greater stress on the natural resources needed to support this population—food, water, and energy. Innovations of all sorts will be needed to optimize the



use of limited resources and harness new resources. These innovations will need to be financed. A vibrant and robust financial system in the United States will play a critical role in supporting these innovations and helping them to become commercial successes. The Microsofts, Googles, Genentechs, and Facebooks of tomorrow will rise from the commitment to innovation that will be fueled by the financial services sector in the United States and elsewhere. Financial markets in emerging countries like India, China, and Brazil will continue to grow and challenge the preeminence of U.S. financial markets. Already, two-thirds of the world's equity market capitalization is *outside* the United States. Global competition among financial markets is sure to intensify even further. Thus, business will go to the most transparent and well-regulated markets, and will flow away from markets that are more onerously regulated and involve higher costs of capital. As long as economically sensible regulation supports the transparency and health of the U.S. financial system, the economic growth that will follow the wave of future innovation will be accompanied by growth in the depth and size of the U.S. financial services industry and the economic value provided by it.

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ADDITIONAL MATERIAL SUPPLIED FOR THE RECORD

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Presented to
The European Banking and Financial Forum
Prague

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In the past few years, the pace of consolidation in the banking industry has accelerated, and combinations between banks and other financial service providers have become increasingly prevalent. In some countries, consolidation has resulted from the need to eliminate weak or problem institutions. More generally, however, the unprecedented wave of merger activity in financial services is being driven by powerful changes in telecommunications and information technology and by the removal of legal and regulatory barriers to national and international linkages. An important recent development is a change in the scale of financial industry mergers. Indeed, the size of these business combinations has increased to the point that, both in the United States and Europe, "megamergers" are reshaping the structure of the financial services industry.

Financial megamergers raise a number of important public policy issues. Some of these issues are very familiar and apply equally to megamergers and to more traditional mergers between financial service providers. For example, regulatory approval of megamergers may depend on antitrust implications and industry concentration.

However, the rise of banking and financial industry conglomerates brings into sharper focus a long-standing concern not addressed in existing merger guidelines. In a world dominated by mega financial institutions, governments could be reluctant to close those that become troubled for fear of systemic effects on the financial system. To the extent these institutions become "too big to fail," and where uninsured depositors and other creditors are protected by implicit government guarantees, the consequences can be quite serious. Indeed, the result may be a less stable and a less efficient financial system.

In my remarks, today, I will focus on the challenges posed by financial industry megamergers and examine some possible policy options currently under study. My discussion will begin by briefly reviewing consolidation trends and the rise of megamergers. I will then highlight some of the policy issues raised by megamergers and discuss some of the policy alternatives under review.

Not surprisingly, there are no easy answers to the challenges accompanying the advent of megamergers. I am decidedly less optimistic than some about whether we will, in the end, be able to rely sufficiently on market discipline to correct for potential distortions stemming from government guarantees. I

suspect we will inevitably find ourselves having to deal with an institution that is too big to fail and, over time, relying more heavily on regulation and prudential supervision to oversee activities. Part of our challenge is to outline how we might in the future deal with "too big to fail" as we attempt to balance the economic benefits of consolidation against the potential costs to the financial system.

The Rise of Megamergers

In the United States and other industrialized countries, consolidation in financial services is occurring along three dimensions: within the banking industry, between banks and other financial service providers, and across national borders. To date, much of the consolidation has happened within the banking industry. In the United States we have seen the number of banking organizations fall from around 12,000 in the early 1980s to about 7,000 organizations today, a decrease of over 40 percent. In European countries, where the number of banks is much smaller than in the United States, a similar trend nevertheless is apparent.

There are also growing linkages between banks and other financial service providers. In the United States and Canada, there has been a trend toward consolidation of commercial banking and investment banking operations. In Europe, where the universal banking model is more prevalent, the trend has been to combine banking and insurance activities.

While much of the consolidation, thus far, has occurred within domestic financial markets, there are signs of increased cross-border activity as well. In the United States, Canadian, Japanese, and European banks have acquired a variety of institutions. In Europe, important mergers have occurred between financial institutions in Belgium and the Netherlands, and more cross-border activity is expected with the launch of the Euro.

At the same time that mergers are reducing the number of financial institutions, the size of these combinations is increasing dramatically as compared both to previous mergers in the industry and to nonfinancial mergers. For example, in the United States we have seen such combinations as NationsBank/Bank of America and Citibank/Travelers. In Canada, two proposed mergers involving four of the top five Canadian banks were recently denied by the government. In Europe, we have seen megamergers in Switzerland, France, Austria, Belgium, Spain, and the Netherlands. And, Deutsche Bank's pending acquisition of Bankers Trust would create a dominant global banking organization.

The trend toward consolidation in the financial services industry can be traced to several factors. In the United States, one impetus was the need to eliminate weak or problem institutions during the thrift and banking crises of the late 1980s and 1990s. Some European countries experienced similar problems with institutions weakened by exposure to real estate lending.

A more important factor behind the wave of merger activity, however, is technological change in telecommunications and information processing, which has dramatically lowered the cost of providing many financial services. In this environment, mergers may allow financial institutions to achieve greater economies of scale made possible by the new technologies. These same forces have also increased

pressures for consolidation by lowering costs of entry, increasing competition within the financial services industry, and causing less efficient firms to merge.

Merger activity has also been stimulated by a reduction in legal barriers to consolidation both nationally and internationally. In the United States, for example, consolidation within the banking industry accelerated with the removal of barriers to interstate banking. Many countries have also relaxed existing barriers to combinations of banks with other financial service providers. Finally, barriers to consolidation across countries have also been lowered as many countries have opened up their domestic financial markets by liberalizing foreign ownership of domestic financial institutions.

Policy Issues Raised by Megamergers

Rapid banking consolidation and the recent creation of very large financial institutions are beginning to raise a number of important public policy issues. For example, how can we be certain that these megamergers are in the public interest, and are our traditional regulatory tools adequate for addressing policy concerns that might arise with such mergers?

Traditional policy issues

Within the United States, the Justice Department and banking agencies must consider a variety of public policy issues before approving bank mergers and acquisitions. The Federal Reserve Board, for instance, must approve acquisitions and mergers of bank holding companies, and each proposal must satisfy several specific factors. These include the competitive effects of the transaction, the financial and managerial resources and prospects of the resulting organization, and the effect on the communities to be served.

In judging competitive effects, the Board primarily focuses on competition within local banking markets or individual metropolitan areas, where the effects are likely to be the most direct and observable. Competition is judged by the structure of each market – most notably the number of banks within the market, the amount of banking concentration both before and after the merger, and the level of competition from nonbank sources. One other potential constraint on large mergers is the Riegle-Neal Interstate Banking Act, which sets a 10 percent nationwide deposit concentration limit on organizations making interstate acquisitions and a 30 percent statewide limit (unless a state chooses a different limit).

So far, few of the megamergers within the United States have posed significant competitive issues under our antitrust guidelines or concentration limits. Most of the large mergers have been interstate acquisitions in which an organization expands into new markets, leaving local market concentration unchanged. Also, for large in-market mergers, the markets have often been of low or moderate concentration with numerous competitors. In other cases, large organizations have been able to divest of a portion of their offices to meet the competitive guidelines. Although at some point megamergers will likely raise antitrust concerns, our current competitive standards still leave substantial room for further consolidation in the United States.

The other factors used to judge mergers also would appear to have only a limited restraining influence on megamergers. In addressing financial and managerial considerations and future prospects – the safety and soundness criteria for mergers – large organizations commonly claim improved earnings growth as they enter new, attractive markets. They also emphasize prospects for better diversification of risk as they expand geographically and begin serving a wider range of customers. In addition, the organizations most active in merging and expanding are likely to be those with the most attractive stock and whose prospects the financial markets therefore view most favorably. To satisfy convenience and needs considerations and public benefits, organizations that continue to be active in the merger business will necessarily have established a record of serving their communities.

Consequently, many financial industry megamergers do not appear to raise serious antitrust issues under traditional U.S. merger guidelines. In addition, large combinations between banks and other financial service providers -- which appear to be our next big merger wave -- would likely receive approval under the traditional merger guidelines, since the merging firms focus on a somewhat different range of services. Also, while antitrust and safety and soundness criteria differ across countries, the recent merger trends in Europe and other areas seem to indicate that considerable scope exists for larger financial institutions within the context of current regulatory parameters.

New policy concerns

Although the new banking and financial conglomerates may pass our traditional statutory and regulatory guidelines, I believe that such combinations require that we refocus our attention on a long-standing, vexing concern. To the extent that these institutions become "too big to fail" and are perceived as protected by implicit guarantees, the consequences can be quite serious. Moreover, under these circumstances our current mix of market and regulatory discipline may tend to shift further away from market discipline and increasingly toward regulatory discipline resulting, perhaps, in a less efficient industry.

What is "too big to fail" – What do we mean when we say a financial institution is "too big to fail (TBTF)?" This term might best be applied to institutions so large that their activities make up a significant portion of a country's payments system, credit-granting process, or other key financial roles. As a result, any substantial disruption in the institution's operations would likely have a serious effect on a country's financial markets, either preventing the markets from operating properly or raising questions about their integrity. The outgrowth of TBTF is that countries extend protection to large institutions and their customers not granted to others. This protection, moreover, can take a variety of forms. Even when regulators sell a large failing bank, remove its management, and let stockholders take the full loss, TBTF would still exist if uninsured depositors are protected or other groups of creditors or customers receive favored treatment.

The concept of "too big to fail" came to prominence in the United States during the banking problems of the 1980s and early 1990s. Regulatory steps were taken to protect uninsured depositors and, in some cases, other types of creditors in large bank failures including Continental Illinois, several major banks in

Texas, and the Bank of New England. A number of concerns were used to rationalize this policy. In particular, there was some fear that a more general panic might extend to similar types of banks. In this event, any deposit losses might severely harm smaller banks with correspondent accounts, other business customers, workers due to receive payroll checks, and a broad range of public and private organizations. Consequently, there could be significant effects on the local and regional economy.

Following these events, The Federal Deposit Insurance Corporation Improvement Act was passed to limit future bailouts of uninsured depositors. The act attempts to restrict the use of TBTF policies by prohibiting the FDIC from taking steps to protect uninsured depositors if that would increase insurance losses. However, the act contains an exception. TBTF could be adopted if a bank failure would have "serious adverse effects on economic conditions or financial stability." Although the law's standards for making this exception are quite restrictive, I must also point out that its effect is to give statutory recognition to the concept of TBTF.

While U.S. banking authorities are fully committed to the 1991 restrictions, how the market views the possibility of TBTF, is still critically important. If uninsured depositors and other market participants believe they will be protected and therefore fail to exert the desired discipline, then the risk-return tradeoff within the largest institutions, over time, will tend to become unbalanced. Furthermore, it may be more difficult to discipline uninsured depositors in today's world where banking involves instant communications and where solvency and resolution decisions on ever larger, more complex institutions cannot be made at a moment's notice. I might also add that recent history throughout the world suggests that TBTF may be the policy of choice in crisis situations, particularly when mega institutions play a large role in a country's economy and financial markets.

Consequences of "too big to fail" – What are the some of the consequences of TBTF? One obvious result is the creation of competitive inequalities. To the extent that very large banks are perceived to receive governmental protection not available to other banks, they will have an advantage in attracting depositors, other customers, and investors. This advantage could threaten the viability of smaller banks and distort the allocation of credit.

A second danger of TBTF is the creation of additional moral hazard problems beyond those resulting from the existing deposit insurance systems. If uninsured depositors and creditors of large institutions are protected from loss, the safety net is likely to be extended to a broader range of financial activities. Market discipline will be curtailed and prevented from working through to an appropriate solution, and institutions will have greater risk-taking incentives. Consequently, to preserve financial stability, regulation and prudential supervision may have to be extended to a larger part of the financial system.

A third danger of TBTF is inefficiency. Making large banks a protected class of institutions will lead to a less efficient financial system in a variety of ways. Creditors and investors will not have the appropriate signals for directing their funds to the most efficient institutions. In addition, bank management will not face the full force of marketplace discipline and so may be under less pressure or delayed pressure to operate efficiently. And as large institutions take on an expanding range of activities, these inefficiencies and distortions will be extended to an increasing portion of the financial system and overall economy.

Are these inefficiencies a serious problem or just a conjecture? I think if we look at the countries that experienced serious banking problems and were protective of their major banks, we are made aware of the inefficiencies and how quickly they can spill over into the general economy.

Dealing with Megamergers: The Policy Options

If megamergers increase the possibility financial institutions may indeed be too big to fail, what is the appropriate policy response? It seems to me there are two approaches. We could attempt to prevent the formation of mega institutions that might raise concerns, using either existing or modified merger guidelines. Alternatively, we could allow megamergers to occur but alter the supervisory and regulatory framework to attempt to mitigate the distortions caused by TBTF.

As I noted earlier, existing merger guidelines are unable to deal with the TBTF problem because they center on the competitive effects of mergers in local markets. Since many megamergers will involve market or service extensions, we would not generally expect to find serious competitive effects in local markets. Put somewhat differently, the effects of megamergers and related concerns of TBTF will surface long before anticompetitive effects show up on our radar screen.

Nor do I feel it is feasible to modify merger guidelines to reflect TBTF concerns. In general, I fail to see how we can establish a size threshold for institutions beyond which TBTF considerations dominate. We clearly want to permit mergers that enhance efficiency within the financial system. Mergers we want to prevent are those with no clear efficiency gains and that are viable, in part, because of the subsidy resulting from the institution becoming too big to fail. As a practical matter, it would be extremely difficult for regulators to make these kinds of judgments and to develop effective merger guidelines that incorporate TBTF considerations.

Consequently, I believe we should not focus on limiting megamergers but, rather, on minimizing the distortions arising from TBTF. One strategy currently receiving attention relies on steps to reinforce market discipline. The appeal of this approach is that, if market discipline can be increased, excess risk-taking can be controlled and efficiency increased. Proposals to enhance market discipline generally rely on increasing the incentive and ability of the market to monitor financial institutions. Incentives to monitor can be enhanced through such mechanisms as the required use of subordinated debt or private insurance. The ability of the market to monitor performance can be improved through greater disclosure of information.

While I certainly favor moving in this direction, I question whether enhanced market discipline can adequately deal with TBTF. The key issue is credibility. Proposals that rely on increased incentives to monitor risk-taking simply won't be effective unless market participants are convinced they will not be protected in times of financial stress and unless they have the power to quickly alter management practices. Generally speaking, credibility will depend not only on current policy but also on past practices. Unfortunately, as we know from experience, in times of crisis credibility comes at a high price.

As a result, I believe, reluctantly, that much of the burden of dealing with megamergers and the effects of TBTF will inevitably fall to more traditional forms of regulation and prudential supervision. Here we have two distinct challenges. First, as megamergers create linkages between banks and other financial service providers, how do we prevent the extension of TBTF beyond the banking system? Second, where market discipline is to a degree muted, how do we control the risk-taking activities of those institutions that are too big to fail?

With regard to the first challenge, the critical issue is how to contain TBTF, even if we cannot totally eliminate it. If we cannot limit TBTF, we risk extending the safety net as megamergers evolve to combine traditional banking with other financial and nonfinancial activities. At issue is whether we can develop an organizational structure for financial service providers that serves to contain the effects of troubled institutions perceived to be TBTF.

One form this debate has taken in the United States is how to insulate banks and the payments system as affiliated entities take on a broader range of activities and risks. The essence of the argument focuses on the trade-off between operational flexibility and containment of the fall out from a problem institution. Although this issue has not been as prominent in Europe because of the dominant role of universal banks in providing financial services, it is likely to become more relevant as banks face increased competition from capital markets. In my view, this is an issue of fundamental importance, and how the debate is resolved will impact how the world handles TBTF in future crises.

Regardless of how this debate comes out, we still face the challenge of managing the risk-taking incentives of institutions that are TBTF. If we cannot rely entirely on enhanced market discipline, much of the burden will fall on regulation and supervisory oversight. As megamergers produce larger and more complex institutions, regulators will have to respond to these changes. There are several efforts under way including the Group of 30 activities and attempts to revise the Basle risk-based capital standards to incorporate more accurate measures of risk exposure. And, in the United States, we have taken steps to change the emphasis of bank examinations toward a better understanding of an institution's principal risk exposures and an assessment of its risk management controls and procedures.

Realistically, however, there are limitations to the effectiveness of regulation and supervision in accomplishing these tasks, particularly in large and complex organizations. Relying on regulation and supervision to control risk-taking requires a delicate balance between providing effective oversight without becoming intrusive and imposing excessive costs on the institution.

In the end, I doubt that we can yet be confident in our ability to either completely isolate the effects of the failure of a large institution or to provide a regulatory and supervisory mechanism that can eliminate TBTF as a possibility over the business cycle. With the advent of financial megamergers, TBTF is likely to become even more prominent as an issue, particularly in times of financial stress. Thus, while I strongly support our efforts to improve both market and regulatory oversight of global institutions, I believe we must also spend more energy preparing now, in a public policy context, to deal with these institutions and TBTF when the crisis inevitably occurs.

Summary and Conclusions

Let me close with a brief summary and some final observations. The recent consolidation trend in banking and financial services is clearly changing the financial landscape in many countries. While the creation of larger institutions holds out the prospect of gains in the efficient delivery of financial services, it also raises important public policy issues. In addition to traditional antitrust and related issues, financial megamergers refocus a difficult and troubling concern. To the extent that these institutions become "too big to fail," the loss of effective market discipline creates an environment where the risk-return trade-off may become unbalanced and where inefficiency can creep into the system.

Unfortunately, there are no simple solutions to this problem. Attempts to enhance market discipline, while important, are unlikely to be fully successful; meaning that more of the burden will move toward regulation and prudential supervision. But, unless we can find a way of limiting the extension of government guarantees, we risk the inevitable extension of regulation into an ever-widening part of the financial system. We would be wise, therefore, to recognize that TBTF will be an important public policy issue going forward and as we work to allow the benefits of consolidation, we also work to avoid sacrificing competitive fairness, efficiency and, most certainly, financial stability.



Testimony of

Wallace C. Turbeville, Senior Fellow, Demos

**The Committee on Banking, Housing and Urban Affairs of the United States Senate
Subcommittee on Financial Institutions and Consumer Affairs**

Hearing on “Is Simpler Better? Limiting Federal Support for Financial Institutions”

May 9, 2012

Chairman Brown, Ranking Member Corker and Members of the Subcommittees, thank you for the opportunity to provide testimony on the centrally important issue of universal banking.

After seven years as a lawyer specializing in public and private securities offerings, I was an investment banker at Goldman Sachs for more than a twelve years and then managed a small advisory firm. I also served as CEO of a firm providing counterparty credit management services in the derivatives markets. For the last two years, I have focused my efforts on financial system reforms, participating in dozens of formal comments and various roundtable discussions at the request of regulatory agencies. I am a Senior Fellow at Demos, a multi-issue national organization, combining research, policy development and advocacy to influence public debate and catalyze change.

For me, today’s hearing evokes memories of a time 33 years ago when, as a young attorney, I was commissioned to write testimony to be delivered to a committee of Congress on behalf of the Securities Industry Association, one of the predecessors of SIFMA, that represented the interests of investment banks. The goal of the testimony was to resist the repeal of Glass-Steagall, and so to protect investment banks from competition fueled by the massive cheap capital of the commercial banks.

Circumstances are different today, but some fundamental principles remain the same. Universal banking is no longer an abstract concept in the US financial services sector, but has become a dominant way of doing business. In light of the catastrophic and ongoing consequences of the 2008 financial crisis, it is appropriate to reflect on the path chosen in the last decade of the 20th century, culminating in the repeal of the Glass Steagall Act.

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Today's hearing examines the results of the dramatic deregulation of the financial sector that allowed banks to expand their businesses far beyond the limits established in the wake of the last major financial and economic crisis, the Great Depression. In the 1930's, wise policy-makers came to understand the danger of allowing financial institutions that are entrusted with customer deposits to also participate in the business of volatile trading markets and complex and inherently risky financial instruments. No doubt, the Subcommittee will hear that these concepts are out of step with today's global marketplace, dominated by elaborate technology and cutting-edge quantitative analysis. This argument is totally inadequate for the purposes of today's enquiry. Clearly, the systemic risks that threatened the irretrievable collapse of global financial systems in 2008 must be addressed. The problems arising from too-big-to-fail institutions, interconnected by shadowy and complex exposures to risks, are clearly related to the universal bank model.

But today's hearing goes even further. Universal banking also leads to oligopolistic markets that are inefficient in performance of their fundamental social purpose, the intermediation between sources and productive uses of capital. There is a vast difference between efficient extraction of profits from the capital and commodities markets, which is a hallmark of universal banking, and providing for the efficient capitalization of businesses and governments. The two must be rigorously distinguished.

The questions raised at today's hearing are profound. Regulatory responses to the specific causes of the financial crisis are high priorities. But this effort is not complete unless the underlying conditions that gave rise to the crisis are addressed as well. The universal banking model that was the culmination of deregulation severely distorts the provision of financial services. This has created massive inefficiencies at the same time that technology and quantitative advances are deployed to benefit the dominant market participants.

The details of the next potential financial crisis are unknowable. But it is certain that the distortions created by the great deregulation experiment will produce another calamity if the oligopoly of universal banks is not addressed.

Universal Banking in Perspective

It might be useful to place the concept of universal banking into the context of the fundamental social purpose of the financial markets. Aside from insurance and risk transfer and payment systems, the essential service of the financial sector is efficient intermediation.¹ Sources of capital (savings, pension funds and similar funds that need to be "put to work") must be matched up with users of capital to finance productive activities and households that require credit. The matching systems must be efficient in terms of fundamental capital cost and the cost of intermediation. The price paid for matching, *i.e.*, intermediation, must be reliable and rationally related to the service provided.

¹ Thomas Philippon, "The Size of the US Finance Industry: A Puzzle," November 2011.

Universal banking commingles two forms of intermediation, the traditional commercial banking intermediation between customer deposits and lending; and the intermediation between investment capital and investment opportunities provided by various traded financial markets. (It also involves insurance and payment transfers, subjects that are important, but not directly related to the issues discussed in this testimony.) The question is whether the universal banking model is intolerably risky *and/or* expensive.

Major developments in the financial markets prior to the repeal of Glass Steagall blurred the distinctions between investment banking and commercial banking, particularly the advent of money market mutual funds. As a result, the commercial banking function became more and more identified with an important distinguishing characteristic, FDIC insurance. The insurance was designed to provide a firewall against depositor runs on banks. Money market funds, which were the investment banks' way to compete against commercial banks for deposits, have no such protection against runs, as illustrated by the Fed intervention to support money market funds in 2008.

The debate in the years prior to repeal of the Glass Steagall Act is particularly instructive. The investment banks were vehemently opposed to repeal in those years, and they were uniquely positioned to evaluate the issues associated with universal banking. Their opposition centered on two points. First, they expressed concern that the commingling of commercial banking with investment banking would give rise to systemic risks.² Additionally, they predicted that universal banking would create predatory market power.³ Eventually, the investment banks came to realize the inevitability of the repeal and discovered ways to accrue market power of their own. They relented in 1999, paving the way for repeal. The result was the oligopoly that exists today. Thus, the investment banks' warnings have proven to be accurate and the handful that survive are now part of the problem that they warned against.

Responses to Questions

Below are my responses to the specific questions raised that have been raised in connection with the hearing.

I. To what extent, and in what ways, have large, diversified banks – sometimes referred to as “universal banks” – changed the business of banking?

Banking in the United States has become extraordinarily concentrated and oligopolistic. Waves of change have swept over financial services throughout the era of deregulation, primarily resulting in an economy skewed toward extraction of value by financial institutions.

² Senate Banking Committee, Comprehensive Reform in the Financial Services Industry, Part II, June 11, 13, 18-20, 1985, S. Hrg. 99-120, pt. 2, testimony of Shapiro, Robert F., board chairman, Securities Industry Association (SIA).

³ *Id.*

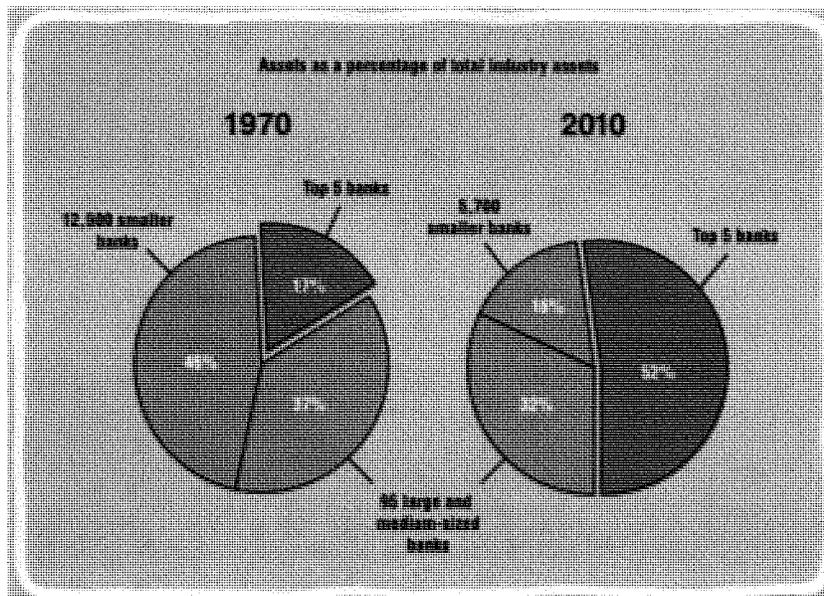
Concentration

As universal banking approached, investment banking began a period of dramatic consolidation. Lehman Brothers did not achieve too-big-to-fail status (judged in retrospect) through internal growth. Its DNA included firms such as Kuhn Loeb, Shearson, Hammill & Co. and EF Hutton. It was even owned by American Express for a time. As repeal of Glass Steagall approached, the commercial banks got into the consolidation frenzy, as Citicorp acquired Salomon and Smith Barney and Credit Suisse acquired First Boston and Donaldson, Lufkin and Jenrette. Finally, during the crisis, Bear Stearns was scooped up by JP Morgan Chase (which earlier had acquired Hambrecht & Quist) and Bank of America absorbed Merrill Lynch, both with the direct involvement of the government. Morgan Stanley and Goldman Sachs converted to banks to steady themselves in the turmoil.

During these 30 years, commercial banking consolidated as well. Consider the banks that were absorbed into JP Morgan: Chase Manhattan, Chemical, Manufacturers Hannover, First Chicago, National Bank of Detroit and BankOne. The consolidation was widespread, resulting in a system of mega-banks.

A recent research piece by the Dallas Fed provides a window on this process.⁴ The study observes that in 1970 the top 5 banks in terms of assets held 17% of aggregate bank assets. By 2010, the top 5 banks held 52% of aggregate assets, as shown in the following chart extracted from the report.

⁴ Federal Reserve Bank of Dallas, 2011 Annual Report, Choosing the Road to Prosperity, available at <http://www.dallasfed.org/fed/annual/index.cfm>.



The most dramatic part of the report and the covering letter by Dallas Fed President Richard W. Fisher is that they call for a “downsizing” of these megabanks. Their primary argument is that financial institutions remain “too-big-to-fail,” risking another painful and damaging bailout if a large financial crisis is threatened. In their view, the continuing cloud of too-big-to-fail hanging over the economy is simply intolerable and costly.

However, this report also contains some intriguing observations that go beyond the systemic risk of over concentration in the banking system. Chief researcher Harvey Rosenblum states that:

***When competition declines, incentives often turn
perverse and self-interest turns malevolent.***

This goes beyond worries about to-big-to-fail. It is not a concern with the intolerability of the risk of liquidation of a large bank. Rosenblum identifies distortions in a market that is dominated by an oligopoly of banks. This passage points out the damage that can be done to the economy even if these banks do not fail. The systemic risk of to-big-to-fail exists because of concentration. But, the pernicious oligopolistic marketplace that Rosenblum describes an ongoing problem that burdens the economy and intensifies the risks of a financial crisis occurring.

It must be noted that the literal transformation to a system dominated by universal banks was not completed until the onset of the financial crisis itself. Bear Stearns and Merrill Lynch were absorbed, Lehman evaporated as an entity and Goldman Sachs and Morgan Stanley converted to banks. However, the remaining investment banks had grown very large and engaged in ever more risky behavior as they sought to compete with the universal banks. The advent of universal banking played an enormous role in the evolution of financial services to the conditions that existed in 2007 and 2008. The extraordinary concentration of institutions that resulted from the crisis was the final chapter in a long story.

Growth of Financial Sector

The other dramatic development is that financial sector share of the economy has increased to unprecedented levels growing from 2.3% to 7.7% of the GDP in the last 60 years,⁵ while the manufacturing and services sectors have become relatively smaller. This was not because of increased demand for financial services, which only grew by 4% in the last decade.⁶ It is clear that this cannot be explained as the value of exporting financial services by US institutions.⁷ The explanation lies in the domestic economy.

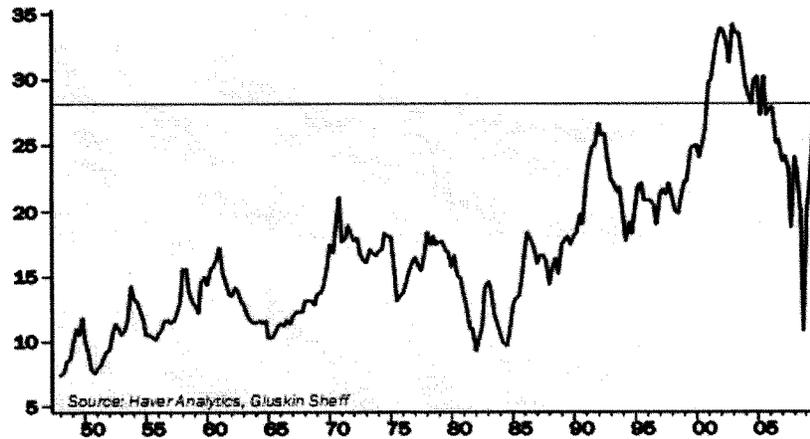
Perhaps most telling is the financial sector share of profits in the entire economy. The chart below, prepared by Yardeni Research, tracks 60 years of data on financial sector profits, illustrating that profit share has ranged from 8 to 34%.⁸ More recent data indicate that the profit share has once again exceeded 33%.

⁵ Thomas Philippon, "The Equilibrium Size of the Financial Sector," New York University, August 2007.

⁶ Thomas Philippon, "The Evolution of the Us Financial Industry from 1860 to 2007: Theory and Evidence," November 2008, available at <http://pages.stern.nyu.edu/~tphilipp/papers/finsiz.pdf>.

⁷ *Id.*

⁸ Yardeni Research, Inc., "Products, Productivity, Prosperity," March 7, 2012.

CHART 6: FINANCIAL SECTOR SHARE OF PROFITS**United States: Financial Sector Profits as a share of Total Corporate Profits**

Source: Yardeni Research, Inc.

The relative growth of the financial sector is not necessarily a problem if the services provided by the sector provide commensurate value to the overall economy. Otherwise, the reallocation of value drains resources that could be put to uses that would increase the productivity of the economy and the public's wealth. It might benefit the owners of financial firms (and bonus recipients), but to the extent that it only transfers wealth, it does not benefit the broad economy. As discussed below, wealth transfer has been the predominant result.

A groundbreaking study by Thomas Philippon of New York University's Stern School of Management reaches dramatic conclusions.⁹ Professor Philippon uses the neoclassical growth model (which focuses primarily on productivity, capital accumulation and technological advances) to examine financial intermediation in the United States over a 140-year period. He constructs an index that measures the unit cost of financial intermediation. His work indicates that the finance industry has become *less* efficient in providing intermediation services over time. He summarizes his findings as follows:

⁹ Thomas Philippon, "Has the U.S. Finance Industry Become Less Efficient?" November 2011. (Hereinafter cited as "Philippon 11/2011").

[T]he finance cost index has been trending upward, especially since the 1970s. This is counter-intuitive. If anything, the technological development of the past 40 years (IT in particular) should have disproportionately increased efficiency in the finance industry. How is it possible for today's finance industry not to be significantly more efficient than the finance industry of John Pierpont Morgan? I conclude from [the historic trends] that there is a puzzle...

Finance has obviously benefited from the IT revolution and this has certainly lowered the cost of retail finance. Yet, even accounting for all the financial assets created in the US, the cost of intermediation appears to have increased. So why is the non-financial sector transferring so much income to the financial sector? Mechanically, the reason is an enormous increase in trading.

The study indicates that the cost of intermediation between the suppliers of capital and the productive consumers of capital has increased notwithstanding IT advances, sophisticated quantitative analysis, massively larger trading volume and diversity in financial and derivatives markets. Under the Efficient Market Hypothesis (famously espoused by Alan Greenspan), the professor correctly concludes that this is absolutely counter-intuitive. But from the perspective of an observer of trading behavior and market evolution, his results make perfect sense. Technology and volumes can decrease individual transaction costs. Simultaneously, the entire intermediation system can be burdened by oligopolistic market activity that diverts value from the system. That these conditions coexist is actually the most likely outcome when one combines oligopolistic universal banking, high tech and advanced quantitative analysis and a preoccupation of money managers with transaction costs rather than fundamental value.

Decline of Corporate Lending

In 1978, the financial sector contracted \$13 of credit for every \$100 contracted by the private economy; by 2007, the financial sector share was \$51.¹⁰ This excludes the credit associated with the \$30 trillion derivatives market that is a complex and volatile form of leverage. The capital and derivatives markets had largely displaced corporate borrowing.

Aside from insurance and risk transfer and payment systems, the essential service of the financial sector is efficient intermediation.¹¹ Sources of capital (savings, pension funds and similar funds that need to be "put to work") must be matched up with users of capital to finance productive activities. The matching systems must be efficient in terms of fundamental capital cost and the

¹⁰ Simon Johnson and James Kwak, "Thirteen Bankers," Pantheon Books, 2010 at page 59.

¹¹ Thomas Philippon, "The Size of the US Finance Industry: A Puzzle," November 2011.

cost of intermediation. The price paid for matching, *i.e.*, intermediation, must be reliable and rationally related to the service provided.

Intermediation can be effectively provided by traditional commercial banking or by market based trading.¹² Commercial banks loan from capital and funds held as individual and corporate customer deposits. In this business, the mismatches between sources of capital and its uses are covered by the capital reserves of the banks. These mismatches include credit differentials in the form of loan defaults and mismatches of long-term (such as 20-year, fixed rate mortgages) vs. short term (demand deposits). As an outgrowth of the two financial crises of the 20th century, this business model was reinforced by creation of the Federal Reserve System (in response to the 1907 Panic) and FDIC insurance (in response to the Great Depression).

Alternatively, intermediation can be provided by the traded markets. Capital suppliers invest in securities (often pooling resources for investment in mutual funds), capital consumers issue securities to procure funding and both contract for derivatives. Financial institutions provide the trading capital needed to make sure that “supply and demand,” represented by capital suppliers and consumers is in equilibrium in terms of timing. Derivatives, in theory, mitigate the risk of mismatches of loan interest rates and currency differentials.

For advocates of the Efficient Market Hypothesis, the capital market is the preferred venue for intermediation. It is the perfect environment for the use of information technology and sophisticated algorithmic trading strategies that should (in their view) squeeze out even the most miniscule pricing inefficiency. The evolution of the financial system during the period of deregulation has reflected this premise, with banks declining in importance to intermediation and capital markets increasing. The bank share of all financial assets fell from 50% in the 1950’s to below 25% in the 1990’s.¹³ The pace of this shift increased with the growth of money market funds, pension funds and mutual funds (providing direct investment that displaced bank lending) and securitization of consumer debt over the last 30 years.¹⁴

Conventional views of the markets, represented by the Efficient Market Hypothesis, would predict that the price received by providers of capital and the price received by consumers of capital must have narrowed proportionately with the greater ability to deploy vast sums of cash to exploit tiny market anomalies identified in “real time,” using technology informed by sophisticated analytics. In other words, the cost of intermediation paid by the economy as a whole should have plummeted as ever more powerful efficiencies were introduced. The research of Professor Philippon, described above, indicates that the results were precisely the opposite.

The most powerful reason behind the decline in corporate lending may well be the profit margins of the banks. A bank has finite capacity to take on the credit of any corporate entity. It can use

¹² Ross Levine, “Bank-Based or Market Based Financial Systems: Which is Better?” William Davidson Institute Working Paper 442, February 2002.

¹³ Hyman Minsky, “Stabilizing an Unstable Economy,” McGraw-Hill, 2008, introduction at page xxii.

¹⁴ Johnson and Kwak, at page 84.

this capacity to make a loan. Alternatively it can use the capacity to enter into a derivative or other exotic financial arrangement. As recounted by a bank insider in a recent interview, the profitability of a derivative transaction per unit of credit capacity is *ten times* the profitability of using the capacity for a loan.¹⁵ This is precisely in line with my personal conversations with corporate lending professionals at large banks. Under these conditions, it is unsurprising that corporate lending has declined.

Financialization

The corollary to the decline in corporate lending was explosion of financialization fueled by universal banking. Professor Simon Johnson describes financialization as “the transformation of one dollar of lending to the real economy into many dollars of financial transactions.”¹⁶ This represents the financialization of typical bank assets through asset-backed securitizations. However, equity securities (Exchange Traded Funds) and commodities (Commodity Index Funds and Commodity ETFs) are also financialization vehicles for assets that are not traditionally held by commercial banks.

The damage inflicted by asset-backed securitizations in the residential housing markets has been well documented. The large banks were able to seize a dominant position in the household lending businesses and mismanaged the process terribly.

ETFs and Commodity Index Funds have also had a destabilizing effect because of structural inefficiencies. Both are structures designed to create synthetic ownership of assets. The investors actually own instruments that are valued based in indices of market baskets of assets. Equity ETFs have been shown to influence the prices of stocks that are constituents of the particular index.¹⁷ And Commodity Index Funds have been shown to influence commodity price curves, creating commodity price disruption by creating the impression of rising prices.¹⁸

Financialization has been driven by the changing role of commercial banking in a system dominated by universal banks. It is inherently an inefficient system because structural elements have unintended consequences. Mortgage Backed Securities, including synthetic MBS, were clearly the proximate cause of the financial crisis of 2008. But it is now understood that the opaque asset value associated with financialization of every sort can be seen as an inefficiency that is extraordinarily costly to the economy. In stressed conditions, it can also result in a shutdown of financial flows in part or all of the financial system. In the drive to make banking more and more universal, this is a path that is treacherous indeed.

¹⁵ Frontline Broadcast, “Money, Power and Wall Street.” Chapter 2, available at <http://www.pbs.org/wgbh/pages/frontline/money-power-wall-street/>.

¹⁶ Johnson and Kwak at page 59.

¹⁷ Jeffrey Wurgler, “On the Economic Consequences of Index-Linked Investing,” NYU Stern School of Business, July 2010, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1667188.

¹⁸ David Frenk and Wallace Turbeville, “Commodity Index Traders and the Boom/Bust Cycle in Commodities,” October 2011, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1945570.

2. ***What are the benefits or dangers associated with the “universal bank” model that combines traditional banking and trading? In particular, what does this mean for consumers, industry competition and financial stability?***

Financial Stability

Clearly, concentration in the banking sector creates great danger of systemically significant failures.¹⁹ Banks become too-big-to-fail and government is left with the Hobson’s Choice of a bailout in a crisis.²⁰ The existence of this phenomenon has been recognized since at least 1984, when insolvency of Continental Illinois precipitated a bailout and the Comptroller of the Currency identified 11 banks as too-big-to-fail.²¹ The moral hazard implications are enormous.

However, it is more than just size. The Federal safety net that supports depository institutions is an important element. The FDIC occupies a pivotal role in resolving a failed institution that benefits from its insurance. To minimize loss, it must actively manage the disposition of the failed bank’s component parts. The government is directly involved with the entire process. In the universal bank model, the trading operations are extraordinarily complex and susceptible to liquidity crises of their own, as margin calls are made and access to securities financing such as repurchase agreements is foreclosed. It should be noted that Lehman Brothers had 2,854 subsidiaries around the globe. In this process, the government’s involvement is inescapable.

As a result, the universal banking model is a poor vehicle for the allocation of capital. The safety net and the too-big-to-fail condition mean that consequences of failure are mitigated and capital is plentiful and cheap. Business lines that might not make sense in a more limited, smaller and diverse business regime are completely rational to managers in a universal bank. Especially in complex and volatile trading activities, this can amplify the risks taken by the bank, to the ultimate detriment of the taxpayers and the economy as a whole.

Consumers

But the damage is more pervasive, regardless of the occurrence of an actual bank failure. As the Securities Industry Association foresaw in the 1980s and 1990s (described above), universal banking embeds opportunities for oligopolistic and predatory business practices. Services can be tied together. Customers can become so reliant on access to the universal banks that competition is stifled. And abundant cheap capital can be deployed to create trading advantages.

Advances in technology and quantitative analysis have made this problem much worse. Transactions can be made more complex. In such circumstances, value is obscured and the market power of the universal bank can be optimized. Recent research has pointed out that the value of many derivatives products that are successfully sold to customers are beyond the ability

¹⁹ Federal Reserve Bank of Dallas, “Choosing the road to Prosperity: Why We Must End Too-big-to-fail Now” available at <http://www.dallasfed.org/fed/annual/index.cfm>

²⁰ Gary H. Stern and Ron J. Feldman, “Too-Big-to-Fail: The Hazards of Bank Bailouts,” Washington: Brookings Institution Press, 2009.

²¹ Johnson and Kwak at page 134.

of the most sophisticated banks to comprehend, much less the customers.²² A separate question is why the customers buy transactions that they cannot understand. Perhaps the persuasive abilities of universal bankers are enhanced by the reliance of the customer on access to the bank.

The transfer of deposit assets to the trading business rather than lending has another subtle, but important, effect. The relationship of the banks to customers is far more transactional. A business interacts with its banks in a completely new way. The opportunity for conflicts of interest is enormous, and both sides recognize it. The long-term relationship of a business with its banks can be dynamic and stabilizing. Its decline as a way of doing business is a net loss.

Benefits

The benefits of economies of scale in the universal banking model are undeniable. It should be remembered, however, that even the most predatory monopoly can provide economies of scale. The Philippon study described above suggests that the balancing of costs and benefits does not favor universal banking. This system has proven efficient in maximizing profit for the banks. But it has actually made the process of raising capital for productive uses and consumer needs more costly.

It is often asserted that greater trading market liquidity is a benefit inherent in universal banking. In particular, overt proprietary trading and proprietary trading that is housed in businesses denoted as market making or similar activities is the liquidity that is referred to.

This assertion, even when made in “expert” studies, is superficial and perhaps worse. Market liquidity is generally defined as the degree to which a security or derivative can be bought, sold or entered into without affecting its market price. Liquidity must not be confused with volume. Some trading volume can provide liquidity incidentally to its actual purpose. But that liquidity is not reliable, especially in stressed market conditions when liquidity serves its most useful purpose. For example, a recent study of the “flash crash” shows that computer-driven algorithmic trading activity can amplify the price effect of a given market event.²³ Market participants misperceive the volume generated by the algorithmic traders as stabilizing liquidity. However, the algorithmic systems are rigged to exit the market and dump inventories at the worst possible time, in terms of stability. The perceived stabilizing liquidity is an illusion. In fact, this volume becomes an immense consumer of liquidity.

Nonetheless, universal banks claim that limitations on their activities will burden the economy with premia on capital investment. The forecasting of liquidity in the absence of universal banking and measurement of its consequences in terms of liquidity premia and bid/ask spreads is analytically difficult. Many factors intervene. For instance, liquidity is related to credit spreads (the interest rate impact of the credit quality of the issuer of debt) in complicated ways. Conditions in the financial markets can affect the appetite for higher yielding, lower credit

²² Arora, S., Barak, B., Brunnermeier, M., Ge, R., “Computational Complexity and Information Asymmetry in Financial Products,” October 19, 2009, available at <http://scholar.princeton.edu/markus/publications/term/39>.

²³ A. Kirilenko, A. Kyle, M. Samadi and T. Tuzun, “The Flash Crash: The Impact of High Frequency Trading on an Electronic Market,” May 2011 available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1686004.

quality debt. When there is great confidence in the economy and interest rates are generally low, investor appetite for the yields generated by relatively lower credit quality will be higher. As a result, liquidity is relatively higher for this category of debt. In contrast, when the economic outlook is weak and financial markets are more concerned about failures, relative liquidity is lower for this debt. This represents a “flight to quality.”

Oliver Wyman Approach to Liquidity. The recently published Oliver Wyman study is a good example of the claimed benefits. It relies on a prior study entitled “Corporate bond liquidity before and after the onset of the subprime crisis.”²⁴ The purpose of this prior study was to examine the particular effects of the crisis on liquidity premia. One thing is for certain: extrapolation of liquidity premia based on data from the most stressed economic and financial conditions in modern times to forecast general liquidity costs is a bad idea. The forces affecting liquidity costs under such specifically stressed conditions distort liquidity cost relationships in the extreme.

As a result of using the study of liquidity during the crisis to estimate the premium for lower liquidity, other flaws in the Oliver Wyman study are amplified. For instance, assumptions for the amount of reduced liquidity (*i.e.*, no replacement for bank liquidity from other sources was assumed) were compounded by application of cost factor derived from distorted, extraordinarily stressed conditions.²⁵ The Oliver Wyman Study obtains the result it seeks because it has assumed the result as the starting point, that is to say that liquidity will evaporate rather than migrate.

In addition, the overall approach misses a critically important point. Higher liquidity premia have a self-correcting effect in normal conditions. Liquidity premia are related to bid/ask spreads. When liquidity is low, the spreads will be high because liquidity providers will require greater compensation for the service they provide. (I will buy your bond, but only if my expected compensation is relatively high, since there is greater risk of re-selling it because of low liquidity.) As bid/ask spreads increase because of lower liquidity, more capital will be attracted to the market to take advantage of the profit potential. This, in turn, moderates bid/ask spreads and liquidity premia until equilibrium is achieved.

It is remarkable that the financial services industry puts forth arguments that simply ignore the laws of supply and demand as they apply to capital.

Volume vs. Liquidity. Much of the analysis and comment is based on confusion between volume and liquidity. Trading activity that provides liquidity, in particular market making, provides real value to the economy. Other activity generates volume, but the value is less clear, to say the least. In fact, this activity may impose a net drag on the economy. Recent academic

²⁴ J. Dick-Nielsen, P. Feldhutter and D. Lando, “Corporate bond liquidity before and after the onset of the subprime crisis,” May 2011, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1364635.

²⁵ To calculate the cost of power liquidity, the Oliver Wyman Study used values calculated by Dick-Nielsen, Feldhutter and Lando. Oliver Wyman describes how they selected the particular cost percentages for their study: “DFL construct two independent ‘panels’ of bond liquidity data – one for the Q3 2005-Q2 2007 period, one for the Q3 2007-Q2 2009 period – using TRACE data. The most recently available panel is used in our analysis; the earlier period shows smaller, but still significant effects.”

studies indicate that

- dealer activity is overwhelmingly weighted toward trading that does not provide liquidity;
- activity that represents the greatest volume increases the costs of accessing liquidity; and
- the layers of intermediation that have arisen from trading practices other than market making, while efficiently executed to generate profits for traders, involve costs to the rest of the economy that result in an inefficient financial system for the economy as a whole.

As a result, the assertion that universal banking benefits the economy is extremely questionable, and the better analysis is that the real economy suffers costs. These studies are reviewed below.

A study by professors at MIT's Sloan School of Management examines this issue in the context of modern market behavior.²⁶ The Wang Study focuses on a phenomenon illustrated most graphically by the Flash Crash. While trading volumes may be extremely high, most dealer trading does not appear to be providing market making. It does not work to provide liquidity to investors so as to provide stable and efficient pricing. Key points of observation are times of market stress.

Not only is the social function of liquidity provision most important to other market participants during these periods, it is also these periods (when prices have likely diverged from fundamentals) during which expected profits from providing liquidity should theoretically be the highest. Therefore, if market makers are providing liquidity by accommodating order imbalances, we should observe greater dealer trade activity during periods of higher volatility and kurtosis.²⁷

The Wang Study finds that such greater activity does not occur at these times. Further, the study finds substantial evidence that trading activity is largely based on information and designed to profit from short-term price movements. "We have shown that dealers do not provide liquidity to the market; instead, they trade on information."²⁸

In contrast with the Oliver Wyman Study, a better analysis of the universal banking model is that the effects on liquidity largely center on the availability of subsidized capital deployed to chase transactions that would not make sense but for the subsidy. Capital raised by short-term leverage (which is so dangerous to the markets) may also recede as lenders can no longer depend on a too-big-to-fail bail out. It can also be anticipated that high frequency, algorithmic trading activity will moderate as more demanding and socially useful rationales for capital deployment are imposed.

²⁶ J. Chae and A. Wang, "Who Makes Markets? Do Dealers Provide or Take Liquidity?," August 2003 (the Wang Study") available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1364635.

²⁷ Wang Study, pages 17-18.

²⁸ Wang Study, page 30.

But more importantly, the liquidity argument centers on transaction costs. When the market is functioning normally, volume can have beneficial effects on transaction costs (often expressed as bid/ask spreads). But this does not translate directly into an efficient intermediation system. If a significant portion of the market volume actually distorts the perceived value of the securities and derivatives being traded, the transactions may be inexpensive to transact but also fundamentally mispriced. Elimination of the perverse incentives induced by the universal banking system will result in a more rational and disciplined set of market participants. This should curb the volume that is injurious to the economy and improve the efficiency of the overall market function.

Liquidity may be affected if universal banking were not the norm, though the Oliver Wyman Study provides little guidance on how. But the best analysis is that the effects will be, on the whole, healthy for the economy and the public. The recent study by Thomas Philippon of New York University's Stern School of Business described above undertakes a quantitative analysis of the economy-wide cost of financial intermediation over the last century through the device of a "finance cost index."²⁹ The Philippon Study concludes that, historically, the cost of intermediation has been remarkably stable. However, the further conclusion is particularly relevant to the liquidity discussion: the financial cost index has been trending upward for 40 years, a period when technological and quantitative advances must have reduced financial costs.³⁰

At least a part of the answer to this puzzle may well be the inefficient deployment of bank capital to layers of uneconomic intermediation as banks seek higher returns from the spreads between cheap capital costs and exotic securities and derivatives. This is completely consistent with the answer suggested by Professor Philippon.

Finance has obviously benefited from the IT revolution and this has certainly lowered the cost of retail finance. Yet, even accounting for all the financial assets created in the US, the cost of intermediation appears to have increased. So why is the non-financial sector transferring so much income to the financial sector? Mechanically, the reason is an enormous increase in trading.³¹

The layers of socially unproductive intermediation are best illustrated by the algorithmic trading that contributes heavily to today's market volume. In fact, it is clear that the dominance of algorithmically driven trading using techniques associated with high frequency trading does not provide liquidity. Rather, it consumes liquidity with adverse consequences. A recent study of these issues draws conclusions that are summarized as follows:

We analyze the impact of high frequency trading in financial

²⁹ Thomas Philippon, "Has the U.S. Finance Industry Become Less Efficient," November 2011 ("Philippon Study"), available at (SSRN-id1972808[1]).pdf.

³⁰ Phillipon Study, pages 16-17.

³¹ Phillippon Study, page 22.

markets based on a model with three types of traders: liquidity traders (LTs), professional traders (PTs), and high frequency traders (HFTs). Our four main findings are: i) The price impact of liquidity trades is higher in the presence of the HFTs and is increasing with the size of the trade. In particular, we show that HFTs reduce (increase) the prices that LTs receive when selling (buying) their equity holdings. ii) Although PTs lose revenue in every trade intermediated by HFTs, they are compensated with a higher liquidity discount in the market price. iii) HF trading increases the microstructure noise of prices. iv) The volume of trades increases as the HFTs intermediate trades between the LTs and PTs. This additional volume is a consequence of trades which are carefully tailored for surplus extraction and are neither driven by fundamentals nor is it noise trading. In equilibrium, HF trading and PTs coexist as competition drives down the profits for new HFTs while the presence of HFTs does not drive out traditional PTs.³²

Thus, algorithmic and high frequency trading actually extracts value by intermediating between liquidity providers (market makers) and liquidity traders (large scale investors) and extracts value so as to widen spreads. This volume does not provide liquidity that is beneficial to the overall intermediation process; it exploits the process at a cost to the investors.

The consequences to the shape of the American economy are potentially dramatic. Professor Philippon eloquently poses this issue as follows: “the finance industry that sustained the expansion of railroads, steel and chemical industries, and the electricity and automobile revolutions was more efficient than the current finance industry.”³³

Industry Competition

It is difficult to imagine a financial services industry that is less competitive than that which prevails today. As described above, concentration has increased dramatically in the last 35 years. The advent of universal banking in the United States is a primary cause.

A reversal of this condition would undoubtedly reorder the industry. Capital and talented personnel would migrate from the dominant universal banks into existing and new institutions. It is likely that investment banks would reemerge. Without the need to compete with the subsidized and plentiful capital of the universal banks, the investment banks would probably be leaner and more risk averse than they were in the years leading up to the crisis. Importantly, conflicts of interest that are embedded in the existing system would decline.

Indeed, the buy-side has recognized the harm to their bottom line posed by the universal banks trading against them. In its 2009 report on financial reform, the Council of Institutional

³² A. Cartea and J. Penalva, “Where is the Value in High Frequency Trading?,” December 2011, available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=1712765.

³³ Philippon Study, page 2.

Investors (“CII”) prominently highlighted the need to address proprietary trading, noting that “Proprietary trading creates potentially hazardous exposures and conflicts of interest, especially at institutions that operate with explicit or implicit government guarantees. Ultimately, banks should focus on their primary purposes, taking deposits and making loans.”³⁴ As one member of the CII Investors’ Working Group panel explained it, proprietary trading has significantly harmed the institutional investors:

Proprietary trading by banks has become by degrees over recent years an egregious conflict of interest with their clients. Most if not all banks that prop trade now gather information from their institutional clients and exploit it. In complete contrast, 30 years ago, Goldman Sachs, for example, would never, ever have traded against its clients. How quaint that scrupulousness now seems. Indeed, from, say, 1935 to 1980, any banker who suggested such behavior would have been fired as both unprincipled and a threat to the partners’ money.³⁵

Furthermore, the bipartisan Levin-Coburn Report by the Senate Permanent Subcommittee on Investigations offers a detailed description of some of the conflicts of interest that directly cost investors billions of dollars.³⁶

Summary

Balancing benefits and dangers is critically important to the economy as a whole. If capital is misallocated away from productive uses and value is extracted by the universal banking system, the ability of businesses to generate productive employment is damaged. Income inequality grows as the value of non-financial employment shrinks and the profit share of the financial sector increases (along with bonuses). And the effectiveness of monetary policy is diminished as the system of intermediation capital sources to productive uses is compromised.

In reality, the issues of systemic risk and the efficient functioning of the financial system are one in the same. In the US economy, inefficiencies are exploited relentlessly and incent risk-taking in the process. Asset and debt bubbles, together with the inevitable bust cycles, are an obvious result. The velocity of these forces is breathtaking in markets operating with high technology and fast evolving financial innovation. Universal banking, in the context of the US economy, is inherently risky and costly.

³⁴ CII Investors’ Working Group, “U.S. Financial Regulatory Reform: The Investor’s Perspective,” July 2009, page 3, available at [http://www.cii.org/UserFiles/file/resource%20center/investment%20issues/Investors%20Working%20Group%20Report%20\(July%202009\).pdf](http://www.cii.org/UserFiles/file/resource%20center/investment%20issues/Investors%20Working%20Group%20Report%20(July%202009).pdf)

³⁵ Jeremy Grantham, “Lesson Not Learned: On Redesigning Our Current Financial System,” GMO Q. LETTER SPECIAL TOPIC, 2 (Oct. 2009), available at <http://www.scribd.com/doc/21682547/Jeremy-Grantham>.

³⁶ United States Senate, Permanent Subcommittee on Investigations, Committee on Homeland Security and Governmental Affairs, Majority and Minority Staff Report, “Wall Street and the Financial Crisis: Anatomy of a Financial Collapse,” April 2011.

3. *Do traditional banks need to be large or engage in trading/investment banking activities in order to serve clients and customers, including large multinational corporations?*
4. *Can the needs of customers be served by smaller banks, or banks that solely provide particular services?*

Large, oligopolistic companies always raise the issue of economies of scale when arguing against the efficiencies of competition. This position is particularly difficult to understand in the context of universal banks that are too-big-to-fail.

It is understandable that large clients and customers might perceive benefits from dealing with universal banks. Much of the service provided to these entities involves renting the balance sheet of the universal banks. If a large customer seeks to move a big securities position, its bank will take it off the customer's hands and distribute the position over time so as not to affect the price by flooding the market. The cost of capital to hold the position is transferred from the customer to the bank. If the capital of the bank benefits from the Federal safety net and too-big-to-fail status, the customer benefits proportionately.

The problem, of course, is that the benefit exists because the American taxpayer ultimately bears risks of the universal bank's failure. No one sees the cost until a financial crisis ensues and a very large bill is presented to the public.

Implicit in the question is that only large universal banks will serve the trading/investment banking needs of the multinational corporations. Such an assertion would have sounded ludicrous to the bankers in Goldman Sachs' London office in 1995 that competed so successfully with European universal banks (and I should know, having been assigned there at that time). In reality, customers would be served better by a financial sector made up of an array of smaller, institutions that are well capitalized in relation to their business activity. In this model, conflicts of interest would be fewer and costs more transparent. The incremental costs to users of services from a leaner system would be those associated with too-big-to-fail. This is a good trade indeed.

5. *Does the government offer support or subsidies for large banks? If so how?*

The response to question 1 details the support provided in the form of too-big-to-fail realities and the Federal safety net of FDIC insurance and access to the Fed window.

There are indirect supports as well. Large banks depend on an enormous number of businesses to trade continuously. The too-big-to-fail guarantee that was made explicit in 2008 is not useful unless it extends to the large bank ecosystem. Thus, the \$700 billion direct bank bailout known as the Troubled Asset Relief Program, or "TARP," was only the tip of the iceberg. The Federal Reserve acted decisively, barely pausing to build consensus or consult with political leaders. It allowed banks to borrow freely at low rates, a conventional tool of the central bank, and provided

interest on amounts deposited by the banks on reserves, generating a risk-free arbitrage profit. And, on the heels of the Lehman Brothers collapse, it was discovered that AIG, the world's largest insurance company, was bankrupt as a result of spiraling losses on exotic financial instruments. This threatened to drag the banking system down alongside AIG. The Fed loaned it \$85 billion to cover amounts owed to the largest banks, a mere down payment into the financial black hole that AIG was fast becoming. The money passed directly through to the creditor banks, taking pressure off of the financial system but adding to the amount of the "bail out."

But the bailout was even broader. Over thirty years of deregulation, the financial system had rapidly evolved away from the structures put in place during the Great Depression, and the new system could not withstand the stresses of 2008. Pushing the bounds of its legal authority, the Fed took actions targeted at critical elements of the new system that dwarfed TARP in scope, but of which that the public was largely unaware.³⁷

- Losses at money market funds threatened a depositor run on the \$3.4 trillion of assets held by these entities.³⁸ Over the years, money market funds had largely replaced conventional bank savings deposits, but these funds did not enjoy the stabilizing benefits of FDIC deposit insurance, the New Deal program assuring against depositor runs. The Fed immediately put a lending facility in place that effectively guaranteed money market deposits and warded off a catastrophic run that would have dragged down the banks.
- One of the most popular investment sources for money market funds is the commercial paper market into which companies and structured financing vehicles sponsored by banks issue short term IOU's. In 2008, there was \$1.8 trillion of commercial paper outstanding, approximately 70% of which had terms of 3 days or less.³⁹ When the commercial paper market started to fail, the Fed stepped in to purchase the IOUs and guarantee investors that the commercial paper would be rolled over or paid off as it matured.
- Banks had more and more used "repurchase agreements" to finance their holdings of securities and derivatives. They would borrow money against the securities and derivatives, agreeing to repay the loans and retrieve the collateral on a daily basis. The "repo" market, as it was known, had mushroomed to \$4.5 trillion and almost all of it had

³⁷ Board of Governors of the Federal Reserve System, Office of Inspector General, "The Federal Reserve's Section 13(3) Lending Facilities to Support Overall Market Liquidity: Function, Status, and Risk Management," November 2010.

³⁸ Diana Henriques, "Treasury to Guaranty Money Market Funds," New York Times, September 19, 2008, available at <http://www.nytimes.com/2008/09/20/business/20moneys.html>.

³⁹ Richard Anderson and Charles Gascon, "The Commercial Paper Market, the Fed, and the 2007-2009 Financial Crisis," Federal Reserve Bank of St. Louis *Review*, November/December 2009, 91(6), pp. 589-612, available at <http://research.stlouisfed.org/publications/review/09/11/Anderson.pdf>.

to be rolled over every single day.⁴⁰ As banks grew to believe that other banks might implode at any moment, and as the securities and derivatives used as collateral fell in value, repurchase agreement lending started to dry up. Banks started selling off the securities and other collateral that could no longer be financed, creating a “fire sale” effect. This drove down the collateral value of the securities and derivatives, threatening a death spiral of epic proportions. The Fed stepped in to guarantee the repo market, slowing the spiral.

- Foreign banks needed access to US dollars to avoid default on ongoing dollar denominated liabilities. They could not rely on borrowing dollars in the crippled US commercial paper market. So the only source was the market for swapping dollars in exchange for other currencies with US Banks, a \$4 trillion *per day* market.⁴¹ Banks in other countries came to doubt the reliability of US banks - no one knew whether US banks were solvent. A worldwide collapse might ensue if the foreign banks defaulted for want of dollars. The Fed offered unlimited access to foreign central banks to swap dollars for foreign currency so that the central banks could in turn loan dollars to local banks, avoiding their default. Most accurately measured, the daily peak of Fed swaps exceeded \$850 billion.

Actions by the US administration, Congress and the Fed held off a general collapse, but the consequences of these events persist to this day. Andrew Haldane, Bank of England Executive Director for Financial Stability, has estimated the ultimate cost to the worldwide economy to be between \$60 and \$200 trillion.⁴² By comparison, worldwide GDP for the 12 months ending May 2011 was \$65 trillion.⁴³ To state the obvious, even if Haldane’s figure is off by a bit, the consequences have been grave.

As a result, the subsidy provided by the too-big-to-fail reality extends far beyond a direct bailout to the banks. It covers the ecosystem that supports their continued existence.

6. *Is government “safety net” support appropriate, either for institutions of a certain size or for institutions that engage in certain activities?*

⁴⁰ Andrew Metrick, Haircuts, Federal Reserve Bank of St. Louis Review, November/December 2010; Primary Dealers’ Outstanding Repos (July 6, 1994 to 2009) (Source: FRB of NY) <http://www.zerohedge.com/sites/default/files/images/Repo%201.jpg>; SIFMA US Primary Dealer Financing <http://www.sifma.org/research/statistics.aspx>

⁴¹ Bank for International Settlements, “Triennial Central Bank Survey, Report on Global Foreign Exchange Market Activity in 2010,” December 2010, available at <http://www.bis.org/publ/rpfx10t.pdf>.

⁴² Paul Hannon, “Economic Hit from Crisis: A very Big Number,” Wall Street Journal, March 30, 2010; text of speech available at www.bankofengland.co.uk/publications/speeches/.../speech433.pdf

⁴³ “In Search of Growth,” The Economist, May 25, 2011, available at http://www.economist.com/blogs/dailychart/2011/05/world_gdp.

Bank runs of various sorts continue to be a threat to the financial system. In one manifestation, depositors instigate a run on the system by withdrawing deposited funds (recall Jimmy Stewart holding off the townspeople in *It's a Wonderful Life*). This happened to money market funds in 2008. In another version, banks cut off short term funding provided to other banks. This occurred in the bank-centered repurchase agreement, commercial paper and currency swap markets in the recent crisis, as banks decided that no one holding toxic assets could be trusted. If the "bank run" cannot be contained, commercial activity comes to a halt, as in the Great Depression.⁴⁴ Mitigating the risk of such an event has obvious value, and as Andrew Haldane's estimate illustrates, the value is indisputably enormous.

The safety net must target the financial panics that can lead to runs. Depositor runs are addressed by deposit insurance. Interbank liquidity runs are addressed by access to the Fed window.

But the safety net makes sense only under certain conditions. Foremost, is that the safety net should only be used to benefit low risk, stable return institutions. Commercial banks, not universal banks, fit this description. The commingling of deposit insurance and financial market intermediation is inherently a source of systemic risk and moral hazard.

Furthermore, the safety net only makes sense if other sources of bank runs, transmitted through interconnectedness, are addressed by either regulatory intervention or similar safety nets. Regulation is far preferable. The potential for money market depositor runs must be dealt with. Fed Chairman Bernanke has recently reiterated this point and pledged to take action.⁴⁵ Similarly the inherent instability of the repurchase agreement market must be addressed. Some prospects for this exist, but the prudential regulators need to be extremely meticulous in the measurement of the short-term volatility of this market and the required liquid capital needed to mitigate its effects. Similarly, the stability of the \$4 trillion a day foreign exchange market must be addressed. An answer to this seems far away. The intervention by the Fed to facilitate transactions, which continues to this day, is not a solution.

Finally, systemically important financial institutions must be designated and brought under prudential supervision, as envisioned in the Dodd-Frank Act. It is unrealistic to believe that dealing with banks subject to the safety net will avoid the contagion of major failure by systemically important non-banks. The Dodd-Frank regulation of systemically important non-banks must be finalized.

7. *Would you favor limiting the size – for example, leverage or nondeposit liabilities - of financial institutions?*

⁴⁴ Bernanke, Ben S., "Non-Monetary Effects of the Financial Crisis in the Propagation of the Great Depression," *American Economic Review*, 73 (June 1983), pp. 257–76.

⁴⁵ International Business Times, "Bernanke Calls for More Shadow Banking Curbs," April 10, 2012, available at <http://www.ibtimes.com/articles/326117/20120410/federal-reserve-bernanke-speech-shadow-banking-regulation.htm>.

Leverage is a critically important issue. The assets held by the financial sector exploded in the 30 years prior to 2008, and it was in large part financed with debt. In 1978, commercial banks held an aggregate of \$1.2 trillion in assets, or 53% of the US GDP. By the end of 2007, this figure had grown to \$11.8 trillion representing 84% of GDP. Similarly, investment banks grew from \$33 billion (1.4% of GDP) to \$3.1 trillion (22% of GDP).⁴⁶ Compare this with the \$4.7 trillion repurchase agreement market in which securities are financed by selling them with an obligation to repurchase, primarily in overnight transactions (described above). This practice - in substance, a form of secured lending - exposes the financial system to tremendous risk. Declines in the value of securities impair the value of the collateral securing the loans. Banks can be forced to sell the securities to extinguish the repo debt, and this causes securities to decline further setting off a dangerous spiral.

Regulations limiting debt to equity ratios are important. Prudent ratios are in the range of 10 - 15 to 1, a far cry from the levels of 2007 and 2008. However, limitations on leverage must effectively measure and limit the use of short term financing, such as repos and securities lending. These limitations must not be limited to the trading books of banks. They must take into consideration the potential moving of assets to the loan books as well.

Other non-deposit liabilities must also be addressed. Off balance sheet financing of assets was a major component in the demise of Bear Stearns. Banks must be foreclosed from entanglement in hedge funds and asset-backed financings.

But derivatives pose a risk even larger. These positions must be seen for the leveraged transactions that they are. This \$30 trillion per year market embeds huge uncapped credit exposures to price movements in a vast array of securities, commodities and other assets. Transactions through clearinghouses, a goal of the Dodd-Frank Act and international policy-makers, are managed transparently under rules overseen by regulators. However, the bilateral over-the-counter market will simply not be eliminated by the Dodd-Frank Act, with its exclusions for end users and other derivatives users.

Finally, the corporate practices of the banks create leverage that goes unseen. The banks operate multiple subsidiaries throughout the world. As an example, Lehman Brothers had 2,854 subsidiary companies. A common practice is to manage risk on a consolidated basis and sweep cash into the parent institution, often as frequently as overnight. It is unrealistic to assume that the exposures of subsidiaries, and in particular complex and difficult to measure undertakings, do not constitute leverage of the parent bank.

8. *Would you favor limiting activities of individual banks, such as restricting the amount of investment banking or trading activities they may engage in?*

There are three conceptual ways to limit the risks of investment banking businesses conducted by universal banks. Some or all of these investment banking activities can be prohibited, with priority given to those that involve the greatest risk. Safe forms of capital may be required as

⁴⁶ Johnson and Kwak at page 59.

reserves against loss and as a means of curbing excessive risk taking. And regulations may require the activities to be ring-fenced in subsidiaries that can fail without damage to the bank. Of these, the approach in the US has focused on activity restrictions and capital requirements, recognizing that the conceptual justification of ring fencing may well prove to be illusory in practice.

The need for activity restrictions is inescapable. Capital requirements are useful, especially if intelligently applied in proportion to the risks that are reserved against. However, capital requirements are based on the measurement of risk. Faulty risk measurement was a major factor in the financial crisis. Forecasting risk is always influenced by historic experience, even if the statistical measurements relied on prior to 2008 are expanded. It is difficult to anticipate the unprecedented.

Moreover, risks are measured using forecasting models. This is a reasonable and centrally important practice. But models are created by people and are therefore subject to their biases.

Prudence dictates that there are activities that simply must be prohibited to banks. This does not mean that a given activity cannot exist in the marketplace. It means that the activity must be limited to financial institutions that are not commercial banks.

Section 619 of the Dodd-Frank Act (often referred to as the Volcker Rule) is intended to prohibit activities, in particular proprietary trading and excessive involvement with hedge funds. Certain proprietary activities are permitted, most notably market making. The response from industry has been loud and strong, as should be expected. For example, it is asserted that taking a position, with respect to which there is no market for the bank to exit the trade, is actually market making if the counterparty is a client. Taking on such a risk is not primarily motivated as customer service; it is primarily a proprietary bet. One hopes that the regulatory agencies do not suffer from amnesia: positions that cannot be liquidated at a known price precisely describes the toxic assets that rendered bank balance sheets indiscernible, triggering the runs that caused the crisis.

The Proposed Rules to implement Section 619 are said to be long and complicated, but this is an almost absurd exaggeration based on a double-spaced version and including the lengthy discussion of the issues issued with the Proposed Rule. The Proposed Rule itself runs only about 13 pages in the Federal Register, with 12 pages of appendices, hardly a threat to any record for length of regulation. The reason behind any complexity is not the desire of regulators to burden the banks with rules. Section 619 of the Dodd-Frank Act surgically excises only those elements of trading that pose the greatest risks, allowing banks to continue activities such as market making, underwriting and restrained participation in hedge funds and private equity funds. The intent was to limit bank activities as little as possible.

However, the banks themselves had allowed the proprietary trading fever to infect the client-oriented businesses that the Volcker Rule seeks to exclude from the prohibition. For instance, desks engaged in client-oriented market making could never hope to generate revenues to match their colleagues on desks explicitly dedicated to prop trading. As a result, market-making desks

migrated into prop trading by seeking client business that justified the accumulation of huge positions that they called “inventory” (semantics that are best described as Orwellian). There is no better illustration than the recent Oliver Wyman study that describes inventory levels at 4.6 times average daily volume for less liquid products.⁴⁷ The conclusion is inescapable: this is not making a market under any conventional meaning of the concept; it is proprietary trading using a more benign name.

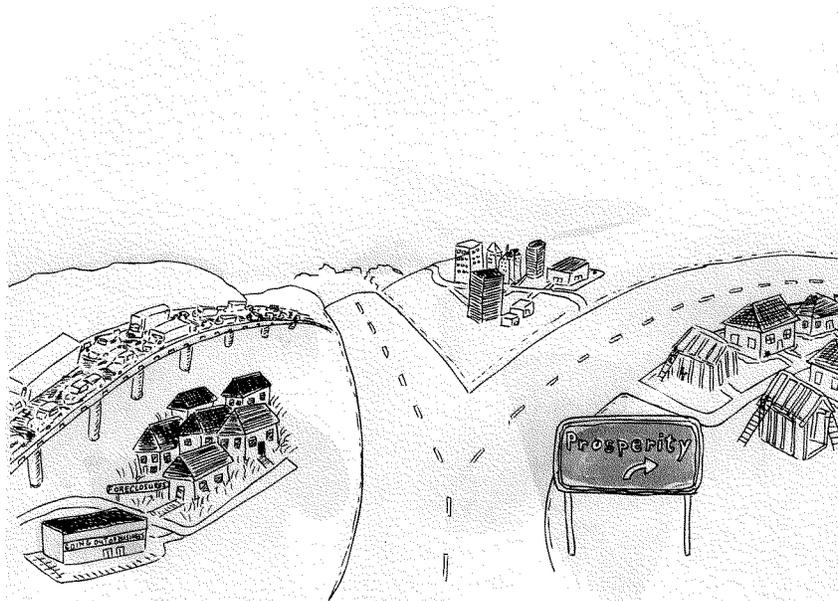
As a result, to preserve certain activities that are less risky, client oriented businesses, the regulators were compelled to define and describe them using legitimate, non-Orwellian rules and monitoring regimes.

Moreover, many of the complexities of the Volcker Rule stem from endless entreaties of financial institutions, which met with the regulatory agencies some 350 times. Having prevailed with the insertion of numerous exceptions and permissions, it is ironic that banks now complain about the complexity that is an inescapable consequence.

The only reasonable response to the criticisms leveled to date regarding the Proposed Rule under Section 619 is to eliminate the exceptions from the proprietary trading prohibition for less risky forms of trading. That way, the banks will not have to be monitored for non-compliance, behaviors that they have exhibited in the past.

Thank you for the opportunity to present my views.

⁴⁷ Oliver Wyman Study, page 9.



As a nation, we face a distinct choice. We can perpetuate too big to fail, with its inequities and dangers, or we can end it. Eliminating TBTf won't be easy, but the vitality of our capitalist system and the long-term prosperity it produces hang in the balance.

Choosing the Road to Prosperity

Why We Must End Too Big to Fail—Now

by Harvey Rosenblum

More than three years after a crippling financial crisis, the American economy still struggles. Growth sputters. Job creation lags. Unemployment remains high. Housing prices languish. Stock markets gyrate. Headlines bring reports of a shrinking middle class and news about governments stumbling toward bankruptcy, at home and abroad.

Ordinary Americans have every right to feel anxious, uncertain and angry. They have every right to wonder what happened to an economy that once delivered steady progress. They have every right to question whether policymakers know the way back to normalcy.

American workers and taxpayers want a broad-based recovery that restores confidence. Equally important, they seek assurance that the causes of the financial crisis have been dealt with, so a similar breakdown won't impede the flow of economic activity.

The road back to prosperity will require reform of the financial sector. In particular, a new roadmap must find ways around the potential hazards posed by the financial institutions that the government not all that long ago deemed "too big to fail"—or TBTF, for short.

In 2010, Congress enacted a sweeping, new regulatory framework that attempts to address TBTF. While commendable in some ways, the new law may not prevent the biggest financial institutions from taking excessive risk or growing ever bigger.

TBTF institutions were at the center of the financial crisis and the sluggish recovery that followed. If allowed to remain unchecked, these entities will continue posing a clear and present danger to the U.S. economy.

As a nation, we face a distinct choice. We can perpetuate TBTF, with its inequities and dangers, or we can end it. Eliminating TBTF won't be easy, but the vitality of our capitalist system and the long-term prosperity it produces hang in the balance.

When competition declines, incentives often turn perverse, and self-interest can turn malevolent. That's what happened in the years before the financial crisis.

Flaws, Frailties and Foibles

The financial crisis arose from failures of the banking, regulatory and political systems. However, focusing on faceless institutions glosses over the fundamental fact that human beings, with all their flaws, frailties and foibles, were behind the tumultuous events that few saw coming and that quickly spiraled out of control.

Complacency

Good times breed complacency—not right away, of course, but over time as memories of past setbacks fade. In 1983, the U.S. entered a 25-year span disrupted by only two brief, shallow downturns, accounting for just 5 percent of that period (*Exhibit 1*). The economy performed unusually well, with strong growth, low unemployment and stable prices.

This period of unusual stability and prosperity has been dubbed the Great Moderation, a respite from the usual tumult of a vibrant capitalist economy. Before the Federal Reserve's founding in 1913, recession held the economy in its grip 48 percent of the time. In the nearly 100 years since the Fed's creation, the economy has been in recession about 21 percent of the time.

When calamities don't occur, it's human nature to stop worrying. The world seems less risky.

Moral hazard reinforces complacency. Moral hazard describes the danger that protection against losses encourages riskier behavior. Government rescues of troubled financial institutions encourage banks and their creditors to take greater risks, knowing they'll reap the rewards if things turn out well, but will be shielded from losses if things sour.

In the run-up to the crisis of 2008, the public sector grew complacent and relaxed the financial system's constraints, explicitly in law and implicitly in enforcement. Additionally, government felt secure enough in prosperity to pursue social engineering goals—most notably, expanding home ownership among low-income families.

At the same time, the private sector also became complacent, downplaying the risks of borrowing and lending. For example, the traditional guideline of 20 percent down payment for the purchase of a home kept slipping toward zero, especially among lightly regulated mortgage companies. More money went to those with less ability to repay.¹

Greed

You need not be a reader of Adam Smith to know the power of self-interest—the human desire for material gain. Capitalism couldn't operate without it. Most of the time, competition and the rule of law provide market discipline that keeps self-interest in check and steers it toward the social good of producing more of what consumers want at lower prices.

When competition declines, incentives often turn perverse, and self-interest can turn malevolent. That's what happened in the years before the financial crisis. New technologies and business practices reduced lenders' "skin in the game"—for example, consider how lenders, instead of retaining the mortgages they made, adopted the new originate-to-distribute model, allowing them to pocket huge fees for making loans, packaging them into securities and selling them to investors. Credit default swaps fed the mania for easy money by opening a casino of sorts, where investors placed bets on—and a few financial institutions sold protection on—companies' creditworthiness.

Greed led innovative legal minds to push the boundaries of financial integrity.

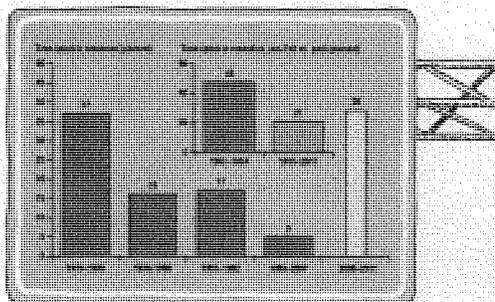
with off-balance-sheet entities and other accounting expedients. Practices that weren't necessarily illegal were certainly misleading—at least that's the conclusion of many postcrisis investigations.²

Complicity

We admire success. When everybody's making money, we're eager to go along for the ride—even in the face of a suspicion that something may be amiss. Before the financial crisis, for example, investors relied heavily on the credit-rating companies that gave a green light to new, highly complex financial products that hadn't been tested under duress. The agencies bestowed their top rating to securities backed by high-risk assets—most notably mortgages with small down payments and little documentation of the borrowers' income and employment. Billions of dollars of these securities were later downgraded to "junk" status.

Complicity extended to the public sector. The Fed kept interest rates too low for too long, contributing to the speculative binge in housing and pushing investors toward higher yields in riskier markets. Congress pushed Fannie Mae and Freddie Mac, the de facto government-backed mortgage

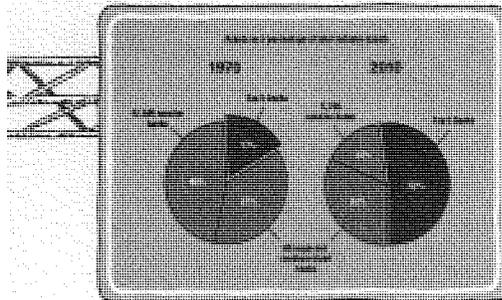
Exhibit 1
Reduced Time Spent in Recession



SOURCE: National Bureau of Economic Research.

Concentration amplified the speed and breadth of the subsequent damage to the banking sector and the economy as a whole.

Exhibit 2
U.S. Banking Concentration Increased Dramatically



NOTE: Assets were calculated using the regulatory high holder or top holder for a bank and summing assets for all the banks with the same top holder to get an estimate of organization-level bank assets.
SOURCE: Reports of Condition and Income, Federal Financial Institutions Examination Council; National Information Center, Federal Reserve System.

giants, to become the largest buyers of these specious mortgage products.

Hindsight leaves us wondering what financial gurus and policymakers could have been thinking. But complicity presupposes a willful blindness—we see what we want to see or what life's experiences condition us to see. Why spoil the party when the economy is growing and more people are employed? Imagine the political storms and public ridicule that would sweep over anyone who tried!

Exuberance

Easy money leads to a giddy self-delusion—it's human nature. A contagious divorce from reality lies behind many of history's great speculative episodes, such as the Dutch tulip mania of 1637 and the South Sea bubble of 1720. Closer to home in time and space, exuberance fueled the Texas oil boom of the early 1980s. In the first decade of this century, it fed the illusion that housing prices could rise forever.

In the run-up to the financial crisis, the certainty of rising housing prices convinced some homebuyers that high-risk mortgages, with little or no equity, weren't that risky. It induced consumers

to borrow on rising home prices to pay for new cars, their children's education or a long-hoped-for vacation. Prudence would have meant sitting out the dance; buying into the exuberance gave people what they wanted—at least for a while.

All booms end up busts. Then comes the sad refrain of regret: How could we have been so foolish?

Concentration

In the financial crisis, the human traits of complacency, greed, complicity and exuberance were intertwined with concentration, the result of businesses' natural desire to grow into a bigger, more important and dominant force in their industries. Concentration amplified the speed and breadth of the subsequent damage to the banking sector and the economy as a whole.

The biggest U.S. banks have gotten a lot bigger. Since the early 1970s, the share of banking industry assets controlled by the five largest U.S. institutions has more than tripled to 52 percent from 17 percent (*Exhibit 2*).

Mammoth institutions were built on a foundation of leverage, sometimes misleading regulators and investors through the

use of off-balance-sheet financing.³ Equity's share of assets dwindled as banks borrowed to the hilt to chase the easy profits in new, complex and risky financial instruments. Their balance sheets deteriorated—too little capital, too much debt, too much risk.

The troubles weren't always apparent. Financial institutions kept marking assets on their books at acquisition cost and sometimes higher values if their proprietary models could support such valuations. These accounting expedients allowed them to claim they were healthy—until they weren't. Write-downs were later revised by several orders of magnitude to acknowledge mounting problems.

With size came complexity. Many big banks stretched their operations to include proprietary trading and hedge fund investments. They spread their reach into dozens of countries as financial markets globalized. Complexity magnifies the opportunities for obfuscation. Top management may not have known all of what was going on—particularly the exposure to risk. Regulators didn't have the time, manpower and other resources to oversee the biggest banks' vast operations and ferret out the problems that might be buried in financial footnotes or

legal boilerplate.

These large, complex financial institutions aggressively pursued profits in the overheated markets for subprime mortgages and related securities. They pushed the limits of regulatory ambiguity and lax enforcement. They carried greater risk and overestimated their ability to manage it. In some cases, top management groped around in the dark because accounting and monitoring systems didn't keep pace with the expanding enterprises.

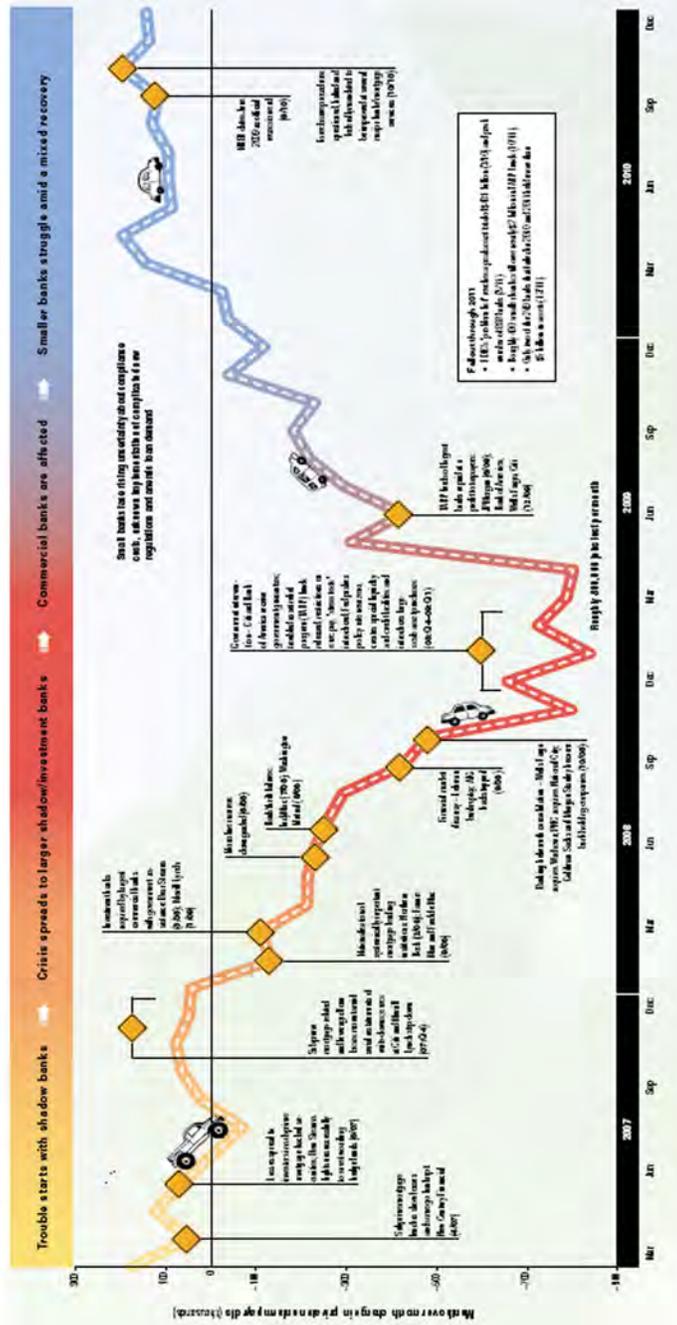
Blowing a Gasket

In normal times, flows of money and credit keep the economy humming. A healthy financial system facilitates payments and transactions by businesses and consumers. It allocates capital to competing investments. It values assets. It prices risk. For the most part, we take the financial system's routine workings for granted—until the machinery blows a gasket. Then we scramble to fix it, so the economy can return to the fast lane.

In 2007, the nation's biggest investment and commercial banks were among the first to take huge write-offs on mortgage-backed securities (*Exhibit 3*).

(continued on page 11)

EXHIBIT 3
Employment Flows in the Financial System Implode
Sectoral Trends, 2007-2010



The term TBTF disguised the fact that commercial banks holding roughly one-third of the assets in the banking system *did essentially fail*, surviving only with extraordinary government assistance.

Box 1 Degrees of Failure: Bankruptcies, Buyouts and Bailouts

For capitalist economies to thrive, weak companies must go out of business. The reasons for failure vary from outdated products, excess industry capacity, mismanagement and simple bad luck. The demise of existing firms helps the economy by freeing up resources for new enterprises, leaving healthier survivors in place. Joseph Schumpeter coined the term “creative destruction” to describe this failure and renewal process—a major driver of progress in a free-enterprise economy. Schumpeter and his disciples view this process as beneficial despite the accompanying loss of jobs, asset values and equity.

The U.S. economy offers a range of options for this process of failure and rebirth:

Bankruptcies

Enterprises beyond saving wind up in Chapter 7 bankruptcy, with operations ended and assets sold off. Firms with a viable business but too much debt or other contractual obligations usually file for Chapter 11 bankruptcy, continuing to operate under court protection from creditors. Both forms of bankruptcy result in a hit to stakeholders: shareholders, employees, top managers and creditors are wiped out or allowed to survive at a significant haircut. Bankruptcy means liquidation or reduction; whether the bankrupt firm dies completely or scales down and survives with the same or similar name, the end game is reallocation of resources.

Buyouts

A company facing potential bankruptcy may instead be sold. The acquisition usually produces similar stakeholder reduction results as a Chapter 11 bankruptcy, but without the obliteration of equity ownership and creditor fallout.

Bailouts

The government steps in to prevent bankruptcy by providing loans or new capital. The government becomes the most senior secured creditor and begins downsizing losses, man-

agement, the corporate balance sheet and risk appetite. As the company restructures, the government, often very slowly, weans the company off life support.

Banks are special

The FDIC handles most bank failures through a resolution similar to a private-sector buyout. The FDIC is funded primarily by fees garnered from the banking industry. The failed institution's shareholders, employees, management and unsecured creditors still generally suffer significant losses, while insured depositors are protected.

In the wake of the financial crisis, Dodd-Frank added a new option: the Orderly Liquidation Authority (OLA). In theory, OLA will follow the spirit of a Chapter 7 bankruptcy—liquidation of the failed firm's assets—but in an “orderly” manner. “Orderly” may involve some FDIC/government financing to maximize firm value prior to the sale, thus blending some of the degrees of failure already discussed.

Buyouts, bankruptcies and FDIC resolutions have a long history of providing a reasonably predictable process that imposes no costs to taxpayers. Bankruptcies and buyouts support creative destruction using private sector funding. By contrast, bailouts and OLA are specifically aimed at dealing with too-big-to-fail institutions and are likely to involve some form of taxpayer assistance since this degree of failure comes after private sector solutions are deemed unavailable. Bailouts provide delayed support of the creative destruction process, using sometimes politically influenced taxpayer funds instead of the free-enterprise route of reduction, rebirth and reallocation.

In essence, dealing with TBTF financial institutions necessitates quasi-nationalization of a private company, a process antithetical to a capitalist system.

But make no mistake about it: A bailout is a failure, just with a different label.

As housing markets deteriorated, policymakers became alarmed, seeing the number of big, globally interconnected banks among the wounded. The loss of even one of them, they feared, would create a domino effect that would lead to a collapse of the payment system and severely damage an economy already battered by the housing bust.

Capital markets did in fact seize up when Lehman Brothers, the fourth-largest investment bank, declared bankruptcy in September 2008. To prevent a complete collapse of the financial system and to unfreeze the flow of finance, the expedient fix was hundreds of billions of dollars in federal government loans to keep these institutions and the financial system afloat.

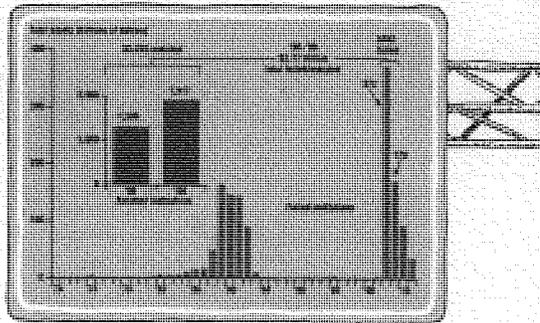
In short, the situation in 2008 removed any doubt that several of the largest U.S. banks were too big to fail.⁶ At that time, no agency compiled, let alone published, a list of TBTF institutions. Nor did any bank advertise itself to be TBTF. In fact, TBTF did not exist explicitly, in law or policy—and the term itself disguised the fact that commercial banks holding roughly one-third of the assets in the banking system *did essentially fail*,

surviving only with extraordinary government assistance (*Exhibit 4*).⁹ Most of the largest financial institutions did not fail in the strictest sense. However, bankruptcies, buyouts and bailouts facilitated by the government nonetheless constitute failure (*Box 1*). The U.S. financial institutions that

failed outright between 2008 and 2011 numbered more than 400—the most since the 1980s.

The housing bust and recession disabled the financial system, stranding many institutions on the roadway, creating unprecedented traffic jams. Struggling

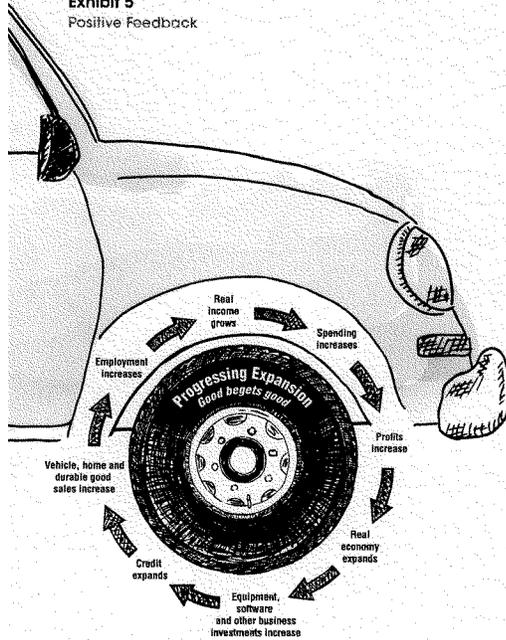
Exhibit 4
Total Assets of Failed and Assisted Institutions Reached Extraordinary Levels



SOURCE: Federal Deposit Insurance Corp.

Psychological side effects of TBTF can't be measured, but they're too important to ignore because they affect economic behavior.

Exhibit 5
Positive Feedback



banks could not lend, slowing economic activity. Massive layoffs followed, pinching household and business spending, which depressed stock prices and home values, further reducing lending. These troubles brought more layoffs, further reducing spending. Overall economic activity bogged down.

The chain reaction that started in December 2007 became the longest recession in the post-World War II era, lasting a total of 18 months to June 2009. Real output from peak to trough dropped 5.1 percent. Job losses reached nearly 9 million. Unemployment peaked at 10 percent in October 2009.

The economy began seeing a slight easing of congestion in mid-2009. With the roadway beginning to clear of obstacles, households and businesses sensed an opportunity to speed up. New jobs, higher spending, rising asset prices and increased lending all reinforce each other, building up strength as the economy proceeds on a growth path (Exhibit 5).

Monetary Policy Engine

In an internal combustion engine, small explosions in the cylinders' combus-

tion chambers propel a vehicle; likewise, the monetary policy engine operates through cylinders that transmit the impact of Fed actions to decisions made by businesses, lenders, borrowers and consumers (Exhibit 6).⁶

When it wants to get the economy moving faster, the Fed reduces its policy interest rate—the federal funds rate, what banks charge one another for overnight loans. Banks usually respond by making more credit available at lower rates, adding a spark to the bank loan cylinder that drives borrowing by consumers and companies. Subsequent buying and hiring boost the economy.

Interest rates in money and capital markets generally fall along with the federal funds rate. The reduced cost of financing taking place in the securities market cylinder enables many large businesses to finance expansion through sales of stock, bonds and other instruments. Increased activity occurs in the asset prices and wealth cylinder stemming from the propensity of falling interest rates to push up the value of assets—bonds, equities, homes and other real estate. Rising asset values bolster businesses' balance sheets

and consumers' wealth, leading to greater capacity to borrow and spend.

Declining interest rates stimulate activity in the exchange rate cylinder, making investing in U.S. assets less attractive relative to other countries, putting downward pressure on the dollar. The exchange rate adjustments make U.S. exports cheaper, stimulating employment and economic activity in export industries. However, what other countries do is important; if they also lower interest rates, then the effect on exchange rates and exports will be muted.

From the first moments of the financial crisis, the Fed has worked diligently—often quite imaginatively—to repair damage to the banking and financial sectors, fight the recession, clear away impediments and jump-start the economy.

The Fed has kept the federal funds rate close to zero since December 2008. To deal with the zero lower bound on the federal funds rate, the Fed has injected billions of dollars into the economy by purchasing long-maturity assets on a massive scale, creating an unprecedented bulge in its balance sheet. That has helped push down borrowing costs at all maturities to their lowest levels in more than a half century.

While reducing the interest burden for borrowers, monetary policy in recent years has had a punishing impact on savers, particularly those dependent on shrinking interest payments.

In the United States, economic growth resumed in mid-2009—but it has been tenuous and fragile through its first two-plus years. Annual growth has averaged about 2.5 percent, one of the weakest rebounds of any post-WWII recovery. Stock prices quickly bounced back from their recessionary lows but seem suspended in trendless volatility. Home prices have languished.

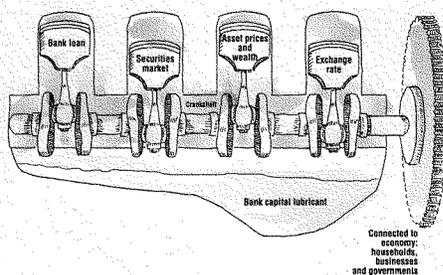
At the same time, job gains have been disappointing, averaging 120,000 a month from January 2010 to December 2011, less than half what they were in the mid-to late 1990s when the labor force was considerably smaller. Through 2011, only a third of the jobs lost in the recession have been regained.

What's Different Now?

The sluggish recovery has confounded monetary policy. Much more modest Fed actions have produced much stronger results in the past. So, what's different now?

A vehicle's engine with one cylinder misfiring may get you where you want to go; it just takes longer. The same goes for the machinery of monetary policy, largely because of the interdependence of all the moving parts.

Exhibit 6
The Four Cylinders of the Monetary Policy Engine



Part of the answer lies in excesses that haven't been wrung out of the economy—falling housing prices have been a lingering drag. Jump-starting the housing market would surely spur growth, but TBTF banks remain at the epicenter of the foreclosure mess and the backlog of toxic assets standing in the way of a housing revival. Mortgage credit standards remain relatively tight.⁷

Loan demand lags because of uncertainty about the economic outlook and diminished faith in American capitalism. Even though banks have begun easing lending standards, potential borrowers believe the tight credit standards of 2008–10 remain in place.

Another part of the answer centers on the monetary policy engine. It still isn't hitting on all cylinders, impairing the Fed's ability to stimulate the real economy's growth of output and employment. As a result, historically low federal funds rates haven't delivered a large expansion of overall credit. With bank lending weak, financial markets couldn't play their usual role in recovery—revving up lending by nonbanks to the household and business sectors.

A vehicle's engine with one cylinder

misfiring may get you where you want to go; it just takes longer. The same goes for the machinery of monetary policy, largely because of the interdependence of all the moving parts. When one is malfunctioning, it degrades the rest. A scarcity of bank credit, for example, inhibits firms' capacity to increase output for exports, undermining the power within the exchange rate cylinder.

Similarly, the contributions to recovery from securities markets and asset prices and wealth have been weaker than expected. A prime reason is that burned investors demand higher-than-normal compensation for investing in private-sector projects. They remain uncertain about whether the financial system has been fixed and whether an economic recovery is sustainable. They worry about additional financial shocks—such as the euro zone crisis.

Sludge on the Crankshaft

A fine-tuned financial system requires well-capitalized banks, with the resources to cover losses from bad loans and investments. In essence, bank capital is a key lubricant in the economic engine (see Exhibit 5). Insufficient capital creates a grinding friction that weakens the entire

financial system. Bank capital is an issue of regulatory policy, not monetary policy. But monetary policy cannot be effective when a major portion of the banking system is undercapitalized.

The machinery of monetary policy hasn't worked well in the current recovery. The primary reason: TBTF financial institutions. Many of the biggest banks have sputtered, their balance sheets still clogged with toxic assets accumulated in the boom years.

In contrast, the nation's smaller banks are in somewhat better shape by some measures. Before the financial crisis, most didn't make big bets on mortgage-backed securities, derivatives and other highly risky assets whose value imploded. Those that did were closed by the Federal Deposit Insurance Corp. (FDIC), a government agency.

Coming out of the crisis, the surviving small banks had healthier balance sheets. However, smaller banks comprise only one-sixth of the banking system's capacity and can't provide the financial clout needed for a strong economic rebound.

The rationale for providing public funds to TBTF banks was preserving the financial system and staving off an even worse recession. The episode had its

downside because most Americans came away from the financial crisis believing that economic policy favors the big and well-connected. They saw a topsy-turvy world that rewarded many of the largest financial institutions, banks and nonbanks alike, that lost risky bets and drove the economy into a ditch.⁸

These events left a residue of distrust for the government, the banking system, the Fed and capitalism itself (Box 2). These psychological side effects of TBTF can't be measured, but they're too important to ignore because they affect economic behavior. People disillusioned with capitalism aren't as eager to engage in productive activities. They're likely to approach economic decisions with suspicion and cynicism, shying away from the risk taking that drives entrepreneurial capitalism. The ebbing of faith has added friction to an economy trying to regain cruising speed.

Shifting into Gear

Looking back at the financial crisis, recession and the tepid recovery that followed points to two challenges facing the U.S. economy in 2012 and beyond. The short term demands a focus on repairing the

The verdict on Dodd-Frank will depend on what the final rules look like. So far, the new law hasn't helped revive the economy and may have inadvertently undermined growth.

Box 2

TBTF: A Perversion of Capitalism

An unfortunate side effect of the government's massive aid to TBTF banks has been an erosion of faith in American capitalism. Ordinary workers and consumers who might usually thank capitalism for their higher living standards have seen a perverse side of the system, where they see that normal rules of markets don't apply to the rich, powerful and well-connected.

Here are some ways TBTF has violated basic tenets of a capitalist system:

Capitalism requires the freedom to succeed and the freedom to fail. Hard work and good decisions should be rewarded. Perhaps more important, bad decisions should lead to failure—openly and publicly. Economist Allan Meltzer put it this way: "Capitalism without failure is like religion without sin."

Capitalism requires government to enforce the rule of law. This requires maintaining a level playing field. The privatization of profits and socialization of losses is completely unacceptable. TBTF undermines equal treatment, reinforcing the perception of a system tilted in favor of the rich and powerful.

Capitalism requires businesses and individuals be held accountable for the consequences of their actions. Accountability is a key ingredient for maintaining public faith in the economic system. The perception—and the reality—is that virtually nobody has been punished or held accountable for their roles in the financial crisis.

The idea that some institutions are TBTF inexorably erodes the foundations of our market-based system of capitalism.

financial system's machinery, so the impacts of monetary policy can be transmitted to the economy quickly and with greater force. To secure the long term, the country must find a way to ensure that taxpayers won't be on the hook for another massive bailout.

Both challenges require dealing with the threat posed by TBTF financial institutions; otherwise, it will be difficult to restore confidence in the financial system and the capitalist economy that depends on it.

The government's principal response to the financial crisis has been the Dodd–Frank Wall Street Reform and Consumer Protection Act (Dodd–Frank), signed into law on July 21, 2010. It's a sprawling, complex piece of legislation, addressing issues as diverse as banks' debit card fees and systemic risk to the financial system. Since Dodd–Frank became law, at least a dozen agencies, including the Fed, have been working to translate its provisions into regulations to govern the financial system. They're unlikely to finish until 2013 at the earliest.

The verdict on Dodd–Frank will depend on what the final rules look like. So far, the new law hasn't helped revive the economy and may have inadvertently undermined growth by adding to uncertainty

about the future.

A prolonged legislative process preceded the protracted implementation period, with bureaucratic procedure trumping decisiveness. Neither banks nor financial markets know what the new rules will be, and the lack of clarity is delaying repair of the bank-lending and financial market parts of the monetary policy engine.

The law's sheer length, breadth and complexity create an obstacle to transparency, which may deepen Main Street's distrust of Washington and Wall Street, especially as big institutions use their lawyers and lobbyists to protect their turf. At the same time, small banks worry about a massive increase in compliance burdens.

Policymakers can make their most immediate impact by requiring banks to hold additional capital, providing added protection against bad loans and investments. In the years leading up to the financial crisis, TBTF banks squeezed equity to a minimum. They ran into trouble because they used piles of debt to expand risky investments—in the end finding that excessive leverage is lethal.

The new regulations should establish basic capital levels for all financial institu-

tions, tacking on additional requirements for the big banks that pose systemic risk, hold the riskiest assets and venture into the more exotic realms of the financial landscape.⁹ Mandating larger capital cushions tied to size, complexity and business lines will give TBTF institutions more "skin in the game" and restore some badly needed market discipline. Overall, the revised regulatory scheme should provide incentives to cut risk. Some banks may even rethink their mania for growing bigger.

Higher capital requirements across the board could burden smaller banks and probably further crimp lending. These institutions didn't ignite the financial crisis. They didn't get much of a helping hand from Uncle Sam. They tend to stick to traditional banking practices. They shouldn't face the same regulatory burdens as the big banks that follow risky business models.

TBTF banks' sheer size and their presumed guarantee of government help in time of crisis have provided a significant edge—perhaps a percentage point or more—in the cost of raising funds.¹⁰ Making these institutions hold added capital will level the playing field for all banks, large and small.

Higher capital requirements across the board could burden smaller banks and probably further crimp lending. These institutions shouldn't face the same regulatory burdens as the big banks that follow risky business models.

Facing higher capital requirements, the biggest banks will need to raise additional equity through stock offerings or increased retained earnings through reduced dividends. Attracting new investment will be comparatively less burdensome for the healthiest institutions, difficult for many and daunting for the weaker banks.

Dodd-Frank leaves the details for rebuilding capital to several supervisory agencies. The specifics are still being worked out; it appears banks will have until 2016 or 2017 to meet the higher thresholds.

Given the urgent need for restoring the vitality of the banking industry, this may seem a long wait. However, capital rebuilding will likely take place faster as the stronger banks recognize the advantages of being first movers. Recently, many of the largest banks have made efforts to raise capital and have met or surpassed supervisory expectations for capital adequacy under stress tests.¹¹

Banks that quickly clean up their balance sheets will have a better chance of raising new funds—so they can then be in shape to attract even more new capital. Past evidence shows that financial markets favor institutions that offer the best pros-

pects for returns with acceptable risk.¹²

Laggards will be worse off, finding it even more difficult to attract new investors. Ultimately, these institutions will further weaken and may need to be broken up, their viable parts sold off to competitors. With the industry already too concentrated, it's important to redistribute these banking assets in a way that enhances overall competition.

Ensuring that banks have adequate capital is essential to effective monetary policy. It comes back to the bank capital linkage, which recognizes that banks must have healthy capital ratios to expand lending and absorb losses that normally occur. Repairing the damaged mechanism through which monetary policy impacts the economy will be the key to accelerating positive feedbacks.

To some extent, the Fed's zero interest rate policy, adopted in December 2008 at the height of the financial crisis, assisted the banking industry's capital rebuilding process. It reduced banks' costs of funds and enhanced profitability. But short-term interest rates cannot cross the zero lower bound, limiting any additional impact from this capital-building mechanism. It could

be argued that zero interest rates are taxing savers to pay for the recapitalization of the TBTF banks whose dire problems brought about the calamity that created the original need for the zero interest rate policy.

Unfortunately, the sluggish recovery is a cost of the long delay in establishing the new standards for bank capital. Given the urgent need to restore economic growth and a healthy job market, the guiding principles for bank capital regulation should be: codify and clarify, quickly. There is no statutory mandate to write hundreds of pages of regulations and hundreds more pages of commentary and interpretation. Millions of jobs hang in the balance.

A Potential Roadblock

Dodd-Frank says explicitly that American taxpayers won't again ride to the rescue of troubled financial institutions. It proposes to minimize the possibility of an Armageddon by revamping the regulatory architecture.

As part of its strategy to end TBTF, Dodd-Frank expanded the powers of the Fed, FDIC and most other existing regulators. New watchdogs will be put on alert. A 10-member Financial Stability Oversight

Council (FSOC), aided by a new Office of Financial Research, has been charged with monitoring systemic risk. It will try to identify and resolve problems at big banks and other financial institutions before they threaten the financial system. In an effort to increase transparency, much of the new information will be made public. Opaque business practices thwart market discipline.

Can Dodd-Frank do what was unthinkable back in 2008—identify and liquidate systemically important financial institutions in an orderly manner that minimizes risk to the financial system and economy?

The current remedy for insolvent institutions works well for smaller banks, protecting customers' money while the FDIC arranges sales or mergers that transfer assets and deposits to healthy competitors. During the financial crisis, however, the FDIC didn't have the staff, financial resources and time to wind down the activities of even one truly mammoth bank. Thus, many TBTF institutions stayed in business through government support.¹³

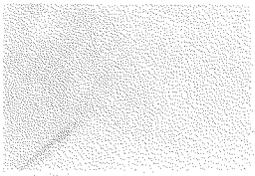
Dodd-Frank envisions new procedures for troubled big banks and financial institutions, directed by the FSOC watch-

dog and funded by fees charged to the biggest financial institutions.

The goal is an alternative to the TBTF rescues of the past three decades. In practice, these rescues have penalized equity holders while protecting bond holders and, to a lesser extent, bank managers. Disciplining the management of big banks, just as happens at smaller banks, would reassure a public angry with those whose reckless decisions necessitated government assistance.

Will the new resolution procedures be adequate in a major financial crisis? Big banks often follow parallel business strategies and hold similar assets. In hard times, odds are that several big financial institutions will get into trouble at the same time.¹⁴ Liquid assets are a lot less liquid if these institutions try to sell them at the same time. A nightmare scenario of several big banks requiring attention might still overwhelm even the most far-reaching regulatory scheme. In all likelihood, TBTF could again become TMTF—too many to fail, as happened in 2008.

A second important issue is credibility. Going into the financial crisis, markets assumed there was government backing for Fannie Mae and Freddie Mac bonds



A financial system composed of more banks—numerous enough to ensure competition but none of them big enough to put the overall economy in jeopardy—will give the United States a better chance of navigating through future financial potholes, restoring our nation's faith in market capitalism.

despite a lack of explicit guarantees. When push came to shove, Washington rode to the rescue. Similarly, no specific mandate existed for the extraordinary governmental assistance provided to Bear Stearns, AIG, Citigroup and Bank of America in the midst of the financial crisis.¹⁵ Lehman Brothers didn't get government help, but many of the big institutions exposed to Lehman did.¹⁶

Words on paper only go so far. What matters more is whether bankers and their creditors actually believe Dodd-Frank puts the government out of the financial bailout business. If so, both groups will practice more prudent behavior.

Dodd-Frank has begun imposing some market discipline and eroding the big banks' cost-of-funds advantage. Credit-rating agencies have lowered the scores for some larger banks, recognizing that the law reduces government bailout protections that existed just a few years ago and that Washington's fiscal problems limit its ability to help beleaguered financial institutions in a financial emergency.

While decrying TBTF, Dodd-Frank lays out conditions for sidestepping the law's proscriptions on aiding financial insti-

tutions. In the future, the ultimate decision won't rest with the Fed but with the Treasury secretary and, therefore, the president. The shift puts an increasingly political cast on whether to rescue a systemically important financial institution. (It may be hard for many Americans to imagine political leaders sticking to their anti-TBTF guns, especially if they face a too-many-to-fail situation again.)

If the new law lacks credibility, the risky behaviors of the past will likely recur, and the problems of excessive risk and debt could lead to another financial crisis. Government authorities would then face the same edge-of-the-precipice choice they did in 2008—aid the troubled banking behemoths to buoy the financial system or risk grave consequences for the economy.

The pretense of toughness on TBTF sounds the right note for the aftermath of the financial crisis. But it doesn't give the watchdog FSOC and the Treasury secretary the foresight and the backbone to end TBTF by closing and liquidating a large financial institution in a manner consistent with Chapter 7 of the U.S. Bankruptcy Code (see Box 1). The credibility of Dodd-Frank's disavowal of TBTF will remain in question

until a big financial institution actually fails and the wreckage is quickly removed so the economy doesn't slow to a halt. Nothing would do more to change the risky behavior of the industry and its creditors.

For all its bluster, Dodd-Frank leaves TBTF entrenched. The overall strategy for dealing with problems in the financial industry involves counting on regulators to reduce and manage the risk. But huge institutions still dominate the industry—just as they did in 2008. In fact, the financial crisis increased concentration because some TBTF institutions acquired the assets of other troubled TBTF institutions.

The TBTF survivors of the financial crisis look a lot like they did in 2008. They maintain corporate cultures based on the short-term incentives of fees and bonuses derived from increased oligopoly power. They remain difficult to control because they have the lawyers and the money to resist the pressures of federal regulation. Just as important, their significant presence in dozens of states confers enormous political clout in their quest to refocus banking statutes and regulatory enforcement to their advantage.

The Dallas Fed has advocated the ulti-

mate solution for TBTF—breaking up the nation's biggest banks into smaller units.¹⁷ It won't be easy for several reasons. First, the prospect raises a range of thorny issues about how to go about slimming down the big banks. Second, the level of concentration considered safe will be difficult to determine. Is it rolling things back to 1990? Or 1970? Third, the political economy of TBTF suggests that the big financial institutions will dig in to contest any breakups.

Taking apart the big banks isn't costless. But it is the least costly alternative, and it trumps the status quo.¹⁸

A financial system composed of more banks, numerous enough to ensure competition in funding businesses and households but none of them big enough to put the overall economy in jeopardy, will give the United States a better chance of navigating through future financial potholes and precipices. As this more level playing field emerges, it will begin to restore our nation's faith in the system of market capitalism.

Taking the Right Route

Periodic stresses that roil the financial system can't be wished away or legislated

out of existence. They arise from human weaknesses—the complacency that comes from sustained good times, the greed and irresponsibility that run riot without market discipline, the exuberance that overrules common sense, the complicity that results from going along with the crowd. We should be vigilant for these failings, but we're unlikely to change them. They're a natural part of our human DNA.

By contrast, concentration in the financial sector is anything but natural. Banks have grown larger in recent years because of artificial advantages, particularly the widespread belief that government will rescue the creditors of the biggest financial institutions. Human weakness will cause occasional market disruptions. Big banks backed by government turn these manageable episodes into catastrophes.

Greater stability in the financial sector begins when TBTF ends and the assumption of government rescue is driven from the marketplace. Dodd-Frank hopes to accomplish this by foreswearing TBTF, tightening supervision and compiling more information on institutions whose failure could upend the economy.

These well-intentioned initiatives may



The road to prosperity requires recapitalizing the financial system as quickly as possible. Achieving an economy relatively free from financial crises requires us to have the fortitude to break up the giant banks.

be laudable, but the new law leaves the big banks largely intact. TBTF institutions remain a potential danger to the financial system. We can't be sure that some future government won't choose the expediency of bailouts over the risk of severe recession or worse. The only viable solution to TBTF lies in reducing concentration in the banking system, thus increasing competition and transparency.

The road to prosperity requires recapitalizing the financial system as quickly as possible. The safer the individual banks, the safer the financial system. The ultimate destination—an economy relatively free from financial crises—won't be reached until we have the fortitude to break up the giant banks.

Harvey Rosenblum is the Dallas Fed's executive vice president and director of research. Special mention and thanks go to Richard Alm for his journalistic assistance, to David Luttrell for research and documentation, and to Samantha Coplen and Darcy Melton for their artistry in the exhibits.

Notes

¹ "Taming the Credit Cycle by Limiting High-Risk Lending," by Jeffrey W. Gunther, *Federal Reserve Bank of Dallas Economic Letter*, vol. 4, no. 4, 2009.

² See speech by U.S. Attorney General Eric Holder, Columbia University Law School, New York City Feb. 23, 2012, in which he noted that "much of the conduct that led to the financial crisis was unethical and irresponsible... but this behavior—while morally reprehensible—may not necessarily have been criminal." www.justice.gov/iso/opa/ag/speeches/2012/ag-speech-120223.html

³ A structured investment vehicle (SIV) is an "off-balance-sheet" legal entity that issues securities collateralized by loans or other receivables from a separate but related entity while investing in assets of longer maturity. Several of the largest banks used SIVs to issue commercial paper to fund investments in high-yielding securitized assets. When these risky assets began to default, the banks reluctantly took them back onto their balance sheets and suffered large write-downs.

⁴ In conjunction with the 1984 rescue of Continental Bank, the Comptroller of the Currency, the supervisor of nationally chartered banks, acknowledged the TBTF status of the largest banks. See "U.S. Won't Let 11 Biggest Banks in Nation Fail," by Tim Carrington, *Wall Street Journal*, Sept. 20, 1984.

⁵ In 2008 and 2009, the Federal Deposit Insurance Corp. (FDIC) facilitated the failure of 165 institutions with \$542 billion in assets. The largest bank failure in history occurred when Washington Mutual shuttered its doors in late September 2008. Its \$307 billion in assets accounting for the lion's share of the \$372 billion total of failed institutions' assets that year. Although staggering,

the amount of capital drained from the banking system due to failures during the crisis pales in comparison with the \$3.2 trillion in assets associated with institutions receiving extraordinary assistance from the FDIC during this period, most of it involving just two entities, Citigroup and Bank of America.

⁶ "Regulatory and Monetary Policies Meet 'Too Big to Fail,'" by Harvey Rosenblum, Jessco K. Renier and Richard Alm, *Federal Reserve Bank of Dallas Economic Letter*, vol. 5, no. 3, 2010.

⁷ According to the July 2011 Federal Reserve Senior Loan Officer Opinion Survey, a majority of large banks have eased standards for consumer loans and for commercial and industrial loans. However, credit standards on residential and commercial real estate lending remain tight over the period since 2005.

⁸ Taxpayers' money wasn't "given" to the banks. It was loaned, and most loans have been repaid with interest. Nevertheless, the perception remains that bailout dollars were gifts. And perception drives public sentiment.

⁹ At this time (March 2012), it appears that bank capital regulations under Dodd-Frank will follow the Basel III framework, with capital surcharges of at least 1 percentage point imposed on global systemically important financial institutions (G-SIFIs). In addition, a more realistic definition of capital is likely to be put in place to avoid a repeat of the situation in 2008-09, when two of the largest banks were never rated less than "adequately capitalized" at the height of the crisis, while at the same time they together received hundreds of billions in capital infusions and loan guarantees and never made it onto the FDIC's Problem Bank List.

¹⁰ See "How Much Did Banks Pay to Become Too-Big-to-Fail and to Become Systemically Important?," by Elijah Brewer III and Julapa Jagtiani, Federal Reserve Bank of Philadelphia, Working Paper no. 11-37, 2011, and the literature cited therein.

¹¹ The Federal Reserve's Comprehensive Capital Analysis and Review (CCAR) evaluates the capital planning processes and capital adequacy of the largest bank holding companies. This exercise includes a supervisory stress test to evaluate whether firms would have sufficient capital in times of severe economic and financial stress. In the CCAR results released on March 13, 2012, 15 of the 19 bank holding companies were estimated to maintain capital ratios above regulatory minimum levels under the hypothetical stress scenario, even after considering the proposed capital actions, such as dividend increases or share buybacks. For more information, see www.federalreserve.gov/newsevents/press/bcreg/20120313a.htm.

¹² In the early 1990s, financial markets rewarded banks for increasing their capital-to-asset ratios. Banks that held more capital had higher returns on equity (ROE) primarily because of reduced interest rates paid for uninsured liabilities. See "Banking in the 21st Century," by Alan Greenspan, remarks at the 27th Annual Conference on Bank Structure and Competition, Federal Reserve Bank of Chicago, May 2, 1991, especially pp. 9–10. In addition, banks were rewarded with higher equity prices for dividend retention and issuance of new stock, two methods of raising capital that bankers generally claim will reduce stock prices. See "Bank Capital Ratios, Asset Growth and the Stock Market," by Richard Cantor and Ronald Johnson, Federal Reserve Bank of New York, *FBNY Quarterly Review*, Autumn 1992, pp. 10–24 (emphasis added).

¹³ For other large nonbank financial firms (for example, Lehman Brothers, AIG and Bear Stearns) and for bank holding companies, there was no resolution authority at all. The choice came down to buyouts, bankruptcies or bailouts (see Box 1). With no private-sector buyers willing to step up, and with bankruptcy generally a long and uncertain process, government intervention in the form of bailouts became the least disruptive alternative, at least in the short run.

¹⁴ The FDIC estimates that it could have performed an orderly liquidation of Lehman, if it had Dodd-Frank powers six months before Lehman declared Chapter 11 bankruptcy in September 2008, and would have paid creditors 97 percent of what they were owed. But this assumes that other giant financial institutions did not require simultaneous and similar attention.

¹⁵ On March 24, 2008, the Federal Reserve Bank of New York announced that it would provide term financing to facilitate JPMorgan's buyout of Bear Stearns at \$10/share, or \$1.4 billion. On Sept. 15, 2008, the world's largest underwriter of mortgage bonds, Lehman Brothers, filed for the world's largest bankruptcy with listed liabilities of \$613 billion. The following day, one of the world's largest insurance organizations and counterparties for credit default swaps, AIG, received Federal Reserve support: an \$85 billion secured credit facility amid credit rating downgrades and financial market panic. On Nov. 23, 2008, the Treasury, Federal Reserve and the FDIC entered into an agreement with Citigroup to provide a package of guarantees, liquidity access and nonrecourse capital to protect against losses on an asset pool of approximately \$306 billion of loans and securities. On Jan. 16, 2009, a similar government loan-loss agreement was offered to Bank of America, backstopping an asset pool of \$118 billion, a large majority of which was assumed as a result of BofA's acquisition of broker-dealer Merrill Lynch.

¹⁶ More than three years have passed since the Lehman bankruptcy. A vigorous debate persists regarding (1) whether the Fed could have found a way to bail out Lehman and (2) whether this might have avoided a global financial and economic collapse. Using data from late 2008 and early 2009 shown in Exhibit 3, the inescapable answer to both questions is: It would not have mattered. Two days later, AIG was essentially nationalized, and within a matter of a few months, the already imbedded but unrecognized and undisclosed losses of Citigroup and Bank of America necessitated a combined Fed and FDIC assistance package that quasi-nationalized these institutions. The extent of these losses was disavowed by managements up until assistance packages were announced.

¹⁷ "Taming the Too-Big-to-Fails: Will Dodd-Frank Be the Ticket or Is Loan-Surgery Required?," speech by Richard Fisher, president and chief executive officer of the Federal Reserve Bank of Dallas, Columbia University's Politics and Business Club, New York City, Nov. 15, 2011; "Financial Reform or Financial Dementia?," by Richard Fisher, Southwest Graduate School of Banking 53rd Annual Keynote Address, Dallas, June 3, 2010; "Paradise Lost: Addressing Too Big to Fail," speech by Richard Fisher, Cato Institute's 27th Annual Monetary Conference, Washington, D.C., Nov. 19, 2009.

¹⁸ Evidence of economies of scale (that is, reduced average costs associated with increased size) in banking suggests that there are, at best, limited cost reductions beyond the \$100 billion asset size threshold. Cost reductions beyond this size cutoff may be more attributable to TBTF subsidies enjoyed by the largest banks, especially after the government interventions and bailouts of 2008 and 2009. See "Scale Economies Are a Distraction," by Robert DeYoung, Federal Reserve Bank of Minneapolis *The Region*, September 2010, pp. 14–16, as well as Brewer and Jagtiani, note 10. However, Dodd-Frank seeks to reduce these TBTF subsidies.