EXAMINING THE IMPACT OF THE VOLCKER RULE ON THE MARKETS, BUSINESSES, INVESTORS, AND JOB CREATORS

HEARING

BEFORE THE

SUBCOMMITTEE ON CAPITAL MARKETS, SECURITIES, AND INVESTMENT

OF THE

COMMITTEE ON FINANCIAL SERVICES

U.S. HOUSE OF REPRESENTATIVES

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WEDNESDAY, MARCH 29, 2017

APPENDIX

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

EXAMINING THE IMPACT OF THE VOLCKER RULE ON THE MARKETS, BUSINESSES, INVESTORS, AND JOB CREATORS

Wednesday, March 29, 2017

U.S. HOUSE OF REPRESENTATIVES,
SUBCOMMITTEE ON CAPITAL MARKETS,
SECURITIES, AND INVESTMENT,
COMMITTEE ON FINANCIAL SERVICES,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:05 a.m., in room 2128, Rayburn House Office Building, Hon. Bill Huizenga [chairman of the subcommittee] presiding.

Members present: Representatives Huizenga, Hultgren, Stivers, Wagner, Messer, Poliquin, Hill, Emmer, MacArthur, Davidson, Hollingsworth; Maloney, Sherman, Lynch, Scott, Himes, Foster, Sinema, Vargas, and Gottheimer.

Ex officio present: Representative Hensarling.

Chairman HUIZENGA. The Subcommittee on Capital Markets, Securities, and Investment will come to order. Without objection, the Chair is authorized to declare a recess of the subcommittee at any time.

Today's hearing is entitled, "Examining the Impact of the Volcker Rule on the Markets, Businesses, Investors, and Job Creation."

I now recognize myself for 3 minutes to give an opening statement.

This hearing will examine the impact of the Volcker Rule on the U.S. capital markets broadly, including its impact, most especially, on the liquidity and functionality of the fixed income and securitization markets, the ability of U.S. and international businesses to finance their operations, and U.S. competitiveness and job creation.

The Volcker Rule, or Section 619 of the Dodd-Frank Act, prohibits U.S. bank holding companies and their affiliates from engaging in "proprietary trading" and from sponsoring hedge funds and private equity funds.

Because of the key role that market making plays in ensuring deep, liquid, capital markets, the framers of the Volcker Rule sought to exempt market-making activities from the coverage of its prohibition on proprietary trading.

There is just one problem. The line between impermissible proprietary trading and permissible market making is virtually impossible to draw. As a result, banks are getting out of the market-

making business for fear of running afoul of the Volcker Rule. This is a great detriment to the U.S. capital markets, in my opinion.

The real world implications of the Volcker Rule have been higher borrowing costs for job creators, smaller investment returns for hard-working families, and less economic activity overall because of further regulatory restraints placed on already reduced liquidity margins in key fixed income markets, including the corporate bond market.

Recently, both current and former regulators have finally conceded that the Volcker Rule is impacting the liquidity of corporate debt. Specifically, in December of 2016, staff at the Federal Reserve issued a report concluding that, "The illiquidity of stressed bonds has increased after the Volcker Rule."

Furthermore, former Federal Reserve Board Governor Jeremy Stein, who served during the Obama Administration, recently published a paper with his fellow Harvard colleagues, and concluded that the Volcker Rule should be repealed.

They note that the Volcker Rule also discourages broker-dealer banks from providing liquidity during a market correction, and that the Rule creates a significant increase in compliance and supervisory costs.

Market making is crucial to the modern financial system, in which companies raise funds by selling equity, bonds, notes, and commercial paper.

Market makers also hold down the cost of credit for consumers. Credit card debt and mortgages are often financed by being bundled into securities, which are then bought and sold in the capital markets. By acting as a market maker for these kinds of securities, banks make it cheaper and easier for responsible consumers to use their credit cards and obtain mortgages.

From its inception, the Volcker Rule has been a solution in search of a problem. It seeks to address activities that had nothing, absolutely nothing to do with the financial crisis, and its practical effect has been to undermine financial stability, rather than to preserve it.

Hard-working Americans, whether they realize it or not, rely on capital markets to save for everything from college to retirement. And as their Representatives, we must act to eliminate burdensome and unnecessary regulations such as the Volcker Rule, to ensure that U.S. capital markets remain the deepest and most liquid of all investment so that all investors receive the greatest return on their investment. I look forward to hearing from our witnesses today.

The Chair now recognizes the ranking member of the subcommittee, the gentlelady from New York, Mrs. Maloney, for 5 minutes for an opening statement.

Mrs. MALONEY. Thank you. Thank you, Mr. Chairman, for calling this very important hearing, and for all of our presenters here today. It is a very, very important topic.

I strongly support the Volcker Rule, and I believe it stands for an important principle, that banks should not gamble with their customers' money, especially when that money is backed by a taxpayer guarantee. We have seen too often in the past how that pro-

duces a situation where all the profit is privately shared, while the risk is borne by the public.

The Volcker Rule, which was named after a great New Yorker, former Fed Chair Paul Volcker, came into effect in July 2015. So this is a good time to take stock of how this rule is doing. Today I have some data from the Federal Reserve that will shed light on how the implementation of the Volcker Rule is going.

Under the Rule, banks are required to report a series of quantitative trading metrics, in other words hard data, to the regulators, such as risk levels on each trading desk in order to help the regulators identify any prohibited proprietary trading or trading for your own account.

Last August, I sent a letter to five agencies in charge of the Volcker Rule, requesting that they provide me with an analysis of these trading metrics which they have been collecting from the banks since July 2014, over 2½ years. And I ask unanimous consent to place that letter into the record.

Chairman HUIZENGA. Without objection, it is so ordered.

Mrs. MALONEY. The Federal Reserve has been very helpful with my request and has provided me with an analysis of some of the data that they collect, so this data is limited to the data that the Fed collects. It does not represent any other agency's data.

And I want to share this data with everyone today because I think it is important. It is the first hard data we have on the Volcker Rule. It is complicated, but it is extremely important.

As you can see on the screen, the first two charts show that risk levels on banks' trading desks have been largely steady since the Volcker Rule took effect. All of these big downward spikes in the chart represent holidays, like Thanksgiving or Christmas, when most markets are closed. So this is not something to worry about.

Importantly, these charts cover two periods of market stress. First, the Third Avenue Credit Fund's suspension of withdrawals in December of 2015. A headline in Bloomberg back then read, "Third Avenue Redemption Freeze Sends Chill Through Credit Market."

And second, the China growth scare, when China's economic growth suddenly slowed down in January and February of 2016. A headline in Forbes at that time asked, "Should Markets be Scared?"

The charts show that the banks did not pull back from the markets during these two periods. In fact, they increased their exposure during these episodes.

Next, we have a very interesting table that shows the so-called Sharpe ratios on banks' trading desks, broken out by asset class. What this table suggests is that banks are now making the vast majority of their money on trading desks from legitimate market-making activities, which the Volcker Rule allows, and not from inappropriate proprietary trading.

The Sharpe ratio is a widely-accepted way of measuring risk-adjusted returns for banks. In other words, it measures the returns that the banks' trading desks are getting on these asset classes relative to the amount of risk they are taking, which is important, because you can always get higher returns by taking more risks.

So we need a way to adjust for the risk level so we can compare performance. The higher the Sharpe ratio, the better the returns relative to the risk.

Now, the most interesting thing is the difference between the Sharpe ratios for new positions, existing positions, and changes in risk factors. If banks were still doing a great deal of proprietary trading, then they would be getting a lot of their returns from existing positions, or possibly from changes in risk factors.

In other words, if banks were making proprietary bets that the price of a particular security would increase, then they would be getting most of their returns from price appreciation for securities they already bought, which are existing positions in this table.

But as you can see, the Sharpe ratios for existing positions, as well as for changes in risk factors, have averages very close to zero. This suggests that banks are not engaging in any amount of proprietary trading.

Instead, the table shows that the banks are mostly profiting from new positions. This suggests that trading desks at banks are making most of their money by acting as legitimate market makers, which is exactly what Congress intended to happen under the Volcker Rule.

In other words, most of the banks' profits are coming from the fees, also known as the spread, that banks collect on trades they do with their customers. These fees are collected up-front, which is why most of the banks' profits are coming from new positions.

So I wanted to share this data with everyone here today because I think it is relevant to this hearing. It is important that we look at hard data, the facts on the Volcker Rule. And based on this data, I would say the Volcker Rule is working.

I look forward to your testimony.

Chairman HUIZENGA. The gentlelady's time has expired.

I now recognize the vice chairman of the subcommittee, Mr. Hultgren from Illinois, for 2 minutes.

Mr. HULTGREN. Thank you, Mr. Chairman. And thank you all for being here. It is not a surprise that Congress needs to review one of the most debated provisions of the Dodd-Frank Act just a few years after it was implemented.

Unfortunately, the Dodd-Frank Act and the Volcker Rule were sold to the American people as a way of protecting taxpayers and investors, when in fact they are doing, I would say, just the opposite.

There were mixed feelings among Republicans and Democrats when the Volcker Rule was debated in Congress and this was probably because policymakers understood proprietary trading did not cause the financial crisis and that there would be real, practical issues for implementing the proposed restrictions on proprietary trading.

In fact, Treasury Secretary Geithner, who was appointed by President Obama, has said, if you look at the crisis, most of the losses that were material for both the weak and strong institutions, did not come from those activities.

The realities were so hard for Congress to address that a 10-page bill became a 932-page regulation with confusing and conflicting perspectives from multiple regulators.

And let us not forget, this does not just apply to our largest financial institutions. Compliance burdens also trickle down to community banks that have to prove to regulators what is already known; they were almost never engaged in activities covered by the Rule.

It is impossible to measure if the Volcker Rule is making our markets safer, but we know it is hurting liquidity. The lack of clarity around the market making as collusion is of the most significant concern. Dealers must have flexibility to hold inventory and provide liquidity, especially during times of market stress.

A December 2016 working paper from the Federal Reserve staff on the Volcker Rule concluded, "We find that the net effect is a less liquid corporate bond market."

This damage to liquidity drives up costs in our fixed income markets, makes it more difficult for companies to grow and create jobs, drives down returns for investors, and increases the potential for market shocks. All of this is very concerning.

I look forward to the testimony today, and I yield back.

Chairman HUIZENGA. The gentleman yields back.

Today, we welcome the testimony of a distinguished panel. First, we have Mr. David Blass, the general counsel of the Investment Company Institute (ICI).

Second, we have Mr. Marc Jarsulic, the vice president of economic policy at the Center for American Progress.

Third, we have Mr. Ronald Kruszewski, the chairman and chief executive officer of Stifel Financial Corporation, who is testifying on behalf of SIFMA.

Fourth, we have Mr. Thomas Quaadman, the vice president of the Center for Capital Markets Competitiveness at the U.S. Chamber of Commerce.

And finally, we have Dr. Charles Whitehead, a business law professor from Cornell University.

Gentlemen, thank you very much for being here. We appreciate your time, and you will each be recognized for 5 minutes to give an oral presentation of your testimony. And without objection, each of your written statements will be made a part of the record.

Mr. Blass, you have 5 minutes.

STATEMENT OF DAVID W. BLASS, GENERAL COUNSEL, INVESTMENT COMPANY INSTITUTE

Mr. BLASS. Chairman Huizenga, Ranking Member Maloney, and members of the subcommittee, thank you very much for the opportunity to testify today.

My name is David Blass. I am the general counsel of the Investment Company Institute. Our members are mutual funds, exchange traded funds, and other registered funds with the SEC.

We have a very unique perspective on the Volcker Rule because our members are funds that are both investment vehicles that might be subject to the Volcker Rule, and they are investors in the capital markets that themselves are affected by the Rule.

We applaud this subcommittee for reviewing the impact of the Volcker Rule on the capital markets, on businesses, investors, and job creators. We support appropriately tailored regulation that ensures a vibrant, resilient financial system. And we support revis-

iting the Rule to determine whether it is, in fact, so appropriately tailored.

Based on our review, regretfully, we conclude that it is not. By all acknowledgements, the Volcker Rule never was meant to apply to ordinary stock and bond mutual funds, ETFs and other investment funds registered under the Investment Company Act of 1940. And there is a good reason for that.

The Investment Company Act already provides a very comprehensive framework of regulation that serves both to protect investors and to mitigate risk to the financial system, including the very kinds of risks that are at the very heart of the policy rationale for the Volcker Rule.

Registered funds are transparent. They are not highly leveraged. Their assets are held in separate custody by bank custodians, and transactions with affiliates are either outright prohibited or are highly restricted. And boards of directors, typically with a majority of independent boards of directors, oversee these funds.

But registered funds and their advisors have been left to sort through the many consequences of the Volcker Rule and its impact on the capital markets, and I would like to highlight three of those for you today.

First, the final regulation failed to provide a full carve-out for registered funds. As a result, many of these funds find themselves coming within the definition of a banking entity.

This could happen in the case of a newly-launched mutual fund, for example, whose investment advisor is affiliated with a bank. Solely by reason of the advisor's investment of start-up capital, referred to as seed money, the new fund itself could be subject to the Volcker Rule's trading and investment restrictions as if the fund were a bank, and it is not.

The effect is to place new restrictions on longstanding, very commonplace practices that, to the best of our knowledge, have never raised any regulatory concerns. It is clear to us that Congress never intended this result.

Now, the agencies charged with implementing the Volcker Rule ultimately issued some much-needed guidance very shortly before the compliance date. But the 3 years it took the agencies to issue that guidance exposes just how cumbersome and clunky this rule is to administer.

And to further compound the problem, that guidance wasn't issued through a transparent rulemaking process, but rather, through informal agency guidance, which presumably could be changed at the whim of the agency's staff.

Second, the final regulations create competitive inequalities. And I will give you one example. They exclude from the Volcker Rule's restrictions foreign public funds. That is an entirely appropriate exclusion.

The problem is some U.S. firms and their affiliates also rely on this exclusion, and the agencies administering the Volcker Rule placed onerous restrictions on those U.S. firms and their affiliates. They didn't apply the same restrictions for non-U.S. firms, placing U.S. firms at a competitive imbalance.

Third, the Volcker Rule is overly broad and insufficiently tailored to its policy objectives. Regulations that sweep too broadly intro-

duce friction that influences how important market participants, dealers in this case, access the capital markets and provide liquidity.

The Volcker Rule's implementing regulations are extraordinarily complex, and they are built upon a presumption that all short-term principal trading is "proprietary trading." And to overcome this presumption, a banking entity has to be able to demonstrate that it qualifies for an exemption, and in most cases that is the market making exemption, but that is a very high bar, and it puts the banking entity at risk of second-guessing.

Now, many variables affect capital markets activity and the liquidity in those markets. Clearly, however, the kind of friction created by the overly broad and ambiguous regulations included in the Volcker Rule can and does influence the ways in which many market participants, dealers and other trading partners, including funds, participate in those capital markets.

And for these reasons, among many others, we strongly support the committee's examination of the Volcker Rule and its consideration of the capital markets more broadly.

Thank you very much for your attention this morning. I would be happy to answer any questions.

[The prepared statement of Mr. Blass can be found on page 42 of the appendix.]

Chairman HUIZENGA. The gentleman yields back.

Now, we go to Mr. Marc Jarsulic, vice president, Center for American Progress. You have 5 minutes, sir.

STATEMENT OF MARC JARSULIC, VICE PRESIDENT, ECONOMIC POLICY, CENTER FOR AMERICAN PROGRESS

Mr. JARSULIC. Thank you, Mr. Chairman, Ranking Member Maloney, and members of the subcommittee for the opportunity to testify on this important topic.

I am Marc Jarsulic, the vice president for Economic Policy at the Center for American Progress. And today I will attempt to outline the importance of the Volcker Rule and to highlight the evidence that the Volcker Rule has not caused the deterioration in liquidity in the corporate bond market.

First to the purpose of the Rule. The Volcker Rule was intended to do something very reasonable: to prevent bank holding companies and their subsidiaries from engaging in proprietary trading and speculative fund, hedge fund, and private equity investments.

These activities are capable of generating high levels of risk and large losses, which can damage the balance sheets of even very large banks.

The $6 billion lost by JPMorgan Chase in the 2012 London Whale incident, which involved proprietary trading-type activities, is illustrative of the risks that can be generated. We also know from historical experience that with many important financial institutions engaged in excessive risk-taking, taxpayers can be left bearing the burden when their bets go bad.

During the financial crisis, large amounts of risks were shifted onto U.S. taxpayers, as the risks taken by large bank holding companies and other important financial market actors generated substantial losses.

Because those losses threatened asset fire sales and widespread panic, the Federal Reserve, the FDIC, and Treasury were forced to step in to support asset prices and the institutions that were threatened with ruinous loss. Trillions of dollars of taxpayer funds were put at risk to stabilize the financial sector.

Now, let me make a few remarks about the effects of the Volcker Rule. I think there is little question that the post-crisis behavior of securities dealers collectively has changed significantly compared to the pre-crisis period.

The total assets of securities brokers and dealers have declined from peak values of about $5 trillion in 2008 to about $3.5 trillion in 2016, and corporate bond holdings have fallen in a similar pattern.

The decline in corporate inventories is attributed to the Volcker Rule and to other regulatory changes sometimes. However, the connection between the decline in bond inventories and the Volcker Rule is really not that strong.

As analysts for Goldman Sachs have pointed out, the very large run-up in corporate and bond inventories pre-crisis reflects the accumulation of positions in private labeled, mortgage-backed securities, rather than in traditional corporate bonds.

And they estimate that the declining issuance of those bonds and declining prices explain the decline in dealer inventories from their peak levels in 2007 to 2012.

Moreover, while critics of the Volcker Rule have long forecast dire consequences for the corporate bond market, including declining liquidity and harm to the functioning of the capital markets, these negative effects have not materialized.

Liquidity, which is usually thought of as the cost of quickly converting an asset into cash, is typically measured by a range of indicators, which include the desk spread, the price impact, and trade size.

Data on these indicators do not show deterioration of corporate bond liquidity. The desk spread in the corporate bond market for both investment grade and high yield bonds has declined since hitting a peak in the financial crisis. It is now lower than in the pre-crisis period.

A standard measure of price impact has declined for both investment-grade and high-yield bonds since the crisis, and is now very low relative to pre-crisis levels.

Trade size has declined during the financial crisis and has not yet recovered to pre-crisis levels. And while by itself this might be taken as a measure of decreased liquidities, the declines in price impact are inconsistent with this explanation.

Finally, the forecasted harm to corporate access to capital has also failed to appear. New issues of corporate bonds are at record levels, at or above the $1 trillion per year, for the period 2010 to 2015.

In conclusion, it seems fair to say that the exit of large banks from proprietary trading has not had a measurable effect on corporate bond market liquidity, liquidity risk, or the ability of corporations to raise funds in the capital market.

With respect to these criteria, our bond markets are functioning at least as well, if not better than, they were in the pre-crisis pe-

riod. It is important to remember, however, that there is no reason to expect market makers, or any other financial market participants, to act as shock absorbers in times of extreme stress.

Market makers will buy assets if they expect to profit from their purchases, but in a highly uncertain environment, they will not step in to catch a falling knife and cushion large price declines. If we want to avoid the problems generated by asset bubbles and the crashes that follow them, we need to take preventative measures.

The Dodd-Frank Act, which requires banks and non-banks to put more equity on the line when they engage in asset purchases, raises equity requirements when assets are funded with short-term runnable credit; requires the balance sheets of banks to include sufficient liquidity to deal with asset shock, price shocks; gets banks out of the business of proprietary trading; and provides needed protections.

Demolition of these preventative measures is likely to be a very costly exercise in historical amnesia. Thank you.

[The prepared statement of Mr. Jarsulic can be found on page 56 of the appendix.]

Chairman HUIZENGA. The gentleman's time has expired.

Mr. Kruszewski, thank you for being here today, and you have 5 minutes.

STATEMENT OF RONALD J. KRUSZEWSKI, CHAIRMAN AND CHIEF EXECUTIVE OFFICER, STIFEL FINANCIAL CORPORATION, ON BEHALF OF THE SECURITIES AND FINANCIAL MARKETS ASSOCIATION (SIFMA)

Mr. KRUSZEWSKI. Chairman Huizenga and Ranking Member Maloney, thank you for the opportunity to testify on behalf of SIFMA, and as chairman and chief executive officer of Stifel Financial Corporation.

Stifel is headquartered in St. Louis, Missouri, and we own an investment bank and a federally-insured depository. Stifel employs over 7,000 people, has $20 billion in assets, and manages approximately $240 billion for our clients.

To start, I am not a proponent of the Volcker Rule. I believe it provides little benefit regarding its stated purpose to reduce systemic risk. However, I have the upmost respect for Mr. Volcker, and to be clear, my criticism of the Rule is not a criticism of him. I remember all too well the accomplishments of Mr. Volcker as Fed Chairman in fighting the rampant inflation of the 1980s.

Let me begin with my conclusion: It is my personal view that the Volcker Rule needs to be repealed. If not repealed, it must be materially amended to avoid further damage to the markets my company serves. Why be so bold? It is simple cost-benefit analysis.

Stifel serves small and middle market companies and the investors in those same companies. We, therefore, have a front row seat to comment on the impact of Volcker on these companies.

Make no mistake, I do not believe deposit-taking banks should be making risky short-term speculative bets. And, in fact, the law has long prohibited such activity.

But I believe the way to regulate risk, systemic or otherwise, is not by inhibiting trading or traditional market making, which pro-

vides liquidity and depth to our capital markets, but rather through capital and liquidity rules.

The financial crisis was rooted in the loan book, not the trading book. Paul Volcker himself, in a speech in 2010, acknowledged that proprietary trading did not cause the financial crisis or contribute to the failure of a bank.

The Volcker Rule is beyond complex, covering over 950 pages and 2,800 footnotes. You need a team of law firms, not just lawyers, to be able to decipher this.

The Rule includes a provision called Reasonably Expected Near Term Demand (RENTD), a concept only Government could devise. RENTD limits market making so it does not exceed the reasonably expected near term demand of clients, customers, and counterparties.

Seven years after the enactment of Dodd-Frank, I am no closer to understanding what that term means or how to implement something so amorphous. Compliance with Volcker is governed by five separate agencies. That is five separate agencies. This fact alone supports a full repeal of this rule.

In addition, the covered funds provisions of the Volcker Rule reached far beyond the intended focus on the use of hedge funds and private equity to facilitate indirect, impermissible proprietary trading. The provisions are highly technical and not focused on the actual activities of the entities that are captured.

But what about the cost side of this equation? The Volcker Rule makes our capital markets less liquid, which increases the cost of capital for Stifel's clients, especially smaller companies which are major contributors to job creation.

Stifel helps our clients by assisting them in raising capital from both the equity and debt markets. As part of this equation, Stifel commits to make markets, which benefits both the issuing company and the purchaser of the equity or the debt.

Volcker materially impacts our ability to effectively make markets. This in turns causes the buy side to require higher compensation, reflected in lower equity valuations or higher interest rates. Investors now demand a significant liquidity premium for bonds issued by smaller firms.

Because it is difficult to raise capital, small firms increasingly are finding it difficult to compete with larger firms. Instead, they are selling themselves to their larger competitors. In fact, a lot of the corporate bond issuance is from large firms financing the acquisitions of small firms, the highest share in 15 years.

As a result, the economy is likely to see less job creation, less competition, less research and development in CAPEX, and frankly, less vitality overall.

As I stated, I personally believe the Volcker Rule should be repealed. If not repealed, at a minimum, the Volcker Rule should be modified to: first, reverse language that assumes that all trades are proprietary unless proven otherwise; and second, eliminate the RENTD requirement.

Prominent policymakers have also raised concern with how the Volcker Rule is working in practice. As noted, former Fed Governor Jeremy Stein co-authored a recent article which stated, "The Rule

may dissuade dealers from providing liquidity during a market correction."

The article further stated that it is difficult to enforce, while at the same time creating large compliance and supervisory costs. On balance, we believe the Rule should be repealed. Recent Fed staff reports say that the Volcker Rule has a deleterious effect on corporate bond liquidity.

Federal Reserve Governor Jay Powell urged Congress to rewrite the Volcker Rule, stating in part that what the current law and Rule do is effectively force you to look into the mind and the heart of every trader to see what their intent is.

We should not be debating whether or not banks should get relief from Volcker. Instead, we should be debating whether our economy benefits from this Rule. From my vantage point, based on the clients I serve, it does not. Thank you. I look forward to your questions.

[The prepared statement of Mr. Kruszewski can be found on page 65 of the appendix.]

Chairman HUIZENGA. Thank you for your input.

Mr. Quaadman, you are recognized for 5 minutes.

STATEMENT OF THOMAS QUAADMAN, EXECUTIVE VICE PRESIDENT, CENTER FOR CAPITAL MARKETS COMPETITIVENESS, U.S. CHAMBER OF COMMERCE

Mr. QUAADMAN. Thank you, Mr. Chairman, Ranking Member Maloney, and members of the subcommittee. Thank you again for holding this hearing and for the subcommittee's continued focus on the Volcker Rule, as well as issues impacting the ability of businesses to raise capital.

The Chamber first started raising concerns with the Volcker Rule when President Obama introduced it in February 2010. We were concerned that the Volcker Rule would make it difficult to delineate market making and underwriting from proprietary trading.

The Justice Potter Stewart Rule of, "you know it when you see it," does not lend to clarity or for the certainty needed for businesses to raise capital or for markets to be efficient.

We were also concerned that it would lead to complex regulation, and it would have a chilling effect on businesses' ability to raise capital. Instead, while understanding the intent of the Volcker Rule, the Chamber proposed a pro-growth alternative for those firms that would engage in proprietary trading higher capital standards.

Instead, today we have both. We have a complex Volcker Rule, and higher capital standards that have their own OECD regulatory regime. Additionally, the Volcker Rule is the poster child of why good economic analysis is necessary for rulemaking. No economic analysis was performed or shared with the public while regulators were considering the Volcker Rule.

The OCC belatedly, 4 months after the Rule was finalized in December 2013, issued an economic analysis that also did not look at the impacts of the Volcker Rule upon consumers, the consumers of banks, or the broader economy.

The irony is that the Volcker Rule, which is designed to limit the impacts of proprietary trading on depository institutions, where the

banking regulators were required under the Riegle Act to do an economic analysis to understand what the impacts were on depositary institutions and their consumers; yet, it was not done.

In 2012, we had a study done by Professor Anjan Thakor of Washington University to list out what the business concerns and issues were with the Volcker Rule. And unfortunately, those are coming to fruition: bond markets are stressed with less liquidity; we have fewer market makers; and we have poor execution and diminished price discovery.

The Federal Reserve-authorized study that we have talked about today finds that corporate bond markets' stress is attributable to the Volcker Rule. Additionally, we have seen increases in cash reserves by corporations, 50 percent in the S&P 500 since Dodd-Frank was passed in 2010, and over $100 billion just in the first year of the Volcker Rule.

The one thing that the Volcker Rule, as well as other regulations, has done, is increasingly forced corporations to use U.S. Treasuries as the sole means of cash management, which is increasing risk.

If doctors were to prescribe a series of strong drugs and not check on drug interactions, they would be sued for malpractice. The Volcker Rule doesn't exist in a vacuum. And we have to look at it in conjunction with the Basel III implementation rules, the SIFI rules, risk retention rules, money market funds, and the like.

All of those combine in one place, and that is the corporate treasurer's desk. Our 2016 treasurer survey, which interviewed over 300 treasurers, found that 79 percent of treasurers felt that financial regulations were adversely impacting their business' ability to raise capital, that current and pending regulations were making cash and liquidity operations more challenging, and ⅓ of treasurers were forced to take unexpected actions because of regulations.

Businesses are now passing higher costs on to consumers. One-third of treasurers see the situation worsening over the next 3 years if things do not change. And what has changed since 2013 is that businesses are dramatically using less banks in order to perform their financing functions.

The Chamber supports the repeal of the Volcker Rule. But in the alternative, we will make four recommendations: one, that the regulators perform an economic analysis to the Volcker Rule and to also determine its impacts on bank customers in the broader economy; two, a cumulative impact analysis to the Volcker Rule and other regulations with the same accord. three, for the regulators to report back to Congress on findings and then anticipate a plan of action to address these failures; and lastly, the Congress should require banking regulators to do an economic analysis when writing rules subject to public review and comment, as other agencies do throughout the Government.

Thank you, Mr. Chairman. I am happy to answer any questions you have.

[The prepared statement of Mr. Quaadman can be found on page 79 of the appendix.]

Chairman HUIZENGA. Thank you very much.

And last, but certainly not least, Mr. Whitehead, you are recognized for 5 minutes.

STATEMENT OF CHARLES K. WHITEHEAD, MYRON C. TAYLOR ALUMNI PROFESSOR OF BUSINESS LAW, AND DIRECTOR, LAW, TECHNOLOGY, AND ENTREPRENEURSHIP PROGRAM, CORNELL UNIVERSITY

Mr. WHITEHEAD. Thank you very much, Mr. Chairman, Ranking Member Maloney, and members of the subcommittee. Thank you for inviting me to testify today regarding the impact of the Volcker Rule on the financial markets and the general economy.

My name is Charles Whitehead, and I am a professor at Cornell University. Before becoming an academic, however, I spent 17 years in the private sector and held senior legal and business positions in the financial services industry in New York and Tokyo.

I testify today in favor of repealing the Volcker Rule. A principal goal of the Volcker Rule is minimizing risky trading activities by banks and their affiliates and consequently enabling banks to pursue a traditional banking business in providing capital to businesses and consumers.

What the Rule fails to reflect is change in how credit is provided today, moving from traditional banking to increasing participation by banks in the capital markets. This necessarily involves the banks' use of their own balance sheets to buy and sell securities as part of a market making function. Artificially constraining their ability to do so affects the smooth operation of the capital markets.

Now, there is certainly an argument for regulating risky trading activities. But as you have heard today, the Volcker Rule addresses the wrong problem in the wrong way.

The Volcker Rule was sold to Congress as a response to the 2008 financial crisis, an attempt to reduce risk in banks, principally by banning short-term proprietary trading directly by banks and their affiliates and indirectly through investments and hedge funds and private equity funds.

But why was restricting short-term proprietary trading a solution to the crisis? The answer is far from apparent and is unsupported by the facts that Congress had at the time. As Treasury Secretary Geithner testified, "Most of the losses that were material did not come from proprietary trading activities."

Rather, many of the most significant bank losses arose from traditional extensions of credit, especially loans related to real estate.

I believe it is fair to say that the Rule's proponents were less interested in curing a particular cause of the financial crisis and more interested in championing the view that commercial banking should be separated from investment banking, particularly prop trading and principal investments.

By barring proprietary trading by banks and their affiliates, the Rule's sponsors hope that utility services, such as taking deposits and making loans, would once again dominate the banking business. But that view reflected more hope than experience.

In light of the fluid and evolving nature of the financial markets, it was unlikely that regulation could force a return to the financial sector model of an earlier era when banks and bank lending were kept separate from the capital markets.

What has been the result? The Volcker Rule imposes a static divide, a financial Maginot Line between short-term proprietary trading and banking, but does so within a world where capital markets

and bank loans compete for corporate lending, and fluid financial markets continue to evolve and can sweep around the fixed position.

Changes in the financial markets spurred by the Volcker Rule still expose banks to the kinds of risks the Volcker Rule was intended to minimize or eliminate. Hedge funds and other less-regulated entities, whose activities can affect banks and bank risk-taking, picked up the proprietary trading that had exited banks and their affiliates.

Moreover, in order to make up for losses in revenues, banking entities shifted their risk-taking activities to other businesses, increasing their risk-taking potentially through activities with which they were less familiar than the proprietary trading they were compelled to abandon.

The problems around the Volcker Rule are exacerbated by practical difficulty in implementing the Rule itself. What is proprietary trading, and how is it distinguished from market making?

When implementing the Rule, the regulators noted that it was difficult to define certain permitted activities because it "often involves subtle distinctions that are difficult both to describe comprehensively within regulation and to evaluate in practice."

Likewise, industry participants have complained that the lack of definitional bright lines make it difficult for banks to comply with the Rule. As a result, banking entities have had to incur substantial costs in order to implement cumbersome supervisory and compliance regimes.

And in order to avoid stepping over the line, many have pulled back from permissible market making activities. The resulting increase in investors' execution costs and the decline in market liquidity means that investors will demand higher yields on new bond issuances.

And you want to note, the challenge is not how much capital is raised but the incremental cost to issuers of raising it, a cost that affects Main Street as much as it affects Wall Street. The result is costly regulation with limited upside and the potential for greater downside.

There are legitimate reasons to be concerned over the risks associated with a bank's trading operation. But those risks can be more effectively addressed through other means, such as imposing capital charges on a bank's trading books and the traditional bank regulator's focus on risk management and assessing a bank's safety and soundness.

For those reasons, I believe the Volcker Rule should be repealed. Thank you very much.

[The prepared statement of Mr. Whitehead can be found on page 198 of the appendix.]

Chairman HUIZENGA. Thank you all very much for your testimony. And I appreciate you being here.

I guess I will start off my line of questioning with a quick comment, and then dive into questions. I would like to note that although the slides that the ranking member put up seemed to look pretty impressive, it is somewhat interesting to me, as chairman of this subcommittee, that the Fed staff didn't see fit to provide me or Majority staff with any sort of briefing on the data.

I know I am merely the chairman of the subcommittee, but I believe that also is true for the actual chairman of the full Financial Services Committee, Chairman Hensarling. So I look forward to getting that briefing at some point. I also look forward to addressing that particular issue with Chair Yellen when she is in front of this committee in the future.

But I don't feel like I can adequately comment on the slides because, again, with no real understanding of what the Fed is trying to get at, I don't know that I would be able to address that.

I believe, Professor Whitehead, you might have done some work on this. So I will look forward to doing that.

But I will point out that even I understand and appreciate that the purpose of the value at risk (VaR) is to measure risk and not liquidity, which is, in fact, what we are trying to look at here today. And it's easy to note that outliers on these, even on those charts, don't present whether they have great risk or little risk.

But I would also like to remind everybody that the point of the hearing today is what is the impact of Volcker on our capital markets? And the question is, are capital markets less liquid as a result of Volcker?

And I think the answer is a pretty clear "yes." So we are not here to debate whether or not banks are making money. The question is, are they providing liquidity into the marketplace?

So Professor Whitehead, I believe you note in your testimony that none of the financial regulators have published any data or analysis on the metrics that they are required to provide. Is that correct?

Mr. WHITEHEAD. That is correct.

Chairman HUIZENGA. And, as you know, what has been made public, I guess so far, is a report issued by the staff of the Federal Reserve in December which concluded that, "Since Volcker affected deals, dealers have been the main liquidity providers. The net effect is that bonds are less liquid during times of stress due to the Volcker Rule."

So Professor Whitehead, can you please expand on what the Fed staff report might be concluding there, and why? I know you have some interesting research that you had referenced as well.

Mr. WHITEHEAD. Sure. Thank you very much, Mr. Chairman. The Fed staff report does an analysis that I think is important to understand not just in terms of the results, but also the way they have conducted the analysis. The question is not aggregate liquidity, and the question is not aggregate bond issuance.

The real focus here is on relative liquidity, the extent to which there has been an impact on liquidity as a result of the Volcker Rule. And that is what the study does.

So what they do is they are taking a baseline. They look at below investment grade bonds, BB bonds. And they use that as kind of a baseline for what liquidity might be generally in the market, both before and after the Volcker Rule. What they then do is they take a look at bonds that have dropped in credit quality.

And this is key. During times of financial stress, you are going to see bonds collapse. And you need to have a market maker precisely at that time. This was one of the problems during the financial crisis. There was no one there to make that market.

And what they find is, comparing both the pre- and the post-Volcker Rule, and using this baseline of below investment grade bonds as kind of their gauge as to whether or not the Volcker Rule has had an impact, is that when you see a credit decline, you see a substantial drop relative to the pre-Volcker period of liquidity in the marketplace.

And, in fact, the point that is probably the most distressing in the report is they find that the level of illiquidity is quite similar to the illiquidity for similar distressed bonds during the financial crisis.

And so rather than finding no impact, they find quite a substantial impact precisely in the class of bonds that we are most concerned about, namely those bonds where you need to have a market in order to manage your risk, again, during times of financial crisis.

Chairman HUIZENGA. Thank you for that.

Mr. Kruszewski, you note in your testimony that Volcker—I think the quote is, "Volcker materially impacts your—and presumably, your fellow SIFMA members' as well—ability to effectively make markets and that the ultimate impact is a higher cost of capital."

I would like you to explain, but I do also want to highlight that on page 3 of your written testimony, I think one of the best lines is, "A compliance expert would also need to be a psychiatrist trained in determining the intent of each trade by a trader." So if you could maybe unpack that a little bit?

Mr. KRUSZEWSKI. Yes, we do need psychiatrists on our compliance staff now to get into the minds of our traders pursuant to Volcker.

I do want to just add one thing, if I may? I believe that this very debate and the confusion in this debate was highlighted by putting up charts on VaR, which is value at risk and then using that to make an argument about Volcker.

I find it to be apples and oranges at best. VaR is risk on the balance sheet. What we are talking about is the mechanisms to provide liquidity in the plumbing of capital markets. And Volcker absolutely hinders that.

And that is, to answer your question, when we raise money for our clients, we commit to make markets. That liquidity is needed for efficient raising of capital.

The Volcker Rule, because of the way it is written and its presumption that every trade is a proprietary trade unless proven otherwise, is a hindrance and a significant hindrance on the ability to make markets and to make effective markets.

That, in turn, raises the cost of capital. And I do note in my written testimony that small issuers, on average, holding for credit maturity pay 75 to 100 basis points higher because of liquidity.

Chairman HUIZENGA. All right, thank you. My time has expired.

With that, I recognize the ranking member for 5 minutes.

Mrs. MALONEY. Thank you. Just to clarify, the information that was provided to me from the Federal Reserve was in response to a list of questions that I sent to them requesting this specific data. I am sure they would be willing to provide it to any Member of Congress and meet with them on it.

But I would like to ask some questions about it to Mr. Jarsulic. And I would like to ask you about the Volcker data that I put up on the screen.

My takeaway from the two charts of risk levels on the banks' trading desks is that the Volcker Rule has not caused banks to pull back from market making even during periods of market stress. Is that your interpretation as well, Mr. Jarsulic?

Mr. JARSULIC. Looking at these graphs from a distance, it does appear to me that there is essentially stable VaR across the various measures. And the VaR is stable even in time periods, as you pointed out, where there were some shocks to the market, the failure of Third Avenue, for example.

And that suggests to me that the market making activity of the firms that we are looking at here, the firms that the Fed is looking at here, remains relatively stable during times of stress. And that suggests to me that these market makers are providing liquidity services in a very stable fashion.

Mrs. MALONEY. In the second slide, which shows the returns the banks are getting from all the different asset classes they are trading, it shows a sharp difference between the returns that banks are getting on new positions versus existing positions.

Can you talk about why it is important that banks are getting most of their returns from new positions rather than from existing positions? And what does that say about how the Volcker Rule is working?

Mr. JARSULIC. The positive returns from new positions and essentially zero returns from existing positions, as you describe these data, suggests that they are earning profits from fees and commissions, that is from the assets they take on newly into their balance sheet, but that the inventory costs, the hedging costs for positions that they hold for longer periods of time in total are not producing significant profits for them.

So that does suggest to me that the model is changing, that they are moving toward a real market making function where market makers try to run essentially flat books and earn their fees or earn their profits from fees and commissions.

Mrs. MALONEY. So this data basically suggests that banks are not engaging in a significant amount of proprietary trading—it is a bottom line?

Mr. JARSULIC. These data are certainly consistent with that view, yes.

Mrs. MALONEY. And I would also like to ask you, do you think that this kind of data on Volcker Rule compliance is helpful because it allows us to monitor how the banks are reacting to the Volcker Rule and the impact that the Volcker Rule is having on markets? And do you think the regulators should be making this type of data public on a regular basis?

Mr. JARSULIC. I would certainly agree that transparency in the functioning of this regulation and others is certainly important. The Federal Reserve, through publication of Y-9s for major bank holding companies, provides people with a lot of information about how banks are conducting their business, and therefore, you have direct and indirect information about the functioning of regulation.

I think people are interested, and rightly so, in the effect of the Volcker Rule and other regulations. And to the extent that these data can be produced on a regular basis to make the functioning of the financial system and the impact of the Rules transparent seems like a great idea.

Now, there may be issues about how data are presented, how frequently, whether it ought to be current or not, what level of aggregation it needs to be presented. And I am sure the Fed would have views on that. But in general, I think the more transparency, the better.

Mrs. MALONEY. Thank you. My time has almost expired. Thank you.

I have other questions if there is a second round. Thanks.

Chairman HUIZENGA. The gentlelady yields back.

With that, the Chair recognizes the vice chairman of the subcommittee, Mr. Hultgren, for 5 minutes.

Mr. HULTGREN. Thank you, Mr. Chairman.

And thank you all, again, for being here.

I want to address my first question to Mr. Kruszewski. Your written testimony notes that small and midcap issuers have experienced a disproportionately negative impact under structural changes to our fixed income markets, including the Volcker Rule.

Citing your written testimony, "Since 2010, the number of deals sized at $2 billion and above has doubled, whereas the number of smaller deals, below $2 billion, has fallen by nearly half." Why do you believe these small and midcap issuers are experiencing a disproportionately negative impact?

And, as you know, small and medium companies are the foundation of competition and growth for our economy. So I think this is an important question for us to understand.

Mr. KRUSZEWSKI. It is not only in the bond markets. It is across the spectrum of capital raising. So you will note that, and I am sure there is plenty of testimony about why we don't have very many IPOs anymore either.

For the debt markets, you need liquidity to efficiently price bonds. And it has become increasingly difficult. And Volcker is one reason to provide liquidity to the buy side to buy a bond. I find these charts interesting, that seem to suggest that banks are complying with Volcker. They are complying with it. It is the law.

The question is the impact of that on issuing companies. And what my testimony, written and oral, says, and then from my position of being a market participant, I will tell you that if the intent of the Volcker Rule is to raise the cost of capital on job-creating companies, then it is a huge success.

If its intent is to try to reduce some systemic risk in the trading books, there is no need for that. The ultimate cost to the economy is less liquidity and higher cost for smaller companies.

Mr. HULTGREN. Mr. Kruszewski, you probably have heard Jamie Dimon's quote. He said, "If you want to be trading, you have to have a lawyer and a psychiatrist sitting next to you to determine what your intent was every time you did something." Or maybe Governor Powell's quote, "The Volcker Rule effectively forces you to look into the mind and heart of every trader on every trade to see what their intent is."

I wonder if you could describe how the Volcker Rule's datacenter compliance framework attempts to replicate this concept of mind reading, and what compliance challenges does it pose for companies like yours?

Mr. KRUSZEWSKI. First of all, the Volcker Rule has a presumption that every trade is a proprietary trade unless otherwise shown and then tries to use metrics to prove that point, or at least to allow you to have a safe harbor to get out at that point.

And again, this will go back to why it is hard for small companies. The very definition of liquidity requires that in times of market making and in times of stress, you will make markets that will be different than the RENTD requirement of Volcker.

In times of stress, there is more demand or more supply, and that is when you need to step up and do that. The Rule is very interesting in that even if you have an intent to meet customer demand but do not do so in a timeframe, you are in violation of the Volcker Rule.

So you put all of these things together, and from my perspective I obviously do not want to violate any law of the land, what we will do is we have compliance and try to use these metrics which, as I testified, significantly and materially impacts our ability to make markets, especially in small, illiquid issues which, again, are bearing the brunt of the Volcker Rule.

Mr. HULTGREN. Mr. Blass, page 10 of your testimony includes a line from Vanguard describing how liquidity is obtained along a cost continuum. I wonder if you could explain how reductions in liquidity under the Volcker Rule, like we are discussing today, impact funds and those who depend on them for retirement security?

Mr. BLASS. Thank you very much. I think if you polled our members, they would give you a disparate view of liquidity in the markets. There are some interesting data points. If you compare today's markets in corporate fixed income compared to the markets 10 years ago, you will see smaller transaction sizes, fewer block trades. It is more work to execute transactions.

There are some other data points. The transactional volume remains robust, so across our membership they will find that liquidity is available, recognizing that there are many other market participants.

To your question, to the extent that market liquidity is not available, or becomes less available, it certainly drives up costs to market participants seeking to access certain instruments.

Mr. HULTGREN. Thank you. My time is winding down, so I will yield back.

Chairman HUIZENGA. The gentleman yields back.

The Chair recognizes Mr. Himes from Connecticut for 5 minutes.

Mr. HIMES. Thank you, Mr. Chairman. And I thank you all for being here. This is an important and interesting topic, one I have looked at for a long time. And I have studied the testimony here closely.

Mr. Kruszewski, I have studied your testimony particularly closely, but I keep stumbling over this line in your testimony where you say, "The Volcker Rule includes a provision called RENTD, a concept only the Government could devise." What do you mean by, it is a concept only the Government could devise?

Mr. KRUSZEWSKI. From a business perspective, you can't implement it.

Mr. HIMES. I know, but you are pointing at the Government. What does it mean, "a concept only the Government could devise?"

Mr. KRUSZEWSKI. I think I answered it. I did say it is a concept that from a business perspective—as I said, I still do not understand the concept—

Mr. HIMES. I will get to that. I am just troubled by the derogatory quality of that. Can you tell me what the three largest banks in the United States are today?

Mr. KRUSZEWSKI. Do I know the three largest banks?

Mr. HIMES. What are the three largest by assets in the United States today?

Mr. KRUSZEWSKI. JPMorgan, Wells, and Bank of America.

Mr. HIMES. It is JPMorgan, Bank of America, and Citigroup. And my question for you is, would any of those three banks, all of whom are your members, exist in anything resembling their present form had they not been recipients of the Troubled Asset Relief Program (TARP), a Government program?

Mr. KRUSZEWSKI. You should ask them. I don't want to answer questions for them.

Mr. HIMES. But you, in your derogatory treatment of the government, would at least acknowledge that those three banks would have a hard time being with us today had it not been for a government program?

Mr. KRUSZEWSKI. To the extent you take my comment as derogatory, I did not mean it that way, so I apologize if you read it as derogatory. I meant it from a business perspective.

Mr. HIMES. Okay. Well, let us go to reasonably expected near-term demand, which is the subject here. And I actually think this is really interesting. I don't actually have that much problem with the idea of a reasonably expected near-term depend.

I sort of explain it in terms of small business. You know, in my district, if we have a Toyota dealer and the Toyota dealer sells 100 Toyotas a month, he keeps 120 on the lot, maybe 130. He doesn't keep 400, and he doesn't keep an Aston Martin.

If he is keeping 400 or if he is keeping an Aston Martin, something is happening there other than him keeping an inventory that is consistent with reasonably expected near-term demand.

And by the way, I will stipulate that this is a complicated Rule and it is hard to draw those fine distinctions, but isn't the fundamental idea that the banks ought to be able to keep enough inventory to make markets but they shouldn't have a lot more volatile assets on their books? Isn't that fundamental principle pretty reasonable?

Mr. KRUSZEWSKI. To make markets by rules and metrics, you don't have a rule that says that that dealer can only have 100 cars. It is up to that dealer to determine reasonable demand. He may or may not be wrong, and he will mark down his inventory appropriately.

You just are creating a rule which limits liquidity. If that car dealer wants to make a loan, if he is a public company, the Rule that you put in place will raise the cost to capital for that car dealership.

Mr. HIMES. No, I understand that, and of course there is a pretty dramatic difference between my Toyota dealer and the bank, which is that the Toyota dealer is disciplined by the fact that if he keeps 700—in my example—cars on the lot and it goes wrong, he goes out of business.

And the FDIC is not there to bail him out. The TARP is not there to bail him out, the 1994 Peso rescue is not there to bail him out. So I guess my big question, and this is for the panel as a whole, I have heard a lot of talk about short-term proprietary trading.

Does anybody here think that FDIC-insured institutions should be taking long-term proprietary bets? Okay. The silence there I am going to take to be a "no."

Does anybody think that the real exercise here is not so much making it possible for depository institutions to make proprietary bets of any kind, but the Holy Grail here is to make sure that they have enough near-term inventory to make markets? Or does somebody want to make the argument that they should be able to take proprietary bets?

Mr. KRUSZEWSKI. I think the difference is that drawing a line between market making and proprietary bets, as Volcker tries to do, is extremely difficult when you put it into law, and will cause financial institutions not to make markets because every trade is presumed under Volcker to be proprietary. That is bad policy.

Mr. HIMES. No, no, and I will grant you that. I actually think it is a pretty complicated rule and I understand Jamie Dimon's comments about psychology.

But I think this is an important point, because I think that the burden is not on the regulators to explain why insured institutions should not be able to take proprietary bets. I got total silence here when I asked whether those institutions should take proprietary bets of any kind.

I would just point out that I think the burden is on the industry to come up with constructive ways, if there are more constructive ways, of determining a legitimate inventory as opposed to making the argument that we should take away the idea that proprietary trading is somehow permissible inside a depository institution.

So I thank you for being here.

And thank you, Mr. Chairman.

Mr. HULTGREN [presiding]. The gentleman's time has expired.

The Chair recognizes the gentlewoman from Missouri, Mrs. Wagner, for 5 minutes.

Mrs. WAGNER. Thank you, Mr. Chairman, and thank you all for appearing here today to discuss the effects that the Volcker Rule has had on our capital markets, specifically on market making, which is important for holding down the cost of credit for consumers from credit cards, mortgages, to businesses that are seeking to issue debt and raise capital.

Additionally, it also helps savers by allowing the funds that they are invested in to easily sell assets at a competitive price in order to meet redemption calls from its investors.

For these reasons, the Volcker Rule is not something that simply affects broker-dealers and traders, but it has an impact on U.S.

companies, their employees, and individuals saving for retirement or to send their kids to college.

Mr. Quaadman, welcome back, and I believe the notion behind the Volcker Rule was that it would prevent Wall Street-sized banks from engaging in proprietary trading, but can you discuss how many other institutions that don't conduct any proprietary trading, even community banks, for instance, have been affected by the Volcker Rule in having to prove to regulators that they are not engaged in these activities?

Mr. QUAADMAN. Yes, thank you, Congresswoman Wagner. First of all, I would also just like to state, too, that in January 2012 at a hearing here, Governor Tarullo also mentioned that the regulators who were drafting the Volcker Rule did not understand the markets or the products that they were trying to regulate here. So I think that is important to note.

In terms of how this impacts other institutions, there are many institutions, including regional banks, even sometimes joint ventures overseas that non-financial businesses are engaged in, that have to create Volcker compliance programs.

So I think even if the intent was to look at a small number of institutions, this has actually been broadened out. And as you start to put that on mid-sized and regional banks, that does have liquidity impacts on Main Street.

Mrs. WAGNER. I appreciate that.

I have a couple more vocal questions, and I know this question is a bit off topic, Mr. Chairman, but I would ask your indulgence. I feel it is timely as we approach the April 10th applicability date of the Department of Labor's fiduciary rule.

I would like to address a question to Mr. Kruszewski, who is, by the way, a constituent of mine. He is chairman and CEO of Stifel and is very active in the community affairs in the Greater St. Louis area, and here on behalf of SIFMA.

Sir, I do not find your testimony to be in the least bit derogatory. I find it common sense, and frankly, refreshingly honest. You deserve the respect of this committee, as do all of you.

Mr. Kruszewski, could you please explain the effect that a lack of certainty in waiting on the Administration to delay the Rule has had on your business as we get closer to the compliance date and the impact this misguided rule could have on your customers?

Mr. KRUSZEWSKI. Thank you, first of all, but there is a lot of confusion regarding the Department of Labor rule and certainly the implementation date, which has clients and the industry and you name it, very confused as to how, if, and when this will be implemented.

As I have testified in front of the DOL in a number of cases, this rule, while well-intended in certain cases, will have the result, for my clients, and I only speak to our clients, we have tens and tens of thousands of clients who will either lose advice or will have their costs raised, and raised significantly, because we will move them to a fee basis to do that.

And I find that, and I have said I have found that to be an unintended consequence of this rule and a very costly one to a significant number of our clients, tens of thousands.

Mrs. WAGNER. Tens of thousands of low- and middle-income investors.

Mr. KRUSZEWSKI. This rule significantly impacts small savers.

Mrs. WAGNER. Thank you very much. I appreciate it.

Let me go back to Mr. Quaadman in my brief time. As you know, President Trump earlier this year issued an Executive Order on core principles regarding regulations affecting the US financial system to determine if laws and guidance promote fostering growth and enabling U.S. competitiveness.

Do you believe the Volcker Rule can promote those principles outlined in the President's Executive Order?

Mr. QUAADMAN. No. It has made it more difficult for smaller and mid-sized businesses to raise the capital that they need and that it has not made the capital markets at all more efficient. And it has, in fact, built in many inefficiencies, particularly when combined with the other regulations that I was talking about as well.

Mrs. WAGNER. Thank you very much. My time has expired.

I yield back, Mr. Chairman. Thank you.

Chairman HUIZENGA. The gentlelady yields back.

With that, we recognize the gentleman from Georgia, Mr. Scott, for 5 minutes.

Mr. SCOTT. Yes, and thank you very much. I really cannot stress enough how important the Volcker Rule is. I call to your remembrance the situation with the London Whale, I believe it was, where proprietary funds, banks' customers' funds were used for risky bets. That caused a problem.

The Volcker Rule must stay in place. But that is not to say that we do not want to make sure that it is working as it is. One of the goals of the Volcker Rule was to de-risk the markets. And as we all know, in pre-2008 banks were, indeed, allowed to take these risky bets with fully federally-insured dollars, putting the taxpayers at great risk, ergo the London Whale.

But with that said, we will never be able to fully de-risk financial markets because we all know that fully de-risking markets is not what is best for the average American because almost every bank in the country, big and small, will go out of business. Because banks, indeed, have to make money as well.

So with that said, Mr.—I am afraid, and I do not want to mess up anybody's name, but I just got here, so I didn't have time to practice. But I think it is Mr. Ronald—

Mr. KRUSZEWSKI. Kruszewski.

Mr. SCOTT. —Kruszewski? I'm sorry. And maybe Mr. Jarsulic. I think you are the two that I want to ask this question. I'm sorry. I hope I didn't do too badly.

Do you agree with what I am saying? What sort of economic growth will we have if you completely de-risk the system? And give me your understanding of the Volcker Rule, from your perspective. Did it go too far in de-risking or did it do too little?

Mr. JARSULIC. Congressman, I do agree with you that financial institutions are in the business of bearing risk, and I think there is no attempt with the Volcker Rule or other regulation to end that function.

I think that the Volcker Rule is intended to constrain certain highly risky activities, at least in the part of the financial system

that has direct and indirect support from the Federal Government and the taxpayer. So in that regard, it is a reasonable rule.

I think that the Volcker Rule, given a close look at the evidence, has done very little harm and actually seems to have left liquidity and market making in at least as good a shape as it was before the implementation of that Rule.

Maybe I could take a moment here to speak about the 2016 Fed study that people have cited as evidence that under stress conditions, there is—

Mr. SCOTT. What was that study? I'm sorry, I didn't—

Mr. JARSULIC. In 2016, there was a Federal Reserve staff paper which looked at the effect of downgrades in bond ratings and concluded that post-Volcker, the price effect of those downgrades was bigger. And they drew the implication from that, that markets were less able to react to stress.

Mr. SCOTT. I want to get to Mr. Kruszewski, too—

Mr. JARSULIC. Okay.

Mr. SCOTT. —in the next 40 seconds. What is your take on this?

Mr. KRUSZEWSKI. First of all—

Mr. SCOTT. Where am I going right or wrong on this?

Mr. KRUSZEWSKI. First of all, if you want to limit the risks of the banks, then tell them not to make loans. That is where the biggest risk is. Let's look at the loan book. That is where the financial crisis has its roots was in the loan book.

There was no trading desk at Fannie Mae and Freddie Mac or Countrywide. There are no trading desks. All right? What you are talking about here, capital rules will and are proper to limit the risk on the banks.

What the Volcker Rule is trying to deal with is the short-term trading and the mechanism to provide liquidity so that you have the efficient raising of capital, primarily for small companies.

And this rule limits my firm, and I don't—with all due respect to all the studies that are going on here, I run a firm that tries to make markets in compliance with the Volcker Rule. And I will tell you that our ability to do so has been significantly impacted, raising the cost of capital for companies that are creating jobs in this country.

Mr. SCOTT. All right. Thank you very much.

Chairman HUIZENGA. The gentleman's time has expired.

The Chair recognizes the gentleman from Arkansas, Mr. Hill, for 5 minutes.

Mr. HILL. Thanks, Mr. Chairman. Thanks for convening this important hearing.

And I was struck by my former colleague Governor Powell's statement that what the current law and rule do is effectively force you to look into the mind and heart of every trader on every trade to see what the intent is. And so I wonder, does Stifel have Ouija Boards on their trading desk? Because that was one of my favorite games as a kid, to ascertain the intent of everyone.

But seriously, do you believe that when you have a rule that is this complex that it is just almost too difficult to comply? My experience in the financial services industry is that when you have a rule, your compliance officer and your general counsel walk back

from that rule in order to be even more conservative so there is no foot fault on what has already become a super complex issue.

So what is Stifel's worry about that? And every day how do you ascertain Mr. Himes' idea of 700 cars versus 120? How do you try to do that daily?

Mr. KRUSZEWSKI. From my perspective at Stifel, you cannot do that, because what my compliance and general counsel tell me is that the evaluation of what was in the mind of the trader will be questioned with the benefit of hindsight.

And so it is like going to the car dealer who wanted 100 cars and he only sold 30. Then he must have prop-traded on the other 60, but at the time that he bought the 70, he had full intentions of selling 100.

Mr. HILL. Yes.

Mr. KRUSZEWSKI. Any rule that tries to, as Governor Powell says, get into the minds of a trader, is simply not workable.

Mr. HILL. Yes. I really think that this sort of thing of that daily trading work is really best handled by strict capital and liquidity rules and not trying to carve out something unique. I just think it is—Potter Stewart couldn't figure it out, so I am sure we can't.

My next question is, if proprietary trading has no social good or value in creating liquidity and creating markets, then why does Congress exempt U.S. obligations and those of States and municipalities from proprietary trading? I am missing something.

Tom Quaadman, do you want to take that question?

Mr. QUAADMAN. That is a very good question, because if you take a look at the Volcker Rule, if you take a look at Basel III, if you take a look at a number of other rules, U.S. Treasuries are always exempt. And as I was talking to a corporate treasurer, he said the impact of all these rules, at the end of the day, to their logical outcome, is companies are going to have to put their financial resources into U.S. Treasuries.

And what we have seen over the last several years is a chronic shortage in U.S. Treasuries, as well as stresses in those markets.

Mr. HILL. I have also heard from community banks.

And I wonder, Ron, your comments on this. Community banks are saying they had to sell off profitable businesses and investments because of the Volcker Rule. And I think Congress, back in 1958, specifically said you can invest 5 percent of capital and surplus in small business investment corporations (SBICs).

And I don't think anyone has criticized that for almost 60 years now, using just a simple, "can for" test to invest in small and intermediate lending, to enhance net interest margin, to have some diversification at bank and bank holding companies. And yet, I think people are divesting similar investment funds in which they are not sponsoring—they are just simply a passive investor.

Have you seen community banks divest at the holding company or bank level where they have just made a passive investment in, say, a community bank fund sponsored by your firm?

Mr. KRUSZEWSKI. Again, it goes—

Mr. HILL. Yes, all because of Volcker, right—

Mr. KRUSZEWSKI. Totally.

Mr. HILL. —because there is a perceived problem that they might—

Mr. KRUSZEWSKI. This deals with the complexity of the covered fund rule in Volcker and what is permissible or not permissible. Again, this is—

Mr. HILL. Is that something that we should pay specific attention to in what we are doing? I know we are proposing to repeal the Volcker Rule. But in terms of a nuance, can you talk a little bit more about that for—

Mr. KRUSZEWSKI. I think if you are going to modify Volcker, you need to look at the covered rule. I think, Mr. Blass, that is what your testimony was about in many ways. And so we have to look at that.

Mr. BLASS. Yes.

Mr. HILL. Mr. Blass?

Mr. BLASS. I agree entirely. The covered fund definition is very confusing. The regulators seem to be targeting hedge fund, private equity-type activity. But they over-included and included some very different types of activity.

I have an example in our written testimony about tender offer bonds, which are a very simple mechanism for holding municipal securities, just holding them in a bank trust. And banks have no longer been able to sponsor those in many different sectors.

Mr. HILL. Good. Thank you for that testimony.

Thank you, Mr. Chairman.

Chairman HUIZENGA. The gentleman's time has expired.

With that, I don't see any Members on the other side of the aisle, so I will go to Mr. Emmer from Minnesota for 5 minutes.

Mr. EMMER. Thank you, Mr. Chairman.

And thanks to the witnesses for being here today. I appreciate your time.

Last Congress, I understand this committee received testimony from a number of market professionals about the current impacts of regulation on fixed income market liquidity.

One of the witnesses in one in these hearings in the last Congress stated that the net effect of post-crisis regulations is to "remove productive capital out of the real economy and leave it stranded in government securities."

And I think I will start with Mr. Kruszewski. Do you believe the U.S. economy is already experiencing these impacts in this real economy, even though many of these regulations are still being implemented?

Mr. KRUSZEWSKI. Yes, although I do want to say that the capital rules and many of the Rules that were focused on raising capital and liquidity in the banks were well-thought-out and done well. And I don't want to suggest that that is not the case.

But I do want to say that there are a lot of rules that need to be relooked at, which is what I think this committee is doing in looking at Dodd-Frank. And specifically, the Volcker Rule is an example where the financial system in any capitalistic society has the requirement to provide liquidity. And this Rule significantly hampers that.

And when you pull capital out of an economy, you are going to—the U.S. Government market doesn't need the liquidity. It is the largest market in the world. It has liquidity almost by definition. To exempt Volcker from it, I almost smiled at, because it doesn't

need liquidity. My clients need liquidity. My clients who are trying to raise capital need liquidity. And Volcker sucks liquidity from those clients.

Mr. EMMER. It is actually access to capital that we are talking about. And I go back a couple of questioners. The reason I put this to you first is you said it is making capital more expensive and harder to achieve for your clients, access to capital.

And I go back to my question, in your experience, is this having an impact on our real economic growth?

Mr. KRUSZEWSKI. Well, if you can't raise capital, you are not going to invest and have CAPEX, and you are not going to create jobs.

And what I see is many companies, smaller companies today—and I think this committee should take note that many small companies today do not go public, do not have access to the capital markets in an efficient manner, and ultimately exit by selling themselves to their larger competitors. I note that in my testimony.

Mr. EMMER. Right.

Mr. KRUSZEWSKI. And I believe that the health and vibrancy of the U.S. economy requires that our market structure and the Rules that we put in place, which has significantly impacted the ability to raise capital and has impacted job formation, needs to be looked at and needs to be looked at post-haste.

Mr. EMMER. Mr. Quaadman, I want to take this a little bit further, because my colleague, French Hill, worked on the banking side of it. And he was making sure that he could make that accessible to his customers, his clients.

I am on the business side of it, and you are, too. You are representing all kinds of businesses. And we have this anemic, that some people want to celebrate, 2 percent or less annual economic growth. It is pathetic.

When you look at this situation, if you start to get five agencies implementing this rule that is so complex that people who are experts in it even have trouble applying it and knowing what their liability might be, what do you think the impact has been on the economic growth in this country?

Mr. QUAADMAN. It has had a negative impact. And as we outlined in the Thacker study, this does have impacts on capital spending and the like.

But let me give you one example. I talked to a corporate treasurer and he described for me a few years ago that he had to go in the day after Thanksgiving. He had to sell commercial paper in order to pay bills for the company.

Obviously, it was a slow trading day. The bank comes back at the end of the day and says, we were only able to sell half the commercial paper, but here is the full amount, and we aren't going to be able to sell the rest. So the bank took on the risk. His point was that post-Volcker, that transaction does not happen.

Mr. EMMER. Right.

Mr. QUAADMAN. The bank doesn't want to engage in that. The company can't engage in that capital in that way. And actually, that lack of sale of commercial paper takes money out of the productive economy. So they have to operate on a much longer time horizon and then much more inefficiently as well.

Mr. EMMER. So it has had a real impact on our economic—

Mr. QUAADMAN. Yes.

Mr. EMMER. —growth. Thank you very much.

I see my time has expired.

Chairman HUIZENGA. The gentleman's time has nearly expired.

With that, we will go to Mr. Davidson from Ohio for 5 minutes.

Mr. DAVIDSON. Thank you, Mr. Chairman.

And thanks, Mr. Quaadman. I really think Mr. Emmer asked a good question. It was going to be one of my first in the queue, what are real-world examples of how this is affecting businesses?

And so, in the background, it is easy to see how the regulatory state and the regulatory environment are impacting access to capital, from what you just described in the bond market.

I am curious if anyone on the panel has a similar example in currency markets, is a lot of the things along with the regulatory environment with Volcker combined with the currency markets has affected that.

A lot of examples we talk about, this London Whale issue and things like that, but currency markets is another important way for things to clear. It is a highly liquid market. How is Volcker impacting it?

Mr. QUAADMAN. I think there are a number of different impacts there. And, obviously currency trading is integral for the ability of our members to trade overseas and to do overseas deals. And that is much more difficult.

And the reason why I was raising some of the other rules is when you also take the foreign bank operations rule, it has also retreated those banks from being a liquidity provider here in the U.S. and also to act as a counterpart in currency trades.

But I think we have to also look at some of these other rules in conjunction with Volcker because, as I said, they do all sort of combine at the corporate treasurers' desk and have made their life more difficult their ability to service the company more inefficient.

Mr. DAVIDSON. Thank you.

I am curious, on the bank regulatory side, when you are looking at how the banks are being assessed, there are four agencies that—or at least four as of this writing here—are charged in a 94-word sentence on page 247 with working together to enforce that.

And just some real-world examples, if you could, about how well is that working?

Yes, please?

Mr. BLASS. I would be happy to volunteer one. The agencies are required to work together even to issue guidance that is helpful to the industry or needed by the industry to make the Rule work.

In our example, we had a rule that seemed to prohibit new fund launches using seeding capital from fund managers that are affiliated with banks. It took the agencies 3 years to work together to ultimately issue that guidance just a week or two before the Rule went into compliance. That causes all kinds of disruption to a business, as you might imagine.

Mr. DAVIDSON. Of course.

Mr. BLASS. For our industry, that is a critical function, being able to launch new funds, so it was very disruptive.

Mr. DAVIDSON. Yes, and so you put those things together, whether it is the supply or the demand of the service that banks provide, how is that affecting the market today? How would the future be better today with or without Volcker?

And I will just ask Mr. Jarsulic?

Mr. JARSULIC. Sorry. If your question is how would the economy be functioning without Volcker, I think that if you look at the evidence on the effectiveness of market making, on the statistical measures of liquidity in the secondary markets, I think that the Volcker Rule has not done any damage. And, in fact, it has preserved the good functioning of those markets.

And at the same time, we have managed to make our banking system a bit safer because we have blocked off a source of potential tail risks to the banks that in the past were engaging in proprietary trading.

Mr. DAVIDSON. Okay. So thanks—

Mr. JARSULIC. So I think that there is an overall gain from this. Rather than—

Mr. DAVIDSON. Okay. So your take is is that the markets are addressing the need in other ways. And I guess I would ask, down the way—

Mr. JARSULIC. No, no, I am not—

Mr. DAVIDSON. Professor Whitehead, perhaps, your perspective on how accurate that is?

Mr. WHITEHEAD. Yes, sure. The Fed report actually indicates that roughly 93 percent of the market making activity that was taking place pre-Volcker was done by large banks that are no longer available because of Volcker; they are now pulling back.

And so the question is whether or not hedge funds, insurance companies, mutual funds, and other sort of non-Volcker broker dealers are stepping in. And the Fed report directly addresses this and suggests that it is not happening, that you are seeing a drop in liquidity notwithstanding the expectation that there might be some backfilling.

Mr. DAVIDSON. Thank you. My time has expired.

Chairman HUIZENGA. The gentleman's time has expired.

The gentleman from Illinois, Mr. Foster, is recognized for 5 minutes.

Mr. FOSTER. Thank you, Mr. Chairman. And I would like to yield my time to my colleague from Connecticut, Mr. Himes.

Mr. HIMES. I thank the gentleman from Illinois. And again, thank you all for being here. In my previous round of questions I think I can conclude that there wasn't a lot of appetite for the idea of permitting depository institutions to take proprietary bets.

I think we went through long term and short term, and I didn't sense a lot of enthusiasm for that or for investment in hedge fund vehicles.

A repeal of the Volcker Act, of course, would allow that to happen. So I want to get behind an issue here that I think is really interesting and hopefully you can help us with. There is ambiguous data, and we are hearing if from the panel today, about whether the Volcker Rule is, in fact, compromising liquidity in the markets.

There is not a lot of ambiguity around whether the markets are healthy. New issuance is high. We have some question about whether smaller issues are affected.

But let me ask this and I will ask it of anybody. I get frustrated in these conversations because the premise is there is not enough liquidity, or there is not enough credit availability, or there are not enough IPOs happening. So let me just ask this as a starter question.

Is more liquidity always good? Is there some—let me put it this way. Is there some optimal level of liquidity above which the system becomes risky, below which capital markets aren't functioning well?

Mr. KRUSZEWSKI. Well, I can say liquidity comes at a price on either side. So liquidity comes at a price and you can argue that too much liquidity isn't good either in terms of just too much money flashing around. So liquidity comes at a price.

But I do want to just say that when you talk about our long-term proprietary bet that we make at Stifel is to make a loan. That is our long-term proprietary bet. The short term that we are talking about here, in my opinion, is harmful. It takes away liquidity. So you are pricing liquidity too dearly with the Volcker role.

Mr. HIMES. No, and I understand that. I appreciate your business. Banks are in the business of making loans. They are arguably not in the business of making other proprietary bets.

And to your point, I am not dismissing your statement. There are others. I have a letter here from Vanguard that says that it has had no problem finding liquidity in counterparties in the market.

So I guess let me come back to my question, which is a very serious question because it should inform what we are doing here. I think most would agree that infinite liquidity is not a good thing. And therefore, there is some optimal level of liquidity.

Too little is not good. Too much is not good either. So I am looking—no one up here can say there is not enough liquidity in the market unless they can also say here is the optimal level.

So I am just looking for help from anybody in terms of, how will we know when there is optimal market liquidity? Because if we don't answer that question, none of the statements about there is too little or there is too much mean anything. So help us establish what the optimal—how we will know if we are at an optimal market liquidity level?

Mr. KRUSZEWSKI. All I will say is that the market will get to the optimal level. You won't get to the optimal level through regulation.

Mr. HIMES. I was a banker for a long time. And oftentimes when the market forces have been most active, there has been too much liquidity and catastrophe that followed. This goes back to the South Sea bubble hundreds of years ago. So I am not sure I buy that premise.

But, again, and let me actually single out Professor Whitehead, because this is a pretty academic question, none of our statements about whether we have too much or too little liquidity mean a darn thing unless you can anchor me in some concept of optimal liquidity. So how do we do that?

Mr. WHITEHEAD. Sure. So again, I will take you back to the Fed report, which I think tries to do just that. They are taking a look at the BB index. They are looking at that as the baseline. And then they are looking at instruments that drop in credit value down from whatever they were down to something that is near BB.

And what they are doing is comparing the two. And they are saying, well, look this BB we look at it pre-Volcker and post-Volcker. And that is our baseline.

Now let's see what happens when we have this decline, which is really sort of a gauge for stress. And what we see in that instance? There is a pullback. So that is your baseline, right? Your baseline—

Mr. HIMES. A pull back from when, though?

Mr. WHITEHEAD. A pull back relative to what you see in terms of pre-Volcker versus post-Volcker.

Mr. HIMES. Yes, yes. The pre-Volcker—none of us want to go back to 2008, right? Where I would argue you had a surplus of liquidity, so again—

Mr. WHITEHEAD. What I am saying is the baseline isn't pre-imposed. The baseline is the BB which is pre-imposed. In other words, they are taking a look at the stress analysis both before Volcker and after Volcker relative to a baseline that is a below investment grade, index, these BB instruments.

And so the idea, as I was saying earlier, it is not a question of absolute. It is a question of relative liquidity. And so they are trying to judge whether or not as a result of Volcker you see this decline relative to this, again, baseline of BBs. So your baseline kind of would be, maybe not optimal, but certainly some sense of what we are looking at independent of this drop in credit quality.

The drop in credit quality is kind of this way to estimate what happened during the financial crisis. And what they see is is that as a result of the drop relative to this baseline of BB instruments that you actually see a pullback in terms of liquidity.

So I think it is hard to sort of pinpoint a number, which is what you are looking for, I think, or some optimal number. And I believe that is what the testimony before was really getting at in terms of the market, that you are not going to have an optimal number.

But what I think you can do is gauge it relative to other indices like they do in the Fed report. And that is why they conclude that in times of stress you do see this problem. Or you are likely to see this problem, again, relative to this more standardized BB index.

Mr. HIMES. Thank you very much. I appreciate it.

Thank you, Mr. Chairman.

Chairman HUIZENGA. The gentleman's time has expired.

I now recognize the gentleman from Indiana, Mr. Hollingsworth, for 5 minutes.

Mr. HOLLINGSWORTH. Good morning. Thanks, everybody, for being here. I have really appreciated the testimony this morning.

And specific to Mr. Kruszewski, I certainly appreciate your healthy, and I think very warranted, skepticism for government solutions being promulgated on business.

I often think back about a quote somebody gave me which is, "If you think our problems are bad, just wait until you see our solutions." And I frequently think of this with regard to government, and specifically with regard to this.

Can you help me better understand, because I think there is some misunderstanding about the cause of the crisis. And when I think about the cause of the crisis, I think about loan books. I don't think about prop trading desks. I think about the risks that were taken on those books. So I guess for you Mr. Kruszewski, can you tell me a little bit about what you felt like caused the crisis?

Mr. KRUSZEWSKI. Yes. I will add to the 100 books—

Mr. HOLLINGSWORTH. Yes.

Mr. KRUSZEWSKI. —that have tried to explain the crisis. The crisis is interesting. Simply, you take leverage and you take loans and you combine rating agencies and misconceptions of a whole bunch of things and you package them together. And when the house came apart it came apart big. And it is that simple.

Mr. HOLLINGSWORTH. Okay. And when these banks were making these bets on mortgages, they are inherently taking certain risk. And my colleague, Mr. Himes, talks about those being of lesser risk. But they are inherently taking long term bets both on interest rate and credit risk, right?

The typical residential mortgage is 30 years in this country. And so, when we talk about short-term proprietary trading versus long term proprietary trading, the reality is on a loan book there is real risk, and real long-term risk if that is not—

Mr. KRUSZEWSKI. I think it is important that in any capitalistic society that when you have a crisis, the financial system will be in the middle of it, because the financial system is an intermediary and it provides loans and crises will come out of leverage and loans.

And so on one hand you can simply almost eliminate that if you de-risk the system—

Mr. HOLLINGSWORTH. Right.

Mr. KRUSZEWSKI. —and just make no more loans. You are not going to have a crisis. But we need loans and we need good capital rules.

To address, just quickly, the one question, what is too much liquidity? What I would say to that, and I think it is important, is that we have had a fire hose running one way for about 4 years where tremendous liquidity has come into the system through the issuance of corporate debt because interest rates are low. It is a policy issue. That is about to reverse. You are not going to see that. And you are going to see potentially the other way.

And that is why we need the ability to have a functioning market to balance when the liquidity runs the other way, because issuing corporations are not going to buy back their debt.

Mr. HOLLINGSWORTH. Right.

Mr. KRUSZEWSKI. It is going to need to be replaced.

Mr. HOLLINGSWORTH. And just one final point on that. When you think about crises, and especially crises where significant price drops are very acute, I don't think about there being too much liquidity in those moments.

In fact, I think about there being too little. A ready number of sellers and too few buyers and too few opportunities to offload it. That is what accounts for gaps downward in price.

So when my friend says these crises may be on account of too much liquidity, I think the significant constraint in that, especially

in this momentary passing of crises, is often too little liquidity and an inability to find enough ready-made buyers or sellers. Is that generally the concept of what happens in the middle of a crisis?

Mr. KRUSZEWSKI. You can argue that too much liquidity goes into the asset and there is not enough liquidity to buy it back.

Mr. HOLLINGSWORTH. Right.

Mr. KRUSZEWSKI. So there is—liquidity is a funny thing.

Mr. HOLLINGSWORTH. Yes.

Mr. KRUSZEWSKI. And I would just say that if we were sitting here today with 2 percent GDP growth, not even 2 percent GDP growth, and we were debating how to put market structure and regulations in place to drive economic growth, to get jobs going, and to do a number of things, the Volcker Rule would have no chance of passing under that basis. And that is why I sit here today is that for that same reason it needs to be repealed.

Mr. HOLLINGSWORTH. Right. Thank you so much. I appreciate it.

I yield back the balance of my time.

Chairman HUIZENGA. Will the gentleman yield to the Chair?

Mr. HOLLINGSWORTH. I will.

Chairman HUIZENGA. All right. Because I want to actually amplify this, and Professor Whitehead, I am curious because as I was writing down, and I think Mr. Kruszewski had a figure of how many points increase that he thought that Volcker was costing in this environment, but I can't recall exactly what that number was.

But the real question I have is what happens when interest rates go up? And what is going to happen? Is the Volcker Rule going to cause an even tighter situation?

Mr. WHITEHEAD. Well, that is the concern, that the Volcker Rule, because of the pullback from making a market, sort of secondary liquidity, is going to cause investors to be more reluctant to invest because they are not quite sure where to offset.

It is the point that Mr. Kruszewski was just making a few moments ago. And as a result the cost of raising capital will go up as well. Not knowing what the risk is that I am going to take as an investor, I am going to expect a little bit more in anticipation of the risk of not being able to sell.

Chairman HUIZENGA. All right. The gentlemen's time has expired.

With that, the Chair recognizes the gentleman from California, Mr. Sherman, for 5 minutes.

Mr. SHERMAN. Mr. Chairman, as we explore the Volcker Rule, we have five excellent witnesses here, but I would like to bring to the attention to the subcommittee four witnesses who aren't here.

The first is President Barack Obama who said, "The Volcker Rule will make it illegal for firms to use government-insured money to make speculative bets that threaten the entire financial system and demand a new era of accountability from CEOs who must sign off on their firm's practices. Our financial system will be safer, and the American people are more secure because we fought to include this protection in the law."

Now, the fact that President Obama would support the Volcker Rule is not surprising. But here are three other witnesses. Our own chairman of the full Financial Services Committee, Chairman Jeb Hensarling, in March 2013 said, "Certainly we have to do a better

job of ring-fencing, firewalling, whatever metaphor you want to use between an insured depository institution and a non-insured investment bank."

But the Speaker of the House was even more clear when he said, "If you are a bank and you want to operate like some non-bank entity, like a hedge fund, then don't be a bank. Don't let banks use their customers' money to do anything other than traditional banking." That is the Speaker of the House in May 2012.

And finally, our Treasury Secretary Steve Mnuchin, "I do support the Volcker Rule. I think the concept of proprietary trading does not belong in banks with FDIC insurance."

Perhaps it would be great to have Jeb Hensarling, Paul Ryan, and the Secretary of the Treasury here as witnesses to talk to us at this subcommittee hearing about the Volcker Rule.

Mr.—will you pronounce your last name for me, sir?

Mr. KRUSZEWSKI. When you stumble, I know the question is coming to me.

[laughter]

Ronald Kruszewski.

Mr. SHERMAN. What?

Mr. KRUSZEWSKI. "Kruszewski."

Mr. SHERMAN. "Kruszewski." Those who authored Dodd-Frank gave enforcement powers to five different agencies, each with primary oversight over a different segment of the industry.

Does your company have multiple regulators? Are they enforcing the Rule differently? In your experience, have the regulators coordinated with each other effectively?

Mr. KRUSZEWSKI. I think the regulators do the best they can. But the fact is that the Federal Reserve comes in and they have a certain view. And the OCC comes in and they have a different view.

They have different mandates on top of it. So obviously, you would expect me to say nothing other than to have five different agencies come in and interpret and enforce a rule, as a businessman I don't think it is a good idea.

So are they well-intended? Yes, but the enforcement tends to be a race to the bottom and which makes me have to take the most conservative viewpoint as to what the most conservative interpretation of Volcker may be.

Mr. SHERMAN. Yes. You used the term, "race to the bottom." In some spheres that means a race to lower and lower and lesser and lesser regulation. But I think you mean to say it is a race toward tougher and tougher regulation because you have to comply with all five.

Mr. KRUSZEWSKI. I keep thinking in terms of liquidity availability, so I apologize.

Mr. SHERMAN. Okay.

Mr. Jarsulic, it has been argued that prohibiting proprietary trading will hurt our banks as they compete with banks overseas. The European Commission recommended a version of the Volcker Rule for its largest banks and the U.K. government is adopting a similar proposal that pushes risky trades into separately capitalized ring-fenced entities.

How relevant are the competitive concerns given that our major competitors are moving in a similar direction?

Mr. JARSULIC. I think that the movements on the part of foreign regulators suggest that they, too, recognize the risks that are posed by proprietary trading and the effects that they can have on the operation of a banking system. And so I think that there is a reasonable probability that the business models of their banks will be similar to the business model of ours.

But even if that were not true, I think it is important to calculate the risks that these kinds of activities pose to a banking system. And what we are looking for is a stable, sound banking system that doesn't produce extreme financial events.

And the fact that our banks aren't participating in activities that other banks are, doesn't weigh all that heavily against that consideration.

Chairman HUIZENGA. The gentleman's time has expired.

With that, the Chair recognizes the gentleman from New Jersey, Mr. MacArthur, for 5 minutes.

Mr. MACARTHUR. Thank you, Mr. Chairman.

Mr. Jarsulic made a point at the beginning in his opening remarks that excessive risk-taking had caused terrible damage and harm to people and to our economy. I don't think any of us would disagree with that.

We watched as millions of people lost their homes, and millions of others lost their fortunes. Shareholders lost their fortunes, even modest ones. And then taxpayers ended up footing the bill.

And unfortunately, often those three people are one and the same: the homeowner; the shareholder; and the taxpayer. They got hammered three times, and $10 trillion of wealth or more, disappeared.

I guess the question that keeps coming back to me is—I wasn't here in Congress when all this debate about Dodd-Frank went on and the aftermath of that—does this Rule, this particular Rule, address any of that?

And so I want to start by asking you each just a yes-or-no question, starting with Mr. Blass. Yes or no, does the Volcker Rule, in your opinion, address the fundamental causes of the crisis that brought it about in the first place?

Mr. BLASS. It is not clear at all to us that it does. Certainly for our industry it misses the mark widely.

Mr. MACARTHUR. Mr. Blass, I am sorry because you haven't spoken much so I am sorry to cut you off, but I have a few other questions. Just a yes or a no for this one if you would?

Mr. BLASS. It seems to miss the mark widely.

Mr. JARSULIC. I believe it addresses a part of the things that led to the financial crisis.

Mr. MACARTHUR. You guys should run for Congress.

Mr. JARSULIC. No.

Mr. MACARTHUR. Yes or noes are hard to answer here, too.

Mr. QUAADMAN. The answer is no.

Mr. WHITEHEAD. I will do what professors never do, one word, no.

Mr. MACARTHUR. Thank you. Okay.

Professor Whitehead, I want to follow up with you on something that you also said. I have never been a banker. I ran an insurance

company and then I was a private equity partner. So that is sort of my view of some of these things.

It seems to me that it doesn't really matter if banks do smart or dumb things from my perspective, as long as they don't do too many of them with other people's money, or worse yet, with leveraged assets, because that creates certain issues.

Do you think there is a tipping point at which too much risk, taking too much risk as a bank holding company, or worse yet, taking too much leveraged risk does create risk of failure that can get out of control?

Mr. WHITEHEAD. I would respond in two respects. The answer is, yes, I do think there is a point where there is too much risk, although that tends to be addressed through things like leverage ratios and capital requirements.

And secondly, keep in mind, the Volcker Rule extends beyond banks. It covers all bank affiliates as well. So a lot of the testimony, a lot of the quotes that I have heard from folks who speak in support of the Volcker Rule speak to the depository institutions. And again, you want to keep in mind, we are talking about nonbank affiliates also.

Mr. MACARTHUR. And I think you make an excellent point. It seems to me that the emphasis ought to be on leverage ratios and capital requirements because then instead of people in government trying to control very fluid markets, and they are fluid; I was a businessman for decades. Things change by the day, and business people respond by the hour.

So instead of having bureaucrats try to figure all that out and control it, it seems to me we would be better off creating the limitations that stop us from hitting that tipping point instead of trying to decide who can do what in the broadest of categories.

And this gets to some remarks that my friend from Connecticut was asserting before that we are trying to march towards and manage some optimal liquidity level.

If it exists, it doesn't exist for more than a moment. And I am convinced it doesn't exist. It is fluid. The markets are fluid. And what is optimal liquidity today may be different in a month.

And so I think we have to think about this differently, and I would advocate, along with those that are saying this rule doesn't come close to addressing the issue, it is time to re-think how to manage risk without shutting down the providers of liquidity.

And again, Professor Whitehead, I think you said in the beginning, capital markets have changed. I think about how I accessed capital at different points of my ownership of my company, and I think I accessed all manner of capital other than the pubic markets. Different things worked at different times. Let us not shut our banks down from participating in that.

And with that, I yield back.

Chairman HUIZENGA. The gentleman's time has expired.

The Chair recognizes the gentleman from Massachusetts, Mr. Lynch, for 5 minutes.

Mr. LYNCH. Thank you, Mr. Chairman, and I thank the ranking member as well for holding this hearing. And I want to thank all of the witnesses here.

Mr. Quaadman, you are here again. You spend more time before this committee than most of our members do.

[laughter]

But you are a very valuable witness, so we certainly welcome you again.

Mr. Jarsulic, I read a study recently by the International Monetary Fund where the staff reported that 73 banks identified as systemically important by the Basel Committee on Banking Supervision; they said that these 73 banks account for two-thirds of global bank assets.

And according to the study, they said these 73 institutions pose significant management challenges and are very difficult to regulate and supervise and would be extremely difficult to resolve in an orderly manner in the event of a failure.

And so I am just wondering if Volcker went away, if the Volcker Rule went away, how much more difficult do you think, with this financial system and proprietary trading that would be brought back, sponsorship of hedge funds and other risky activity, how difficult would it be then operating without the Volcker Rule, in terms of keeping these banks out of trouble or resolving them in a tough situation?

Mr. JARSULIC. I think that the Volcker Rule is intended to be a preventative measure, that is, to lower the probability that these banks are going to need to be resolved. And so from that point of view, I think it is positive. It contributes to lowering the difficulties caused by excessive risk-taking.

Mr. LYNCH. There is the unwinding part, too, here that I want you to speak to. We have evidence from the London Whale trading incident. And it was extraordinary that JPMorgan was involved in that. And apparently a lot of the trading involved overseas affiliates in London, and I imagine that would occur on a fairly common basis.

Mr. JARSULIC. Yes. I now see your question. Big organizations are—large bank holding companies are extraordinarily complex institutions. I think the Federal Reserve did a study of our larger banks and found that they often had subsidiaries in the thousands. And those subsidiaries are, of course, located across jurisdictions.

And it has been the case, I think, in the past that a lot of trading activity has been located—for U.S. banks has been located in foreign jurisdictions, such as London.

And so the more that you allow that kind of complex and potentially loss-generating activity that often creates contracts, obligations, that involve many institutions if you go across borders and legal institutions, it does increase the difficulty of unwinding an institution should it fail. And that it could make it a more protracted process.

Mr. LYNCH. I read a Reuters article recently that Goldman Sachs was still seeking a 5-year extension to conform with the Volcker Rule for about $7 billion worth of private equity investments.

And if Goldman Sachs can't get rid of those illiquid assets, I think the average bank would have extreme difficulty. This is 6 years now that they have been holding on to those illiquid assets.

Let me just ask you generally, the idea that we are going to have insured institutions, FDIC-insured institutions out there engaged

in proprietary trading and higher risk activity, it seems like a moral hazard that you are insuring people and inducing them to engage in risky activity when you are going to end up holding the bag possibly if they begin to go under?

Mr. JARSULIC. Yes, as long as you allow those kinds of activities inside an institution which is either insured as a commercial bank unit would be, or in the case of widespread calamity implicitly insured, although I think the argument is the Dodd-Frank Act reduced that implicit insurance significantly is quite strong, the more likely they are going to be able to engage in those kinds of activities, the greater the risk they produce, the more willing it will be for their counterparties and funders to help them engage in that kind of activity.

Mr. LYNCH. Thank you very much, Mr. Chairman. I yield back the balance of my time.

Chairman HUIZENGA. The Chair recognizes Mr. Poliquin from Maine for 5 minutes.

Mr. POLIQUIN. Thank you, Mr. Chairman, very much, I appreciate the time.

And I thank all of you gentlemen for being here today.

Mr. Kruszewski, I know I am not pronouncing it right but it is close enough. Do you know who I mean? Okay? Good. I would like to ask you a question if I may?

Last December, on the 22nd, the Fed released a research paper entitled, "The Volcker Rule in Market Making in Times of Stress." And in that report, it states, "We document—i.e., the Fed staff—that the illiquidity of stressed bonds has increased after the Volcker Rule.

"Since Volcker-affected dealers have been the main liquidity providers, the net effect of these bonds are less liquid during times of stress due to the Volcker Rule." And they also talked about the performance of bonds during downgrades and so forth and so on.

So my question to you, sir, is, do you agree, since you are in the business, that the Volcker Rule, in fact, has caused this problem? Did you agree with the findings of that report?

Mr. KRUSZEWSKI. Yes.

Mr. POLIQUIN. Okay. What do you think that means? What are the implications for our economy as a result of concluding that the Volcker Rule does cause illiquidity during times of stress?

Mr. KRUSZEWSKI. Again, as I have said in my written and oral testimony, and I will say again, to the extent that the Fed is correct, and I believe they are correct that there is less liquidity, especially for these smaller bond issues. In very simple terms that just equates to higher cost to capital for our companies and our economy. And it is just that simple.

So if you cannot—buyers are going to demand more compensation in terms of bonds. That means higher interest rates for the issuing company. That is higher cost to capital, less money for jobs and development.

Mr. POLIQUIN. So specifically at a time of stress in the economy when business is poor and rates are already rising, you are saying this could cause rates to go up even further, and further choke off capital to small and medium size companies that are desperately in need of that capital?

Mr. KRUSZEWSKI. I would not equate that report to rising interest rates per se. I think that is an economic phenomenon and that is what the Fed does. What they are saying, as I read that report, is that they see the illiquidity in times of stress.

And what that means is, so do the people who buy those bonds see the illiquidity in times of stress. There will not be any buyers. And therefore, to compensate for that risk, they will increase the rates.

Mr. POLIQUIN. Got it.

Mr. Quaadman, if I may expand upon this please? Do you think as a result of this conclusion by the Fed that many of us are in agreement with, that that could pose the amalgamation of this problem on different parts of the economy—could pose systemic risk to the economy?

Mr. QUAADMAN. I think it is definitely causing a drag on growth. The march towards stability without also having pro-growth measures in place has caused that drag.

I do think, as I mentioned before, too, as we are seeing treasurers being forced to more and more put their cash into U.S. Treasuries, it is actually concentrating risk into another part of the financial sector.

Mr. POLIQUIN. Mr. Whitehead, would you like to jump in here and comment on this, sir, before I ask another question?

Mr. WHITEHEAD. I think it is really the same point, which is as investors who are concerned about liquidity assess whether or not to make an investment, you would expect them to receive a higher return. And that has a real Main Street effect. It means the cost of raising capital goes up and that has a knock-on effect to what the businesses can do.

Mr. POLIQUIN. If a company has a problem dealing with the Volcker Rule because it is a 1,000-page rule where you are reporting to five different agencies, as you mentioned, sir, and that book of business or that part of your book of business isn't performing as you expect it to, Mr. Kruszewski, could you also comment on what other types of activities that might be riskier might a bank be involved in as a result of this part of their book of business not performing?

Mr. KRUSZEWSKI. I am not sure. I will try to answer your question. I believe that first of all, Stifel does not engage in proprietary trading. It is not something that is central to our business model. I am not talking my own book here.

What I am suggesting is that the five agencies and the interpretation of the Rule, which is very complex, results in it being very difficult to make effective markets, especially in times of stress. What other firms are doing to compensate for that, I am not sure.

Mr. POLIQUIN. Thank you, Mr. Chairman. My time has expired.

And thank you, gentlemen, very much.

Chairman HUIZENGA. The gentleman's time has expired.

With that, I would like to thank our witnesses today for your testimony. This has been, I think, a very helpful conversation.

And without objection, I would also like to submit for the record a letter from the National Venture Capital Association.

Without objection, it is so ordered.

The Chair notes that some Members may have additional questions for this panel, which they may wish to submit in writing. Without objection, the hearing record will remain open for 5 legislative days for Members to submit written questions to these witnesses and to place their responses in the record. Also, without objection, Members will have 5 legislative days to submit extraneous materials to the Chair for inclusion in the record.

Mrs. MALONEY. Thank you. May I join you in thanking the witnesses?

Chairman HUIZENGA. Please.

Mrs. MALONEY. I also want to thank you all for your testimony on what I think is a critical issue. And I wanted to just end with the quote that Mr. Hollingsworth said, "If you think our problems are bad, wait until you see our solutions."

But the problem we tried to address with Volcker was the financial crisis that ended up costing this country $16 trillion to $18 trillion, depending on what study you look at, thousands—millions of jobs and millions of homes.

And basically Volcker just says that banks should not gamble with their customers' money, especially when that money is insured by the FDIC and backed up by the taxpayers. And so—

Chairman HUIZENGA. And somewhere in there is a thank you to our witnesses?

Mrs. MALONEY. I did say—

[laughter]

I did say thank you, but—

Chairman HUIZENGA. Okay. Well, with—

Mrs. MALONEY. —I do thank you. Thank you very, very much, really.

Chairman HUIZENGA. With that, I again thank our witnesses, and our hearing is adjourned.

[Whereupon, at 12:08 p.m., the hearing was adjourned.]

A P P E N D I X

March 29, 2017

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STATEMENT

OF

DAVID W. BLASS
GENERAL COUNSEL
INVESTMENT COMPANY INSTITUTE

BEFORE THE

US HOUSE OF REPRESENTATIVES

COMMITTEE ON FINANCIAL SERVICES

SUBCOMMITTEE ON
CAPITAL MARKETS, SECURITIES AND INVESTMENT

ON

EXAMINING THE IMPACT OF THE VOLCKER RULE ON MARKETS, BUSINESSES, INVESTORS AND JOB CREATION

MARCH 29, 2017

EXECUTIVE SUMMARY

- Congress enacted the Volcker Rule to restrict banks from using their own resources to trade for purposes unrelated to serving clients and to address perceived conflicts of interest in certain bank transactions. The Volcker Rule was *not* directed at registered funds—that is, mutual funds, exchange-traded funds, or other US investment companies that are subject to comprehensive regulation under the Investment Company Act of 1940—or at similar non-US funds. Unfortunately, the final regulations implementing the Volcker Rule nonetheless resulted in a number of concerns for these funds and their investment advisers. Our testimony highlights three areas of concern. It also provides ICI's views on structural changes in the secondary corporate bond markets and expresses support for the Subcommittee's examination of the Volcker Rule and its consideration of the capital markets more broadly.

- A first area of concern stems from the fact that the five agencies implementing the Volcker Rule ("Agencies") failed to provide a complete carve-out for registered funds. As a result, many such funds found themselves treated as "banking entities." This could happen, for example, in the case of a newly-launched fund whose investment adviser was affiliated with a bank. Solely by reason of the adviser's investment of start-up capital (so-called "seed money"), the fund itself would be subject to the Volcker Rule's trading and investment limits as if it were a bank. It is clear that Congress did not intend such a result.

- The Agencies ultimately provided some relief—only days before the July 21, 2015 compliance date—after months of effort from ICI and other stakeholders. The task of obtaining this relief was particularly burdensome because:

    - the problem was apparent, and had been brought to the Agencies' attention *three years earlier* during the comment period on the proposed implementing regulations, and

    - the Byzantine multi-agency process adopted by the Agencies was never transparent, involving repeated meetings and calls with Agency staffs without any clear indication as to their thinking, progress or deliberations.

- A second area of concern involves competitive inequalities. For example, the final regulations appropriately exclude "foreign public funds"—the foreign equivalents to registered funds—from the Volcker Rule's restrictions. The Agencies, however, placed requirements on US firms and their affiliates that rely on this foreign public fund exclusion that do not apply to foreign firms offering the same types of funds.

- A third area of concern is that the Volcker Rule has disrupted the market for certain securities in which registered funds invest. To illustrate, we discuss the restructuring and contraction that has occurred in the tender option bond ("TOB") market and the implications for banks, investors (including registered funds), and municipalities. It is our understanding that the size of the total

outstanding TOB market has decreased significantly since before the financial crisis, due in part to the Volcker Rule, and that the demand for these securities consistently exceeds the supply.

- The Subcommittee has expressed interest in the impact of the Volcker Rule on the US capital markets, with particular focus on liquidity in the fixed income markets. Our testimony underscores the importance of market liquidity to registered funds and the continuing complexity of the market making exception in the final implementing regulations. It then discusses the significant structural transformations that are occurring in the secondary corporate bond markets, and what these mean for liquidity in those markets.

- To reiterate, ICI supports the Subcommittee's examination of the Volcker Rule and its consideration of the capital markets more broadly. Market dynamics and factors relevant to trade execution affect a registered fund's ability to deliver on its investment mandate and, in turn, fund investors' ability to achieve their financial investment goals.

I. INTRODUCTION

My name is David Blass. I am General Counsel of the Investment Company Institute ("ICI") a leading global association of regulated funds, including mutual funds, exchange-traded funds ("ETFs"), closed-end funds, and unit investment trusts in the United States ("registered funds"), and similar funds offered to investors in jurisdictions worldwide. ICI seeks to encourage adherence to high ethical standards, promote public understanding, and otherwise advance the interests of funds, their shareholders, directors, and advisers. As of March 1, 2017, ICI's members manage total assets of US$18.9 trillion in the United States, serving more than 95 million US shareholders, and US$1.6 trillion in assets in other jurisdictions. Thank you, Chairman Huizenga, Ranking Member Maloney, and members of the Subcommittee for inviting me to testify.

ICI appreciates the opportunity to speak to the Subcommittee regarding the effect of the Volcker Rule on registered funds and, more broadly, capital markets, capital formation, and investors. We previously have had the opportunity to appear before the full Committee on Financial Services and to make known some of our concerns about Section 13 of the Bank Holding Company Act—commonly known as the Volcker Rule—which was adopted as part of the Dodd-Frank Wall Street Reform and Consumer Protection Act ("Dodd-Frank Act").[1] As we stated then and reiterate today, the registered fund industry has a unique perspective on Volcker Rule issues because funds are both issuers that, in some circumstances, may be subject to the Volcker Rule and "buy-side" investors in domestic and international financial markets that may be affected by the Volcker Rule.

By all acknowledgements, the Volcker Rule was never intended to apply to registered funds. Nonetheless, ICI members have been affected by the complexities and consequences of the Volcker Rule, and some have had to navigate its complicated implementing regulations and the Byzantine multi-agency process for obtaining guidance and interpretations under those regulations. The regulations implementing the Volcker Rule introduced particular uncertainties about the treatment of certain registered funds and similar funds organized outside the United States. Although the agencies charged with implementing the Volcker Rule ultimately issued guidance to try to ameliorate some of these issues, they never have been resolved through a transparent rulemaking process and, more importantly, some registered funds are now subject to an unnecessary compliance burden as a result.[2] Further, the Volcker Rule has disrupted the market for certain securities in which registered funds invest. And it is one of many factors contributing to structural changes in the fixed income markets.

In the sections that follow, we first provide background information on registered funds and their comprehensive regulatory framework (Section II). We then discuss some of the unintended

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[1] Paul Schott Stevens, ICI's President and CEO, testified before the U.S. House of Representatives' Committee on Financial Services during the 112th Congress. His written testimony is available at https://www.ici.org/pdf/12_house_impact_volcker2_written.pdf.

[2] The Volcker Rule implementing agencies (the "Agencies") are: the Federal Reserve Board, Commodity Futures Trading Commission, Federal Deposit Insurance Corporation, Office of the Comptroller of the Currency, and Securities and Exchange Commission.

consequences and complexities of the Volcker Rule that affect registered funds and their foreign counterparts (Section III). Finally, we provide ICI's views on structural changes in the secondary corporate bond markets and express support for the Subcommittee's examination of the Volcker Rule and its consideration of the capital markets more broadly (Section IV).

II. BACKGROUND ON REGISTERED FUNDS

Registered funds and their investment advisers operate under a comprehensive framework of regulation, including the Investment Company Act of 1940 ("Investment Company Act"), the Investment Advisers Act of 1940, and other federal securities laws. This framework has been enhanced over the years, including most recently in the Dodd-Frank Act, by Congress and the Securities and Exchange Commission ("SEC"), the primary regulator for registered funds and the asset management industry more generally. Notably, the regulatory framework serves both to protect investors and to mitigate risks to the financial system.

The applicable laws encompass not only disclosure and anti-fraud requirements but also substantive requirements and restrictions on funds' structures and day-to-day operations. Fund investment advisers likewise must register with the SEC and are subject to SEC oversight and disclosure requirements. All investment advisers owe a fiduciary duty to each fund they advise, meaning that they have a fundamental legal obligation to act in the best interests of the fund pursuant to a duty of undivided loyalty and utmost good faith. Actions taken on behalf of a fund by its adviser and other service providers are subject to broad oversight by the fund's board of directors (typically comprising at least a majority of independent members) and the fund's chief compliance officer. Funds must have written compliance programs designed to prevent violations of the federal securities laws. Fund directors, fund and adviser officers, and other employees all must adhere to codes of ethics.

It is important to note that the Investment Company Act was developed in direct response to overreaching and self-dealing by fund sponsors in the 1920s, which caused significant losses for investors. That Act seeks to minimize risk for fund shareholders by, among other things, ensuring that the fund and its investments are easily understood, its investment portfolio is managed for the benefit of its investors and not for the benefit of its investment adviser, and fund assets will not be misappropriated. Among the most significant of these protections are the following:

- Transactions with affiliates: The Investment Company Act contains a number of strong and detailed prohibitions on transactions between the fund and fund insiders or affiliated organizations, such as the corporate parent of the fund's investment adviser.

- Leverage: The Investment Company Act constrains funds' ability to borrow or issue any "senior security" that would take priority over the fund's shares.

- Custody of assets: The Investment Company Act requires all funds to maintain strict custody of fund assets, separate from the assets of the adviser. Nearly all funds use a bank custodian for

domestic securities, and the custody agreement is typically far more elaborate than the arrangements used for other bank clients.

- Transparency: Under the Investment Company Act and applicable SEC regulations, funds are subject to extensive disclosure requirements. Funds provide a vast array of information about their operations, financial conditions, contractual relationships with their advisers and other matters to the investing public, regulators, media, and vendors such as Morningstar, and other interested parties—far more information than is available for other types of investments.

- Mark-to-market valuation of fund assets: All mutual funds provide market-based valuations of their shares at least daily. The valuation process results in a net asset value for the fund, which is the price used for all transactions in mutual fund shares.

In recognition of the comprehensive framework that applies to registered funds, Congress deliberately determined to exclude registered funds from the scope of the Volcker Rule. Rather, the Rule is intended to apply only to certain privately offered funds that are structured in a manner that avoids registration and regulation under the Investment Company Act.

III. UNINTENDED CONSEQUENCES AND COMPLEXITIES AFFECTING REGISTERED FUNDS

Congress enacted the Volcker Rule to restrict banks from using their own resources to trade for purposes unrelated to serving clients and to address perceived conflicts of interest in certain transactions or relationships. To accomplish these goals, the Volcker Rule prohibits banks and their affiliates and subsidiaries (referred to as "banking entities") from engaging in "proprietary trading."[3] The Volcker Rule also generally prohibits banking entities from sponsoring or investing in hedge funds, private equity funds, or other similar funds (referred to as "covered funds"). Despite the Agencies' recognition that the Volcker Rule was *not* directed at registered funds, the final regulations implementing the Rule nonetheless resulted in a number of concerns for the registered fund industry.

A. Hampering Organization and Sponsorship of Registered Funds

Most significantly, many registered funds and their advisers found themselves within the definition of a "banking entity" under the final regulations and, thus, subject to the Volcker Rule's trading and investment limits as if they were banks. For some ICI member firms, this treatment arose because the fund adviser is affiliated with an insured depository institution, even though that institution is not directly involved in the fund or asset management business.

As a consequence, these investment advisers found some of their common practices, such as "seeding" new funds, subject to restrictions under the final regulations, even though these practices had been

[3] There are exclusions for "permitted activities," such as market making, as defined in the statute and implementing regulations.

longstanding and, to our knowledge, had never raised any regulatory concerns in the past. Seeding is a primary way for an investment adviser to launch a new fund. The adviser, during an initial seeding period, will own all or nearly all of the shares of a fund, as the adviser attempts to establish the fund, to test the investment thesis of the fund, and to develop an investment record that will attract investors—with the goal being to reduce the adviser's relative ownership of the fund as investors buy fund shares. As a result of the adviser's initial ownership stake, a newly seeded fund would be considered an affiliate of a "banking entity" and thereby captured (albeit needlessly so) by the final regulations implementing the Volcker Rule.

ICI and other interested parties communicated this concern to the Agencies during the comment period on the proposed regulations to implement the Volcker Rule, but the final regulations offered only limited relief. The Agencies allowed that a sponsoring banking entity may hold 25% or more of a registered fund during a one-year seeding period and permitted the banking entity to apply to the Federal Reserve Board for an extension of the seeding period up to two additional years. This narrow seeding exception did not account for prevailing industry practices and did not address seeding practices in a variety of contexts.

This was a significant issue for ICI members, potentially placing affected funds at a competitive disadvantage. To begin with, multi-year seeding periods are common for (and necessary to) the successful launch of registered funds in the United States; investors generally expect a demonstrated track record before investing in a new registered fund. The immediate effect of the rule was two-fold.

- First, because banking entities require certainty that they will be able to avail these funds of a sufficient seeding period, some considered refraining from launching new funds, the consequence of which would be to decrease investor options with respect to investment vehicles that the Volcker Rule was never designed to affect. That end result would diminish innovation and development of new funds that are important to retail investors to meet their retirement, education, and other needs.

- Second, and more immediate, existing funds—those that already have been formed and currently are in their seeding period, many of which have investors who are unaffiliated with the sponsoring banking entity—required additional time to meet the compliance deadline and avoid being deemed to be "banking entities" under the Volcker Rule. Absent relief, the banking entities would be forced to restructure the funds by selling off their stakes or by liquidating the funds. Either course would require advance planning and have evident adverse consequences for the third-party investors in the funds, which, again, were never intended to be reached by the Volcker Rule.

Upon the Agencies' release of the final regulations implementing the Volcker Rule, ICI and its members sought to engage the Agencies on these issues. To our surprise and our members' consternation, addressing the issues—which were apparent and brought to the Agencies' attention from the outset—took many months and required working through the Byzantine multi-agency process adopted by the Agencies to implement the Volcker Rule. The process proved particularly

frustrating because it took so long, because it was never transparent (with ICI and other stakeholders writing to and meeting repeatedly with Agency staffs without any clear indication as to their thinking, progress, or deliberations), and because the ultimate resolution proved, in many ways, incomplete.

Agency action on the seeding issue came in July 2015, only days before the deadline by which compliance with the Volcker Rule was mandated. At that time, the Agencies published fund seeding guidance in the form of a "frequently asked question," found on the Agencies' websites. This guidance provided much-needed immediate relief, in that it recognized that banking entities, during the seeding period, may hold more than 25% of a registered fund's shares for longer than one year without the fund itself being viewed as a banking entity and subject to the Volcker Rule's restrictions.

The "guidance," although greatly welcomed, was disappointing for several reasons. First, it interprets but does not alter the legal requirements of the final regulations—such piecemeal approaches create needless confusion. Second, the guidance introduces other vagaries and complexities because it could be read to suggest that, in the ordinary course, a three-year seeding period may be the maximum allowed. This phraseology has left some industry participants uncertain about longer seeding strategies, which may be necessary and common for certain types of funds.

To us, this process demonstrates that the complexity of the Volcker Rule is nearly unmanageable not only for financial entities with obligations to comply with the Rule's myriad requirements but also the Agencies themselves—they seem to struggle to administer, interpret, and implement the very regulation they have adopted and impose restrictions that appear untethered from the widely acknowledged underlying policy objectives of the Rule. Moreover, as noted, the end result leaves registered funds with an unexpected and unnecessary compliance burden, despite the fact that registered funds should have been outside of the scope of the Volcker Rule from the beginning.

Similar challenges have been encountered by funds that are publicly offered (by both US and foreign banking organizations) and substantively regulated outside of the United States—essentially, the foreign counterparts to registered funds—despite Congressional intent to limit the extraterritorial impact of the Volcker Rule. The final implementing regulations appropriately provided an exclusion for so-called "foreign public funds" from the Volcker Rule's restrictions. Yet in much the same way as registered funds, these funds faced uncertainty as to what would be considered a permissible seeding period, such that the fund would not become subject to the trading and investment limits in the Volcker Rule. And, like registered funds, foreign public funds did not obtain needed guidance from the Agencies until days before the July 2015 compliance date. In addition, foreign public funds organized differently from their US counterparts (for example, without a separate fund board of directors) faced an added layer of complexity. Without specific guidance from the Agencies, those funds might have been deemed to be "controlled" by their bank-affiliated adviser and thus subject to the Volcker Rule, despite being organized in a manner permitted under the laws of their home jurisdiction. The Agencies ultimately issued the needed guidance but only after the same protracted process used to issue seeding guidance.

Finally, the Volcker Rule and its implementing regulations create competitive inequalities that deserve to be reviewed and addressed. Take, for example, the foreign public funds described above, which are excluded from the Volcker Rule's restrictions. Unfortunately, the Agencies placed requirements on US firms and their affiliates seeking to rely on this foreign public fund exclusion that do not apply to their foreign competitors. In particular, US firms must ensure that fund interests are sold "predominantly" (a term that is undefined in the final regulations) to third-party retail investors, but excluding their affiliated persons. This restriction on sales to affiliated persons creates monitoring and other compliance challenges for US firms and, for no apparent reason, puts US sponsors of foreign public funds at a competitive disadvantage to their foreign competitors.

B. Hampering Investment Opportunities for Registered Funds

In addition to the challenges described above that some of our members must grapple with, the Volcker Rule also has had unanticipated implications for certain securities in which many registered funds invest. Like many investors, our members value predictability in the structure and nature of their investments, a predictability that has been undermined in many ways by the overzealous application of the Volcker Rule to activities that Congress did not intend to regulate when the Volcker Rule was enacted. One example of this disruption can be seen in the case of the tender option bond ("TOB") market.

In a traditional TOB program, a bank deposits one or more investment grade municipal bonds into a trust that issues two classes of tax-exempt securities: a short-term security (the "floater") that is supported by a liquidity facility, and a residual floating rate security (the "residual"). The floater is a variable-rate demand security that bears interest at a rate adjusted at specified intervals. The liquidity facility provides a "put" or conditional demand feature, allowing the floater holder to tender the floater, with specified notice, and receive face value plus accrued interest.

Floater holders (typically shorter-term investors) bear limited and well-defined insolvency and default risks associated with the underlying bonds and rely upon their largely unfettered put right to manage these risks. Holders of residuals (typically longer-term investors) receive all cash flows from the underlying bonds that are not needed to pay interest on the floaters and expenses of the trust. Residual holders bear all of the market risk and share the credit risk with the floater holders with respect to the underlying municipal bonds.

Prior to the Volcker Rule, a bank typically performed the traditional functions of a TOB program sponsor. Since the enactment of the Volcker Rule, however, a TOB trust is very likely to be considered a covered fund. Therefore, banks have been forced to restructure TOB trusts to avoid sponsoring a covered fund, which is prohibited under the Volcker Rule and, even when permitted under certain exemptions, subjects the fund to a variety of restrictions and limits (such as a prohibition on receiving credit support from the sponsor).

There is no indication that Congress ever intended for the Volcker Rule to limit banks' ability to sponsor TOB trusts. In fact, Congress sought to avoid interfering in traditional banking activities such as this one. We pointed this out to the Agencies prior to the finalization of the regulations

implementing the Volcker Rule, but the Agencies failed to exclude these programs from the final regulations' definition of a covered fund. Though the worst fear of TOB investors and sponsors—that TOBs would cease to exist after the Volcker Rule—has not materialized, the Volcker Rule has played a role in the contraction of the supply of TOBs.[4] Our members report that the demand for these securities—which can increase the diversification and liquidity of fund portfolios—consistently exceeds supply, with new deals sometimes oversubscribed by three to four times.

As a result of the Volcker Rule, banks have been forced to change their role from sponsors to liquidity providers and to cede the role of sponsor to one of the trust's residual interest holders. The uncertainty caused by this seemingly unnecessary regulatory shift led to disruption in the TOB market, to the detriment of banks and investors alike. The shrinkage of the TOB market also has implications for municipalities in that TOBs provide an important source of demand for municipal bonds, which benefits municipalities with funding needs.

IV. STRUCTURAL CHANGES IN THE SECONDARY CORPORATE BOND MARKETS

The Subcommittee has expressed interest in the impact of the Volcker Rule on the US capital markets, with particular focus on liquidity in the fixed income markets. We address this topic below.

A. Importance of Market Liquidity to Registered Funds

For registered funds, the availability of liquidity is a critical element of efficient markets. Many banking entities are key participants in providing this liquidity, promoting the orderly functioning of the markets and committing capital when needed by investors to facilitate trading.

Liquidity is particularly important in the everyday operations of mutual funds, which typically offer their shares on a continuing basis and are required by the Investment Company Act to issue "redeemable securities."[5] To invest cash they receive when investors purchase fund shares as well as to meet investor redemption requests on a daily basis, mutual funds must have efficient, orderly markets.

Registered funds also rely on adequate liquidity when making investment decisions and when trading the instruments in which they invest. Important investment criteria analyzed by portfolio managers at registered funds include a security's liquidity, *i.e.*, whether a position can be sold in a timely and cost efficient manner. And, if registered funds are concerned about the possibility that the liquidity of particular instruments could become impaired in the future, they may be reluctant to invest in those instruments altogether.

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[4] It is our understanding that the size of the total outstanding TOB market has decreased significantly from its size before the financial crisis.

[5] *See* Section 2(a)(32) of the Investment Company Act (generally defining "redeemable security" as "any security . . . under the terms of which the holder, upon its presentation to the issuer or to a person designated by the issuer, is entitled . . . to receive approximately his proportionate share of the issuer's current net assets, or the cash equivalent thereof.").

B. Development of Implementing Regulations and Concerns About Market Impacts

In our December 2012 testimony, we explained that much of the concern about market liquidity arose from the complexities of the proposed regulations to implement the Volcker Rule. We took issue, for example, with the proposal's presumption that short-term principal trading is proprietary trading, unless a banking entity is able to demonstrate otherwise. Concerned that such a presumption would fundamentally prejudice the analysis of a banking entity's trading activity from the outset, we observed that a banking entity in this position would have to worry about hindsight interpretations and second-guessing about key compliance decisions with respect to each financial position. Registered funds and other investors, in turn, would have to worry about any chilling effect this might have on a banking entity's ability or willingness to engage in market making activity.

The final regulations, regrettably, generally follow the same structure as the proposed regulations, broadly defining "proprietary trading" and retaining the rebuttable presumption. The Agencies did revise the exemption for permitted market making, so that its applicability is determined based on the general market making activities of a bank's trading desk and not on a transaction- by- transaction basis. Nevertheless, it requires, among other things, that the amount, types and risks of the financial instruments in the trading desk's "market maker inventory" must be designed not to exceed, on an ongoing basis, the "reasonably expected near term demands of clients, customers and counterparties." To rely on this exception, banks must maintain a robust set of risk controls for their market making activities, in addition to the compliance requirements generally applicable to banks under the final regulations. The market making exception thus remains an area of considerable complexity.[6]

The final rule addressed another of registered funds' most pressing concerns about the proprietary trading prohibition and its potential impact on the capital markets, as outlined in our December 2012 testimony. It did this by ensuring that banking entities' activities with respect to all municipal securities (in addition to Treasury and federal agency securities, which were carved out from the beginning) would not be impaired. As our testimony indicated, we were concerned that failure to exclude these securities would have posed liquidity challenges for registered funds, which are significant investors in securities issued by state and local government entities, and made it difficult for states and localities to raise capital.

Not excluded from the Volcker Rule—and of particular interest to this Committee—are the fixed income markets, including the corporate bond markets, in which registered funds are steady investors.

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[6] *See, e.g.*, Michael Bright, Jackson Mueller and Phillip Swagel, *FinReg21: Modernizing Financial Regulation for the 21st Century*, Milken Institute Center for Financial Markets (March 24, 2017) at 3, available at http://www.milkeninstitute.org/publications/view/853 ("For example, if a trader buys a 10-year corporate bond from a client, but cannot easily re-sell that bond and instead sells a 10-year Treasury—meaning the trader is long a corporate note and short the 10-year Treasury note. Is this a 'prop trade,' or is it simply appropriate risk management in a rapidly moving market? How long can the trader hold this position before it becomes a 'prop trade?' This is a simple trade but not a simple question in the context of the Volcker Rule. And yet it seems obvious that this series of events should constitute allowable market-making—the normal activity of a broker-dealer in carrying out trades for customers and offsetting the resulting risks on its own books—in today's financial markets.")

Funds are investment vehicles through which millions of Americans gain access to corporate bonds, so ICI and its members have a strong interest in ensuring the quality and integrity of these markets. With this in mind, we recently weighed in on an examination of liquidity in secondary corporate bond markets conducted by the Board of the International Organization of Securities Commissions ("IOSCO").[7]

C. Secondary Corporate Bond Markets: A Shifting Landscape

There is considerable consensus that the secondary corporate bond markets are undergoing significant structural transformations caused in part by regulatory reform in the aftermath of the financial crisis as well as by changing economics and technology.[8]

Historically, most trading in US corporate bond markets has been over-the-counter, either between a dealer and a customer or between two dealers. This trading generally occurred over the telephone or through electronic systems that allow a customer to negotiate or trade with particular dealers. Often, dealers traded with their customers on a principal basis, using their capital to carry a large inventory of bonds on their books.

After the financial crisis and the ensuing regulatory reform, the role of dealers in these markets has changed, with dealers reducing inventory and acting more often in an agency capacity for their customers. A number of factors may explain why dealers have chosen to reduce their holdings of corporate bonds. These include the Volcker Rule and other regulatory requirements that limit the ability of banks to use their balance sheets to engage in market making activities, as well as increased costs associated with holding corporate debt in inventory. Given the central role that dealers have played in corporate bond markets, it is not surprising that many participants that had become accustomed to dealers providing liquidity in a principal capacity now must navigate their way through this evolving market environment.

Further, our members' experience suggests that the nature of trading is changing, as new technology has introduced trading protocols that did not exist in the fixed income markets even a few years ago. These new technologies and innovations provide market participants with additional means to trade corporate bonds, and will be a factor both in altering the structure of the bond markets and in influencing the ability of market participants to adapt to dealers' changing role in these markets.[9]

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[7] *See* Letter to IOSCO from Dan Waters, Managing Director, ICI Global, dated September 30, 2016, available at https://www.ici.org/pdf/30289.pdf (commenting on IOSCO Board, *Examination of Liquidity of the Secondary Corporate Bond Markets, Consultation Report* (August 2016).

[8] For greater detail, *see generally* IOSCO Board, *Examination of Liquidity of the Secondary Corporate Bond Markets, Final Report* (February 2017) ("IOSCO Report"), available at https://www.iosco.org/library/pubdocs/pdf/IOSCOPD558.pdf.

[9] *See also* IOSCO Report at 15-16.

D. What About Liquidity in the Secondary Corporate Bond Markets?

The shifting landscape does not necessarily mean that there is a lack of liquidity in the secondary corporate bond markets. Indeed, liquidity is not an "it's there or it's not" proposition. In a recent letter to IOSCO, Vanguard—a global investment management firm offering more than 190 mutual funds in the United States—explained it this way:

> [L]iquidity is dynamic, subjective, and hard to define. It can change in response to shifts in investor risk preferences, dealer financing costs and profit opportunities, or any of the other variables that influence capital market activity.
>
> Liquidity has, in effect, a price. That price corresponds to changes in the supply of and demand for liquidity. Or to put it another way, liquidity is obtained along a cost continuum.[10]

Another facet of liquidity to bear in mind is that market participants—based on their particular trading or investment strategies, time horizons, risk tolerances and the like—place different values on and have different perceptions of liquidity. As part of its recent examination of the secondary corporate bond markets, IOSCO surveyed market participants including funds, dealers, electronic trading venues and others. As their responses indicated, industry perceptions of the development of bond market liquidity over the past decade are mixed. The majority of both buy-side and sell-side respondents to the survey perceive market liquidity to have decreased. These perceptions were generally based on personal experience and not on data analysis.[11]

In addition, there is no single metric that reliably can measure bond market liquidity. Rather, a variety of metrics are commonly used as indicators of liquidity. These include trading volume, turnover ratio, bid-ask spreads, trade size, immediacy (in other words, the time it takes to trade a bond), price impact measures and statistics related to market making.

Some metrics, such as trading volume, indicate that liquidity has increased in recent years. Others, such as turnover ratio, suggest a modest decrease in liquidity. Still others suggest potentially important changes in the US bond market. According to a December 2015 report by the Financial Industry Regulatory Authority ("FINRA"), market participants appear to have executed more trades in smaller

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[10] Letter to IOSCO from Tim Buckley, Managing Director and Chief Investment Officer, The Vanguard Group, Inc., and John Hollyer, Principal and Head of Risk Management Group, The Vanguard Group, Inc., dated 30 September 2016, available at https://www.iosco.org/library/pubdocs/537/pdf/Vanguard.pdf, at 2.

[11] IOSCO Report at 4.

size.[12] The data set forth in the FINRA report are consistent with viewpoints expressed by some market participants that it requires more time and trades to transact in larger sizes in the US bond market.[13]

E. What Does All of This Mean?

Many variables affect capital markets activity and the liquidity in those markets.[14] Clearly, however, friction created by regulatory requirements that are overbroad or insufficiently tailored to achieve the desired objective is one such variable that can and does influence the ways in which various entities—including dealers and their trading partners such as funds—participate in the capital markets.

ICI supports the Subcommittee's examination of the Volcker Rule and its consideration of the capital markets more broadly. As noted earlier, factors such as increased cost and delays in trade execution affect a fund's ability to deliver on its investment mandate and, in turn, on fund investors' ability to achieve their financial investment goals.

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I appreciate the opportunity to share these views with the Subcommittee. ICI looks forward to continued engagement with Congress on matters of importance to registered funds and their investors.

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[12] FINRA, *Analysis of Corporate Bond Liquidity*, Research Note (December 2015), available at https://www.finra.org/sites/default/files/OCE_researchnote_liquidity_2015_12.pdf.

[13] *See also* IOSCO Report at 1, 24-45 (describing IOSCO's analysis of a variety of metrics relevant to the liquidity of the secondary corporate bond markets).

[14] For additional discussion of how the corporate bond markets are evolving, including the mixed evidence concerning changes in market liquidity, *see* Viewpoints, *Addressing Market Liquidity: A Broader Perspective on Today's Bond Markets*, BlackRock (Nov. 2016), available at https://www.blackrock.com/corporate/en-lm/literature/whitepaper/viewpoint-liquidity-bond-markets-broader-perspective-february-2016.pdf.

Examining the Impact of the Volcker Rule on Markets, Businesses, Investors, and Job Creation

Testimony before the U.S. House of Representatives
Subcommittee on Capital Markets, Securities and Investment

Marc Jarsulic
Vice President, Economic Policy
Center for American Progress

Wednesday, March 29, 2017

Thank you, Chairman Huizenga and Ranking Member Maloney, for the opportunity to testify on this important topic. I am the Vice President for Economic Policy at the Center for American Progress, where I lead our Economic Policy team. Today, I will attempt to outline the importance of the Volcker Rule and to highlight the evidence that the Volcker Rule has not caused a deterioration of liquidity in the corporate bond market.

The Purpose of the Volcker Rule

The Volcker Rule is intended to do something very reasonable – to prevent Bank Holding Companies and subsidiaries from engaging in proprietary trading and speculative hedge fund and private equity investments. These activities are capable of quickly generating high levels of risk and large losses, which can damage the balance sheets of even very large banks.

The losses by JPMorgan Chase in the 2012 "London Whale" incident – which involved proprietary-trading type activities are illustrative of the risks that can be generated. In that incident, a single trader, who was managing part of the bank's synthetic credit portfolio in London, took such large positions in credit derivatives that other market participants began to refer to him as the Whale. Losses mounted, and when the positions were finally unwound, the bank was out $6 billion. At the time the Volcker Rule was set to be finalized in late

2013, Treasury Secretary Jack Lew explicitly stated that the final rule was intended to prevent London Whale-style bets.[1]

During the financial crisis, large losses were sustained by many large banks around the world because of failed trading strategies. In 2009 the Basel Committee on Banking Supervision noted that "[s]ince the financial crisis began in mid-2007, the majority of losses and most of the build-up of leverage occurred in the trading book. Losses in many banks' trading books during the financial crisis have been significantly higher than the minimum capital requirements under the Pillar 1 market risk rules."[2]

We also know from historical experience that when many important financial institutions engage in excessive risk taking, taxpayers can be left bearing the burden when their bets go bad. During the financial crisis, large amounts of risk were shifted onto U.S. taxpayers as the risks taken by the large Bank Holding Companies and other important financial market actors generated substantial losses. Because those losses threatened asset fire sales and widespread panic, the Federal Reserve, FDIC and Treasury were forced to step in to support asset prices and the institutions that were threatened with ruinous losses. Trillions of dollars of taxpayer

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[1] Ian Katz and Kasia Klimasinska, "Lew Says Volcker Rule to Prevent Repeat of London Whale Bets," Bloomberg, December 5, 2013, available at https://www.bloomberg.com/news/articles/2013-12-05/lew-says-volcker-rule-meets-obama-s-goals-in-financial-oversight.

[2] Joint FSF-BCBS Working Group on Bank Capital Issues (2009). Reducing procyclicality arising from the bank capital framework, March 3. See also Basel Committee on Banking Supervision (2009). Guidelines for computing capital for incremental risk in the trading book, July 1 ("The decision was taken in light of the recent credit market turmoil where a number of major banking organizations have experienced large losses, most of which were sustained in the banks' trading books."). See also Dennis M. Kelleher, Marc Jarsulic, and David Frenk, "Re: Prohibition on Proprietary Trading and Certain Relationships with Hedge Funds and Private Equity Funds," Comment Letter, Better Markets, February 13th, 2012, available at https://www.bettermarkets.com/rulemaking/better-markets-comment-letter-volcker-rule.

funds were put at risk to stabilize the financial sector.[3] The federal government provided several temporary liquidity facilities, guaranteed debt issuance, and directly injected capital into financial institutions to prevent an even more devastating financial crisis.

The Effects of the Volcker Rule

There is little question that the post-crisis behavior of securities dealers collectively has changed significantly compared to the pre-crisis period. The total assets of securities brokers and dealers have declined from a peak value of about $5 trillion in 2008 to about $3.5 trillion in 2016, about the level they attained in 2005. Corporate bond holdings follow a similar pattern, peaking at over $400 billion in 2007, and declining to something above $100 billion in 2015.[4] The decline in corporate inventories is at times attributed to the Volcker Rule and other regulatory change.

However, the connection between the decline in bond inventories and the Volcker Rule is in reality not very strong. As analysts for Goldman Sachs have pointed out, the very large run-up in corporate bond inventories pre-crisis reflects the accumulation of positions in private label mortgage backed securities rather than traditional corporate bonds. They estimate that the declining issuance and collapsing prices of private mortgage backed securities explains the decline in dealer inventories from their peak levels in 2007 through 2012.[5]

[3] U.S. Government Accountability Office (2013), p. 14-15
[4] Adrian et al. (2016), pp. 5, 17
[5] Goldman Sachs Credit Strategy Research (2013), p. 5

Moreover, while critics of the Volcker Rule have long forecast dire consequences for the corporate bond market – including declining liquidity, and harm to the functioning of the capital markets[6] – these negative effects have not materialized.

Liquidity, which is usually thought of as the cost of quickly converting an asset into cash, is typically measured by a range of indicators. These include the bid-ask spread, price impact, and trade size. Data on each of these indicators does not show deterioration of corporate bond liquidity.

Bid-ask spreads, which measure the difference between the price at which a dealer is willing to pay for a bond and the price for which he is willing to sell it, is considered an important measure of liquidity. The cost of executing a trade of limited size is generally calculated as one half the bid-ask spread. The spread in the corporate bond market – for investment grade and high-yield bonds – has declined since hitting a peak in the financial crisis and is now lower than in the pre-crisis period.[7]

A standard measure of price impact has declined for both investment grade and high-yield bonds since the crisis, and is now very low relative to pre-crisis levels.[8]

Trade size declined during the financial crisis, and has not yet recovered to pre-crisis levels. While by itself this might be taken as a measure of decreased liquidity – since traders might be avoiding larger trades because of their effect on price – the declines in price impact are inconsistent with that explanation.

The turnover ratio, which is measured as the percent of an issue that trades on a given day, has drifted downward for the most actively traded bonds since 2002. This may be a

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[6] Oliver Wyman and SIFMA (2011)
[7] Adrian et al. (2016), p. 24; International Organization of Securities Commissions (2017), p. 39
[8] Ibid.; Mizrach (2015); IOSCO (2017)

function of changes in market structure. First, the number of issues that are traded in the secondary market has risen dramatically. In 2015 more than 33,000 issues were traded, an increase of 12,000 issues over 2003.[9] Under these conditions, the ability of investors to select portfolios from a broader range of issues can translate into declining turnover. In addition, the rising share of outstanding issues held by bond exchange traded funds, who tend to buy and hold, may have contributed to declining trading in the underlying bonds.[10]

Based on these and other data, the general conclusion of several studies, by Adrian et al. (2016), Mizrach (2015), Trebbi and Xiao (2016) and Bessembinder et al. (2016) is that there has not been a significant reduction in corporate bond liquidity between the pre-crisis and post-crisis periods.[11]

While on average liquidity appears be as good or better than it was pre-crisis and pre-Volcker, it is still possible that the inability of big bank dealers to hold proprietary inventories may make the corporate bond market more vulnerable to market shocks.

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[9] Mizrach (2015), p.2

[10] *See* https://www.blackrock.com/corporate/en-lm/literature/whitepaper/viewpoint-addressing-market-liquidity-july-2015.pdf.

[11] The paper by Bao at al. (2016) is an exception. It concludes that differences in price declines in bonds which have been downgraded from investment grade to below investment grade before and after 2014 show that bond markets have become less liquid because of the Volcker Rule. There are, however, some methodological issues unanswered by this analysis. First, it does not control for the fact that many of the institutions downgraded in their post-2014 sample (at least 19 out of 55) are tied to the oil and gas sectors, which were under considerable stress in this period. Hence the observed price declines may be a function of objective changes in the expected returns on the bonds themselves, rather than diminished market making capacity. Second, the study assumes that the price effects of the Volcker Rule begin with the formal implementation of the Volcker Rule by the Federal Reserve in 2014. However, banks took steps to change their trading behavior before 2014, doing things such as selling off or reducing the scale of named proprietary trading desks. Therefore, the smaller price declines observed before 2014 may also reflect the impact of the Volcker Rule-induced changes in bank behavior.

Economists at the Federal Reserve Bank of New York have looked at this possibility empirically.[12] They first developed a general measure of overall bond market illiquidity, which is a function of three measures of liquidity – the bid-ask spread, price impact, and price dispersion. This index is well below both crisis and pre-crisis levels.

They then calculate the frequency of large day to day movements in market illiquidity to measure the changes in liquidity risk. They find that liquidity risk is well below crisis levels and has declined in recent years.

The forecasted harm to corporate access to capital has also failed to appear. New issues of corporate bonds are at record levels, at or above $1 trillion for the period 2010-2015.[13]

Conclusion

In conclusion, it seems fair to say that the exit of large banks from proprietary trading has not had a measurable effect on corporate bond market liquidity, liquidity risk, or the ability of corporations to raise funds in the capital market. With respect to these criteria, our bond markets are functioning at least as well as, if not better than, they were in the pre-crisis period.

It is important to remember, however, that there is no reason to expect market makers, or any other financial market participants, to act as shock absorbers at times of extreme stress. Market makers will buy assets if they expect to profit from their purchases. In a highly uncertain environment, they will not step in to catch a falling knife and cushion

[12] http://libertystreeteconomics.newyorkfed.org/2015/10/has-liquidity-risk-in-the-corporate-bond-market-increased.html.
[13] Mizrach (2015), p. 1.

large price declines. If we want to avoid the problems generated by asset bubbles, and the crashes that follow them, we need to take preventative measures.

The Dodd Frank Act – which requires banks and nonbanks to put more equity on the line when they engage in asset purchases, raises the equity requirements when assets are funded with short-term runnable credit, requires that balance sheets include sufficient liquid assets to deal with shocks, and gets banks out of the business of proprietary trading – provides needed protections. Demolition of these preventative measures is likely to be a very costly exercise in historical amnesia.

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Written Testimony of Ronald J. Kruszewski, Chairman and CEO, Stifel

On behalf of the Securities Industry and Financial Markets Association

before the U.S. House of Representatives

Committee on Financial Services

Subcommittee on Capital Markets, Securities, and Investment

Hearing entitled "Examining the Impact of the Volcker Rule on the Markets, Businesses, Investors, and Job Creators"

March 29, 2017

Chairman Huizenga, Ranking Member Maloney, and distinguished members of the Subcommittee, thank you for providing me the opportunity to testify today on behalf of the Securities Industry and Financial Markets Association (SIFMA)[1] and to share our views on the market effects of the Volcker Rule. SIFMA represents a broad range of financial services firms active in the capital markets and dedicated to promoting investor opportunity, access to capital, and an efficient market system that stimulates economic growth and job creation.

I have been CEO of Stifel Financial Corp. (Stifel) since 1997, and have over 30 years' experience in the securities industry. As Chairman and Chief Executive Officer of Stifel, I appreciate the opportunity to bring my company's experience with this law to the Committee. For those of you who don't know Stifel, we are a financial services holding company headquartered in St. Louis, Missouri. Stifel was founded in 1890 and, as such, this year marks our company's 127th anniversary. Stifel's affiliates are primarily engaged in wealth management, Investment Banking, Institutional Services and traditional banking conducted through a federally insured depository. As to our size, Stifel has revenue of approximately $2.6 billion, $20 billion in assets, and manages approximately $240 billion for our clients. Stifel employs over 7,000 people and enjoys a market cap of nearly $4 billion.

First, I must say, I sincerely wish the Volcker Rule had another name. Why? Well, as my testimony will illustrate, I am not a proponent of this rule. I believe the Volcker Rule provides little benefit regarding its purpose when enacted which was to reduce systemic financial risk by banning proprietary trading.

[1] SIFMA is the voice of the U.S. securities industry. We represent the broker-dealers, banks and asset managers whose nearly 1 million employees provide access to the capital markets, raising over $2.5 trillion for businesses and municipalities in the U.S., serving clients with over $18.5 trillion in assets and managing more than $67 trillion in assets for individual and institutional clients including mutual funds and retirement plans. SIFMA, with offices in New York and Washington, D.C., is the U.S. regional member of the Global Financial Markets Association (GFMA). For more information, visit http://www.sifma.org.

On the other hand, I have the utmost respect for Mr. Volcker and want to be clear that my criticism of a rule which bears his name is not a criticism of Mr. Volcker. I remember all too well the accomplishments of Mr. Volcker, as Fed Chairman, in fighting the rampant inflation of the early 1980s.

Thus, let me begin with my conclusion. It is my personal view that the Volcker Rule needs to be taken off the books, repealed. But if repeal is not possible, it must be materially amended to avoid further damage to the markets my company serves.

The Volcker Rule is the product of years of statutory and regulatory wrangling, involving the Congress, the Department of the Treasury, and five independent regulatory agencies. As many stakeholders and policymakers predicted, the rule as formulated, implemented, and enforced has had a deleterious impact on the ability of American businesses to raise capital and grow the economy. Put simply, the Volcker Rule discourages legitimate and needed customer-supporting market-making activities by imposing an overly complex and intent-based compliance regime. To determine whether an activity was proprietary trading or legitimate market making, a compliance expert would also need to be a psychiatrist trained in determining the intent of each trade by a trader. The Rule has raised the cost of capital for businesses and encouraged pro-cyclical effects on liquidity in financial markets.[2]

I know that saying the Volcker Rule should be repealed is a bold statement. Why be so bold? Simple cost/benefit analysis. Before I discuss the cost/benefit of Volcker, allow me to provide you with Stifel's perspective and whether my testimony is merely "talking my own book".

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[2] A paper from Anjan Thakor from Washington University in St. Louis noted that previous scholarship on the cost of capital for businesses found a relationship between higher bid-ask spreads and a higher cost of capital. Because illiquidity due to constrained market-making will likely drive up bid-ask spreads, Thakor concluded businesses will likely face higher costs of capital due to Volcker. Darrell Duffie (from Stanford University) came to a similar conclusion in a 2012 paper, arguing that U.S. corporate bonds and non-agency mortgage-backed securities will face higher costs of capital because of the Volcker Rule, due to lower liquidity in secondary markets.

As previously stated, Stifel has been around for over 125 years. We did not take TARP during the financial crisis and are not looking at betting the proverbial ranch on any one strategy. Said another way, Stifel does not directly and materially benefit from a proprietary trading model.

Importantly for today's testimony, Stifel serves small and middle-market companies and the investors in these same companies. We therefore have a front row seat to comment on the impact of Volcker on these companies. As I already stated, the purported benefit of the Volcker Rule is to reduce the systemic risk to our economy caused by proprietary trading.

Make no mistake, I do not believe deposit taking banks should be making risky short term, speculative bets, and in fact the law has long prohibited such activity. But I do not believe the way to regulate risk, systemic or otherwise, is by inhibiting trading or traditional market making, which provides liquidity and depth to our capital markets, but rather through capital and liquidity rules addressing the balance sheet of our financial institutions.

It is important to note that the financial crisis was rooted in the loan book, not the trading book, of our financial institutions.

Since the financial crisis, several rules have been implemented which have significantly increased the quantity and quality of capital and increased internal liquidity of our financial institutions, most more stringent than internationally agreed standards. But the Volcker Rule doesn't do anything to increase capital or internal liquidity at firms, but it does impact firms' ability to make markets and provide liquidity, particularly in times of stress, as the Federal Reserve itself has written.

As to the Volcker Rule itself, let me make three observations:

1) The Rule is beyond complex. While only 11 pages of the Statute, the regulatory rule text is over 950 pages and included 2800 footnotes. You need a team of law firms – not just

lawyers – to be able to decipher it, and even then, many times the answer is that there is no clear answer.

2) The Volcker Rule includes a provision called "RENT-D," a concept only the government could devise. RENT-D limits market making so it does not exceed the '*reasonably expected near term demand*' of clients, customers and counter-parties. Seven years after the enactment of Dodd-Frank, I am no closer to understanding what that term means or how to implement something so amorphous. The ability to provide market liquidity requires an anticipation of supply or demand, which if proven wrong with the benefit of hindsight, would violate the Volcker Rule.
3) Compliance with Volcker is governed by five separate agencies.

The five separate agency construct, each with their own congressional mandate, their own philosophy and own approach, creates an uncertain and unwieldy bureaucracy. In turn, this leads to numerous and overlapping exams and inquiries. Furthermore, this has resulted in an utter lack of guidance, under an overly complex rule that is screaming out for interpretations and FAQs.

History of the Volcker Rule

Controversy has surrounded the Volcker Rule before, during, and after its inclusion in the Dodd-Frank Act. The Rule was not part of the first Treasury Department or Obama Administration blueprints, nor was it found in the initial versions of the financial reform efforts that became Dodd-Frank. Its eleventh-hour inclusion in the Senate version of the bill was criticized by members of both parties, and even within the Obama Administration there were major disagreements over its necessity. Treasury Secretary Geithner testified before the Congressional Oversight Panel in 2009 that in the financial crisis "most of the losses that were material . . . did not come from [proprietary

trading] activities." Paul Volcker himself even conceded in March 2010 that proprietary trading was "not central" to the crisis.[3] Simply put, it was the loan book, not the trading book, that fueled the crisis.

Volcker's proponents assured the public that the rule would prohibit only certain activities that put taxpayers at risk while preserving beneficial customer-supporting market making. However, the distinction between proprietary trading –the purchasing and reselling of financial instruments to profit from short-term price changes – and market making – the purchase and reselling of financial instruments as a service to customers – has turned out to be very difficult to determine in practice. Unfortunately, the rule's current overly-broad definition of proprietary trading, its negative presumption that activity is prohibited and its complex, intent based compliance structure constrains, and will continue to constrain, legitimate market making whose costs will be felt throughout the economy.

Bad Policy

Looking at the benefit side of the cost-benefit tradeoff, I believe there is little incremental benefit provided by the Volcker Rule. What about the cost side of this equation? Simply put, the Volcker Rule makes our capital markets less liquid which increases the cost of capital for Stifel's clients, especially smaller companies which are the major contributors to job-creation.

Stifel helps our clients by assisting them raise growth capital in both the equity and debt markets. As part of this equation, Stifel commits to make markets, which benefits both the issuing company and the purchaser of the equity or debt. Volcker materially impacts our ability to

[3] https://piie.com/events/volcker-essential-elements-financial-reform

effectively make markets. This in turn causes the buy-side to demand higher compensation, reflected in lower equity valuations or higher interest rates. And, higher cost of capital.

Market liquidity is critical for a well-functioning, high growth economy that continues to create jobs as it gives businesses of all shapes and sizes the ability to access capital in a timely and efficient manner. Market makers, such as bank affiliated broker-dealers, provide liquidity by buying, selling and holding infrequently traded financial products in their inventory, granting buyers and sellers immediacy in transactions that may not be otherwise available. This immediacy is especially important for financial products that are traded over-the counter (OTC) and the overwhelming majority of bond trading is done in this manner.

The Volcker Rule threatens market liquidity by making the trading of OTC financial products both slower and costlier for issuers and investors. The current regulatory framework limits some trading that is connected to customer activity by relying on a broad definition of proprietary trading and providing prescriptive, conditional exemptions for allowed market making activities. The narrow set of permissible activities and the prescriptive conditions for engaging in those activities has led many financial institutions subject to the Volcker Rule to scale back their trading operations as well as their inventories of financial assets to remain within the Rule's strict guidelines.[4] Financial institutions subject to the Rule are forced to take a conservative approach even to permitted activities in order to remain within the confusing and complex parameters of the Rule. Taken together, these changes reduce liquidity in financial markets broadly, and have resulted in higher market execution costs and delays for would-be issuers and investors. A recent Federal Reserve staff paper found that the Rule has negatively affected liquidity in corporate bond markets, quantifies this effect and notes that this effect may be stronger in times of market stress when liquidity may be

[4] https://www.wsj.com/articles/volcker-bank-risk-rule-set-to-start-with-little-fanfare-1437517061

most essential to maintain financial market stability and efficiency.[5] This potentially pro-cyclical impact on market liquidity for corporate debt could cause problems in one part of the financial sector to spread quickly to the broader economy, exacerbating any crisis.

I would note that while many of the studies of market liquidity have focused on aggregate conditions, my experience indicates that small cap and mid-cap issuers appear to have experienced a disproportionately negative impact from a number of the structural and regulatory changes meant to improve transparency in markets and financial stability in our financial system, including the Volcker Rule. In addition, the significant increase in the size of the corporate bond market, with a relatively smaller secondary market, has increased the liquidity premium for smaller issuers. Investors now demand a significant liquidity premium for bonds issued by smaller firms. Despite the fact that the corporate bond market has seen record issuance in recent years, most of this has been in large deals. The number of smaller new debt issues coming to the market has fallen, illustrated by the fact that the average size of new debt issuance has steadily increased. My analysis shows:

1) As of mid-April 2016, the average new investment grade deal size was $921 million, the highest on record and more than 2.5 times the average seen in just 2013.
2) Since 2010, the number of deals sized at $2 billion and above has doubled, whereas the number of smaller deals (below $2 billion) has fallen by nearly half.

[5]The paper compared the illiquidity of corporate bonds that were downgraded from investment-grade to speculative-grade, both before and after the Volcker Rule was implemented. The paper concluded that "bond liquidity deterioration around rating downgrades has worsened following the implementation of the Volcker Rule." The paper also found that "the relative deterioration in liquidity around these stress events is as high during the post-Volcker period as during the Financial Crisis. Given how badly liquidity deteriorated during the financial crisis, this finding suggests that the Volcker Rule may have serious consequences for corporate bond market functioning in stress times." The full study is available at https://www.federalreserve.gov/econresdata/feds/2016/files/2016102pap.pdf

3) Credit spreads for small-cap issuers are on average 75 to 100 basis points wider than large-cap issuers, controlling for credit rating and maturity, due to the liquidity differences perceived by investors.[6]

The fact that smaller firms are challenged in effectively financing themselves in the debt market has many potential implications for the economy – all of them negative. Because it is difficult to raise capital, small firms increasingly are finding it difficult to compete with larger firms. Instead, they are selling themselves to their larger competitors. Much of the increased corporate bond issuance is from large firms financing the acquisitions of small firms – the highest share in 15 years. As a result, the likely risk to the economy is less job creation, less competition, less research and development and capex – and less dynamism overall.

Indeed, prominent voices in the regulatory community have recognized the negative impact of the Rule and called for an examination of its effects. For example, the president of the Federal Reserve Bank of New York, William Dudley, addressed his concern about liquidity in remarks in February:

> "You could probably do the Volcker Rule in a more efficient way to achieve the same objectives without the burden of regulation that you have right now. You know, right now, if you're an equity trading desk and the equity market falls very violently, you really aren't supposed to go in and buy equities unless you actually have customer orders. So, you actually have this crazy situation where the equity desk can't actually buy equities to support the market.
>
> So, I'd like to see the Volcker Rule looked at to see if there's a way of doing it in a way that – if you're a client-facing business, and you're trading your own asset class, you have a little bit more freedom to buy and sell when markets are volatile and maybe provide actually a little liquidity support in the market. But also make it a lot easier, I think, to enforce the Volcker Rule."[7]

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[6] Record of Meeting, Federal Advisory Council and Board of Governors, May 4, 2016, available at https://www.federalreserve.gov/aboutthefed/fac-20160504.pdf.

[7] https://www.newyorkfed.org/newsevents/speeches/2017/dud170215

In addition, former Federal Reserve Governor Jeremy Stein co-authored an article which noted that:

> "There are reasons to be skeptical about the usefulness of the Volcker Rule. By discouraging "speculation" at broker-dealer banks, the rule may dissuade dealers from providing liquidity during a market correction. Most fundamentally, market-making and proprietary trading are almost impossible to distinguish in practice, making the rule difficult to enforce, while at the same time creating large compliance and supervisory costs. This is not to say that concerns about the risks associated with bank trading operations are unfounded. However, these risks can be more effectively addressed by imposing stiff capital charges on banks' trading books, without attempting to divine whether the underlying trades themselves are driven by market-making or speculative motives. Thus, on balance, we believe that the Volcker Rule should be repealed."[8]

Burdens of the Volcker Rule's Covered Funds Provisions

The covered funds provisions of the Volcker Rule result in a scope far beyond the intended focus on the use of hedge funds and private equity funds to facilitate indirect, impermissible proprietary trading. The provisions are highly technical and are not focused on the actual activities of the entities that are captured. Some of the issues these rules have created include, but are not limited to:

1) **Challenges in identifying what is, and what is not, a covered fund.** The status of tens of thousands of transactions executed prior to the implementation of the Volcker Rule is unclear. The result for banks has been the expenditure of significant resources on internal and external counsel to review transactions and structures, and impacts to market making. The industry has come together to develop electronic identification tools at great

[8] "The Financial Regulatory Reform Agenda in 2017," Robin Greenwood, Samuel G. Hanson, Jeremy Stein, Adi Sunderam, Working Paper 2017-09, Project on Behavioral Finance and Financial Stability, available at http://www.hbs.edu/faculty/initiatives/behavioral-finance-and-financial-stability/Documents/2017-09%20The%20Financial%20Regulatory%20Reform%20Agenda%20in%202017.pdf.
[8] https://www.newyorkfed.org/newsevents/speeches/2017/dud170215

expense, but these are incomplete at best. The bottom line is that banks have had to spend (and continue to spend) millions of dollars annually to unnecessarily prove a negative with these products which are neither hedge funds nor private equity funds.

2) **Impacts to ordinary-course relationships with clients.** For covered funds, many transactions that are provided as part of normal client service are prohibited by the Volcker Rule, including: ordinary checking and transaction accounts with overdraft protection, custodial services, family wealth vehicles, clearing and settlement, providing margin and other intraday extensions of credit, and plain vanilla extensions of credit.
3) **Funds that are not covered funds but become subject to proprietary trading restrictions**. Certain foreign funds, which are expressly *not* covered funds, may instead be categorized as banking entities and thus subject to the Volcker Rule's proprietary trading restrictions.
4) **Requirements to Change the Name of Existing Funds.** The Rule includes a number of limitations on the ability of a banking organizations to sponsor a fund which includes its name or the name of its affiliates. In practice these requirements are more form over function, as they do not go to the core issue Volcker was intended to address.

The covered funds provisions of the Volcker Rule should be amended to limit the definition of covered fund only to funds that engage in proprietary trading. This would achieve the goal of prohibiting indirect, impermissible proprietary trading through a fund without sweeping in core asset management and related activities that are far removed from the policy goal.

Poorly Implemented

Beyond its bumpy legislative history and flawed concept, interpretation and enforcement of the Rule is overly complicated and requires the involvement of five regulators, creating significant compliance challenges. The Securities and Exchange Commission (SEC), the Office of the Comptroller of the Currency (OCC), the Commodities Futures Trading Commission (CFTC), the Federal Deposit Insurance Corporation (FDIC), and the Federal Reserve must jointly determine Volcker compliance, and while they have assured the public they will cooperate on enforcement and supervision, we believe it will be very difficult, if not impossible, for five different, independent regulators to jointly enforce a rule this complex. Recent anecdotes from SIFMA's membership indeed confirm a lack of coordination.

Additionally, regulators are relying on quantitative metrics to calculate the purpose and market risk of trades to determine which trades are proprietary and which trades are not – essentially using formulas to determine the intent of individual traders who use firm principal to take positions. The inherent difficulty in operationalizing an intent-based prohibition has resulted in regulations that are overly complex, require an outsized compliance infrastructure and metrics, and often capture beneficial activities beyond the professed goals of the Rule. Federal Reserve Governor Jerome Powell recognized this difficulty. When asked about the Volcker Rule and echoing the concerns of market participants, Governor Powell noted that "[w]hat the current law and rule do is effectively force you to look into the mind and heart of every trader on every trade to see what the intent is." He highlighted the difficulties in determining what is permitted and what is restricted under the Rule: "Is it propriety trading or something else? If that is the test you set yourself, you are going to wind up with tremendous expense and burden." Finally, he suggested that "Congress should take another look at it."[9]

[9] https://www.bloomberg.com/news/articles/2017-01-07/fed-s-powell-urges-congress-to-take-another-look-at-volcker-rule

Most absurd is the fact that regulatory metrics for calculating intent will penalize traders who are unable to sell inventory in a certain time frame, even if the trader *intended* to sell the product within the Volcker approved window. The entire implementation regime of the Volcker Rule has been poorly thought out and even the rule's hypothetical benefits are being drowned in a flood of unnecessary costs.

Principles for Change

As I stated, I personally believe the Volcker rule should be repealed. If not repealed, at a minimum, the Volcker Rule should be modified to:

1) Reverse language that assumes all trades are proprietary unless proven otherwise.
2) Eliminate the "reasonable expected near term demand" requirement.

Any changes should be consistent with the following fundamental principles:

1) the Rule should not impede market liquidity and capital formation;
2) the restriction on proprietary trading should be plainly written and not based on trader intent;
3) restricted proprietary trading should limit only trading wholly unrelated to customer activity or risk management;
4) the regulatory regime should be rationalized with a single agency responsible for implementing, interpreting and enforcing the Rule;
5) the restrictions on covered funds should target indirect, impermissible proprietary trading.

These principles recognize the clear benefits of market making activity to the capital markets but also to the entities that access these markets in order to grow their businesses and invest in future job growth.

Conclusion

Our economy has now had enough experience with the Volcker Rule to reasonably conclude that its existence has needlessly impeded beneficial market functions without producing any measurable improvement to the safety of our system. Its true impact has been felt on Main Street in the form of higher costs of capital and diminished liquidity. SIFMA and Stifel were opposed to the Volcker Rule when it was first proposed and have consistently questioned the need for its existence ever since. SIFMA is committed to assisting policymakers in the Administration, the agencies, and the Congress, as they study the effects of Volcker and what do to next.

In summary, the Volcker Rule is a solution in search of a problem. We should not be debating whether or not the banks should get relief from Volcker. Instead, we should be debating whether our economy benefits from this rule. From my vantage point based on the clients I serve, it does not.

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Statement of the U.S. Chamber of Commerce

ON: Examining the Impact of the Volcker Rule on Markets, Businesses, Investors, and Job Creation

TO: House Committee on Financial Services, Subcommittee on Capital Markets, Securities, and Investment

BY: Thomas Quaadman, Executive Vice President, Center for Capital Markets Competitiveness, U.S. Chamber of Commerce

DATE: March 29, 2017

The U.S. Chamber of Commerce is the world's largest business federation, representing the interests of more than three million businesses of all sizes, sectors, and regions, as well as state and local chambers and industry associations. The Chamber is dedicated to promoting, protecting, and defending America's free enterprise system.

More than 96% of Chamber member companies have fewer than 100 employees, and many of the nation's largest companies are also active members. We are therefore cognizant not only of the challenges facing smaller businesses, but also those facing the business community at large.

Besides representing a cross-section of the American business community with respect to the number of employees, major classifications of American business—e.g., manufacturing, retailing, services, construction, wholesalers, and finance—are represented. The Chamber has membership in all 50 states.

The Chamber's international reach is substantial as well. We believe that global interdependence provides opportunities, not threats. In addition to the American Chambers of Commerce abroad, an increasing number of our members engage 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.

Good morning Chairman Huizenga, Ranking Member Maloney and members of the Subcommittee on Capital Markets, Securities and Investments. My name is Tom Quaadman, executive vice president of the Center for Capital Markets Competitiveness ("CCMC") at the U.S. Chamber of Commerce ("Chamber"). The Chamber is the world's largest business federation, representing the interests of more than three million businesses and organizations of every size, sector, and region. I appreciate the invitation to testify today on behalf of the businesses that the Chamber represents.

It is an honor to be invited and testify at today's hearing: ***Examining the Impact of the Volcker Rule on Markets, Businesses, Investors and Job Creation.*** This is the latest in a series of hearings on the impact of the Volcker Rule upon the financial system and the broader economy.

The Chamber opposed the Volcker Rule at the outset because of the foreseeable negative consequences of the rule, such as restricting market-making and underwriting activities, which in turn impact the ability of businesses to obtain the financing needed for short-term operations and long-term growth. Instead the Chamber proposed higher capital standards as an alternative means to achieve the intent of the Volcker Rule—more financial stability but without the regulatory complexity that can harm growth.

Today we have both—the Volcker Rule and higher capital standards. The Volcker Rule has imposed upon financial institutions a complex web of regulatory compliance. Basel III and systemic risk rules have created higher capital standards through opaque processes that make it difficult for the public to truly understand the strength of those firms. This has created incentives whereby firms do not provide the financing they have in the past.

The Volcker Rule has, in combination with other initiatives such as the Basel III Capital Accords, systemic risk rules, the foreign bank operation rules, risk retention rules and new money market fund rules harmed the ability of businesses to affordably raise the financial resources needed to operate on a daily basis and grow. Business financing is now more inefficient. Furthermore, the lack of economic analysis by the regulators in drafting the Volcker Rule is a *prima facie* instance of why evidentiary analysis, subject to public scrutiny and comment, is necessary for the drafting and implementation of regulations that may promote stability **and** growth.

It is important that policy makers review all of these rules individually and on a cumulative basis to determine the impact it has on stability and growth. Moreover, under President Trump's Executive Order on *Core Principles for Regulating the United States Financial System*, laws and guidance to determine if they promote the core principles of fostering growth and enabling U.S. competitiveness, the Volcker Rule should be thoroughly examined. Following such a review action should be taken to address the unintended consequences of the Volcker Rule by repealing it, or undertaking the efforts necessary to amend it. We believe that this hearing is an important first step in starting that process.

Background

Proprietary trading occurs when a financial firm buys and sells stocks, bonds, or other financial instruments, on its own trading account, with the purpose of profiting from market movements. It has been widely acknowledged, including by financial regulators themselves, that proprietary trading was not a cause of the 2008-2009 financial crisis. Nevertheless, some commentators, including former Federal Reserve Chair Paul Volcker were uneasy that banks were engaging in what they felt were not traditional banking activities that they felt might implicate the banks insured deposits. On January 21, 2010, President Barack Obama proposed a ban on proprietary trading and named it after former Federal Reserve Chairman Paul Volcker, its chief architect. The Obama Administration requested other nations to follow suit, which was universally rejected.[1] The Obama Administration supported the Rule's enactment despite the universally recognized fact that it would be exceedingly difficult to demarcate the lines between proprietary trading and other important bank activities like market making and underwriting.

The Volcker Rule was incorporated into the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank Act) at the 11th hour. There was exactly one hearing on the Volcker Rule. During that hearing, in the Senate Banking Committee, serious doubts were voiced on a bipartisan basis as to how this Rule could be implemented. Mr. Volcker, one of the two witnesses at that hearing, was unable to articulate a method for delineating proprietary trading and other trading activities such as market making. Despite the lack of a hearing record establishing the need for the Rule, it was incorporated in the Senate version of the Dodd-Frank Act and became law.

[1] See E.U. Ministers to Resist Obama's Proposal for Banking Overhaul, *Bloomberg News*, Feb. 16, 2010.

Section 619 of the Dodd-Frank Act prohibits financial firms from engaging in proprietary trading and acquiring or retaining any ownership interest or sponsorship of a hedge fund or private equity fund. Additionally, Section 619 included exemptions for market-making and underwriting activities, risk-mitigating hedging and the sale or disposition of financial obligations of the United States.

On October 11, 2011, the Board of Governors of the Federal Reserve ("Federal Reserve"), Federal Deposit Insurance Corporation ("FDIC"), Securities and Exchange Commission ("SEC"), Office of the Comptroller of the Currency ("OCC") (also collectively as the "regulators") voted to release a joint Volcker Rule Proposal. This joint rulemaking, encompassing 298 pages and over 1,000 questions, was published in the *Federal Register* on November 7, 2011. The Commodity Futures Trading Commission ("CFTC") voted to release its version of the Volcker Rule Proposal on January 11, 2012, almost 90 days after the other regulators. The agencies approved and promulgated the Volcker Rule on December 9, 2013. The deadline for covered firms to comply with the Volcker Rule was July 21, 2015.

Since that time we have witnessed a tightening of debt markets whereby traditional buyers of debt and securities have failed to come forth.

Chamber Concerns with the Volcker Rule

The Chamber opposed the Volcker Rule at its inception because of its potential to negatively impact the market-making and underwriting activities needed for businesses to access liquid debt and equity markets. In the alternative the Chamber proposed higher capital standards as a means to promote financial stability if a covered financial institution chose to engage in proprietary trading.

Market makers play an essential role in financial markets, acting as a source of liquidity that keep markets vibrant and make investing feasible. As market makers, banks must hold inventories of the financial instruments in which they make markets. For example, corporations rely upon the "market making" activities of banks in order to secure affordable funding in the bond market. Without these "market making" activities, banks would be unable to underwrite these bonds. Thus, if banks can no longer hold inventory, it will be much more difficult for businesses to raise the amount of capital needed. Typically, banks will hold bonds in inventory that aren't sold in the marketplace on day one but later in the week. as under the Volcker Rule, however, this temporary inventory build-up is considered proprietary trading and therefore deprives issuers from raising the total amount of capital needed.

It is very difficult to distinguish between market making and proprietary trading without arbitrarily imposing a demarcation. The Volcker Rule significantly constrains their ability by dictating how banks should manage their inventory. This will reduce the depth and liquidity of our capital markets.

Bank trading activities are what create market liquidity and enable the market to provide an efficient clearing price. Without these activities, markets take a giant step backward toward individually negotiated bilateral 'deals'. Investors would no longer be willing to risk their capital in securities that in exigent circumstances would have to be sold at fire sale prices.

The Chamber submitted 14 letters[2] to the regulators and other agencies to raise our concerns with the Volcker Rule. Those concerns highlighted process irregularities especially the failure to conduct an economic analysis subject to public review and conduct, and sought post-promulgation action to address adverse consequences with trust preferred securities ("TRUUPS") and collateralized loan obligations ("CLOs"). In summary the Chamber expressed seven major concerns regarding the Volcker Rule implementation proposed by the regulators:

1) The Chamber was concerned how the Volcker Rule proposals were released and believed that comment process has been compromised as a result;[3]

2) The Chamber believed that serious issues and deficiencies exist with the economic and cost benefit analysis used by the regulators;[4]

3) In releasing the proposed Volcker Rule, regulators failed to take into consideration the adverse impacts the proposal will have on the ability of companies to raise capital;

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[2] See comment letters of October 11, 2011, November 17, 2011, December 15, 2011, January 17, 2012, February 13, 2012, February 14, 2012, April 16, 2012, November 16, 2012, September 25, 2013, November 7, 2013, November 25, 2013, December 4, 2013, January 14, 2014 and March 4, 2014 from the U.S. Chamber of Commerce to the regulators and FSOC.

[3] See October 11, 2011 letter from the CCMC to Treasury Secretary Timothy Geithner requesting that the Financial Stability Oversight Council use its authority to reconcile differences in the various Volcker Rule Proposals issued by the regulators; November 17, 2011 letter from CCMC to the regulators requesting a withdrawal and re-proposal of the Volcker Rule because of the failure of the CFTC to issue its proposed rule in conjunction with the other regulators.

[4] See December 15, 2011 letter from the CCMC to the regulators citing flaws with the cost benefit and economic analysis of the Volcker Rule Proposal, requesting that the proposal be submitted for enhanced economic analysis under OIRA review, that it be considered an economically significant rulemaking and that the regulators coordinate these efforts under Executive Orders 13563 and 13579. This letter also requested that the cumulative impact of other initiatives, such as Basel III, be taken into account when determining the economic impacts of the Volcker Rule Proposal.

4) The Volcker Rule will force commercial companies that own banks to build and maintain compliance programs though they have never engaged in proprietary trading;

5) The Volcker Rule creates ambiguity as to permissible market making and underwriting, thereby increasing risk and reducing liquidity for companies;

6) The Volcker Rule places the American economy at a competitive disadvantage and may in fact violate existing trade agreements; and

7) The Volcker Rule Proposal may endanger infrastructure projects and the businesses that work on them by impacting the ability of State and Municipal governments and agencies to raise capital.

Issues before the Promulgation of the Volcker Rule

a. Failure to Perform an Economic Analysis, Chamber Survey of Members

In proposing the Volcker Rule the regulators did not conduct an economic analysis. The OCC issued an economic analysis over 4 months *after* the Volcker Rule was promulgated, finding that the costs to 46 OCC regulated institutions could be as high as $4.3 billion dollars. Despite the Chamber's request, as is discussed in greater detail below, the regulators did not study the impacts of the Volcker Rule upon the broader business community nor was it treated as a major rulemaking decision.

An economic analysis of the costs and benefits of a proposed regulation on those affected by it is a critical tool in a regulator's tool box.[5] Cost-benefit analysis provides discipline to rulemaking so that rules are narrowly tailored to the problem they are designed to address. It also encourages the consideration of less costly alternative approaches.

An agency's failure to undertake economic analysis is more than a missed opportunity. The lack of adherence to express congressional instructions to consider certain costs and benefits is itself a violation of the Administrative Procedure Act, and it increases the possibility that the resulting rule will be found arbitrary and capricious.[6] For example, in 1996, Congress amended the Securities Exchange Act to require the SEC to consider a proposed rule's economic impact on efficiency,

[5] See Paul Rose and Christopher J. Walker, *The Importance of Cost-Benefit Analysis in Financial Regulation*, U.S. Chamber of Commerce (2013).
[6] See 5 U.S.C. § 706(2).

competition, and capital formation, in addition to its preexisting duty to consider the impact on investor protection.[7] In the years that followed, the SEC failed to take that mandate seriously, often claiming in a perfunctory way that it had "considered" the costs and benefits of a proposed rule and thus satisfied the statute even though it did not publish its analysis. It was not until a series of decisions by the United States Court of Appeals for the District of Columbia that the SEC began to undertake and publish its economic analysis when it proposes a rule.[8]

Despite the clear language of the Riegle Community Development and Regulatory Improvement Act of 1994 (the "Riegle Act"), the banking regulators did not perform an economic analysis of the Volcker Rule. Like the SEC, the Federal Banking Agencies are required to consider the costs and benefits of their proposed rules, albeit with respect to different metrics. Section 302 of the Riegle Act provides:

> [i]n determining the effective date and administrative compliance requirements for new regulations that impose additional reporting, disclosure, or other requirements on insured depository institutions, each Federal banking agency shall consider, consistent with the principles of safety and soundness and the public interest: (1) any administrative burdens that such regulations would place on depository institutions, including small depository institutions and customers of depository institutions; and (2) the benefits of such regulations.[9]

In implementing the Volcker Rule, which is designed to minimize the risks of proprietary trading on the federally insured deposits of a financial institutions, the banking regulators failed to undertake a legally mandated a cost-benefit analysis required of a proposed rule that may negatively impact the insured depository institutions that the rule is intended to protect.

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[7] 15 U.S.C. § 77b(b) ("Whenever pursuant to this subchapter the Commission is engaged in rulemaking and is required to consider or determine whether an action is necessary or appropriate in the public interest, the Commission shall also consider, in addition to the protection of investors, whether the action will promote efficiency, competition, and capital formation."); accord 15 U.S.C. § 78c(f) (same); 15 U.S.C. § 80a-2(c) (same); 15 U.S.C. § 80b-2(c) (same).

[8] See Bus. Roundtable v. SEC, 647 F.3d 1144, 1148 (D.C. Cir. 2011) (chastising the SEC "for having failed once again—as it did most recently in American Equity Investment . . . and before that in Chamber of Commerce—adequately to assess the economic effects of a new rule"); Am. Equity Inv. Life Ins. Co. v. SEC, 613 F.3d 166 (D.C. Cir. 2010); Chamber of Commerce v. SEC, 412 F.3d 133 (D.C. Cir. 2005).

[9] 12 U.S.C. § 4802.

On December 15, 2011, the Chamber wrote to the regulators asking that a cost benefit analysis of the Volcker Rule be undertaken for public review and comment. The Chamber letter requested that the Volcker Rule:

- Be considered under the requirements of Executive Orders 13563 and 13579 in order to coordinate different requirements for economic analysis and finalization of rules;

- Be considered an economically significant rulemaking and the public provided with a qualitative and quantitative analysis of the impacts upon the economy as required by the Unfunded Mandates Reform Act of 1995 ("Unfunded Mandates Reform Act");

- Be subject to an enhanced Office of Information and Regulatory Affairs ("OIRA") regulatory review process; and

- Be considered in the context of other initiatives, such as Basel III, and other pertinent Dodd-Frank Act rulemakings, when determining the economic impacts

This letter also included a survey of Chamber members demonstrating the impacts of the proposed Volcker Rule upon non-financial businesses (see appendix A). The letter stated in part:

> While much of the focus of the Volcker Rule Proposal has been on financial institutions, there are significant costs to non-financial companies that have not been contemplated by the regulators. To illustrate these impacts, included as an appendix to this letter is a survey that uses 2010-2011 historic data, of select U.S. financing companies that provide services for non-financial businesses. It appears that the Volcker Rule will impose at least a five basis point increase in bid-ask spreads. In a confidential survey of five large U.S. borrowers, it estimates that under the Volcker Rule Proposal increase in the bid-ask spreads will be closer to 25-50 basis points increasing lending costs from between $742 million and $1.483 billion. In reviewing Volcker Rule impacts upon potential lending strategies for smaller less frequent borrowers, hypothetical scenarios suggest an increase in bid-ask spreads will be closer to 50 and 100

> basis points leading to increased lending costs of between $106 million and $211 million.
>
> Also, in discussions with our membership it appears that there will be an impact upon switching transactions—the process whereby a financial institution buys back some of an issuer's older bonds as part of the process for a new issuance. For example, a 10 basis point increase caused by the Volcker Rule would increase the costs of switching transactions by $2.8 million per billion while a 50 basis point increase would drive up costs by nearly $14 million per billion.
>
> Taken together, by extension, with $8 trillion of corporate debt outstanding and that approximately $7 trillion trades in a year, the incremental transaction costs for investors and financing costs for U.S. companies could total into the tens of billions of dollars.
>
> These discussions with our members provide a snap shot of potential costs facing non-financial companies because of just one provision of the Volcker Rule Proposal. Other provisions will also markedly affect liquidity in the financial markets and will increase the costs associated with raising funds for both financial and non-financial firms throughout the economy.

Had the regulators conducted such an analysis and heeded the information the Chamber provided, some of the consequences of the Volcker Rule and other regulations currently interacting with it may have been avoided.

b. Chamber Study: Consequences of the Volcker Rule

In 2012 the Chamber also released a study, ***The Economic Consequences of the Volcker Rule*** ("Thakor study"), authored by Professor Anjan Thakor of the Olin School of Business, Washington University in St. Louis. (Attached as Appendix B). The study had four major findings:

1. The Volcker Rule will have a negative effect on market making and liquidity provisions for many securities.

2. The Volcker Rule will reduce network benefits of market making for financial institutions and businesses.

3. The Volcker Rule is likely to lead to higher costs of capital for businesses and potentially lead to lower capital investments by borrowers creating greater potential focus on short-term investments.

4. The Volcker Rule will make bank risk management less efficient, adversely impact the structure of financial institutions and harm the ability of businesses to raise capital.

The Thakor study found that financial firms were expected to retrench their market making activities away from smaller issuances. Businesses were expected to find a lower level of financial services activity and less liquidity. Market makers in securities operate in networks and any retrenchment will harm the general network benefits that all for the sale of securities. The reduction of those network benefits would be felt even if other non-Volcker regulated entities undertook market making activities. Reductions in liquidity and regulatory uncertainty will lead to higher costs of capital. Therefore, capital expenditures by businesses are of a shorter duration for a quicker payoff. Failure to have longer-term capital investment could lead to jobs loses. By artificially constraining the instruments a financial firm may hold, banks may have to accept more risk or operate with more cash. This will harm the diversification of financial firms and harm the ability of businesses to raise capital.

Unfortunately, many of the findings of the Thakor study are coming to fruition as the Volcker Rule has become fully operational.

Issues Arising Since the Promulgation of the Volcker Rule

In 2016, the Chamber released a survey of more than 300 corporate finance professionals. The report, ***Financing Growth: The Impact of Financial Regulation*** ("Survey"), (attached as Appendix C) found that 79% of treasurers felt that financial services regulation had impacted their business. One-third of treasurers expect the regulatory impact to worsen over the next three years. Treasurers believe that current and pending regulations will make their cash flow and liquidity operations more challenging. One third of these companies are being forced to take unanticipated steps in response to regulatory challenges and businesses are being forced to pass the impact of those costs on to their customers. This survey also

found that businesses had dramatically reduced the number of financial institutions they have used since 2013.

Treasurers stated that the regulations most negatively impacting them were the Volcker Rule, Basel III, SIFI regulations and SEC money market fund reforms.

In previous testimony the Chamber warned that one of the responses to the Volcker Rule would be an increase in the cash reserves that American businesses feel compelled to hold. American businesses have traditionally benefitted from liquid financial markets that enable them to put capital to work rather than holding excessive, dormant reserves. It has given American businesses a competitive advantage over their counterparts in the European Union. Recent regulatory developments have forced American businesses to take more of a European Union approach to finance. While U.S. cash reserves have not hit the ratios held by their European counterparts, U.S. corporate cash reserves rose by $100 billion since the Volcker Rule has been implemented. Cash at the S&P 500 has risen by over 50%, hitting all-time highs since the Dodd-Frank Act was passed.

Even though corporate bond issuances have increased, bond market liquidity has decreased with fewer dealers and less market making activity. This has led to unexplained stresses in the marketplace. A 2016 CFA Institute found that over a five year period liquidity in high yield investment grade corporate bonds had decreased, there were fewer dealers in the market place, there has been an increase in the time needed to execute a trade, trades are smaller in volume and there was an increase in unfilled orders. The CFA study also found that no liquidity issues existed for government bonds.

A 2016 Federal Reserve study (attached as Appendix D) looked at stress events in the corporate bond market. This study found that bond dealers regulated by the Volcker Rule had changed their behavior by decreasing their market making behavior. Because those dealers make up the preponderance of the marketplace, the Volcker Rule was found to have caused less liquid bond markets during times of stress.

Accordingly, businesses are forced to deal with a longer time horizon in meeting their needs and use a more inefficient marketplace which also creates the incentive to use alternative means of financing including the use of cash reserves. This also has an impact on the overall economy as less cash is deployed for productive purposes.

Many of these issues may have multiple causes, but the Volcker Rule is undoubtedly a contributory and exacerbating factor. In failing to use evidentiary tools

available to them to write the regulation, financial services regulators missed the opportunity to discover these problems before the rule was implemented. That is why the Chamber proposed using the conformance period as a time to "war game" these issues. Unfortunately, this was not done.

These impacts of the Volcker Rule as still working their way through the system and there is time to fix them.

Chamber Recommendations

The confluence of the Volcker Rule and other uncoordinated rule-makings such as those implementing Basel III, the risk retention provisions of the Dodd-Frank Act, systemic risk policies and money market reforms have created stress within the financing mechanisms for businesses. Financial firms now must deal with complex compliance structures that make the deployment of capital either more difficult or more expensive. For smaller companies, certain financial products or services may be unaffordable or altogether unavailable.

While the Chamber still believes that the Volcker Rule should be repealed, we also recognize that there are those who would like to see some form of the Volcker Rule remain in place. Additionally, we must have a better and clearer understanding of these major initiatives and how they interact with each other. Simply put, the Volcker Rule cannot be viewed in a vacuum; it must also be viewed in conjunction with other major rulemakings.

Accordingly, the Chamber recommends the following as a threshold to determine if an outright repeal of the Volcker Rule or a modification of it is the right course of action:

1. Conduct an economic analysis of the Volcker Rule to include the impacts on business financing as well as the consequences for financial institutions. It is important that the regulators understand how the Volcker Rule is affecting the customers of those financial firms. This analysis should also factor in the influences that the Volcker Rule may have on economic growth.

2. Conduct an analysis of major regulatory initiatives undertaken since the financial crisis to determine how they interact with each other and the economic consequences of those actions. This analysis should include, but not be limited, to: the Volcker Rule, risk retention rules, money market fund

regulations, Liquidity Coverage Ratio Rule, Net Stable Funding Ratio Rule, Total Loss Absorbency Coverage Rule, the Foreign Bank Operations Rule and capital rules and other rules promulgated under section 165 of the Dodd-Frank Act.

3. Following these studies, the regulators should report to Congress if the Volcker Rule and others should be repealed outright or amended. Regulators should then proceed with appropriate rulemaking to achieve those goals.

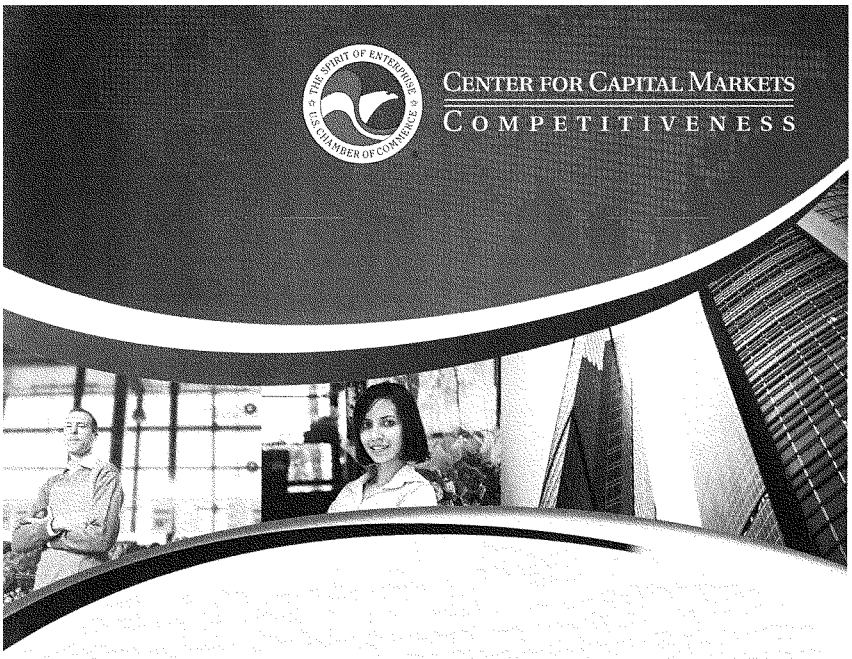
4. Congress and the Administration should take steps to ensure that banking regulators conduct an economic analysis with all rulemakings as required under the Riegle Act and the Administrative Procedures Act.

Conclusion

I appreciate the opportunity to appear before the subcommittee on such an important topic. The Volcker Rule, though well intentioned, has harmed the ability of non-financial businesses to operate and grow. These adverse impacts are exacerbated when combined with other initiatives. Additionally, the manner in which the Volcker Rule was written demonstrates flaws in the rule-writing process. Indeed this is an example of why a data driven, evidentiary based, transparent rule-writing process is needed to achieve the goals outlined by Congress in the least burdensome manner possible.

Our recommendations are common sense solutions to get the facts necessary to determine the path forward—repealing the Volcker Rule or at the very least a holistic and wholesale revision of the Volcker Rule as well as Basel III, the risk retention rules, systemic risk policies, the Foreign Bank Operations Rule and money market fund reforms. Such an exercise can develop policies that will promote both financial stability and economic growth. We look forward to working with all parties and stakeholder in achieving those goals.

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



THE ECONOMIC CONSEQUENCES OF THE VOLCKER RULE

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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 fairly extensive analysis of the potential economic consequences of the Volcker Rule, which is a part of the Dodd-Frank Wall Street Reform and Consumer Protection Act (Dodd-Frank). This rule puts restrictions on banks' ability to engage in private equity and hedge fund activities and to engage in proprietary trading, some of which may even be related to market making activities. The analysis reveals that these restrictions will adversely affect bank customers as well as banks.

First, the Volcker Rule will have a negative effect on market making and liquidity provision for many securities. The Volcker Rule will induce banks to retrench more from market making in smaller and riskier securities where large and unexpected supply-demand shocks are more likely, thereby reducing market making in the very securities where it is most valuable. The securities issuers and the investors will feel the effects.

There will also be other adverse consequences for bank customers. They will experience a lowered value of financial services provided by banks, less liquidity for the securities that banks issue, and more distorted prices of bank securities that remain distorted for longer than before. Moreover, bank customers are also likely to be forced to record mark-to-market losses on the securities that they hold.

Second, the Volcker Rule will reduce the network benefits of market making for financial institutions and businesses. Market makers in securities operate in networks, and the retrenchment of banks in market making will reduce the value of the network even if unregulated (non-bank) entities move in to fill the vacuum created by the exit of banks. This will eventually hurt bank customers.

Third, the Volcker Rule is likely to lead to higher costs of capital for businesses and potentially lower capital investments by these borrowers, along with a possibly greater focus on riskier or more short-term-oriented investments. Due to reduced liquidity and greater perceived regulatory uncertainty, borrowers will be confronted with higher costs of capital. This is likely to reduce aggregate investment and also make riskier investments more attractive. Moreover, firms will find it more attractive to invest in projects that pay off faster. The reduction in aggregate capital investment may also cause significant job losses.

Fourth, the Volcker Rule will make bank risk management less efficient, and will more broadly adversely impact the structure of financial institutions, harming the ability of businesses to raise capital. By artificially constraining the security holdings that banks can have in their inventories for market making or proprietary trading purposes, the Volcker Rule will make bank risk management less efficient, forcing banks to either accept more risk or operate with more cash. Moreover, it may adversely impact the diversified-financial-services business model of banks, and therefore affect the extent to which banks and capital markets co-evolve in a mutually beneficial manner.

Although the main goal of the Volcker Rule—to reduce overall risk in banking and limit the exposure of taxpayers who insure these institutions—is laudable, it is believed that this goal can be achieved with greater efficiency by making judicious use of capital and liquidity requirements.

INTRODUCTION

In the wake of the 2007–09 financial crisis, there has been a great deal of interest in imposing restrictions on the activities of banks to ensure that they do not engage in risky activities that may increase the fragility of the financial system. On July 21, 2010, the Dodd-Frank Wall Street Reform and Consumer Protection Act was enacted to put in place sweeping new regulatory changes in the financial services industry. Included in Dodd-Frank was a section (§619) that imposes restrictions on the proprietary trading activities of banks and their affiliates. This section has come to be known as the "Volcker Rule." The principal objective of this paper is to examine the economic consequences of the Volcker Rule.

The Volcker Rule

The Volcker Rule *prohibits* any banking entity, including bank affiliates, from—

1) Sponsoring, or investing in, a hedge fund, private equity fund, and other types of privately offered funds and pooled investment vehicles.[1]

Exceptions: Funds that are organized or offered by banks are exempt from this prohibition, as long as—

- The bank owns no more than 3 percent of the fund;
- No more than 3 percent of the bank's Tier-One capital is invested in the fund; and
- Other requirements are satisfied that pertain to the name of the fund, and affiliated transactions.

2) Engaging in *proprietary trading*, which is defined as short-term trading (the purchase and sale of financial instruments) with the intent to profit from the difference between the purchase and sale prices.

Exceptions: Exempt from this prohibition are trading activities—

- In municipal bonds, if they are issued by a state, county or political subdivision (such as a municipality);[2]
- In connection with "market making";
- In connection with certain hedging activities intended to reduce risk; and
- Conducted on behalf of customers.

1. These include venture capital (VC) funds, real estate funds, structured finance vehicles, and some special purpose vehicles (SPVs) used in project financing.
2. In its current form, the Volcker Rule would *not* exempt debt issued by an *agency* of a state or political subdivision. According to Thomson Reuters, municipal securities issued by agencies and authorities represented 41.4 percent of the total number of municipal securities issued in 2011 by principal amount. Much of this debt was issued to finance schools, roads, bridges, water systems, and other infrastructure projects (see Polsky (2012)). Thus, the Volcker Rule could affect the liquidity of a large portion of the municipal bond market.

It is worth noting that market making is proprietary trading that is designed to provide "immediacy" to investors. One of the goals of market making is to provide liquidity for investors, so that they can be assured of trading at prevailing market prices rather than being concerned about moving the price adversely as a result of their own trade. A market maker can facilitate this situation by trading out of its own inventory of holdings of that security, rather than relying solely on a concurrent opposite transaction by another investor to execute the trade.

Banking entities are required to be in compliance by the end of the Volcker Rule's effective date. The rule itself will come into force in July 2012, but the ultimate compliance date is anticipated to be three to four years from the bill's enactment date of July 21, 2010, with the possibility that the Federal Reserve will issue further extensions.[3] Several federal agencies, including the Federal Reserve, other federal banking agencies, the Securities and Exchange Commission (SEC), and the Commodity Futures Trading Commission (CFTC), are currently engaged in writing the specific rules by which they will implement the Volcker Rule. These agencies will determine the details related to the implementation of the market making exemption.

A Historical Perspective on the Origins of the Volcker Rule

In assessing the economic consequences of the Volcker Rule, it is useful to be cognizant of the historical roots of such proscriptions and understand both why they were first adopted and why they were later dismantled. This section provides a brief economic perspective.

In 1933, the Securities Act of 1933 and the Glass-Steagall Act were enacted within the first three months of President Franklin D. Roosevelt's New Deal. The Glass-Steagall Act provided for the legal and regulatory separation of commercial banking from investment banking (including securities underwriting, market making, and other capital market activities) and insurance. This created a U.S. banking model that was quite distinct from the "universal banking" model in many other countries in the world, most notably those in Europe. One of the principal goals of the Glass-Steagall Act was to ensure that the U.S. banking industry, which had just been provided with federal deposit insurance, would be safe and sound and protected from "non-banking" capital market risks. The idea was that federal deposit insurance created a contingent liability for U.S. taxpayers, mechanisms had to be in place to contain the size of this liability. One such mechanism was the adoption of restrictions on the permissible activities of insured banks, and the exclusion of investment banking and insurance from the permissible set was such a restriction.

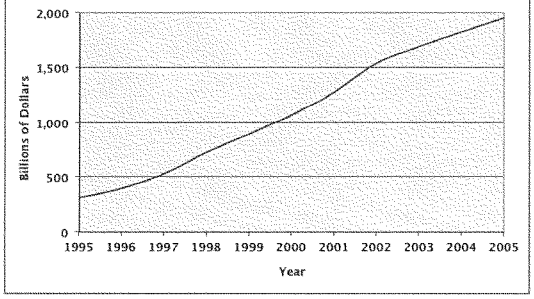
In addition to other factors, the Glass-Steagall restrictions were remarkably successful in ensuring the safety and soundness of American commercial banking.[4] One of the cornerstones of the Glass–Steagall Act was the distinction between a *loan* and a *security*.[5] Banks were allowed to originate/make loans, but *not* underwrite securities, whereas investment banks were allowed to underwrite securities. For numerous decades after the enactment of the Glass-Steagall Act, this distinction was both conceptually and

3. See Chadbourne & Parke (2010).
4. The academic research on this subject has reached mixed conclusions, however, with some claiming that there was no conflict of interest in securities underwriting in the pre-Glass-Steagall era (see, for example, Puri (1996), and Kroszner and Rajan (1997)).
5. See Greenbaum and Thakor (2007).

operationally useful. However, in the 1980s and 1990s, *securitization* emerged as a major force in banking. Securitization is a process whereby a pool of illiquid assets like mortgages or credit card loans (receivables) are pooled together in a portfolio and placed in a trust, and then claims are issued against this portfolio that are sold to capital market investors.[6] These claims are given ratings by the credit rating agencies, are traded in the capital market and have market-determined yields.

Securitization, which has been hailed as one of the landmark financial innovations of the twentieth century, has grown rapidly because it generates widespread economic benefits. First, it allows banks to diversify more effectively across various sectors of the economy by purchasing claims against loans originated by other banks and selling off some of their own loans. This facilitates the management of credit risk by banks. Second, securitization converts previously illiquid loans into liquid traded securities, thereby reducing banks' liquidity risk. Third, it shifts part of the funding of loans from depositors to capital-market investors who are able to avail themselves of trading opportunities in a liquid market. This reduces the eventual cost of financing these loans from the standpoint of banks, which consequently reduces borrowing costs for bank customers. Fourth, as a result of lower financing costs and improved liquidity, banks are able to profitably provide credit access to credit seekers who were previously excluded from receiving bank credit.[7] Because of these economic benefits, securitization grew both in volume and scope, and by 2005 the market for asset-backed securities had grown to almost $2 trillion (Figure 1).[8]

Figure 1: Growth of Asset-Backed Securities



Source: Greenbaum and Thakor (2007).

6. See Chapter 9 in Greenbaum and Thakor (2007).
7. See Song and Thakor (2010) for a detailed analysis of this situation.
8. See Chapter 9 in Greenbaum and Thakor (2007).

One of the consequences of the rise of securitization was that it blurred the boundary between loans and securities. Because securitization is a process of converting loans *into* securities, banks were effectively involved in the process of securities underwriting when they were participating in securitization. Yet, rolling back securitization just to stick to the "letter of the law" of the Glass-Steagall Act seemed economically silly in light of all of the previously discussed economic benefits. Thus, during the 1980s (especially after 1985, when U.S. commercial banking truly embraced securitization) and the 1990s, the economics of the financial services industry gradually but inexorably eroded the *de facto*, although not *de jure*, separation between loan origination and securities underwriting that was at the heart of Glass-Steagall. Banks continued to play a pivotal and ever-increasing role in not only originating the various loans that were securitized but also in making a market in the claims against loan pools that were sold to investors.

To a large extent, this relentless weakening of the separation provisions of Glass-Steagall was a direct consequence of market forces and the underlying shift in the economics of the financial services industry, rather than lobbying efforts or political forces. Eventually, the Glass-Steagall Act was formally dismantled in 1999 with the passage of the Gramm-Leach-Bliley Act, also called the Financial Services Modernization Act. This act repealed Sections 20 and 32 of the Glass-Steagall Act, and authorized bank holding companies and foreign banks that meet eligibility criteria to become financial holding companies, thus allowing them to engage in a broad range of financially related activities.[9]

The Volcker Rule attempts to bring the situation "full circle," in a manner of speaking. The Dodd-Frank Act does not re-enact the Glass-Steagall Act,[10] but it does revive some of its features through limitations imposed on the ability of commercial banks and affiliated companies to engage in trading "unrelated to customer needs" and investing in and sponsoring hedge funds or private equity funds.

Summary

With this backdrop, this report examines the potential implications of the Volcker Rule for banks and their customers. The main conclusions, as presented in the Executive Summary, are that the Volcker Rule has potentially significant economic consequences. It will adversely affect market making and liquidity provision in the financial market. Borrowers (i.e., bank customers) will have lower market liquidity for their securities, higher financing costs, possibly diminished credit access, lower overall investments, and potentially lower employment. For regulators interested in the safety and soundness of the financial system, it is likely that the activities that banks will be forced to give up will migrate to the unregulated segment of the financial services industry, and possibly lead to a perverse increase in overall risk. For banks, the reduction in market making will impede risk management, obstruct the ability to signal the quality of the loans they have securitized, reduce the value of financial services offered to customers, adversely impact the "business model" of banking, and possibly hamper the economically-beneficial co-evolution of banks and financial markets.

The rest of this report is organized as follows. Section II examines the impact of the Volcker Rule on the economic functions of market making and liquidity provision. Section III examines the potential

9. The merger of Citicorp and Travelers occurred before the Financial Services Modernization Act and was conditionally approved by regulators in anticipation of the Act.
10. See the discussion in Carpenter and Murphy (2010).

impact of the Volcker Rule on bank customers. Section IV examines the impact of the Volcker Rule on banks. Section V makes the point that the Volcker Rule is not being contemplated in a regulatory vacuum, as numerous other regulations may amplify some of its potentially significant deleterious effects. This section also includes a discussion of alternatives to the Volcker Rule for containing bank risk, such as capital requirements. Section VI contains concluding thoughts.

POTENTIAL IMPACT OF THE VOLCKER RULE ON MARKET MAKING AND LIQUIDITY PROVISION

In evaluating the potential impact of the Volcker Rule on market making and liquidity provisions, this section is organized in three parts: the economics of market making and liquidity provision, the network effect in market making, and the likely impact of the Volcker Rule on market making.

The Economics of Market Making and Liquidity Provision

Market makers serve an important economic function in securities markets, and proprietary trading in securities allows banks to be market makers in a variety of securities.[11] Market makers handle most of the trading in government bonds, municipal bonds, and corporate bonds, over-the-counter (OTC) derivatives, currencies, commodities of various sorts, mortgage-backed securities, and equities traded in large blocks.[12] Market making is an important part of ensuring that there is a liquid market in the security. An investor who wants to sell a security can call a market maker, who would then purchase the security immediately on its own account and add it to its inventory. Similarly, an investor who wishes to purchase a security can call a market maker, which would then take the security from its own inventory and sell it. This provides two valuable economic functions. One is "immediacy": as a buyer of a security, I need not wait for a seller to come along right away for the transaction to be expeditiously executed, and as a seller I need not wait for a buyer to appear right away. The market maker serves as an intermediary to make this happen. The other economic function is liquidity, which refers to the ability to purchase or sell or security without moving the price against you (i.e., if you are placing a purchase order, the price does not rise much, and if you are placing a sell order, the price does not fall). It is the market maker's execution from its own inventory that helps minimize the price impact of individual trades.

This discussion points out an important difference between a *broker* and a *market maker*. A broker simply matches buyers and sellers of securities, whereas a market maker absorbs supply and demand imbalances at any point in time through its own inventory, thereby placing its own capital at risk. Thus,

11. The general prohibition on proprietary trading imposed by the Volcker Rule does not apply to purchases or sales of "covered financial positions" by covered banking entities in connection with their underwriting. However, numerous requirements have to be satisfied in order to qualify for this exemption, including the restriction that underwriting activities be "designed not to exceed the reasonably expected near term demands of clients, customers or counterparties." This restriction limits the inventory holdings of underwriters, which then compromises the ability of underwriters to provide liquidity in a thinly traded market, an issue that will be discussed in greater depth in this report. For now, it is useful to note that infrequent trading is a noteworthy characteristic of this market—more than 90 percent of municipal securities do not trade on a given day and more than 90 percent do not trade in a given month (see Polsky (2012)). This means that much of the municipal trading in its current form may fail to qualify for the proprietary-trading exemption from the Volcker Rule. This may have significant adverse consequences for access and liquidity in this market.

12. The Volcker Rule exempts currencies, U.S. Treasuries, federal agency bonds, and certain types of state and municipal bonds. See Duffie (2012). However, as discussed earlier, the exemption will *fail* to apply to 41.4 percent of the municipal bond market.

a market maker is a "qualitative asset transformer" (QAT).[13] This QAT function is important because an investor always faces uncertainty about how many other investors are prepared to bid competitively for his trade. The investor is therefore willing to offer a (small) price discount to the market maker in order to have his trade executed expeditiously and without significant (adverse) price impact.

The vast majority of OTC transactions are conducted with market makers. Almost all bond trading is conducted in the OTC market. This includes corporate bonds, municipal and U.S. Treasury bonds, and sovereign bonds issued by foreign governments. Also, the majority of the outstanding national amount of derivatives is traded in the OTC market. Thus, market makers provide immediacy for many securities that are not traded on organized exchanges. Although exchange-traded assets also have the benefit of immediacy, there is the potential for an adverse price impact for large trades, and this price impact grows larger with the size of the trade. A market maker can often handle large block trades with a smaller price impact.

In practice, there is considerable heterogeneity in the demand for immediacy from customers. Duffie (2012) provides some indication of how large a role a market maker can play in a particular stock. As an illustration, he provides information about the actual daily U.S. dollar inventory of the common shares of Apple held by a particular broker-dealer during a contiguous period from 2010 to 2011. These data show that the market maker's inventory of this security reverts, on average, approximately 20 percent of the way toward normal each day, implying approximately a three-day expected half-life of inventory imbalances. The data also reveal substantial cross-sectional heterogeneity across individual equities handled by the same market maker, with the expected half-life of inventory imbalances being the highest for (least liquid) stocks with the highest-bid-ask spreads and the lowest trading volume.

Large banks tend to be most prominent as market makers for securities where trade frequency is relatively low and trade size relatively large. These are the securities for which issues of immediacy and liquidity are likely to be most pressing, such as lower-rated bonds and credit default swaps. Duffie (2012) reports an individual broker-dealer's positions in an investment-grade corporate bond, showing that the market making function caused this broker-dealer's inventory to become *negative*. An indication of the *potential* illiquidity in the corporate bond market is that the expected half-life of inventory imbalances is typically much longer than that for a typical stock. In the illustration provided by Duffie (2012), the expected half-life of inventory imbalances is about two weeks.[14]

Like other QAT activities, market making imposes risk on the market maker. This risk stems from the fact that the prices of securities in its inventory may fall, or prices may rise when its inventory is negative. This risk is absorbed by the market maker's capital, and the higher the amount of capital that the market maker has, the greater its ability to absorb risk and hence the more valuable the market-making function for investors.

13. See Greenbaum and Thakor (2007).
14. Another indication of potential illiquidity in the absence of market makers is low trading frequency. Goldstein, Hotchkiss, and Sirri (2007) examine BBB-rated corporate bonds and find that the fraction of days on which a bond was traded on average was 26.9 percent. Bao, Pan, and Wang (2011) examine more actively-traded bonds and find that, across all market makers, these bonds were traded on average 174 times per month.

Like any other risk bearer in the economy, the market maker needs to be compensated for bearing this risk. The greater the inventory risk faced by the market maker, the higher the expected return (compensation) that the market maker needs. This expected return is not only compensation for bearing risk, but also an implicit reward for the specialization skills that the market maker develops as it learns about changes in market conditions and what early indicators imply about the possible directions of future price moves. Thus, a market maker can profit by anticipating when it makes sense to let its inventory diverge substantially from a "target" or "normal" level in order to provide immediacy to a client who wishes to place a large buy or sell order for a security. For example, the market maker may anticipate that a security's price is likely to fall in the future, and may thus be willing to satisfy a large purchase order at the current price even though it makes the market maker's inventory in that security negative.

The market maker's willingness to absorb supply and demand imbalances in exchange for earning a compensating return produces economic benefits, which have been discussed in the extensive theoretical and empirical research on this subject. Examples are papers by Adrian and Shin (2007); Brunnermeier and Pedersen (2009); and Comerton-Forde, Hendershott, Jones, Moulton, and Seasholes (2010). The basic message of this research is that, in the absence of market makers, the price impacts of trades would be bigger and more persistent. In a nutshell, liquidity would be significantly adversely impacted.

The Network Effect in Market Making

An interesting aspect of market making highlighted by Bech and Garratt (2003) and Duffie (2012) is a "network effect." A market maker in any security does not operate in a vacuum. Rather, in providing immediacy, a market maker relies on being able to unwind its positions at opportune times by trading with *other* market makers. These market makers may possess knowledge about impending orders from their own customers that may induce them to make trades with a market maker that needs to do so in order to rebalance its inventory. Thus, the existence of a network of market makers *expands* the capacity of any individual market maker to provide immediacy.

This network is crucial in understanding the potential impact of the Volcker Rule. It has been suggested that the loss of market making due to the exit of banks would not be problematic as others will rush in to fill the vacuum. Although such market-making replacements may occur, the network effect indicates that this is unlikely to be without economic consequence.

Who are the major members of this network? Table 1 provides data on the banks that would be affected by the Volcker Rule.

Table 1:
Primary Dealers That Are the Main Providers of Liquidity Across Asset Classes

Bank of Nova Scotia	Daiwa Capital Markets Americas	Mizuho Securities (USA)
Barclays Capital	Deutsche Bank Securities	Morgan Stanley & Co.
BMO Capital Markets	Goldman, Sachs & Co.	Nomura Securities International
BNP Paribas Securities	HSBC Securities (USA)	RBC Capital Markets
Cantor Fitzgerald & Co.	J.P. Morgan Securities	RBS Securities
Citigroup Global Capital Markets	Jeffries & Company	SG Americas Securities
Credit Suisse Securities (USA)	Merrill Lynch, Pierce, Fenner & Smith	UBS Securities

Source: Federal Reserve Bank of New York and Oliver Wyman (2011).

Impact of the Volcker Rule on Market Making

Even though market making is meant to be exempted from the Dodd-Frank prohibition of proprietary trading, it appears that the rule writing process of the regulatory agencies will indeed inhibit market making by banks in a way that is likely to be disruptive for market liquidity. Dodd-Frank requires regulators to make a distinction between trading activities that are intended to serve market making purposes and those that are prohibited. How does one go about making this distinction,[15] which is quite difficult to make in practice? Apparently, the intent is to use quantitative metrics to measure the risk taken by the market maker and use this measurement as an indicator of whether the proprietary trading was of the prohibited form. For example, the Agencies drafting the final rule state:

> *The Agencies expect that these realized-risk and revenue-relative-to-realized-risk measurement would provide information useful in assessing whether trading activities are producing revenues that are consistent, in terms of the degree of risk taking that is being assumed, with typical market making related activities.*

Further, it is stated:

> *. . . determine whether these activities involve prohibited proprietary trading because the trading activity either is inconsistent with permitted market making-related activities or presents a material exposure to high-risk assets or high-risk trading strategies.*

15. In a CNBC interview with on January 9, 2012, Jamie Dimon said, "If you want to be trading, you have to have a lawyer and a psychiatrist sitting next to you determining what was your intent every time you did something."

And then:

> *Significant, abrupt or inconsistent changes to key risk management measures, such as VaR, that are inconsistent with prior experience, the experience of similarly situated trading units and management's stated expectations for such measures may indicate impermissible proprietary trading.*

Regulators are also likely to use a host of metrics to reach their conclusions about whether observed trading activities should be classified as a market making or prohibited proprietary trading. These include revenue-based metrics that measure daily trading revenues and profits compared with historical revenues and profits from total trading activity; revenue-to-risk metrics that measure the amount of revenue the bank generates and its earnings volatility relative to the risks assumed; inventory metrics; and customer flow metrics.

It is unknown at this time whether the final rule will have this approach. If it does, there are likely to be serious consequences for the market making role of banks. Specifically, if these rules are implemented in the manner discussed above, market makers will be able to deal with only moderate supply-demand imbalances, and thus provide immediacy only in limited circumstances. Any market maker who "dares" to step in and absorb relatively large supply-demand imbalances for an expected return commensurate with the risk taken is in danger of exhibiting an increase in market-making risk based on the proposed risk metrics and an increase in profits that could signal that it had engaged in banned proprietary trading. It would therefore expose itself to regulatory sanctions or penalties. This will diminish the willingness of banks to provide market making in precisely those situations in which it produces the greatest economic benefit, namely for smaller, less liquid issues that are most likely to be subjected to large unexpected supply-demand swings and hence large imbalances for market makers.[16] The withdrawal of banks from their current market making in many securities will have consequences for both borrowers and investors. These effects will be discussed in the next section.

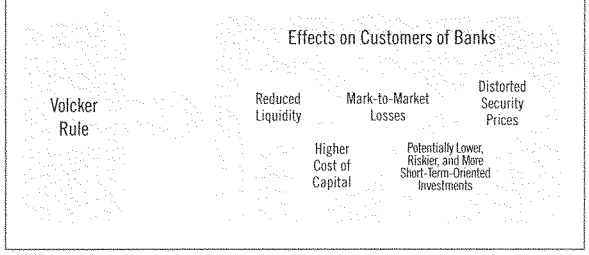
The retrenchment of banks from market making could also have difficult-to-anticipate consequences, which could be as severe as some segments of the market freezing up. An example of such a freezing up is provided by the reaction of credit rating agencies after the passage of the Dodd-Frank Act and the subsequent market consequences. In 2010, the increased legal liability for rating agencies led Standard & Poor's (S&P), Moody's Investor Services, and Fitch Ratings to ask some borrowers—including those who had already obtained ratings—to refrain from using their ratings. Since the SEC required these borrowers to have ratings if they wanted to issue debt securities, the market for issuing asset-backed securities froze up until the SEC agreed to temporarily waive the ratings requirement.

16. This issue is discussed at length by Duffie (2012).

IMPACT OF THE VOLCKER RULE ON BUSINESSES

A rigid implementation of the rule will affect not only banks but also their customers. This section discusses the potential effects summarized in Figure 2.

Figure 2: Impact of the Volcker Rule on Bank Customers



It should be emphasized that the effects depicted above do not represent an exhaustive list. Because of the interconnected nature of the financial market (see Thakor (2011)), it is difficult to predict second- and third-order effects. The effects shown in Figure 2 will be discussed in the following sections.

Reduced Liquidity

Market makers provide liquidity by standing ready to absorb supply and demand shocks. Sometimes these shocks are idiosyncratic; that is, they arise from something specific pertaining only to the security in question. At other times, these shocks may be systemic, pertaining to marketwide events. Duffie (2012) provides an example of such a market-wide event—the deletion of some equities from the S&P 500 stock index. An event like that can force both individual investors and institutions that employ index-tracking strategies to sell their holdings of the deleted securities, often in large blocks. If market makers are available to purchase these securities and add them to their inventories,[17] then the price impact of these trades will be smaller than what it would be in the absence of these market makers. Moreover, without the immediacy provided by market makers, it would take longer for the prices of securities affected by such large trades to return to levels dictated by fundamentals.

17. In the hope of selling the securities at a higher price later.

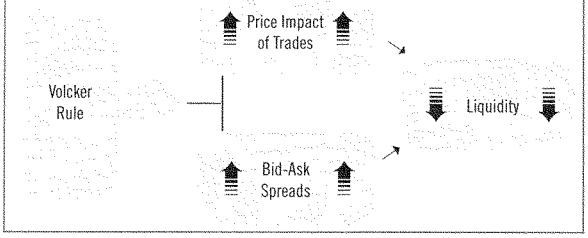
This suggests that the Volcker Rule will affect market liquidity in two ways. To understand this, it is useful to note that there are two dimensions of market liquidity: (1) the responsiveness of price to the order flow, and (2) the bid-ask spread. The Volcker Rule can affect both dimensions.

When we think of price responsiveness, what is being considered is the extent to which an order of a particular size moves the price. The more liquid the market in which a given security trades, the smaller the price impact will be for any given trade. As discussed above, the availability of more market makers, including large banks that are willing to commit substantial capital to support their market-making activities, leads to a smaller price impact of trades because market makers are willing to "absorb" trades by adding or subtracting from their inventory. Thus, by reducing the number of available market makers, the Volcker Rule can reduce liquidity in the sense that the trades in any given security trigger bigger price moves.

Now consider the second dimension. The bid-ask spread is the difference between the price at which one can immediately purchase a security from the market maker's inventory and the price at which one can sell the security to the market maker. The higher the bid-ask spread, the lower the liquidity. Thus, very liquid instruments like money have no bid-ask spreads (unless one is dealing in foreign currencies), whereas relatively illiquid investments like houses have fairly large spreads. As the Volcker Rule will cause at least some retrenchment of banks from market making, the number of market makers in many securities will decline, leading to less competition. Standard economic reasoning would suggest that a consequence of this is likely to be higher bid-ask spreads, and hence lower liquidity across a wide spectrum of asset classes. When bid-ask spreads increase for an asset, trading in that asset goes down. For instance, when the terms of the commission paid to a real estate broker to sell a house is a part of the bid-ask spread on the house, it is considerably more attractive financially to sell the house if the commission is 1 percent than if it is 7 percent.

Thus, both dimensions of liquidity are likely to be adversely affected by the Volcker Rule. This effect will be potentially the greatest in the bond and OTC derivatives markets, where market makers satisfy almost all the demand for immediacy. Figure 3 summarizes the impact of the Volcker Rule on liquidity.

Figure 3: Impact of the Volcker Rule on Liquidity



What impact does reduced liquidity have on firms? Amihud and Mendelson (1986) have developed a theoretical model that shows how liquidity affects asset prices. The model uses transactions costs to characterize assets and investment horizons to characterize investors. Investors maximize the expected present value of the cash flows their assets generate, including the costs of transacting. In equilibrium, the expected return on an asset—and hence the cost of capital associated with that asset—goes up as its transactions costs go up because investors need to be compensated for bearing these costs and thus demand a higher return.

Now, one might say that the transactions costs or liquidity costs for most assets traded in U.S. capital markets are not all that large, so why worry about a difficult-to-determine impact of the Volcker Rule on these costs? Note, however, that an investor that is trading in a particular security will need to incur the transactions costs associated with illiquidity (or more appropriately, partial liquidity) over and over again. Thus, these costs add up, and may result in the investor demanding a nontrivial premium. Amihud and Mendelson (2006) write:

> *While the illiquidity costs of a single transaction are low relative to the asset price (for most publicly traded securities, it is a fraction of a percent), their cumulative effect on value is large because they are incurred repeatedly over the security's life. Thus, the impact of illiquidity costs should equal at least the present value of all costs incurred currently and in the future. A stock, for example, has in infinite life, resulting in an infinite series of transaction costs whose present value can be substantial relative to the stock's value.*

This quote suggests that liquidity costs can be significant in the valuation of a security.

Mark-to-Market Losses

Security prices, including bond yields, depend both on cash flow risk—as determined, for example, by the extent to which the issuer's fortunes exhibit co-movement with the broad market—and liquidity. Holding everything else fixed, an investor will demand a lower liquidity premium, and hence be willing to pay a higher price, for a more liquid security than for a less liquid one. To the extent that the presence of banks as market makers enhances liquidity, the retrenchment of banks will diminish liquidity. In response, yields on bonds and expected returns on securities in general will rise to reflect higher liquidity premiums. Consequently, prices will drop, which will lead to immediate losses for investors who need to "mark to market."

Estimates of the size of these potential losses vary, and admittedly are sensitive to the measurement approach used. The Oliver Wyman (2011) study estimates these losses to be $90–$315 billion, and it has been criticized for relying on estimates based on conditions during the depth of the recent financial crisis. The precise magnitude of these estimates is less important than the general principle that regulatory actions that adversely impinge on market liquidity can impose losses on investors. What matters more than the precise magnitude of these losses is the fact that investors now have a heightened awareness of the potential impact of *regulatory uncertainty* on their wealth. With the stroke of a pen, the government can take actions that impose immediate losses on investors. This is *not* a diversifiable risk, so it is reasonable to assume that investors will now increase the risk premium they need to be compensated for this uncertainty. It is indeed a "double whammy" for the issuers of securities—not only does the liquidity premium go up due to the Volcker Rule, but so does the "regulatory uncertainty premium."

Distorted Security Prices

When liquidity in a market goes down, security prices may remain distorted away from their fundamental values for longer periods. Duffie (2012) provides an example from Newman and Rierson (2003), who study the pattern of yield impacts around the time of a large corporate bond issue. The impact that is studied is for the bonds of firms other than the issuer that are in the same industry as the issuer. Specifically, when a European telecom firm had a large bond issuance from 1999 through 2001, *all* European telecom firms experienced higher bond yields. The behavior of yields through time was also interesting. The yields increased as the issuance date approached, and then recovered to normal levels. What determines the extent of divergence from normal levels as well as the speed of adjustment back to normal is the market *liquidity*. If market makers lower their risk limits or the sizes of supply-demand imbalances they are willing to step in and intermediate, the yield impacts of events like large security issuances will be greater.[18]

Empirical evidence on this is provided by Mitchell and Pulvino (2009), who show how significantly corporate bond yields were distorted during the recent financial crisis. Specifically, actual corporate bond yields were much higher than those implied by the prices of the credit default swaps written on these bonds, and this trend occurred across a broad range of investment-grade and high-yield bonds. A widening of the yield spread in this manner is a tell-tale sign of liquidity effects.[19] The reason for this wide spread during the crisis was that capital levels were abnormally low at dealer banks. As a consequence, even corporations issuing investment-grade bonds in late 2008 had to pay interest rates that were 200 basis points higher because of this market friction.[20]

Such distortions will be exacerbated by the Volcker Rule, not only because of banks retrenching from market making, but also because the incentives of *individual* traders involved in market making will be affected.[21] Implementation of the Volcker Rule will cause the compensation of these traders to resemble that of brokerage agents. Add this to the reputational risk of violating the regulatory market-making norms that require market making to be relatively low risk to qualify as permissible trading, and market makers are likely to become highly averse to meeting demands for immediacy. Indeed, the proposed metrics to be used in implementing the Volcker Rule will flag sufficiently highly profitable trades as impermissible proprietary trading; since such trades are typically associated with meeting large demands for immediacy, individual traders involved in market making are likely to shun them.

Higher Cost of Capital

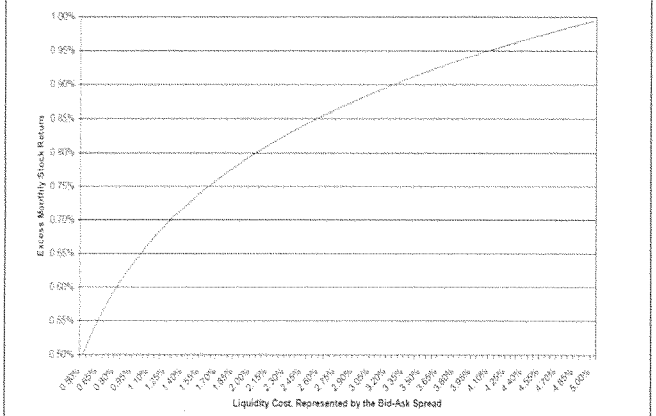
The preceding discussion makes it clear that the Volcker Rule is likely to increase the cost of capital for corporations. The amount of the increase is notoriously difficult to estimate, but the effect on the *cost of capital* will be manifested in an increase in the cost of both debt and equity. Both costs will go up because of a

18. Evidence of market makers operating in the inter-dealer network and redistributing supply and demand shocks is provided by Bech and Garratt (2003).
19. Since a credit default swap is essentially an insurance contract against issuer default on the bond, the implied bond yield reflects credit risk, whereas the actual yield on the bond (as implied by the price at which the bond is trading) reflects both default risk and liquidity risk.
20. See Duffie (2012).
21. See the discussion in Duffie (2012).

higher liquidity premium demanded by investors, as well as a higher premium for regulatory uncertainty. This effect will be larger for smaller and riskier issuers, the very firms for which market liquidity matters the most.

Research has documented that a decrease in liquidity increases the cost of capital, as mentioned earlier. Amihud and Mendelson (2006) use large-sample data to show how illiquidity, as measured by the bid-ask spread on a stock, affects the expected return of the stock and hence the firm's cost of capital (Figure 4). The authors tested the return-illiquidity relationship on NYSE-AMEX stocks from 1960 to 1980. They divided their sample into seven portfolios based on their bid-ask spreads, and within each portfolio they ranked the stocks based on each stock's beta (a measure of the risk of the stock, based on the Capital Asset Pricing Model). Then they estimated the cross-sectional variation of the average return on each portfolio with the bid-ask spread. Figure 4 summarizes their findings.

Figure 4: Liquidity Cost vs. Expected Returns



Source: Amihud and Mendelson (2006).

The main takeaway from their scientific evidence is that average returns (which proxy for expected returns) are higher for stocks with higher bid-ask spreads. They provide a mathematical relationship between the return on a stock and its bid-ask spread, which shows that the stock return increases in proportion to the logarithm of its bid-ask spread.

In finance, the expected return on a stock is synonymous with the equity cost of capital on the stock. Thus, the research discussed above indicates that a potential increase in the bid-ask spread caused by the Volcker Rule will lead to a potential increase in the costs of capital for firms.

A higher cost of capital for firms has potentially significant consequences for corporate investments and economic growth. It is worth noting that the idea that all that the Volcker Rule will do is to have an impact on bank profits and a small marginal impact on liquidity is deeply flawed. For example, Representative Barney Frank said,[22]

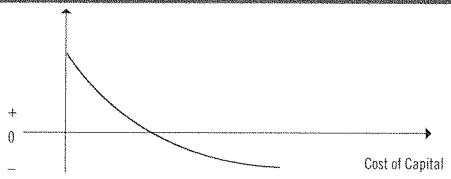
> *The notion that anything that advances liquidity is a good thing, without any regard to stability, is the problem. Much of this liquidity wasn't for customers, but for the banks to make money for themselves.*

The flaws in this assertion are that the Volcker Rule will affect only banks and not the liquidity of firms, and that this effect can be ignored.

Impact of Higher Cost of Capital on Investments: Lower Investments, Riskier Investments, and Shorter-Term Investments

Impact on How Much Firms Invest: It has now been well established in academic research, and well illustrated in practice, that when a firm's cost of capital goes up, it invests less. The reason is simple. A firm will invest capital only if doing so has positive net present value (i.e., when the internal rate of return of the investment exceeds the cost of capital).[23] As the cost of capital rises, there are fewer investment projects with internal rates of return high enough to clear the hurdle of exceeding the cost of capital, and the firm invests less. Figure 5 illustrates this relationship between the net present value (NPV) of a project and the cost of the capital needed to finance it.

Figure 5: Relationship Between Project NPV and Cost of Capital

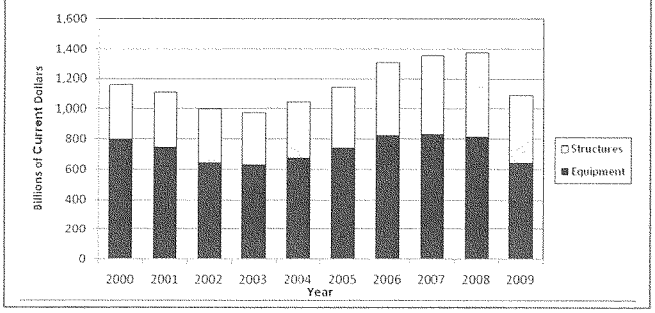


22. See Onaran (2012).
23. This can be found in any corporate finance textbook. See, for example, Brealey, Myers, and Allen (2007).

Figure 5 shows that there is a decreasing and convex relationship between the value of a project to a firm and its cost of capital. A project that is acceptable to the firm at a 10 percent cost of capital may not be acceptable at 15 percent. Thus, as the cost of capital increases, fewer and fewer projects have positive NPV to the firm, and it ends up investing less.

An empirical test of the relationship between investment and the cost of capital was conducted by Gilchrist and Zakrajsek (2007). They find that investment spending is highly sensitive, both economically and statistically, to changes in the firm's cost of capital. They use a large panel data set for their research and estimate that a 1 percent increase in the cost of capital implies a 0.50 to 0.75 percent (1 percent in the long run) reduction in the rate of investment spending.[24] To put these estimates in perspective, consider how much U.S. firms invest annually. In 2010, U.S. nonfarm businesses invested $1,105.7 billion in new and used structures and equipment, up slightly from the 2009 level of $1,090.10 billion. Figure 6 provides a breakdown by year from 2000 to 2009, and Figure 7 breaks this information down further by industry.

Figure 6: Total Capital Expenditures for All U.S. Nonfarm Business 2000–2009



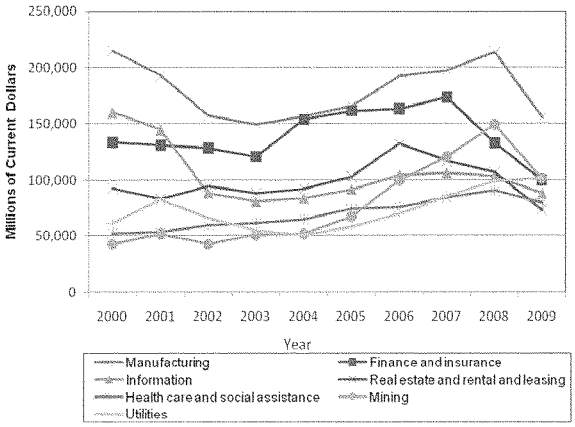
Source: U.S. Census Bureau

A one percent increase in the cost of capital would therefore lead to a $55 to $82.5 billion decline in aggregate annual capital spending by U.S. nonfarm firms, and in the long run this could be as much as a $110 billion annual decline. The most immediate and transparent consequence of this is lower economic growth.

However, there are other effects as well. With lower economic growth comes lower employment. In a recent study, Beard, Ford, and Kim (2010) estimate the relationship between employment and capital

24. The firms in their sample are quite large. The median firm has annual (real) sales of almost $4 billion and a market capitalization (in real terms) of about $1.9 billion.

Figure 7: Total Capital Expenditures for Select Major Industry Sectors: 2000–2009



Source: U.S. Census Bureau

expenditures by firms in the information sector. They estimate that a 10 percent negative shock to capital expenditures results in an average loss of about 130,000 information-sector jobs the following five years. Including indirect jobs, these job losses could be as high as 327,600 jobs. Lost earnings are estimated to be $100 billion over the five-year period. They also estimate the "employment multiplier" to be a loss of 10 information-sector jobs for a reduction of $1 million in capital expenditures. According to Figure 7, aggregate capital expenditure in the information sector in 2009 was a little over $150 billion, down from well over $200 billion in earlier years. A 1% increase in the cost of capital in this sector would imply a reduction in capital spending of $750 million to $1.5 billion using the Gilchrist and Zakrajsek (2007) estimates. Based on the Beard, Ford, and Kim (2010) estimates, this would mean a loss of somewhere between 7,500 and 15,000 jobs *annually*.

Consider an example from the information sector. AT&T has a capital expenditure of around $6 billion. A 1 percent increase in its cost of capital would reduce this expenditure by $30 to $60 million.

Job losses would be between 300 and 600 annually, just for AT&T alone. While it may be hazardous to extrapolate the information-sector estimates on job losses to all the sectors, a simple extrapolation would imply that a 1 percent increase in the cost of capital could lead to job losses of somewhere between 550,000 and 1.1 million per year in the nonfarm sector of the economy. It would be very difficult to precisely estimate by how much the Volcker Rule will increase the cost of capital for firms,[25] but these estimates are large and significant enough to be alarming in terms of the potential effect they indicate for the overall economy.

Interestingly, the effect of the cost of capital on investment appears to be symmetric in a qualitative sense. Gilchrist, Himmelberg, and Huberman (2005) document that a *reduction* in the cost of capital leads to an increase in investment.

Impact on Risk of Investments: There is also another effect, which is that as the cost of capital rises, the firm needs to find investments with higher expected rates of return, which are typically riskier investments. For example, a firm may have an opportunity to expand its domestic operations and the internal rate of return from doing so is 10 percent. If its cost of capital is below 10 percent, the NPV of this expansion will be positive and the firm will make the investment. But, if the cost of capital rises above 10 percent, the firm will pass up this opportunity and look for something with a higher return, such as an opportunity to build a plant in an emerging market.[26] Firms thus may either invest less, resort to riskier investments, or both. As shown in Thakor (2011), reductions in investments, induced by higher financing costs, can have a multitude of spillover effects in an interconnected economy.[27] It is difficult to estimate all of the effects generated by this that are pernicious to economic growth.

Impact on the Duration of Projects Invested in: An increase in the cost of capital also makes the firm display a stronger preference for faster-payback projects (i.e., projects on which the firm can recover its investment more quickly). Corporations are often accused of "short-termism," or making investments that seek to capture short-term profits at the expense of long-term value. But what a higher cost of capital achieves may look behaviorally similar to such a practice even when companies are simply making value-maximizing investments. The reason is that the negative impact of an increase in the cost of capital is *bigger* for more-distant cash flows. Thus, projects with longer payback periods decline more in value than those with shorter payback periods.

25. The details of how the Volcker Rule will be implemented are still uncertain.
26. Emerging market opportunities are likely to have higher expected returns and higher risks.
27. For example, if an automobile manufacturer reduces capital investment (and possibly employment), its "upstream," auto-parts suppliers may also have to scale back their investments and their "downstream" stakeholders—dealers, for example—may have to do the same.

IMPACT OF THE VOLCKER RULE ON FINANCIAL INSTITUTIONS

The Impact on Risk Management Within Banks

In evaluating the potential impact of the Volcker Rule on banks, this section is organized in four parts: risk management, loan quality signaling in securitization, reduction in the value of financial services provided, impact on the business model of banks, and the effect on the coevolution of banks and markets.

Banks have to manage a variety of risks. The most prominent among these are credit risk, interest rate risk, and liquidity risk. A key aspect of risk management is that it is *not* efficient to manage these risks as if each risk is a tub on its own bottom. Integrated risk management, commonly referred to as enterprise risk management, is essential to effectively cope with these risks.[28]

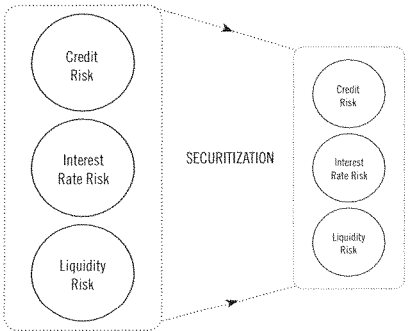
As discussed earlier, securitization facilitates bank *credit risk management*. A bank would like to focus its loan origination activities in sectors where it has credit screening expertise because that is where it is most likely to be able to identify and screen out bad credit risks with the greatest precision. However, the downside of this is that it leads to credit concentration risk. This calls for the bank to diversify. Before the advent of securitization, diversification was very costly because it required that the bank sacrifice its origination expertise and make loans in sectors that were less familiar to it than its core expertise sectors. However, securitization offers the bank the best of both worlds. It can originate loans in its sectors of expertise and then reduce credit concentration by securitizing these loans and selling off some of them to other banks and non-bank investors.[29] Moreover, it can purchase securitization claims against portfolios of loans in other sectors that were originated by banks that specialize in those sectors. Thus, diversification and credit risk concentration reduction are achieved without having to originate loans in unfamiliar sectors.

Because securitization creates tranches with different maturities, banks can also improve their management of *interest rate risk* by judiciously purchasing asset-backed securities (claims against pools of loans that are securitized). A major source of interest rate risk for banks is that their loans, on average, have a much longer maturity than their deposits. This maturity mismatch means that banks stand to make losses during times of rising interest rates.[30] A way to reduce interest rate risk is to shorten the average maturity of the asset side of the balance sheet. A bank can do this by purchasing asset-backed securities that have shorter effective durations[31] than the average duration of the loans it has originated.[32]

28. See Greenbaum and Thakor (2007) for a discussion.
29. However, it may be that even banks that securitize do not sell off enough of the assets they originate to achieve effective risk management. For example, Acharya, Schnabl, and Suarez (2010) state: "...banks increasingly devised securitization methods that allowed them to concentrate risks on their balance sheets which eventually led to the largest banking crisis since the Great Depression."
30. This is precisely what happened to savings and loans during the 1980s.
31. Duration is similar to maturity but takes into account the impact of coupon/interest payments on the *effective* maturity. The duration of a zero-coupon bond or a principal-only loan is the same as its maturity. See Greenbaum and Thakor (2007) for an extensive discussion.
32. A portfolio of 30-year fixed rate mortgages typically has an effective average maturity of 9 to 11 years due to prepayments. However, asset-backed securities that are claims against this portfolio can range in duration from 1 year to more than 20 years.

Securitization also enables a bank to more effectively manage *liquidity risk*. A classic problem in banking is that loans are innately illiquid—they cannot be expeditiously sold without incurring a substantial loss in the form of a price discount relative to true value—whereas deposits, especially demand deposits, represent liquid claims. By securitizing its illiquid loans, the bank immediately creates a portfolio of liquid claims that are traded in the capital market. Thus, securitization gives banks the opportunity to manage all three of their major risks, as shown in Figure 8.

Figure 8: Securitization and Bank Risk Management



A rigid implementation of the Volcker Rule can interfere with efficient bank risk management. A bank that is holding an inventory of securitized loans would have to justify to regulators that it is *not* holding this inventory for (prohibited) proprietary trading. As Erel, Nadauld, and Stulz (2011) document, banks with large trading portfolios had holdings of highly-rated asset-backed securities that were *30 times* greater than the holdings of the typical bank. This suggests that there may be complementarities or synergies between market making and intrabank risk management when it comes to holding claims produced by securitization. In other words, having an inventory of securitized claims may facilitate *both* risk management *and* market making. By creating a regulatory environment in which banks are pressured to reduce their holdings of securitized claims, we may inadvertently lower the effectiveness of bank risk management.

How are banks likely to respond to this? It is difficult to say. One possibility, however, is that banks will replace the liquidity provided by securitized claims by the liquidity provided by some other asset, such as cash. Thus, instead of holding an inventory of securitized claims that can facilitate market making, banks may

hold cash instead. There is considerable consternation at present about banks holding excessive amounts of cash and not lending enough. This situation will only appear to be exacerbated if banks are induced to hold even more cash as a part of the change in risk management precipitated by the Volcker Rule.

One might object to the argument that restrictions on proprietary trading may interfere with the ability of banks to prudently manage their own risk exposures. After all, the purpose of the restriction is to *limit* bank risk, and the motivation of the Volcker Rule was presumably that unbridled risk-taking through proprietary trading was partly responsible for the latest financial crisis.[33] The response to this is that there is *no* scientific evidence that proprietary trading had a causal effect on the financial crisis. As Whitehead (2011) points out, this makes it far from apparent why proprietary trading is restricted in the Dodd-Frank Act in the first place. Even Chairman Volcker stated that "proprietary trading in commercial banks was … not central" to the crisis,[34] and Treasury Secretary Geithner mentioned that many of the most significant losses came from traditional extensions of bank credit, rather than proprietary trading.[35]

Loan Quality Signaling in Securitization

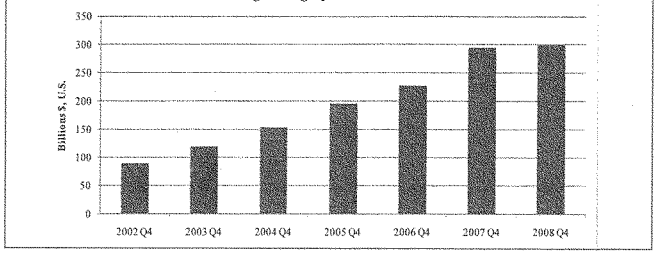
When a bank securitizes a pool of loans, there is a potential credibility problem. The bank has weaker incentives to devote resources to screening loan applicants and investing in the appropriate due diligence if it anticipates that these loans will be securitized than if it knows that the loans will be held on the bank's books. The reason is that the bank bears a greater cost from making a bad loan if the loan stays on the bank's books than if the loan is sold. Of course, investors that purchase the asset-backed securities that are claims against the portfolio of securitized loans rationally anticipate these incentives and adjust the price accordingly.[36] This can result in asset-backed claims selling at relatively low prices, which in turn would undo some of the lower-cost-of-financing benefit of securitization.

Considerable research has been conducted on how this problem of asymmetric information and strategic incentives can be resolved. One way to resolve the problem is through "signaling".[37] For example, a dealer selling a used or "pre-owned" car recognizes that potential buyers will have doubts about the quality of the car. A (costly) signal that can resolve these doubts would be a warranty provided by the dealer. The warranty would signal to a potential buyer that the dealer believes the car has high quality since the cost of providing the warranty is higher for a lower quality car. The securitization market also uses signaling.[38]
By keeping on its books some of the tranches of the loans it securitizes, a bank can signal to the market that it believes that the loans are of high quality. Recent empirical evidence provided by Erel, Nadauld, and Stulz (2011) substantiates this conjecture. The authors document that many banks, to varying degrees, held on to the

33. As Whitehead (2011) indicates, Senator Jeff Merkley, a co-sponsor of the Senate version of the Volcker Rule, placed "the blame" [for the financial crisis] squarely on proprietary trading.
34. See Dixon and Wutkowski (2010).
35. See Hearing before the Congressional Oversight Panel (2009).
36. In a Nobel-Prize-winning contribution, Akerlof (1970) showed that markets in which asymmetric information creates incentives for this kind of strategic behavior, there may be a complete breakdown of the market..
37. In another Nobel-Prize winning contribution, Spence (1974) showed that in the labor market, individuals who possess more information about their own innate abilities than employers do can signal this information through the level of education they acquire.
38. Greenbaum and Thakor (1987) was the first paper to provide a rigorous theoretical model to show this.

asset-backed securities that were associated with the loans they had originated. During the subprime crisis, many of these securities become "toxic" and imposed losses on these banks. Most of these securities were highly rated, and included AAA, AA, and A tranches of asset-backed securities and collateralized debt obligations. The losses that banks incurred arose from declines in the values of these securities during the crisis and the fact that banks had to recognize market-to-market losses associated with these declines. For example, Citibank experienced asset value write-downs of $18 billion the fourth quarter of 2007 alone. The figure below shows how the holdings of highly rated securitization tranches varied through time during the period from the fourth quarter of 2002 to the fourth quarter of 2008. As Figure 9 shows, these holdings amounted to about $300 billion.

Figure 9: Dollar Amounts of Holdings of Highly-Rated Tranches

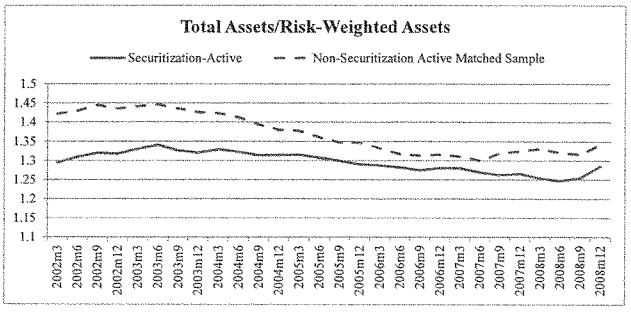


Source: Erel, Nadaud, and Stulz (2011).

Figure 9 plots the aggregate, nominal U.S. dollar amount of holdings of highly-rated tranches through time. The sample runs from 2002 to 2008 and includes all U.S. publicly-traded bank holding companies. The plot is created using the "highly rated residual" measure of highly-rated holdings, defined as the sum of nongovernment or nonagency mortgage-backed securities; asset-backed securities rated in the highest three investment grade (AAA, AA, or A) categories; and nongovernment, nonagency mortgage-backed securities in trading securities. The measure includes held-to-maturity and available-for-sale securities with 20 percent or 50 percent risk weight minus securities in 20 percent or 50 percent risk-weight category that are issued or guaranteed by the government or government-sponsored agencies. All values are at amortized costs, except for mortgage-backed securities from trading assets that are recorded at fair values.

Erel, Nadaud, and Stulz examine a number of different explanations for why banks chose to hold on to the most highly rated securitization tranches related to the loans that they originated. They find the strongest empirical support for the signaling hypothesis. In particular, they find that, for most banks, the holdings of highly rated tranches as a percentage of assets were less than 1 percent, but that banks with large trading positions had holdings that were, on average, 30 times larger than the holdings of the typical bank, as mentioned earlier. Their evidence makes it clear that banks with large trading assets allocate more of their holdings to highly rated tranches, as shown in Figure 10.

Figure 10: Time Series Plot of Total Assets to Risk-Weighted Assets



Source: Erel, Nadauld, and Stulz (2011).

This figure plots the ratio of total assets to risk-weighted assets using a sample of U.S. publicly-traded bank holding companies. The sample includes all securitization-active bank holding companies and a size-based matched sample of nonsecuritization active bank holding companies. Banks are deemed "securitization-active" if the outstanding principle balance of assets sold and securitized with servicing retained or with recourse or other seller-provided credit enhancements is greater than zero in any quarter between the years 2003 and 2006.

Based on their evidence, the authors conclude as follows:

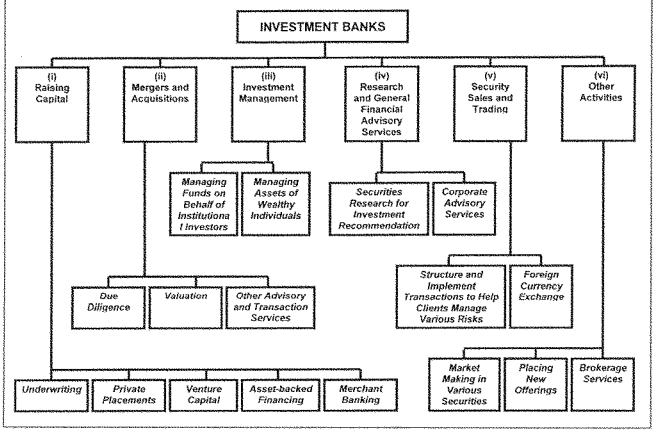
> *We find, however, that banks active in securitization held more highly-rated tranches. Such a result can be consistent with regulatory arbitrage as well as with securitizing banks holding highly-rated tranches to convince investors of the quality of these securities. Our evidence supports the latter hypothesis.*

The implication of this research is that banks may consider it important to hold in their portfolios asset-backed securities related to the loans they originate and securitize in order to signal the quality of the loans being securitized. Without this ability to signal, a bank may have to accept a relatively large "lemons discount" in price when it sells securitized claims. This can reduce the benefit of securitization, particularly the cost-of-funding advantage commonly associated with raising funds through securitization rather than deposits. The consequence may not only be diminished securitization by banks, but also a higher cost of financing for those who borrow from banks.

Reduction in the Value of Financial Services Provided by Banks

Banks provide a variety of services to their customers, some of which may be adversely affected by the Volcker Rule. Market making is one such service, and it was discussed earlier. There are, however, other services as well that fall under the general umbrella of "advisory services". Examples are advice on what securities to issue in the secondary and the timing of security issuances, advice on whether to do an initial public offering and at what price, trading advice, risk management advice and so on. Figure 11 shows the wide variety of services that investment banks, for example, provide.

Figure 11: Services Provided by Investment Banks



Source: Greenbaum and Thakor (2007).

A bank's knowledge of financial markets enables it to provide services that add value to its customers. This knowledge is gained in a variety of ways, one of which is market making. In particular, the fact that market making involves a network, as explained earlier, means that the larger the number of trades that the bank is involved in as a market maker, the more it learns about market conditions and the more valuable a member of the network it becomes. This knowledge then not only enhances its effectiveness as a

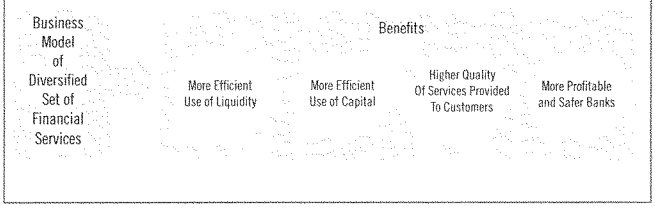
market maker, but also increases the value it provides across a wide range of services, such as those shown in Figure 11. This knowledge has been referred to as the "cross-sectional reusability of information."[39]

Restrictions on proprietary trading that limit the role that banks play as market makers also diminish the amount of information that banks can gather about market conditions and lowers the value of the services that they provide to their customers. Some have argued that claims about the potential harm done by the reduced role of banks as market makers are overblown, because if banks engage in less market making then others (non-banks) will step in and fill the vacuum. The argument that non-banks *may* fill the space vacated by banks may be valid, but what is *not* valid is the assertion that this would be without adverse economic consequences. This discussion reveals that one of the consequences will be a lower value of services provided to the customers of banks. In the end, it is the bank *customers* who may be adversely affected.

Impact on the Structure of Financial Institutions

As discussed earlier, banks have evolved a business model over the past few decades that involves providing a diversified set of financial services that include commercial and investment banking, including securities underwriting and market making. Many of these activities are shown in Figure 11. This evolution of the banking business model occurred *not* because of changes in regulation but because of the inexorable march of market forces. The dynamics of the financial services industry made it economically beneficial for banks to expand their business model to provide a diversified set of financial services. As shown in Figure 12, this evolving business model provided numerous economic advantages.

Figure 12: The Benefits of a Business Model Based on Providing Diversified Financial Services



Let us examine each benefit in turn.

39. See Greenbaum and Thakor (2007).

More Efficient Use of Liquidity: Keeping more liquid assets, like cash, on the balance sheet is one way for banks to manage liquidity risk. However, keeping liquidity like this is costly for banks because liquid assets like cash are "lazy" assets that earn little by way of return. Banks therefore face a tradeoff: keep assets tied up in low-return liquid assets in order to reduce liquidity risk, or invest in higher-yielding assets and accept more liquidity risk. This induces banks to be *efficient* with their use of liquidity, keeping as little of it as necessary to meet their risk management objectives.

When banks engage in a broader set of activities, it makes their liquidity risk management more efficient. The reason is that each activity is subject to random needs for liquidity, but the random liquidity "shocks" for the different activities are *not* perfectly correlated with each other. That is, when more liquidity is needed for the bank's market-making activity, less liquidity may be needed for its commercial banking activity. Such imperfectly correlated liquidity shocks allow the bank to avail of internal "operational" diversification and keep less liquidity to achieve the same level of *enterprise* liquidity risk than if it lacked such diversification because, keeping the size of its balance sheet fixed, its business model was such that it engaged in fewer activities.[40]

This means that a Volcker Rule that causes banks to retrench from market making will reduce the efficiency of the bank's liquidity risk management. Banks are likely to respond by keeping more liquidity on the balance sheet (i.e., more "lazy" assets). This, in turn, will increase the bank's cost of providing various services, and the higher cost will likely be passed on to the bank's customers.

More Efficient Use of Capital: Like liquidity, capital also presents banks with a tradeoff. On the one hand, keeping more capital increases the overall safety of the bank. On the other hand, capital is costly for the bank.[41] Thus, banks will attempt to optimize their use of capital. Using logic similar to that for liquidity, we can see that banks will be able to use capital more efficiently when they engage in more activities. When one activity finds itself in turbulent waters and needs more capital to buffer the shocks to the business, another activity may need less capital because it is doing well. This way, the bank can achieve a desired level of safety with less capital than if it had a less diversified business mix.

One economic reason for this that is worth mentioning is that although the bank's shareholders do not care about whether the bank is operationally diversified (because shareholders can diversify their own holding across firms at negligible cost), the bank's employees, customers, and other stakeholders do care about diversification. The bank's financial distress or failure can affect employees (who may have to be laid off) and customers (who may experience disruptions in the provision of services to them). The bank will take these considerations into account in determining how much capital to hold on its balance sheet.

Because a bank with a greater scope of business activities can deploy its capital more efficiently to manage its business risk than a bank with a narrower scope, such a bank will also be less averse to meeting higher regulatory capital requirements. The "political economy" of regulatory capital requirements reflects an ongoing tension between the desire of regulators charged with microprudential regulation to impose higher minimum capital requirements and the desire of banks to operate with lower capital requirements.

40. This point has been developed theoretically and buttressed with empirical evidence by Kashyap, Rajan, and Stein (2002).

41. One reason may be that banks have access to core deposits that have economic rents associated with them. Equity capital does not.

To the extent that allowing banks to operate with the diversified financial services model leads to a more efficient use of capital, it may prove to be easier for regulators to obtain the cooperation of banks in endorsing higher capital requirements.[42]

Higher Quality of Services Provided to Customers: A bank with a more diversified set of financial services as its business model will end up gathering more information about market conditions than a bank that does not provide as diversified a set of services. This was discussed earlier as a benefit of cross-sectional information reusability, which increases the value of the services the bank provides to its customers. The Volcker Rule can impede this.

Perhaps just as important, such a business model also affects the bank's overall *strategy*. Growth opportunities in one sector can generate potential opportunities in another sector largely because of complementarities or scope economies in operating in both sectors. For example, growth in relationship lending to small or mid-sized private firms can permit the bank to learn more about the needs of these firms and eventually figure out the optimal timing for taking these firms public by underwriting their initial public offerings.[43] This can facilitate growth in the bank's securities underwriting business, and a bank that observes a growth in relationship lending in its commercial banking division may choose to formulate a growth strategy of expansion in underwriting, perhaps through an acquisition. To put it in a nutshell, a bank's business model affects its value-maximizing growth strategy, and regulatory initiatives like the Volcker Rule that affect the business model will also influence the bank's growth strategy.

More Profitable and Safer Banks: As discussed earlier, a business model of providing more diversified financial services can generate more profits for banks and make them safer. However, there is another dimension to this from the standpoint of the bank's business model. When the bank's activities are artificially curtailed by regulatory proscriptions, the bank is not only forced to retrench from a potentially profitable activity, but also may be compelled to alter its business model. The reason is that retrenching from one activity causes a decline in valuable customer-specific and market information the bank gathers. Because of cross-sectional information reusability, this diminishes the value of *other* activities. In some instances, some of these activities may no longer be as profitable as they were before. This may cause the bank to call its entire business model into question.

Effect on the Coevolution of Banks and Markets and the Ability of Businesses to Raise Capital

Traditionally, the view in academic research has been that commercial banks compete with the capital market for business. A bank loan and commercial paper are often close substitutes for high-credit-quality borrowers. Mutual funds are close substitutes for bank deposits, and grew in prominence when Regulation Q ceilings on deposit interests became binding during the high-interest-rate period of the 1980s.

In a recent paper, Song and Thakor (2010) show, however, that besides competing, banks and

42. This is important in part because there are numerous ways in which banks can circumvent higher capital requirements and also because banks can always choose to give up certain activities if capital requirements are viewed as being too onerous, thereby driving these activities to unregulated sectors of the financial services industry.

43. See Boot and Thakor (2000) for a theoretical analysis of this and related relationship banking issues.

markets also complement each other and *coevolve*. When financial markets are better developed, banks are able to finance themselves with equity capital at lower cost, which enables them to expand their scope of lending by extending credit to riskier borrowers. This facilitates the development of banking. Similarly, when banks become more effective in screening borrowers, they are able to ensure that only borrowers above a certain quality threshold are able to go public and have their security issuances underwritten. This benefits the capital market. The Song and Thakor (2010) analysis suggests that when banks have access to a broader range of activities—private equity, hedge funds, market making, and the like—than were permitted before Glass-Steagall was dismantled, the coevolution of banks and markets is facilitated. That is, the impact of positive developments in the capital market on the development of banks and the impact of positive developments in banking on the development of the capital market are both elevated. This suggests the disturbing possibility that denying banks the opportunity to invest in hedge funds, private equity, and the like will artificially constrain the coevolution of both banks and markets.

THE VOLCKER RULE AS ONE PART OF OVERALL REGULATION AND ALTERNATIVES TO THE RULE

This section discusses two issues: the fact that the Volcker Rule is but one piece of an emerging complex mosaic of regulation and its potential effect must be evaluated with that in mind, and that the goals of the Volcker Rule could be met by other means that may be economically more sensible.

Volcker Rule and Other Regulations

The Volcker Rule is not being proposed in a vacuum; it is only one of many other regulations that are about to hit financial and nonfinancial firms in the near future. Thus, we need to worry not only about the impact of the Volcker Rule in isolation, but *in conjunction* with other regulations, some of which may exacerbate its effects. In particular, we need to think about how the effects of the Volcker Rule might *interact* with the effects of other regulations, with potential amplification consequences for the various effects. Some of these other regulations are derivatives regulation, money-market funds regulation, and Basel III capital requirements for banks.[44] These regulations are briefly discussed here.

Derivatives: Regulation of derivatives is the responsibility of the CFTC and the SEC. Title VII of the Dodd-Frank Act provides a framework for regulation of the OTC swaps market. The CFTC and the SEC are required to define key terms relating to jurisdiction (such as swap, security-based swap, and security-based swap dealers, and major participants in swap transactions) as well as adopt joint regulations for things like recordkeeping requirements and capital and margin requirements.[45]

Money Market Funds: The U.S. money market mutual fund industry is a $2.65 trillion business. The industry now faces an overview by the Financial Stability Oversight Council, and one of the goals of the proposed new regulations is to prevent runs on money market mutual funds. These funds are among several financial intermediaries that are collectively referred to as the "shadow banking system." In response to large withdrawals from these funds during the financial crisis, the SEC enacted several regulations in 2010, such as forcing funds to shorten the average maturity of their holdings, keep 30 percent of their assets in securities convertible into cash within seven days, and disclose holdings monthly. Further regulations are expected (including a proposal that funds abandon their stable share price policy) in response to options for additional regulation proposed by the President's Working Group on Financial Markets.

Basel III Capital Regulation: Basel III is a global regulatory standard on bank capital adequacy, stress testing and market liquidity risk agreed upon by the members of the Basel Committee on Banking Supervision. It will require banks to hold 4.5 percent of common equity (up from 2 percent in Basel II), 6 percent Tier-One capital (up from 4 percent in Basel II) of risk-weighted assets, a mandatory capital conservation buffer of 2.5 percent, and a discretionary countercyclical buffer that would permit national regulators to require up to an additional 2.5 percent of capital during periods of high credit growth. Further, there is a minimum 3 percent leverage ratio, a liquidity coverage ratio that requires a bank to hold sufficient high-quality liquid assets to cover its net stable funding ratio. This will require banks to hold an amount of stable funding that exceeds the amount of stable funding necessary over a one-year period of stress.

44. This is by no means an exhaustive list.
45. See U.S. Securities and Exchange Commission (2011).

The combination of these regulations will result in substantially greater restrictions on banks and other institutions, and will affect the costs of capital for the customers of these financial institutions. With a highly interconnected economic system, it would be dangerous to view any of these regulations in isolation in terms of its potential impact.

What Are the Intended Benefits of the Volcker Rule and How Can We Capture Them Without the Rule?

The main objective of the Volcker Rule is to reduce systemic risk and banking fragility, so that we do not have another debilitating financial crisis. This is a laudable goal, and one that few would dispute. The question is whether there are better ways to meet this objective.

It is useful to begin this discussion by reiterating that the demise of the Glass-Steagall Act was brought about by *market forces* and the changing economics of financial services. The same forces dictate the efficiency of providing a diversified set of financial services today, at least in the case of large banks whose core competencies are aligned with such a strategy. To "turn back the clock" and return to the functional separation mandated by Glass-Steagall, while appealing to a populist theme for holding banks "accountable," is simply not sound economics. Nonetheless, the issue of how to contain the risk of banks is germane and needs to be tackled.

One appropriate way to achieve this goal is through sound capital regulation. Acharya, Mehran, Schuermann, and Thakor (2012) discuss an approach for a two-tiered capital requirement on banks. This approach calls for both higher capital requirements and capital requirements of a different form. Specifically, banks would be subjected to a Tier-One capital requirement as they are now, although stress tests and other calibration exercises may be needed to determine the level appropriate for efficient microprudential regulation. In addition, there would be a "special capital account" that banks would need to build up through earnings retentions. The level of capital this account may be made *countercyclical*, so that banks have to keep more capital when they (and the economy) are doing well, and less capital during downturns. Whenever the regular Tier-One capital account takes a hit, capital is transferred out of the special capital account into the regular account to bring the bank back in compliance. Dividends are then restricted to allow the bank to gradually build the special capital account back up to its original (pre-transfer) level.

The special capital account can also do "double duty" by satisfying a liquidity requirement. This can be achieved by requiring that some portion or all of the special capital account is invested in very liquid securities like Treasuries. This proposal has features that are similar to some of the features in the Basel III capital regulation discussed earlier.

Placing more capital in banking, especially in a countercyclical manner, combined with other mechanisms like regulatory monitoring, can go a long way in increasing the safety and soundness of the financial system. That is a fundamentally better economic approach than trying to "put the genie back in the bottle" by reviving a part of the Glass-Steagall Act. Note, however, that there is a strong word of caution necessary here. Although it makes sense to emphasize the role of additional capital in microprudential bank regulation, this emphasis assumes that there are *not* other regulations like the Volcker Rule that are also adopted. Adding the Volcker Rule on top of higher capital requirements may be economically damaging.

CONCLUSION

This paper has examined the potential economic ramifications of the Volcker Rule. The effects on market making and liquidity provision in general, the effects on the customers of banks, and the possible effects on banks have been discussed.

We have witnessed time and again the dismantling of regulatory restrictions because of the evolution of market forces that made these restrictions economically obsolete even before they were officially removed. One example is Regulation Q ceilings on interest rates on bank deposits. The high-inflation period of the 1980s that drove up market interest rates and led to the emergence of money-market mutual funds eventually led to the demise of Regulation Q. Another example is interstate branching restrictions. The economies of banking indicated serious inefficiencies associated with these restrictions and eventually caused them to be removed in 1994. In none of these cases did we try to turn the clock back and revive a modified version of these outdated restrictions. So it is with Glass-Steagall and the Volcker Rule.

The Volcker Rule and *Market Making and Liquidity Provision:*

Diminished Market Making Services: One effect of the Volcker Rule is likely to be diminished market making services provided by banks, and consequently lower liquidity in markets where banks are market makers. The reduction in market making by banks will also cause banks to retrench more from market making in smaller and riskier securities where large and unexpected supply-demand shocks are more likely. This will reduce market making in precisely those securities where it is most valuable.

Diminished Network Benefits in Market Making: Market makers operate in a network, and this network permits market makers to benefit from the inventory balances of other market makers as well as their knowledge of market conditions. A reduction in the network following the retrenchment of banks induced by the Volcker Rule is likely to diminish the value of the network, and hence the value of market making services to the bank's customers.

The Volcker Rule and *Businesses:*

Reduced Liquidity: Due to retrenchment from market making by banks, issuers of securities are likely be confronted with a less liquid market, and the lower liquidity will be manifested in both a higher price impact of trades and a higher bid-ask spread. This has both cost-of-capital and market-access consequences for firms that go to the capital market to issue securities and raise capital.

Mark-to-Market Losses: An immediate impact of the Volcker Rule will be the anticipation of lower future liquidity that will cause expected returns on securities to rise, as both the liquidity premium and the regulatory uncertainty premium go up. Consequently, prices of securities are likely to fall, causing investors to book mark-to-market losses.

Distorted Security Prices: The retrenchment of banks from market making due to the Volcker Rule is likely to cause security price distortions because of supply shocks that are larger in magnitude and persist longer. This means that security prices can stray from the fundamentals.

Higher Cost of Capital: Firms will experience higher costs of debt and equity capital because of lower liquidity and greater regulatory uncertainty about the future. The regulatory uncertainty effect may be significant, but its magnitude is hard to estimate from the data.

Potentially Lower, Riskier and More Short-Term-Oriented Investments, and Lower Employment: As a result of a higher cost of capital, firms may reduce the amount of investment and also possibly switch to riskier investments, as well as those with shorter payback periods. There may also be job losses associated with lower capital investments.

The Volcker Rule and *Financial Institutions*:

Impact on Risk Management in Financial Institutions:
A rigid implementation of the Volcker Rule may interfere with efficient risk management in banks.

Loan Quality Signaling in Securitization: Banks that securitize the loans they originate can signal the quality of the loans they securitize by how much of the securitized tranches they hold on their balance sheets. If the Volcker Rule impedes their ability to do this, it will interfere with the signaling that banks can engage in, potentially causing a decline in the prices at which the securitization tranches can be sold.

Reduction in the Value of Financial Services Sold by Banks: A diminished role for banks as market makers will reduce the amount of information about market conditions that banks gather, and hence diminish the value of advisory and other services that banks provide to their customers.

Impact on the Structure of Financial Institutions: Currently, banks have a business model of providing diversified financial services, and this model is driven by scope economies and complementarities across different financial services. Restrictions on proprietary trading of the form contained in the Volcker Rule may alter this business model and make it less efficient.

Effect on the Coevolution of Banks and Markets: Banks and capital markets coevolve. Advances in one propel advances in the other. A rigid implementation of the Volcker Rule may impede this coevolution.

The main goal of the Volcker Rule is to limit (systemic) risk in banking. This is a good goal, but instead of using the Volcker Rule, it can be achieved more efficiently by asking banks to set aside the appropriate amount of (equity) capital and on-balance-sheet liquidity to cope with the risks they face.

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The Volcker Rule and Market-Making in Times of Stress[1]

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Abstract

Focusing on downgrades as stress events that drive the selling of corporate bonds, we document that the illiquidity of stressed bonds has increased after the Volcker Rule. Dealers regulated by the Rule have decreased their market-making activities while non-Volcker-affected dealers have stepped in to provide some additional liquidity. Furthermore, even Volcker-affected dealers that are not constrained by Basel III and CCAR regulations change their behavior, inconsistent with the effects being driven by these other regulations. Since Volcker-affected dealers have been the main liquidity providers, the net effect is that bonds are less liquid during times of stress due to the Volcker Rule.

JEL classification: G14, G21, G23, G24, G28

Keywords: Volcker Rule, Corporate Bond Illiquidity, Regulation, Capital Commitment, Dealer Inventory, Market-Making, Financial Crisis

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1. Introduction

Among the many regulatory changes following the financial crisis, few are more controversial than the Volcker Rule. Enacted as part of the Dodd-Frank Act, the Volcker Rule was intended to limit bank risk-taking by restricting or prohibiting certain speculative activities. Critics (for example, Duffie [2012]) contended that an unintended consequence of the Rule could be diminished bond market liquidity, resulting from a reduction in banks' market making activities. Advocates of the Rule disagreed, arguing that non-Volcker affected dealers could compensate for any market making reductions, leaving liquidity essentially unchanged. Recent empirical studies of post-crisis market behavior (e.g., Trebbi and Xiao (2015), Bessembinder, Jacobsen, Maxwell, and Venkataraman (2016), and Dick-Nielsen and Rossi (2016)), however, find conflicting evidence of the effect of regulations on bond market liquidity. In this paper, we focus specifically on the implementation of the Volcker Rule and its impact on bond market liquidity, particularly in times of market stress.

We argue that fully understanding the impact of the Volcker Rule on market liquidity requires understanding how liquidity behaves in the face of severe conditions, or exactly when liquidity is needed most. As shown by recent research, liquidity deterioration was particularly pronounced during the height of the Financial Crisis.[2] Practitioners and policymakers alike have noted that illiquidity in times of market stress may be the more relevant metric for gauging market stability and performance.[3] The main motivation and first major contribution of our paper is to study whether illiquidity is relatively worse in periods of stress after the Volcker Rule was

[2] See Bao, Pan, and Wang (2011), Dick-Nielsen, Feldhutter, and Lando (2012), and Friewald, Jankowitsch, and Subrahmanyam (2012).
[3] See recent comments by Deutsche Banc Research (2016) and testimony by Powell (2016) that even if liquidity is high in normal conditions, it may become more troublesome in periods of stress.

implemented. Motivated by Ellul, Jotikasthira, and Lundblad (2011) who find evidence of forced selling of downgraded bonds induced by regulatory constraints imposed on insurance companies, we use downgrades of corporate bonds to junk as stress events where liquidity is demanded by clients. Focusing on regulation-induced sales has the added advantage of plausibly preventing investors from optimally timing their trades, thereby providing a more reliable estimate of the liquidity conditions that investors face.

Our focus is on a difference-in-differences test comparing the illiquidity of downgraded corporate bonds to a baseline control group both before-and-after the Volcker Rule was implemented. In particular, the first difference is the difference in price impact between a set of bonds recently downgraded to speculative-grade from investment-grade and a set of BB bonds used to control for the general level of illiquidity.[4] The second difference is between the post-Volcker difference and the pre-Volcker difference. Our results show that bond liquidity deterioration around rating downgrades has worsened following the implementation of the Volcker Rule. We find such adverse effects whether we benchmark to the pre-crisis period or to the period just before the Volcker Rule was enacted, and we find that the relative deterioration in liquidity around these stress events is as high during the post-Volcker period as during the Financial Crisis. Given how badly liquidity deteriorated during the financial crisis, this finding suggests that the Volcker Rule may have serious consequences for corporate bond market functioning in stress times.

The second motivation and contribution of our study is to understand how the Volcker Rule induced changes in dealer behavior, and particularly to identify any differential effects on Volcker-affected vs. non-Volcker-affected dealers. Because the Volcker Rule applied only to banks with

[4] Results are similar if we instead use bid-ask spreads.

access to government backstops (such as deposit insurance or Federal Reserve borrowing), other dealers without such access can continue to trade and could, in principle, step in to provide additional liquidity in cases where the lines between permissible market-making and prohibited proprietary trading are blurred.

Using a unique data set with dealer identities, we present evidence that non-Volcker-affected dealers have been providing more liquidity during post-Volcker stress times. In the post-Volcker period, the relative share of dealer-customer trades taken by non-Volcker dealers has increased. Dealers affected by the Volcker Rule see a statistically significant increase in agency trades, or trades in which the dealer has pre-arranged an offsetting trade so as not to have inventory risk. For non-Volcker dealers, we see no such effects on agency trades in the post-Volcker period. We also find that Volcker-affected dealers significantly reduce their capital commitment, while non-Volcker dealers commit more capital in market-making. Combined with our results on the increased illiquidity during the post-Volcker period, these results suggest that while non-Volcker dealers have stepped in (as proponents of the Volcker Rule suggested would happen), opponents of the Volcker Rule were correct in arguing that the change would not be immediate.[5] At least during stress times, this new participation is not yet enough to offset the decreased liquidity in bond market trading.

Finally, a third goal of our research is to disentangle the effects of the Volcker Rule from those of other important regulations on dealer bond market behavior. We do so by focusing particularly on the implementation period as compared to the period just before implementation and also by splitting dealers by their exposure to Basel III. Though most banks' capital ratios are significantly above Basel III minimums, increased Basel III capital requirements along with

[5] See the Federal Register (2014) publication on the Volcker Rule for details of comment letters. Liquidity deterioration was particularly severe during the height of the Financial Crisis.

Comprehensive Capital Analysis and Review (CCAR) requirements may potentially mean that some banks will reduce their market-making activities because of CCAR constraints. These constraints arise from the fact that dealers are required to meet minimum capital requirements in stress scenarios. Thus, to ensure that our results are not driven by banks constrained by the start of Basel III implementation (along with existing CCAR requirements), we split Volcker-affected dealers into those that are CCAR-constrained and those that are not. We find that capital commitment has decreased significantly for dealers that have neither failed CCAR tests nor been given a conditional pass. Thus, our results are unlikely to be driven by banks adjusting their business to remedy failed CCAR tests.

Our paper is most closely related to three recent studies on regulation and liquidity, all of which focus on the general regulatory environment following the global financial crisis. Studying general trends in corporate bond market liquidity, Trebbi and Xiao (2015) argue that liquidity has not deteriorated following post-crisis regulations. Bessembinder, et al. (2016) provide a similar finding, but also add an examination of dealer behavior. They find that while there is little evidence of increases in transactions costs, there is evidence that dealers behave differently as new regulations have been implemented. Dick-Nielsen and Rossi (2016) study liquidity provision around index exclusion events, finding that liquidity has deteriorated post-crisis. All three papers provide evidence of how liquidity and market-making has changed in post-crisis years following the passage of reform rules, but in contrast to these studies, our focus is on isolating the specific effects arising from implementation of the Volcker Rule. Our main results relate to comparing the post-Volcker implementation period to the period just before Volcker implementation, whereas both Bessembinder et al. (2016) and Dick-Nielsen and Rossi (2016) focus on the years prior to

Volcker Rule implementation.[6] Trebbi and Xiao's (2015) sample extends to the end of 2014, but they also do not focus on the Volcker Rule implementation period. Furthermore, our use of the regulatory version of TRACE, with dealer identities, allows us not only to split dealers by those that are directly affected by the Volcker Rule and those that are not, but also to identify which dealers were potentially affected by other regulations such as Basel III and CCAR.

The evidence in our study suggests that there are significant costs to the proprietary trading ban in the Volcker Rule, but it is important to note that we do not do any welfare analysis to assess whether the Volcker Rule is overall net positive or net negative for financial markets and the economy.[7] One obvious potential benefit of the Volcker Rule is the ban of risky trades by institutions that could eventually seek government support if their risky trades led to significant losses. Such analysis requires modeling the trade-off between the social cost to the loss of liquidity in corporate bond markets and the societal benefit of safer banks and is beyond the scope of our study.

The rest of the paper is organized as follows. In Section 2, we discuss the Volcker Rule and its potential impact on market-making in the corporate bond market. In Section 3, we describe our data sources and variable construction. In Section 4, we examine changes in liquidity around times of stress. In Section 5, we examine how the behavior of Volcker-affected and non-Volcker-affected dealers changes with the implementation of the Volcker Rule. We also discuss Basel III and CCAR regulations. Section 6 concludes.

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[6] In fact, both papers discuss their results as being related to an anticipation of new regulations. Our results, in contrast, look at the implementation of the Volcker Rule.

[7] There are, of course, costs to not having regulation. For example, Chernobai, Ozdagli, and Wang (2016) show that operational risk events increased during the gradual deregulation of bank holding companies from 1996 to 1999. We are, however, unaware of any studies quantitatively measuring the costs of allowing banks to participate in proprietary trading.

2. Potential Impact of the Volcker Rule on the Corporate Bond Market

As part of the Dodd-Frank Act, passed July 21, 2010, section 13 (the "Volcker Rule") was added to the Bank Holding Company Act of 1956. Section 13 generally prohibits banking entities from engaging in proprietary trading or having ownership or relationships with hedge funds and private equity funds. Implementation of section 13, however, was not immediate and followed a laborious process. On January 18, 2011, the Financial Stability Oversight Council (2011) released a study of its recommendations for implementing section 13. The Treasury, Board of Governors, FDIC, and SEC worked with the CFTC in formulating a proposal before releasing a version for comments in the Federal Register (2011) in November 2011. In December 2013, final regulations were issued, and final regulations with details of market participants' comments were released in the Federal Register (2014) on January 31, 2014. On April 1, 2014, the Volcker Rule became effective with banks of at least $50 billion in trading assets required to report some quantitative metrics starting July 2014. By July 21, 2015, large banks were required to be fully compliant with the Volcker Rule. During the conformance period, banks were required to make good faith efforts to conform to the new rules.[8] Hence, we expect to already see some effects of the Volcker Rule starting in April 2014.

Other research (e.g., Bessembinder et al. (2016) and Dick-Nielsen and Rossi (2016) has argued that anticipation of new regulation implementation could lead to earlier changes in dealer behavior. Though we expect the impact to be the greatest once the implementation period requires dealers to begin reporting metrics on market-making activity, our tests do not preclude the possibility of some changes in dealer behavior prior to rule implementation. In particular, our tests

[8] See Federal Reserve Board (2016).

are designed to gauge the additional impact of Volcker Rule implementation, mainly benchmarking to the period just before implementation.

The intent of the Volcker Rule is to prohibit banking entities with access to the discount window at the Federal Reserve or to FDIC insurance from engaging in risky proprietary trading. It is important to keep in mind that not all financial firms are covered. For example, an Oliver Wyman and SIFMA (2011) study lists Cantor Fitzgerald & Co., Daiwa Capital Markets, Jefferies & Co., and Nomura as explicitly not covered. It is also the case that not all trading activities are precluded. Recognizing that some activities are necessary for the market to function normally, the Volcker Rule includes an explicit set of permitted activities. The most relevant one for this paper, and arguably the most controversial, is a provision that permits market-making. Essentially, affected dealers can trade securities in a way to facilitate client-driven transactions, but cannot transact in a way intended to make profits based on the price appreciation of securities.

A major difficulty in implementing the market-making exception is distinguishing allowed market-making from prohibited proprietary trading. The Financial Stability Oversight Council (2011) proposed a number of principles to distinguish between the two. Among these are that market-making should have rapid inventory turnover with the vast majority of profits from bid-ask spreads rather than profits from inventory appreciation. Proprietary trading is likely to have more modest turnover with significant profits from inventory appreciation. The FSOC also proposed a number of metrics including measures of inventory aging, customer-initiated trade ratios, and revenue from customer-initiated flows. The final law requires establishment of an internal compliance program and the reporting of seven sets of metrics: (1) Risk and Position Limits and Usage, (2) Risk Factor Sensitivities, (3) Value-at-Risk and Stress VaR, (4)

Comprehensive Profit and Loss, (5) Inventory Turnover, (6) Inventory Aging, and (7) Customer Facing Trade Ratio.

Critics of the Volcker Rule noted many gray areas in the rule and further argued that ambiguity in how the rule would be enforced was likely to be detrimental to market liquidity. Furthermore, though the intent of market-making and proprietary trading may be different, observationally, they are difficult to distinguish. In fact, some argued that proprietary trading could be deemed "risky market-making." Duffie (2012) writes, "... an attempt to separate 'legitimate and acceptable' market-making from 'speculative and risky' market-making is not productive, in my opinion." Duffie and other commenters suggested that the Volcker Rule could be particularly problematic in illiquid markets such as corporate bond markets. Duffie notes that whereas the average half-life of order imbalance in equities is three days, for investment grade corporate bonds it is roughly two weeks. Thus, metrics based on measures such as inventory aging and inventory turnover could be particularly problematic for market-making in corporate bonds. Furthermore, dealers who fear violating the Volcker Rule could be unable to properly manage inventory. One of the guidelines for the Volcker Rule is meeting "near-term customer demand." But absent perfect predictions about future customer demand, market makers may be hesitant to acquire bonds in advance of a predicted spike in customer demand.

The final rule also presents complications for fulfilling customer demand because of the required internal compliance metrics. The Federal Register (2014) notes that trades exceeding internal limits "should not be permitted simply because it responds to customer demand." Instead, a banking entity is required to have escalation procedures that include "demonstrable analysis and approval." Such regulations mean that market makers will find it particularly difficult to respond to large sells in the market.

One initial proposal that was dropped in the final rule was a requirement for detailed revenue attribution. This included identifying revenue attributable to the bid-ask spread as opposed to price appreciation. While the final rule no longer has such a requirement, it does have a profit and loss attribution requirement that focuses on revenue generation patterns. Abnormal patterns could raise a red flag and lead to further review. Given the illiquid nature and infrequent trading patterns in corporate bonds, this could potentially cause issues for market makers, particularly when a significant subset of its bonds has a severe order imbalance.

In summary, Volcker Rule requirements have the potential to impact the behavior of dealers covered by the rule and lead to less liquid markets. Ambiguity as to what is legal market-making and what is prohibited proprietary trading may exacerbate the problem by pushing dealers toward more conservative trading strategies. New rules favoring customer-facing trades may discourage dealers from using the interdealer market, while inventory-based metrics may lead dealers to reduce their inventory exposure. Perhaps most pertinent to our study, the requirement that dealers set internal limits may result in dealers being unable to respond to increased customer demands during times of stress. With all of these theoretical reasons why the Volcker Rule may damage corporate bond liquidity, particularly in times of stress, we turn to assessing whether the empirical evidence is consistent with these concerns.

3. Data and Sample Description

To examine how the Volcker Rule has affected corporate bond liquidity in stress periods, we focus on bond trading around times when a bond was downgraded from investment-grade to speculative-grade. Insurance companies, the dominant investors in the corporate bond market, face regulatory restrictions when investing in the corporate bond markets. The National Association of Insurance Commissioners (NAIC) classifies corporate bonds into six risk categories (NAIC1 to

NAIC6) based on their credit ratings, and requires insurance companies to maintain a higher level of capital when investing in bonds in a higher risk category.[9] In addition, insurance companies are usually required to invest no more than 20% of their assets in bonds below NAIC2, i.e., speculative-grade bonds. Ellul, Jotikasthira, and Lundblad (2011) find that rating downgrades to speculative-grade can trigger fire sales in the bond market since greater capital requirements and other regulatory constraints prompt widespread divestment by insurance companies. Such regulation-induced fire sales generate high demand for liquidity, and can cause substantial price pressure in the absence of adequate liquidity provision.

We obtain the rating history file from Mergent's Fixed Income Securities Database (FISD) for the period from January 2006 to March 2016. This data file provides the announcement date of rating actions by the three largest rating agencies: Standard & Poor's (S&P), Moody's, and Fitch. We focus on fixed coupon corporate bonds with semi-annual coupon payments, $1000 par amount, and fixed maturity. These bonds are issued in U.S. Dollars by U.S. firms in the following three broad FISD industry groups: Industrial, Finance, and Utility. We exclude from our sample the following bonds: convertible or putable bonds, private placements, asset-backed issues, and issues which are part of a unit deal. Since rating agencies differ with respect to the timing of rating actions, we follow Ellul, Jotikasthira, and Lundblad (2011) and define the rating change event as the date of downgrade from investment-grade to speculative-grade announced by the first acting rating agency.

We then extract data from FINRA's TRACE database on corporate bond transactions during the one month following each rating downgrade. These data provide detailed information

[9] Bonds rated AAA, AA, A are in NAIC risk category 1 (NAIC1). NAIC2-NAIC5 correspond to BBB, BB, B and CCC rated bonds respectively. Bonds rated CC or lower belong to NAIC 6. The capital charge for NAIC1 to NAIC6 is 0.4%, 1.3%, 4.6%, 10%, 23% and 30%, respectively.

on all secondary market transactions in the downgraded bond, including bond CUSIP, trade execution date and time, trade price and quantity, a buy or sell indicator, an indicator for agency or principal trade, and an indicator for inter-dealer trade. In addition, the data also contain information on dealers for each trade and, in the case of inter-dealer trades, both sides of the trade. Our version of TRACE is the regulatory version of TRACE, which has dealer identities. The standard version of TRACE, while including flags for dealer-customer and interdealer trades, does not identify the dealer(s) involved in a trade. Knowing dealer identities allows us to separately analyze liquidity provision by Volcker-affected and non-Volcker-affected dealers. Lastly, for each of the rating downgrades in our sample, we obtain characteristics information, including total par amount outstanding, issuance date and maturity date, from Mergent FISD.

To examine bond liquidity during stress times, we estimate the average price impact during the one-month post-downgrade period in the spirit of Amihud (2002):

$$PriceImpact_i = \frac{1}{(N_i-1)} \sum_{t=2}^{N_i} \frac{(P_{i,t}-P_{i,t-1})}{Q_{i,t}},$$

where $P_{i,t}$ and $Q_{i,t}$ represent the price (per \$1000 of par value) and par amount (in thousands) of the t-th trade in bond i, and N_i represents the total number of trades during the one month following the downgrade of bond i.[10] In calculating the price impact measure, we exclude the following transactions: when-issued, cancelled, subsequently corrected, reversed trades, and exclude inter-dealer trades. Following Bessembinder, Kahle, Maxwell, and Xu (2009) and Ronen and Zhou (2013), we remove trades with \$100,000 or less in par amount to avoid the substantial noise that these small trades introduce into prices.

[10] Because we have transaction-level data with trade direction, we modify our calculation of the Amihud (2002) measure to use transaction-level data (as in Dick-Nielsen, Feldhutter, and Lando (2012)) and also use signed trades rather than using absolute changes in prices. As in Amihud (2002), which is based on the theoretical model of Kyle (1985), we aim to capture liquidity by using the response of price to order flow.

Table 1 presents our final sample of rating downgrades after matching FISD's rating history file with FINRA's TRACE data. A total of 687 bonds by 218 firms were downgraded from investment grade to speculative-grade during the period from January 2006 to March 2016. Moody's acted first in 375 bonds, followed by S&P, which downgraded 247 bonds, and then Fitch who acted first for the remaining 89 bonds. Out of the 687 bonds, 356 were downgraded by one notch, and 157 were downgraded by two notches. The remaining 174 bonds were downgraded by three or more notches.

We divide our sample period into five sub-periods: Pre-crisis Period (January 1, 2006 – June 30, 2007), Crisis Period (July 1, 2007 – April 30, 2009), Post-crisis Period (May 1, 2009 – July 20, 2010), Post-Dodd Frank Period (July 21, 2010 – March 31, 2014), and Post-Volcker Period (April 1, 2014 – March 31, 2016). We focus on comparing bond liquidity during the Post-Volcker Period with that during the other four sub-periods prior to the effective date of the Volcker Rule.[11] The designations of the four pre-Volcker sub-periods are generally consistent with existing studies (e.g., Dick-Nielsen, Feldhutter, and Lando (2012), and Bessembinder et. al. (2016)).[12]

As pointed out by Trebbi and Xiao (2015), using exact dates of regulatory policies to study the impact of regulation on market liquidity is potentially complicated by anticipatory or delayed responses by market participants. For example, bank dealers might have become more conservative in market-making in anticipation of the rule prohibiting proprietary trading. In addition, regulators gave market participants over one year to fully comply with the Volcker Rule. Thus, using the effective date of the Volcker rule allows us to capture only partial effects of the Volcker Rule on bond liquidity and biases against finding results. The complete effects (including

[11] Since our focus is on examining bond liquidity during the one-month following each downgrade, we exclude those downgrade events that happened during the last month in each of the five sub-periods.
[12] The regulatory period that other papers study largely coincides with the period we classify as the Post-Dodd Frank Period.

both implementation and anticipation-related actions) could be larger than our empirical methodology captures.

Table 1 shows how the distribution of sample of rating downgrades across the five sub-periods. A total of 182 bonds were downgraded during the post-Volcker Period. The number of downgraded bonds increases from 114 for the Pre-Crisis Period to 210 for the Crisis Period, and then declines to 68 and 113 for the Post-Crisis Period and Post-Dodd Frank Period, respectively.

4. Liquidity around Stress Events

Studying the effect of Volcker Rule on corporate bond liquidity during stress times is challenging since liquidity of the bond market might have changed over time for reasons unrelated to the post-crisis regulations. To account for the potential influence of such time trends, we use a difference-in-differences methodology by first comparing the price impact in the BB bonds newly downgraded from BBB with that in the existing BB bonds, and then examine how their differences have change from the Pre-Volcker periods to the Post-Volcker Period. Specifically, for each downgrade event, we calculate the average *PriceImpact* in bonds which were rated BB by the acting rating agency during the same one-month period, labeled as *PriceImpactControl*$_i$. *PriceImpactDiff*$_i$ is the first difference and is defined as the difference in *PriceImpact* between the downgraded bond i and other BB bonds during the same one-month period

$$PriceImpactDiff_i = PriceImpact_i - PriceImpactControl_i.$$

We then compare *PriceImpactDiff* over different periods.

4.1. Univariate Analysis of Price Impact Measures

Table 2 shows that the average $PriceImpactDiff_i$ is 0.016 during the Post-Volcker Period. This is substantially higher than the mere 0.003 during the Pre-Crisis period. It is also higher than the 0.007 and 0.011 for the Post-Dodd Frank Period and the Post-Crisis Period, and

only slightly smaller than the 0.018 for the Crisis Period. To benchmark these numbers, consider two trades at \$1000 and \$1016 (per \$1000 in face value), respectively. Suppose that the second trade is for \$1,000,000 in face value. This gives a price impact measure of (1016 – 1000)/1000 = 0.016.

The changes in $PriceImpactDiff_i$ across sub-periods mainly reflect changes in $PriceImpact_i$ of the downgraded bonds, rather than those of the BB bonds in the control sample. For our sample of downgraded bonds, $PriceImpact_i$ was 0.007 during the Pre-Crisis Period. It jumped to 0.03 during the Crisis-Period, but has since declined to 0.021 in the Post-Crisis Period, and further to 0.015 in the Post-Dodd Frank Period. However, following the implementation of the Volcker Rule, the trend of declining price impact reversed: $PriceImpact_i$ increased to 0.024, higher than any of the Pre-Volcker sub-periods except for the Crisis Period. This finding is intriguing given that $PriceImpactControl_i$ did not change from the Post-Dodd Frank Period to the Post-Volcker Period. In fact, the changes in $PriceImpactControl_i$ over time for the control sample of BB bonds not in stress are consistent with that documented in Bessembinder et al. (2016). In sum, bond liquidity around stress events have deteriorated since the Volcker Rule took effect.

4.2. Regression Analyses

To check the statistical significance of the changes in $PriceImpactDiff_i$ from the pre-Volcker sub-periods to Post-Volcker Period, and also to control for the influences of other factors on bond liquidity during stress times, we conduct regression analyses in this section to further study the Volcker Rule effect on corporate bond liquidity.

We create four dummy variables for the four sub-periods after the Pre-Crisis Period: Crisis, Post-Crisis, Post-Dodd Frank, and Post-Volcker. Crisis takes the value of one if a rating

downgrade occurred during the Crisis Period, and it takes the value of zero otherwise. The other three sub-period dummies are created in a similar way. We then regress $PriceImpactDiff_i$ on the four sub-period dummies, and a host of control variables.

First, although all our sample bonds were downgraded from investment grade to speculative-grade, they differ from each other in terms of both pre-downgrade rating and the number of notches downgraded. Since such differences can affect bond trading following the downgrade announcement, and hence the *PriceImpactDiffi* measure, we include as control variables *Previous Rating* and Δ*Rating*, which refer to the rating of the bond prior to the downgrade and the number of notches by which it was downgraded, respectively. Second, we control for bond characteristics, including (the log of) number of years since issuance (*Log Age*), number of years until maturity (*Log Time to Maturity*), and total par amount outstanding (*Log Amount Outstanding*). Lastly, we include into the regressions several variables that capture general market conditions during the same one-month period following each downgrade. These variable include aggregate market index returns, such as the return to the S&P 500 Index (*SP500 Index Return*), the return to the Barclays Capital U.S. Investment-Grade Corporate Bond Index (*IV Bond Index Return*) and the Barclays Capital U.S. High-Yield Corporate Bond Index (*HY Bond Index Return*). We also include changes in market volatilities, such as the change in CBOE stock market volatility index (Δ*VIX*), the change in the volatility of the Barclays Capital U.S. Investment-Grade Corporate Bond Index (Δ*IV Bond Volatility*) and the Barclays Capital U.S. High-Yield Corporate Bond Index (Δ*HY Bond Volatility*), and the change in 3 month LIBOR rate (Δ*3M LIBOR*). Changes in market volatilities and interest rates are calculated by comparing the one-month following a downgrade

to the one-month prior to the downgrade.[13] Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

Column I of Table 4 presents the result from this regression analysis. We find that bond characteristics affect the *PriceImpactDiff*$_i$ measure, with older bonds and bonds with longer time-to-maturity experiencing lower liquidity following their downgrade, while larger issues enjoy higher liquidity. *Previous Rating* and *Rating Change* do not have a significant impact on the *PriceImpactDiff*$_i$, and neither do the macro-economic variables.

More importantly, the coefficient for all four sub-period dummies are positive and significant at the 5% level, suggesting that bond liquidity around stress events has significantly deteriorated since the beginning of financial crisis. Consistent with the summary information presented in Table 2, the magnitude of the coefficient for sub-period dummies first declines monotonically from Crisis to Post-Dodd Frank, but then increases from Post-Dodd Frank to Post-Volcker. Tests on the differences in the coefficients on sub-period dummies show that the coefficient for Post-Volcker is significantly higher than that for Post-Dodd Frank, and it is not statistically significantly different from that for Crisis and Post-Crisis. These results suggests that bond liquidity around stress events has worsened following the implementation of the Volcker Rule, and it has deteriorated to a level similar to that during the financial crisis.

To confirm that the increase in *PriceImpactDiff*$_i$ for Post-Volcker is mainly driven by higher price impact for the downgrade bonds, rather than lower price impact for BB bonds, we run the regression by using either *PriceImpact*$_i$ or *PriceImpactControl*$_i$ as the dependent variables. These results are presented in Columns II and III, respectively. For the sample of downgraded bonds, Post-Volcker has a significantly higher coefficient than Post-Dodd Frank. The coefficient

[13] For ease of reference, we also provide a definition of all of these independent variables in Table 3.

for Post-Volcker is not statistically different from Crisis and Post-Crisis. These results mirror those from using *PriceImpactDiff*$_i$ as the dependent variable. Meanwhile, for the sample of BB bonds not experiencing any rating changes, there is no significant difference in the coefficients for Post-Volcker and Post-Dodd Frank, both statistically and economically. Taken together, these results are consistent with Volcker Rule degrading liquidity in the bond market around times of stress.

4.3. Robustness Checks

We conduct three tests to examine the robustness of our results on post-Volcker bond liquidity changes. First, we investigate the sensitivity of our results to an alternative measure of liquidity, *Realized Spread*. Second, we study whether using the compliance date instead of the effective date of the Volcker Rule affects our results. And finally, we use a matched sample approach to conduct the difference-in-differences test.

4.3.1 Alternative Liquidity Measure

Measuring liquidity in financial markets is challenging. The fact that most bonds do not trade often makes it even hard to measure liquidity in the bond market as almost all the existing bond liquidity measures rely on transaction data.[14] The reliability of these liquidity measures varies with the amount of trades used in estimation. In this section, we estimate a measure of *Realized Spread* which has relatively low requirements on trade frequency. Specifically, for each downgraded bond, we first calculate the daily *Realized Spread* by taking the difference between volume weighted average customer buy prices (Ask) and volume weighted average customer sell prices (Bid) during the one-month following the downgrade. To avoid the noise embedded in small trades, we exclude trades with $100,000 or less in par amount. We then average the daily spread across days within the one-month period to get an event level estimate: *RealizedSpread*$_i$.

[14] One notable exception is Mahanti et al. (2008) who propose a latent liquidity measure for corporate bond by using the holding-weighted average turnover rate of bond portfolio of each fund that holds the bond.

For each downgrade event, we also calculate the average *RealizedSpread* in bonds which were rated BB by the acting rating agency during the same one-month period. We then subtract the average BB bond *RealizedSpread* from that of the downgraded bond to get a $SpreadDiff_i$ measure.

We regress $SpreadDiff_i$ on the four sub-period dummies and all the control variables and the results are presented in Column I of Table 5. The coefficients for sub-period dummies declines from 0.166 for Crisis to 0.066 for Post-Crisis, and further to 0.051 for Post-Dodd Frank. However, the downward trend of *RealizedSpread* reverses following the implementation of the Volcker Rule. The coefficient of Post-Volcker is 0.09, which is higher than that for the Post-Dodd Frank at the 10% level. Therefore, liquidity as captured by *RealizedSpread* also seems to have deteriorated post-Volcker.

4.3.2 Alternative Definition of Post-Volcker Period

The final Volcker Rule became effective April 1, 2014, but the compliance date for banks to fully conform their proprietary trading activities to the Volcker Rule was July 21, 2015. To examine how any lagged reaction of market participants to regulation during the gap between the effective date and compliance date affects our results, we use the compliance date of the Volcker Rule to redefine Post-Volcker period. Specifically, Post-Dodd Frank period now is from July 21, 2010 to July 20, 2015 and Post-Volcker period is from July 21, 2015 to March 31, 2016. The other sub-periods are defined as earlier.

Column II of Table 5 again provides evidence of deteriorating liquidity following Volcker Rule. The coefficient of Post-Volcker is 0.026, more than double that of Post-Dodd Frank (0.011) and the different is statistically significant at the 10% level. Also similar to the results from using the Final Rule Effective date to define Post-Volcker, the coefficient of Post-Volcker is not significantly different from that of Crisis and Post-Crisis.

4.3.3 Alternative Approach for the Difference-in-Differences Test

In examining how liquidity in downgraded bonds has changed over time, we compare each downgraded BB bond with a sample of BB bonds not experiencing any recent rating changes. Although both downgraded bonds and bonds in the control group have the same rating, they can differ in other key attributes, which could affect their liquidity. To account for this possibility, we use a matched sample approach by comparing each downgraded BB bond with a sub-sample of the BB bonds that are similar to the downgraded BB bond in terms of time-to-maturity, total par amount outstanding, and age.

Specifically, we first segment BB bonds in the control group into three time to maturity categories: short-term (maturing within one year), medium-term (with time to maturity greater than one year by no more than seven years), and long-term (maturing over seven years). Within each maturity category, we further segment bonds into three size categories: small issue, medium issue, and large issue, using $0.5 Billion and $1.5 Billion in total par amount outstanding as the cutoffs. Finally, we divide bonds within each size category into new issues and seasoned issues, depending on whether its time since issuance is greater than one year. Therefore, we form a total of eighteen bond groups in the control sample based on time to maturity, amount outstanding, and age. We then calculate *PriceImpactDiff* for each downgraded bond by taking the difference between the *PriceImpact* of the downgraded bond and the average *PriceImpact* of BB bonds from the matching group during the same one-month period.

Column III of Table 5 shows that using the matched sample approach has little impact on our results. We continue to observe that following Volcker Rule, the marginal deterioration in bond liquidity during stress times is as severe as during the financial crisis period.

5. Dealer Behavior Around Stress Events

In this section, we study how the behavior of dealers has changed around Volcker Rule implementation and, importantly, compare the behavior of Volcker-affected dealers and non-Volcker-affected dealers. In Subsection 5.1, we discuss how we identify whether a dealer is Volcker-affected and in Subsections 5.2 and 5.3, we document the change in behavior across the two groups over time. Finally, we discuss other regulations in Subsection 5.4.

5.1 Identifying Volcker-Affected Dealers

A key issue is identifying which broker-dealers are subject to the Volcker Rule. This is a non-trivial task as full lists of Volcker-affected institutions are not published. In a study of the Volcker Rule, Oliver Wyman and SIFMA (2011) provide a list of 21 liquidity providers and whether they categorize as affected by the Volcker Rule.[15] Of these 21 banks, they identify four (Cantor Fitzgerald & Co., Daiwa Capital Markets, Jefferies & Co., and Nomura) that are not affected by the Volcker Rule. Among those affected are major bank holding companies such as Goldman Sachs and Morgan Stanley. However, this list is far from complete as TRACE data identifies hundreds of dealers transacting in the bond market.

To determine whether other broker-dealers are covered by the Volcker Rule, we follow the principle that the Volcker Rule was designed to prevent institutions with access to government backstops from participating in proprietary trading. The two most prominent backstops mentioned in the Federal Register (2014) discussion of the Volcker Rule are FDIC insurance and access to the Fed's discount window. We start with the broker-dealers on the Oliver Wyman and SIFMA (2011) list and add to it the top 300 broker-dealers in terms of trading volume; together, these broker-dealers account for 97% of total bond market trade volume. We then search both the FDIC's database of FDIC-insured banking institutions and the National Information Center's

[15] We reproduce this list in Table 6.

institution database to see which of the 300 broker-dealers were subject to the Volcker Rule. The former is relatively straightforward. If a broker-dealer, or more likely an affiliate (i.e., a commercial bank with the same parent holding company) is listed as having FDIC insurance, we code it as Volcker-affected. The latter is more complicated as the NIC database contains "banks and other institutions for which the Federal Reserve has a supervisory, regulatory, or research interest..." Thus, not all institutions in the database are necessarily Volcker-affected. We look for institutions coded as National Banks, State Member Banks, Bank Holding Companies, and Financial Holding Companies and treat these as Volcker-affected. Among the main types of institutions in the NIC database that we do not treat as Volcker-affected are Securities Broker/Dealers and Domestic Entity Other. As a third source, we search the Federal Reserve Board's Resolution Plans website (https://www.federalreserve.gov/bankinforeg/resolution-plans.htm) to identify large bank holding companies under Fed supervision that must submit a living will.[16] Combining results from our manual search with the list in Oliver Wyman and SIFMA (2011) results in approximately 45% of the top dealers being determined to be Volcker-affected.

5.2 Dealer Trading Activities

We start by documenting basic dealer trading patterns around downgrade-to-speculative ("stress") events in Table 7. In the month following a downgrade, the average turnover of downgraded bonds is close to 40% in the Post-Volcker period, higher than any of the other four periods in our sample. It is also much higher than the 9% monthly turnover of BB bonds during the Post-Volcker period, consistent with significant selling by insurance companies in the period just after downgrades to speculative-grade. However, the proportion of total trading volume that

[16] Living wills are mandated by Dodd-Frank to prevent taxpayer bailouts in the future. Thus, the fact that regulators require a living will suggests that these are institutions with government backstops.

is dealer-customer (as opposed to interdealer), 62%, is roughly in line with the other periods of our sample.

Of perhaps more interest, we compare Volcker-affected and non-Volcker-affected dealers in the other panels of Table 7. Our focus is on the proportion of dealer-customer trading handled by Volcker vs. non-Volcker dealers and also the dealers' use of agency trading. The underlying evidence in Ellul, Jotikasthira, and Lundblad (2011) is that around stress events, some institutional investors (e.g., insurance companies) sell bonds due to regulatory constraints. Dealers then intermediate these trades, and potentially hold inventory in bonds when selling demand exceeds buying demand. Both the proportion of customer-dealer trades and the percentage of agency trades address how dealers react to customer demands.

Volcker-affected dealers tend to be larger than non-Volcker dealers and handled 93% of dealer-customer volume around stress events in the pre-crisis period. Over our sample period, we see a gradual decline in the share of dealer-customer volume handled by Volcker-affected dealers. By the Post-Volcker period, non-Volcker dealers were handling almost one quarter of the dealer-customer volume. Though the increasing volume handled by non-Volcker dealers is consistent with Volcker-affected dealers scaling back their market-making due to the Volcker Rule, we cannot rule out the explanation that there has been a gradual time series change in the dealer business that has led the smaller, non-Volcker dealers to take a greater share of dealer-customer volume.

Next, we turn to how agency trading has changed over time for Volcker and non-Volcker dealers. Agency trading occurs when a dealer has lined-up a counterparty to immediately offset a trade with a customer. For example, if an insurance company decides to sell a downgraded bond, a dealer in an agency trade would line-up another customer (or dealer) to purchase the bond. In

such a case, dealers do not commit capital or take on any inventory risk. A principal trade, in contrast, involves dealers taking on one side of a trade without pre-existing knowledge that they will be able to unwind the trade quickly. We follow Harris (2015) and Bessembinder et al. (2016) and define a trade as an agency trade if it is offset by another trade in the opposite direction within one minute.

Our empirical results indicate that Volcker-affected dealers have increased the proportion of their total volume that is done on an agency basis. Pre-crisis, only 12% of the volume traded by Volcker-affected dealers was in agency trades. This number jumped to a little over 15% with the onset of the Financial Crisis and stayed fairly flat until jumping again to almost 23% with enforcement of the Volcker Rule. The sudden jump in the proportion of volume done as agency trades is suggestive of a causal effect of the Volcker Rule on Volcker-affected dealers' willingness to hold bonds on their balance sheet without pre-arranging an offsetting trade. Non-Volcker dealers, in contrast, have seen a decline in the proportion of trades that they do on an agency basis. During the Pre-Crisis Period, almost half of the trades done by non-Volcker dealers around stress events were done as agency trades. By the Post-Volcker Period, this percentage had dropped to 29%.

To more formally study the changes in agency trades across time for Volcker and non-Volcker-affected dealers, we run a regression of proportion of trades that are agency trades on period dummies and controls. Our base regression is,

$$Proportion\ of\ agency\ volume_i = \beta_0 + \beta_1 Crisis + \beta_2 Post - Crisis + \beta_3 Post - Dodd\ Frank + \beta_4 Post - Volcker + \gamma X + \epsilon,$$

where the unit of observation is a stress event, the dependent variable is the proportion of volume done by either Volcker or non-Volcker dealers done on an agency basis, and the omitted period dummy is the Pre-Crisis Period. X represents a vector of control variables that are the same as defined in Table 3 and used in Table 4. Our variable of interest is β_4, which directly measures the difference in the proportion of volume done on an agency basis between the Post-Volcker Period and the Pre-Crisis Period. Also of interest is the difference between β_4 and the coefficients on the other sub-period dummies.

The regression results are presented in Table 8. In the first column, the dependent variable is the proportion of agency trading done by Volcker Rule affected dealers after stress events. The coefficient on the Post-Volcker dummy is 0.133, indicating a 13 percentage point increase in volume done on an agency basis relative to the pre-crisis period. This change is slightly larger than the 11 percentage point increase without controls in Table 7. Importantly, we also see that the coefficient on the Post-Volcker dummy is also significantly larger than for the other periods in our sample. The Post-Dodd Frank period has a statistically significant coefficient of 0.046, indicating a 4.6 percentage point increase in agency trades compared to the Pre-Crisis Period, but also much smaller than the Post-Volcker Period. The nine percentage point increase in agency trading from the Post-Dodd Frank Period to the Post-Volcker Period is both statistically and economically significant.

In the second column of Table 8, we re-run our agency trade regression, but instead consider the proportion of trades done on an agency basis by non-Volcker-affected dealers. While the coefficients on all of the sub-period dummies are negative and the amount of agency trading done by non-Volcker dealers is smaller (in magnitude) during the Post-Volcker Period as compared to any other period, we do not find any statistical significance. In particular, unlike

Volcker-affected dealers, we do not find a sharp jump in the proportion of agency trading for non-Volcker dealers upon implementation of the Volcker Rule. If anything, we find the opposite, at least in terms of point estimates. Our results are consistent with the Volcker Rule inducing Volcker-affected dealers to shift from principal to agency trading as a way to avoid inventory imbalance.

5.3 Dealer Capital Commitment

A more direct measure of dealers' willingness to hold inventory imbalances is the time-weighted capital commitment. In the one month following a stress event, we calculate for each dealer the absolute deviation from starting inventory. The intuition is that if a dealer starts with a particular desired inventory level, the first purchase moves the dealer above this desired inventory level, but a following sell will again move the dealer back towards the desired inventory level. The actual desired inventory level is unobservable, so our implicit assumption is that the starting level of inventory is optimal. To calculate how far a dealer is from the starting inventory level, we simply take the accumulated buys and subtract the accumulated sells from the starting point. To calculate the time-weighted capital commitment, we then average the absolute distance from the starting inventory, weighting by the amount of time the inventory level is held.

While our measure is similar to the dealer capital commitment measure in Bessembinder et al. (2016), it is important to note that we measure capital commitment over the course of a month while they construct a daily measure. Their measure implicitly assumes that the starting point at each day is the optimal inventory, whereas our monthly measure allows for inventory to continue to move away from optimal inventory over the course of a few days. In particular, if a dealer has purchased a large volume of a bond in a day and has not sold this volume to another customer or

dealer, the dealer still has significant capital commitment the next day. Once we calculate bond-dealer level capital commitment, we sum across dealers for a given stress event.

In Table 9, we report regressions of time-weighted dealer capital commitment on sub-period dummies and controls separately for Volcker-affected and non-Volcker-affected dealers, similar to our proportion of agency volume regressions. The units for time-weighted dealer capital commitment are the number of bonds, with each bond being $1000 in face value. In the first column, we find that dealer capital commitment by Volcker-affected dealers has declined in all periods relative to the pre-crisis period. Dealer capital commitment is roughly $10 million in face value lower on average for a downgraded bond during the Crisis, Post-Crisis, and Post-Dodd Frank periods as compared to the Pre-Crisis period.[17] For the Post-Volcker Period, this decline is $20 million in face value relative to the Pre-Crisis Period. The lower capital commitment for the Post-Volcker Period is also statistically larger for the Volcker Period than it is for the Crisis, Post-Crisis, and Post-Dodd Frank periods. Thus, while there is a large and sudden drop in capital commitment from the Pre-Crisis to the Crisis Period, there is also a large and sudden drop from the Post-Dodd Frank Period to the Post-Volcker Period, suggesting that there was a significant shift in Volcker-affected dealers around the implementation of the Volcker Rule. Column II of Table 9 considers whether capital commitment has changed for non-Volcker dealers. Our results indicate that capital commitment has actually increased for non-Volcker dealers during the Post-Volcker period, in contrast to Volcker-affected dealers.

5.4 Capital Commitment and Basel III

[17] As a benchmark, the average capital commitment of Volcker-affected dealers in BB-rated bonds during non-stress periods is $6 million. For non-Volcker dealers, it is $1.6 million.

A potential concern in trying to isolate a Volcker Rule implementation effect is that, in the post-crisis period, a number of reforms were passed to regulate the finance industry. In particular, the Comprehensive Capital Analysis and Review (CCAR) process began in 2011, requiring bank holding companies (BHCs) to submit capital plans to the Federal Reserve. The capital plan requires that the BHC is able to maintain minimum capital requirements even under stress scenarios, providing a stiff test of a BHC's regulatory capital. The punishment for not passing a CCAR test is that the BHC is not allowed to make capital distributions unless the Federal Reserve indicates in writing that it allows the distribution.[18] Each year, the Federal Reserve publishes a list of BHCs that have either failed their CCAR tests or received only a conditional pass.

In January 2014, the start of Basel III implementation went into effect, adding additional capital requirements above what was required in Basel II. In conjunction with CCAR regulations, this potentially made banks more capital constrained and may have caused BHCs to change their market-making businesses.[19] To test the hypothesis that it was the combination of Basel III and CCAR that is driving our results on dealers, we split dealers into those that were CCAR-constrained and those that were not. We classify any bank that failed a CCAR test or was given a conditional pass in 2014 or 2015 as CCAR-constrained.[20] If BHCs change their market-making behavior in response to changing capital requirements, then we would expect CCAR-constrained banks to lower their capital commitment more than BHCs that were able to pass their CCAR tests.

In Table 10, we find that both dealers that passed the CCAR tests and dealers that failed or conditionally passed the CCAR test had lower capital commitment in the Volcker Rule

[18] Historically, the Federal Reserve has continued to allow failed BHCs to continue capital distributions at the same rate as in the past. Effectively, the main constraint is that these BHCs cannot increase their capital distributions.
[19] We thank Darrell Duffie for suggesting the CCAR linkage to us.
[20] BHCs receiving a conditional pass are required to remediate deficiencies and resubmit a new capital plan later in the year. Thus, such BHCs would have similar incentives to BHCs that fail CCAR tests.

implementation period as compared to the Post-Dodd Frank Period. However, the decline in capital commitment is higher for the dealers that passed CCAR tests (roughly $4.5 million) than for dealers that failed or conditionally passed CCAR tests (roughly $2.6 million), a result at variance with the prediction above.[21] Hoarding capital to pass the CCAR test is thus not supported as an explanation for decreased dealer capital commitment in bond trading.

6. Conclusion

In this paper, we study the impact of Volcker Rule implementation on corporate bond illiquidity and dealer behavior. Our main finding is that the Volcker Rule has a deleterious effect on corporate bond liquidity and dealers subject to the Rule become less willing to provide liquidity during stress times. While dealers not affected by the Volcker Rule have stepped in to provide liquidity, we find that the net effect is a less liquid corporate bond market. We also rule out that the effects are due to the implementation of Basel III in conjunction with CCAR requirements.

Our study focuses on events where investment-grade bonds are downgraded to speculative-grade to capture plausible events of forced selling. Using these stress events, we find that downgraded bonds exhibit a larger price impact of trading than a control group of BB bonds. More importantly, the relative level of the excess price impact is larger after the Volcker Rule is implemented than the period just before the Volcker Rule is implemented. Indeed, we find the disturbing result that illiquidity in stress periods is now approaching levels see during the financial crisis.

[21] It is possible that the BHCs that passed their CCAR tests chose to change their capital commitment in anticipation of Basel III, prior to the actual implementation, whereas the BHCs that failed did not. Nevertheless, this also predicts that if BHCs commit less capital to try to pass CCAR tests, we should still see stronger declines in capital commitment during the Volcker implementation period for those BHCs that failed CCAR tests, relative to those BHCs that passed CCAR tests.

Examining individual dealer behavior allowed us to rule out the possibility that our results are driven simply by time series changes in dealer behavior. We find that following Volcker Rule implementation Volcker-affected dealers are less involved in dealer-customer trades, use a greater proportion of agency trades, and are less willing to commit capital. Non-Volcker dealers pick-up a greater proportion of dealer-customer trades and do not have statistically significant changes in their use of agency trades or willingness to commit capital. Splitting Volcker-affected dealers into those who have failed CCAR tests in 2014 and 2015 and those who have not, we find that capital commitment among downgraded bonds has decreased more for dealers that passed CCAR tests, a result inconsistent with a Basel III explanation for decreased bond market liquidity. Overall, our results show that the Volcker Rule has had a real effect on dealer behavior, with significant effects only on those dealers affected by the Volcker Rule and not all bond dealers.

Table 1: Sample Description

This table provides a description of the corporate bonds downgraded from investment grade to speculative-grade by one of three major credit rating agencies (S&P, Moody's, and Fitch) over the period from January 1, 2006 to March 31, 2016. Data on historical rating changes by the three major rating agencies are obtained from Mergent's Fixed Income Securities Database (FISD). We use the date of announcement by the rating agency who acted first to define the downgrade event. We divide the full sample period into five sub-periods: Pre-crisis Period (January 1, 2006 – June 30, 2007), Crisis Period (July 1, 2007 – April 30, 2009), Post-crisis Period (May 1, 2009 – July 20, 2010), Post-Dodd Frank Period (July 21, 2010 – March 31, 2014), and Post-Volcker Period (April 1, 2014 – March 31, 2016). For the full sample period and each of the sub-periods, we present the number of bonds downgraded and number of firms whose bonds were downgraded. We report the number of bonds in which S&P, Moody's, or Fitch was the first to take action. Note that multiple rating agencies can downgrade a bond on the same day. We also report the number of bonds that were downgrade by one notch, by two notches, and by three or more notches (which are in the "**other**" column) respectively.

	# of Bonds	**# of Firms**	**by S&P**	**by Moody's**	**by Fitch**	**by One Notch**	**by Two Notches**	**others**
full sample period								
January 1, 2006 – March 31, 2016	687	218	247	375	89	356	157	174
by sub-periods								
Pre-crisis Period (January 1, 2006 – June 30, 2007)	114	45	36	50	37	54	17	43
Crisis Period (July 1, 2007 – April 30, 2009)	210	57	105	100	8	97	80	33
Post-crisis Period (May 1, 2009 – July 20, 2010)	68	16	3	61	4	46	3	19
Post-Dodd Frank Period (July 21, 2010 – March 31, 2014)	113	45	51	41	33	64	28	21
Post-Volcker Period (April 1, 2014 – March 31, 2016)	182	55	52	123	7	95	29	58

Table 2: Univariate Analysis of Corporate Bond Liquidity Following Downgrades

This table analyzes the liquidity of a bond during the one-month following its downgrade from investment-grade to speculative-grade over the period from January 1, 2006 to March 31, 2016. We measure bond liquidity by using a price impact measure, *PriceImpact* = $(P_t - P_{t-1})/Q_t$, where P_t and Q_t refers to the price (per $1000 of par value) and par amount (in thousands) of the trade at time t respectively. Retail-sized trades, i.e., those with par amount less than $100,000 are excluded from calculation in order to avoid the noise they tend to carry as suggested by Bessembinder et al. (2009). We first calculate the *PriceImpact* measure for each trade, and then average it across the trades within the one-month following each downgrade to get an event level estimate. For each downgrade event, we also calculate the average *PriceImpact* in bonds which were rated BB by the acting rating agency during the same one-month period, and is labelled as *PriceImpactControl*. *PriceImpactDiff* is the difference in *PriceImpact* between the downgraded bond and other BB bonds. We divide the full sample period into five sub-periods: Pre-crisis Period (January 1, 2006 – June 30, 2007), Crisis Period (July 1, 2007 – April 30, 2009), Post-crisis Period (May 1, 2009 – July 20, 2010), Post-Dodd Frank Period (July 21, 2010 – March 31, 2014), and Post-Volcker Period (April 1, 2014 – March 31, 2016). Since our focus is on examining bond liquidity during the one-month following each downgrade, we exclude those downgrade events that happened during the last month in each of the sub-periods. We test whether *PriceImpactDiff* for each sub-period is statistically different from zero and report the *p*-value. We also conduct tests on the differences in the *PriceImpact* liquidity measures between two sub-periods and report the *p*-value. Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	PriceImpact	**PriceImpact Control**	**PriceImpact Diff**	**p-value**	**Number of Bonds**	**Number of Firms**
Pre-crisis Period	0.007	0.004	0.003	0.062	114	45
Crisis Period	0.030	0.012	0.018	0.000	210	57
Post-crisis Period	0.021	0.011	0.011	0.129	68	16
Post-Dodd Frank Period	0.015	0.008	0.007	0.000	113	45
Post-Volcker Period	0.024	0.008	0.016	0.007	182	55

Table 3: Independent Variable Definitions

This table provides detailed definitions of independent variables used in the tables below. Dependent variables are defined in the respective tables that they are used in.

Variable	Definition
Crisis	Dummy variable equal to 1 for July 1, 2007 to April 30, 2009 and 0 otherwise.
Post-crisis	Dummy variable equal to 1 for May 1, 2009 to July 20, 2010 and 0 otherwise.
Post-Dodd Frank	Dummy variable equal to 1 for July 21, 2010 to March 31, 2014 and 0 otherwise.
Post-Volcker	Dummy variable equal to 1 for April 1, 2014 to March 31, 2016 and 0 otherwise.
Previous Rating	The rating of a downgraded bond before the downgrade from investment-grade to speculative-grade. A numeric value is assigned to each notch of credit rating, with 1, 2, 3, 4 … denoting AAA, AA+, AAA, AA- … respectively.
ΔRating	The number of notches that a bond was downgraded.
Age	The log of the number of years since issuance for a bond.
Time-to-Maturity	The log of the number of years to maturity for a bond.
Amount Outstanding	The log of the total amount outstanding in $thousands.
S&P 500 Index Return	The return of the S&P 500 over the one-month post-downgrade period. It is expressed in decimal form.
IV Bond Index Return	The return to the Barclays Capital U.S. Investment-Grade Corporate Bond Index over the one-month post-downgrade period. It is expressed in decimal form.
HY Bond Index Return	The return to the Barclays Capital U.S. High-Yield Corporate Bond Index over the one-month post-downgrade period. It is expressed in decimal form.
ΔVIX	The change in CBOE stock market volatility index from the one-month pre-downgrade period to the one-month post-downgrade period.
ΔIV Bond Volatility	The change in the standard deviation of the Barclays Capital U.S. Investment-Grade Corporate Bond Index Return from the one-month pre-downgrade period to the one-month post-downgrade period. It is expressed in decimal form.
ΔHY Bond Volatility	The change in the standard deviation of the Barclays Capital U.S. High-Yield Corporate Bond Index Return from the one-month pre-downgrade period to the one-month post-downgrade period. It is expressed in decimal form.
Δ3M LIBOR Change	The change in the 3 month LIBOR rate (in percentage) from the one-month pre-downgrade period to the one-month post-downgrade period.

Table 4: Corporate Bond Liquidity Following Downgrades

This table analyzes how corporate bond liquidity evolves during the period from January 1, 2006 to March 31, 2016, especially following the effective date of Volcker rule. The dependent variables for Columns I – III are *PriceImpactDiff*, *PriceImpact*, and *PriceImpactControl*, respectively. *PriceImpact* is price impact of trading in a downgraded bond in the month after the downgrade. *PriceImpactControl* is the average price impact for BB-rated corporate bonds in same horizon as *PriceImpact*. *PriceImpactDiff* is the difference between *PriceImpact* and *PriceImpactControl*. The primary independent variables of interest are dummy variables for Crisis, Post-crisis, Post-Dodd Frank, and Post-Volcker. Detailed definitions of all of the independent variables are provided in Table 3. Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	I. PriceImpactDiff		**II. PriceImpact**		**III. PriceImpactControl**	
	Estimate	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	-0.024	0.339	-0.001	0.491	0.022	0.000
Crisis	0.017	0.003	0.022	0.000	0.006	0.000
Post-crisis	0.016	0.024	0.024	0.002	0.007	0.000
Post-Dodd Frank	0.010	0.010	0.013	0.001	0.004	0.000
Post-Volcker	0.021	0.002	0.025	0.000	0.004	0.000
Previous Rating	-0.002	0.361	-0.004	0.252	-0.002	0.000
ΔRating	0.001	0.348	0.000	0.405	0.000	0.176
Log Age	0.005	0.015	0.005	0.014	0.000	0.213
Log Time to Maturity	0.008	0.010	0.008	0.014	0.000	0.142
Log Amount Outstanding	-0.016	0.000	-0.016	0.000	-0.001	0.018
SP500 Index Return	0.006	0.477	-0.002	0.493	-0.008	0.227
IV Bond Index Return	-0.021	0.460	-0.031	0.443	-0.010	0.347
HY Bond Index Return	-0.152	0.299	-0.182	0.267	-0.030	0.015
ΔVIX	-0.001	0.242	-0.001	0.201	0.000	0.142
ΔIV Bond Volatility	0.313	0.457	1.163	0.345	0.850	0.009
ΔHY Bond Volatility	0.146	0.476	-0.500	0.418	-0.645	0.004
Δ3M LIBOR	-0.015	0.251	-0.012	0.300	0.003	0.024
Number of Observations	687		687		687	
R^2	0.079		0.079		0.079	
Post-Volcker vs Crisis		0.296		0.384		0.062
Post-Volcker vs Post-crisis		0.315		0.454		0.000
Post-Volcker vs Post-Dodd Frank		0.037		0.040		0.477

Table 5: Robustness Checks on Liquidity Following Downgrades

This table presents results from robustness checks of the analyses on bond liquidity changes following the implementation of the Volcker Rule. In Column I, we use an alternative measure, Spread, to capture bond liquidity. For each downgraded bond, we first calculate daily *Spread* by taking the difference between volume weighted average customer buy prices (Ask) and volume weighted average customer sell prices (Bid) during the one-month following the downgrade. We then average the daily spread across days within the month to get an event level estimate. For each downgrade event, we also calculate the average *Spread* in bonds which were rated BB by the acting rating agency during the same one-month period. We then subtract the average BB bond *Spread* from that of the downgraded bond to get a *SpreadDiff* measure. This is the dependent variable for the regression in Column I. In Column II, we used the compliance date for banks to conform their proprietary trading activities and investments in and relationships with non-legacy covered funds under the Volcker Rule, which is July 21, 2015, to define Post-Volcker period. Specifically, Post-Dodd Frank period is from July 21, 2010 to July 20, 2015 and Post-Volcker period is from July 21, 2015 to March 31, 2016. The other sub-periods during our sample are defined as earlier. In Column III, we compare each downgraded bond to the average of other BB rated bonds with similar time to maturity, amount outstanding, and age when calculating the *PriceImpactDiff* measure. We first segment bonds into three time to maturity categories: short-term (maturing within one year), medium-term (with time to maturity greater than one year by no more than seven years), and long-term (maturating over seven years). Within each maturity category, we further segment bonds into three size categories: small issue, medium issue, and large issue, using $0.5 Billion and $1.5 Billion in total par amount outstanding as the cutoffs. Finally, we divide bonds within each size category into new issues and seasoned issues, depending on whether its time since issuance is greater than one year. Therefore, we form a total of eighteen bond groups based on time to maturity, amount outstanding, and age. We then calculate $PriceImpactDiff$ for each downgraded bond by taking the difference between the *PriceImpact* of the downgraded bond and the average $PriceImpact$ of BB bonds from the matching group during the same one-month period. Downgrade events that happened during the last month in each of the newly defined sub-periods are excluded since the one-month following those downgrades overlapped with the next sub-period. The dependent variable in Column II is *PriceImpactDiff* as in Table 4. The primary independent variables of interest are dummy variables for Crisis, Post-crisis, Post-Dodd Frank, and Post-Volcker. Detailed definitions of all of the independent variables are provided in Table 3 Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	I. Measuring Liquidity by Spread		II. Use Compliance Date to Define Post-Volcker		III. Use Matched Bonds to Calculate PriceImpactDiff	
	Estimate	**p-value**	**Estimate**	**p-value**	**Estimate**	**p-value**
Intercept	-0.229	0.165	-0.033	0.285	-0.035	0.266
Crisis	0.166	0.002	0.016	0.003	0.013	0.013
Post-crisis	0.066	0.152	0.017	0.020	0.013	0.061
Post-Dodd Frank	0.051	0.156	0.011	0.007	0.008	0.028
Post-Volcker	0.090	0.056	0.026	0.007	0.019	0.004
Previous Rating	0.008	0.349	-0.001	0.418	-0.001	0.450
ΔRating	-0.022	0.004	0.001	0.353	0.000	0.462
Log Age	-0.009	0.292	0.005	0.013	0.005	0.023
Log Time to Maturity	0.076	0.002	0.008	0.008	0.008	0.006
Log Amount Outstanding	-0.004	0.433	-0.017	0.000	-0.015	0.000
SP500 Index Return	-0.328	0.186	0.016	0.436	0.013	0.443
IV Bond Index Return	-0.440	0.375	-0.071	0.368	-0.006	0.489
HY Bond Index Return	0.932	0.152	-0.176	0.269	-0.158	0.286
ΔVIX	0.007	0.145	-0.001	0.198	-0.001	0.221
ΔIV Bond Volatility	10.592	0.221	-0.009	0.499	-0.096	0.487
ΔHY Bond Volatility	-21.171	0.025	0.336	0.445	0.705	0.382
Δ3M LIBOR	0.105	0.101	-0.018	0.223	-0.020	0.184
Number of Observations	647		687		687	
R^2	0.058		0.079		0.074	
Post-Volcker vs Crisis		0.050		0.196		0.212
Post-Volcker vs Post-crisis		0.283		0.217		0.255
Post-Volcker vs Post-Dodd Frank		0.075		0.070		0.034

Table 6: Major Liquidity Providers in the Corporate Bond Market and Volcker Rule

This table provides a list of 21 major securities dealers and whether they are subject to the Volcker Rule. Dealers affected by the Volcker Rule are prohibited from participating in proprietary trading, but have a market-making exception. Non-affected dealers are not subject to bans on proprietary trading or market-making.
Source: "The Volcker Rule restrictions on proprietary trading: Implications for the US corporate bond market" presentation by Oliver Wyman and SIFMA.

Dealers Affected by Volcker Rule	Dealers Not Affected by Volcker Rule
Bank of Nova Scotia	Cantor Fitzgerald & Co.
Barclays Capital	Daiwa Capital Markets Americas
BMO Capital Markets	Jefferies & Company
BNP Paribas Securities	Nomura Securities International
Citigroup Global Capital Markets	
Credit Suisse Securities (USA)	
Deutsche Bank Securities	
Goldman, Sachs & Co.	
HSBC Securities (USA)	
J.P. Morgan Securities	
Merrill Lynch, Pierce, Fenner & Smith	
Mizuho Securities USA	
Morgan Stanley & Co.	
RBC Capital Markets	
RBS Securities	
SG Americas Securities	
UBS Securities	

Table 7: Trading Activity by Dealers Affected by Volcker Rule and those not affected by Volcker Rule

This table presents summary information on trading activities by dealers affected by Volcker rule and those not affected by Volcker rule during each of the five sub-periods between January 1, 2006 to March 31, 2016: Pre-crisis Period (January1, 2006 – June 30, 2007), Crisis Period (July 1, 2007 – April 30, 2009), Post-crisis Period (May 1, 2009 – July 20, 2010), Post-Dodd Frank Period (July 21, 2010 – March 31, 2014), and Post-Volcker Period (April 1, 2014 – March 31, 2016). *All Trade* refers to the aggregate trade volume by all dealers, including both inter-dealer trade and dealer-customer trade, during the one-month following each rating downgrade. To control for the effect of issue size on trade volume, we first divide the aggregate one-month trade volume for each downgrade event by the total par amount outstanding of the downgraded bond, and then average it across bonds within each sub-period. We report the percent of Dealer-Customer trade volume out of the total trade volume for all dealers (*D-C Trade*), as wells as for dealers affected by Volcker rule and those not affected by Volcker rule separately. In addition, for the two groups of dealers, we also report their respective share of the total dealer-customer trade volume (*Share of Total D-C Trade*), and the percentage of their dealer-customer trade that is effectively agent trade (*Dealer Agency Trade*). We classify a trade as being effectively agent if it offset by another trade that occurred within one minute with the same trade size by the same dealer but with opposite trade direction. This one-minute algorithm is similar to that used in Harris (2015) and Bessembinder et al. (2016).

	Full Sample		**Dealers Affected by Volcker**			**Dealers Not Affected by Volcker Rule**		
	All Trade	**D-C Trade (%)**	**D-C Trade (%)**	**Share of Total D-C Trade (%)**	**Dealer Agency Trade (%)**	**D-C Trade (%)**	**Share of Total D-C Trade (%)**	**Dealer Agency Trade (%)**
Pre-crisis Period	0.300	65.601	77.428	93.371	12.104	22.119	6.629	46.404
Crisis Period	0.277	70.037	83.295	89.117	15.413	37.803	10.883	45.326
Post-crisis Period	0.219	62.324	75.958	84.569	15.543	29.192	15.431	35.779
Post-Dodd Frank Period	0.306	53.913	67.224	79.728	15.965	33.063	20.272	33.118
Post-Volcker Period	0.383	62.032	75.608	76.297	22.709	48.722	23.703	29.403

Table 8: Volcker Rule and Agency Trades

This table analyzes how dealers' willingness to arrange trades on a principal basis change following Volcker Rule. We first estimate for each dealer the proportion of dealer-customer trade volume completed on effectively agent basis (expressed in decimals) during the one-month following each downgrade. For each downgrade, we divide the active dealers into two groups: those affected by Volcker rule and those that were not. We then average the percent of agency trade across dealers within each dealer group, and use them as the dependent variables in Columns I and II. The primary independent variables of interest are dummy variables for Crisis, Post-crisis, Post-Dodd Frank, and Post-Volcker. Detailed definitions of all of the independent variables are provided in Table 3 Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	I. Dealers Affected by Volcker Rule		**II. Dealers Not Affected by Volcker Rule**	
	Estimate	**p-value**	**Estimate**	**p-value**
Intercept	0.219	0.163	-0.041	0.454
Crisis Period	0.030	0.176	-0.026	0.361
Post-crisis Period	0.037	0.199	-0.062	0.175
Post-Dodd Frank Period	0.046	0.049	-0.048	0.232
Post-Volcker Period	0.133	0.000	-0.077	0.114
Previous Rating	-0.016	0.223	0.035	0.147
ΔRating	-0.011	0.086	0.017	0.087
Log Age	0.016	0.083	0.026	0.078
Log Time to Maturity	0.006	0.384	-0.008	0.391
Log Amount Outstanding	-0.035	0.006	-0.020	0.209
SP500 Index Return	-0.164	0.280	-0.627	0.110
IV Bond Index Return	-0.520	0.292	1.421	0.226
HY Bond Index Return	0.688	0.117	-0.821	0.232
ΔVIX	-0.002	0.232	-0.008	0.114
ΔIV Bond Volatility	4.730	0.386	-2.517	0.451
ΔHY Bond Volatility	20.346	0.004	3.674	0.409
Δ3M LIBOR	-0.082	0.105	0.016	0.431
Number of Observations	687		687	
R^2	0.073		0.031	
Post-Volcker vs Crisis		0.003		0.212
Post-Volcker vs Post-crisis		0.019		0.375
Post-Volcker vs Post-Dodd Frank		0.003		0.266

Table 9: Dealer Capital Commitment around Volcker Rule Implementation

This table analyzes how dealers' willingness to commit their own capital to bond trading changes following Volcker rule. During the one-month following a bond's downgrade, we first calculate for each dealer, the absolute value of a dealer's accumulated principal buy volume and accumulated principal sell volume at the time of each of the dealer's trades in the downgraded bond (in thousands of dollars of face value). We then average the absolute difference between accumulated buys and accumulated sells across trades within the one-month for each dealer, weighting each observation by the time for which the capital is committed. Trades that were not offset prior to day end hence received larger weight in the capital commitment calculation. For each downgrade, we divide the active dealers into two groups: those affected by Volcker rule and those that were not. We then aggregate each dealer's capital commitment measure within each dealer group, and use them as the dependent variables in Columns I and II. The primary independent variables of interest are dummy variables for Crisis, Post-crisis, Post-Dodd Frank, and Post-Volcker. Detailed definitions of all of the independent variables are provided in Table 3. Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	I. Dealers Affected by Volcker Rule		II. Dealers Not Affected by Volcker Rule	
	Estimate	**p-value**	**Estimate**	**p-value**
Intercept	45675.140	0.030	6371.760	0.003
Crisis Period	-9025.310	0.003	-617.660	0.012
Post-crisis Period	-11231.500	0.000	609.720	0.023
Post-Dodd Frank Period	-12891.800	0.000	1879.880	0.000
Post-Volcker Period	-20127.890	0.000	2131.810	0.000
Previous Rating	-894.800	0.337	-391.460	0.029
ΔRating	1371.910	0.025	-117.810	0.099
Log Age	-5690.310	0.000	-321.400	0.034
Log Time to Maturity	4250.750	0.002	50.050	0.387
Log Amount Outstanding	16734.870	0.000	966.710	0.000
SP500 Index Return	55463.810	0.004	3324.580	0.072
IV Bond Index Return	38394.350	0.301	-13601.550	0.162
HY Bond Index Return	-149809.210	0.000	-8738.820	0.085
ΔVIX	-589.090	0.033	-42.560	0.110
ΔIV Bond Volatility	-528626.130	0.269	-94993.340	0.214
ΔHY Bond Volatility	633910.390	0.166	33231.020	0.348
Δ3M LIBOR	2868.600	0.232	-721.820	0.161
Number of Observations	687		687	
R^2	0.472		0.031	
Post-Volcker vs Crisis		0.000		0.000
Post-Volcker vs Post-crisis		0.000		0.068
Post-Volcker vs Post-Dodd Frank		0.000		0.086

Table 10: Capital Commitment by Volcker Affected Dealers: The Effect of CCAR Testing

This table analyzes how CCAR regulations affect capital commitment among Volcker affect dealers. During the one-month following a bond's downgrade, we first calculate for each dealer, the absolute value of a dealer's accumulated principal buy volume and accumulated principal sell volume at the time of each of the dealer's trades in the downgraded bond (in thousands of dollars of face value). We then average the absolute difference between accumulated buys and accumulated sells across trades within the one-month for each dealer, weighting each observation by the time for which the capital is committed. Trades that were not offset prior to day end hence received larger weight in the capital commitment calculation. For each downgrade, we divide the Volcker affected dealers into two groups: those who passed the CCAR testing in both 2014 and 2015, and those either failed or conditionally passed the CCAR test in at least one year. We then aggregate each dealer's capital commitment measure within each dealer group, and use them as the dependent variables in Columns I and II. The primary independent variables of interest are dummy variables for Crisis, Post-crisis, Post-Dodd Frank, and Post-Volcker. Detailed definitions of all of the independent variables are provided in Table 3. Since bonds issued by the same firm are usually downgraded at the same time, we cluster the standard errors at the firm level.

	I. Volcker Affected Dealers who Passed the CCAR Test		II. Volcker Affected Dealers who Failed/Conditionally Passed the CCAR Test	
	Estimate	**p-value**	**Estimate**	**p-value**
Intercept	21561.340	0.065	23872.770	0.027
Crisis Period	-4255.380	0.022	-5114.490	0.001
Post-crisis Period	-7449.130	0.000	-4186.190	0.008
Post-Dodd Frank Period	-6207.900	0.002	-7171.690	0.000
Post-Volcker Period	-10732.840	0.000	-9816.140	0.000
Previous Rating	368.070	0.382	-1240.680	0.138
ΔRating	808.620	0.035	588.190	0.039
Log Age	-3098.010	0.001	-2670.770	0.000
Log Time to Maturity	2146.430	0.014	2300.440	0.000
Log Amount Outstanding	12345.580	0.000	4428.690	0.000
SP500 Index Return	45166.660	0.000	10757.080	0.153
IV Bond Index Return	11309.940	0.415	33251.730	0.185
HY Bond Index Return	-104937.140	0.000	-46102.670	0.019
ΔVIX	-481.870	0.004	-101.680	0.277
ΔIV Bond Volatility	153290.210	0.393	-636766.770	0.071
ΔHY Bond Volatility	279028.120	0.239	377606.390	0.118
Δ3M LIBOR	3094.440	0.107	-336.950	0.433
Number of Observations	683		683	
R^2	0.420		0.369	
Post-Volcker vs Crisis		0.002		0.000
Post-Volcker vs Post-crisis		0.020		0.000
Post-Volcker vs Post-Dodd Frank		0.003		0.007

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Annual Term Debt Funding Cost Analysis

CENTER FOR CAPITAL MARKETS COMPETITIVENESS

Based on the 2010-2011 historical funding of select large U.S. borrowers and assumed funding strategies for three hypothetical small U.S. borrowers, below is an analysis of the funding cost impact due to a widening of bid / ask spreads.

Illustrative Funding Cost Analysis: Annual Term Debt Issuance of Select Large U.S. Borrowers[1]

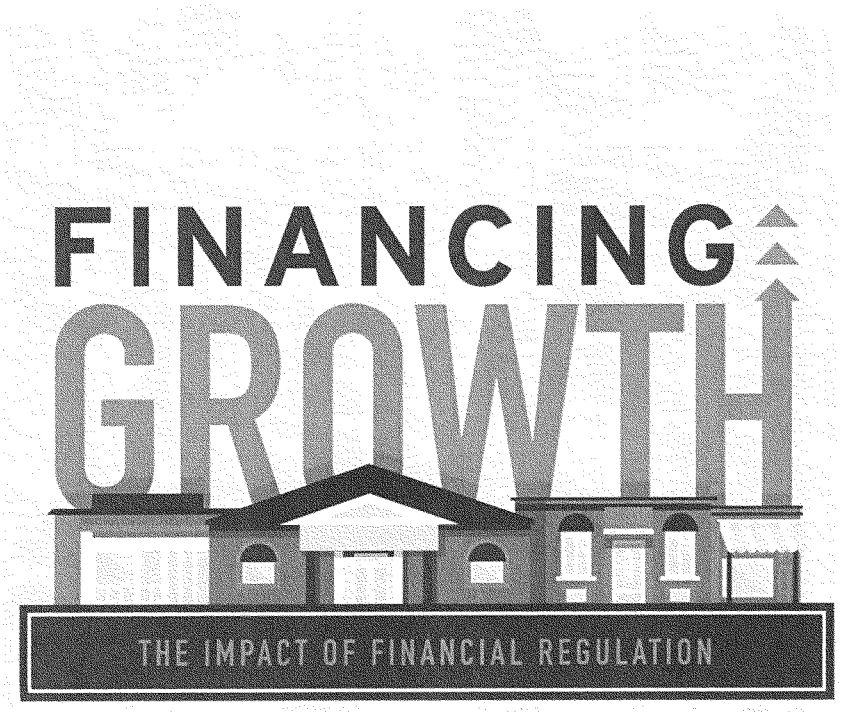
Issuer	Weighted Average Maturity	Weighted Average Coupon[2]	Modified Duration	2010-2011 YTD Issuance	2011-2011 YTD Total Cost Impact of +25 bp Increase	2011-2011 YTD Total Cost Impact of +50 bp Increase
Finance Company	7.5 Years	3.180%	6.5 Years	$30.4bn	+$498.7mm	+$997.5mm
Automotive Finance	5.3 Years	2.267%	4.8 Years	$10.1bn	+$122.1mm	+$244.1mm
Captive Finance	5.0 Years	2.055%	4.7 Years	$5.8bn	+$68.0mm	+$135.9mm
Captive Finance	3.5 Years	1.607%	3.4 Years	$5.2bn	+$43.3mm	+$86.5mm
Aircraft Finance	5.8 Years	2.383%	5.3 Years	$0.8bn	+$9.9mm	+$19.8mm
Total	--	--	--	**$52.3bn**	**+$742.0mm**	**+$1,483.8mm**

(1): Funding cost analysis includes USD-denominated debt issued since January 1, 2010
(2): Includes floating-rate note coupons at current spreads over Libor
Sorted by decreasing annual total impact, then total

Illustrative Funding Cost Analysis: Annual Term Debt Issuance of Three Hypothetical Small U.S. Borrowers

	Assumed Weighted Average Maturity	Assumed Weighted Average Coupon	Modified Duration	Assumed Annual Funding Capacity	Annual Total Cost Impact of +50 bp Increase	Annual Total Cost Impact of +100 bp Increase
Company A	5.0 Years	3.750%	4.4 Years	$250mm	+$5.6mm	+$11.1mm
	10.0 Years	4.750%	7.7 Years		+$9.7mm	+$19.4mm
Company B	5.0 Years	3.875%	4.4 Years	$500mm	+$11.1mm	+$22.2mm
	10.0 Years	4.875%	7.7 Years		+$19.2mm	+$38.5mm
Company C	5.0 Years	4.000%	4.4 Years	$1,000mm	+$22.1mm	+$44.2mm
	10.0 Years	5.000%	7.7 Years		+38.3mm	+$76.5mm
Total	--	--	--	--	**+$106.0mm**	**+$211.9mm**

Note: Annual total cost impact is calculated based hypothetical annual funding capacities, weighted average maturities of debt issued and weighted average coupons of debt issued



June 16, 2016 #FinancingGrowth

CENTER FOR CAPITAL MARKETS
COMPETITIVENESS

Table Contents

Learn More from Main Street

Whether it was seed capital to open for the first time or a line of credit to build inventory or a short term loan to keep the lights on, businesses rely on community banks, global financial institutions, insurers, and others. These stories illustrate through real companies the benefits of the nexus between Main Street and financial institutions.

Executive Summary

More than three-quarters of American companies of all sizes report that the cumulative effect of the Dodd-Frank Wall Street Reform and Consumer Protection Act and other financial regulatory rules adopted over the past six years is making it harder for them to access the financial services they need. This is true among small, midsized, and even large companies and is felt most acutely in a lack of access to services helping them manage day-to-day liquidity.

This matters because the financial needs of businesses are as diverse as the American economy. Companies work to ensure that they have affordable access to a variety of suppliers for the financial products they need. One of the unintended consequences of the regulatory efforts to reduce risk in the financial system is that many service providers have decided to walk away from providing some products and markets.

Without a robust financial services supply chain, our nation cannot finance adequate economic growth. Regulatory efforts to ensure financial stability must be accompanied by equally vigorous, data-driven analysis to make certain that Main Street companies continue to have access to the financial services they need.

The U.S. Chamber of Commerce surveyed more than 300 corporate finance professionals about their core financial services needs and the indirect regulatory impact of all the newly adopted financial regulations. We asked them about the products they use and the types of financial services they rely on. We also asked them if and how they are seeing the impact from financial regulation on businesses and their customers.

State of Corporate Finance

Main Street Companies Have Different Financing Needs

Companies access and use a variety of different financial products and services on a routine basis, such as[1]:

- Cash management tools
- Commercial paper
- Debt financing
- Derivatives
- Equity financing
- Long-term loans

[1] See Appendix for a glossary of key terms used throughout this report.

- Short-term loans
- Trade financing

Each of these products and services addresses a specific need faced by Main Street companies. To meet those needs, companies place a high value on the accessibility of products and services to manage their finances.

- More than half of companies surveyed utilize all eight products and services listed on a routine basis and 85% used 4 or more.
- 86% said that it is important for financial services providers to offer a wide spectrum of services.
- 65% want providers to specialize in specific products.

Companies Rely on Financial Institutions of All Sizes

The survey found that businesses use a combination of financial institutions for critical financing activities, and the mix of financial services and products used is closely tied to the availability and diversity of financing sources.

- 20% of all small and midsize companies said that they use four or more financial institutions to issue commercial paper, raise corporate debt, or access trade financing.
- Large businesses use four or more financial institutions in a variety of contexts, particularly when obtaining long-term loans, purchasing derivatives, and issuing corporate debt.
- 68% (up from 50% in 2013) indicated that it is important for their financial services provider to have a global footprint.

The Future: What Are Companies Facing

Knowing that Main Street companies depend on a vibrant and diverse financial services industry, we wanted to understand how

Takeaways

State of Corporate Finance

- Businesses are simultaneously relying on multiple financial services providers for a diverse range of critical services.
- Businesses are increasingly looking for a diverse financial services system to meet the growing complexity of their investments and operational financing needs.

Cash Crunch: Access to Capital Is the Top Financial Concern for U.S. Businesses

- Managing cash flow and liquidity is the biggest financial concern for companies, and companies believe current and pending regulations will make those operations more challenging.
- One in three companies is taking unanticipated steps in response to regulations and economic changes.
- Companies are concerned about accessing credit, managing day-to-day currency risk, and raising short term capital. All are necessary functions to manage cash flow, liquidity, and fund future expansion and growth.

Regulatory Impact

- Nearly four in every five businesses say that financial industry regulation has directly affected their financing activities.
- This is no longer just a corporate issue, as businesses are increasingly being forced to pass the impact of financial regulations on to customers and employees.
- Increased bank capital charges are viewed as the primary source of increased costs.
- One-third of companies expect the regulatory effect to worsen in the next three years.

the implementation of financial services regulation is impacting how companies operate and serve their customers. What we heard was a particularly strong and growing concern for the ability of businesses to access credit and to manage cash flow and liquidity due to existing and pending regulations. Moreover, many businesses are taking unanticipated steps to address increased costs or a lack of access to financial services at the expense of customers or expansion.

- 43% of the companies surveyed said that maintaining cash flow and liquidity are their chief concern.
- 50% said that increased bank capital charges have increased their costs and challenges.
- 79% have seen their business affected by changes in the financial services markets.
- 29% have increased prices for customers and consumers as a result of changes to the financial services market (double the level seen in 2013).
- 76% believe that the regulations on the financial services sector will not help their company's outlook over the next two to three years.

As a result, in an era where economic growth has been stagnant, we find that existing and additional regulation of the financial services industry must strike a better balance between its impact on business and economic growth.

Introduction

America is stuck in the worst economic recovery since the Great Depression, with little forward momentum. To mount a turnaround, the country will depend on businesses—large and small—to create jobs and drive new economic growth.

Companies across the country understand and appreciate this responsibility and believe that they could be doing better. But the facts are hard to ignore: Profits are down; there are fewer entrepreneurs starting small businesses; raising capital and accessing credit is more expensive; and capital expenditures are hitting all-time lows. For companies to overcome these hurdles and get the economy back on track, they need a diverse and robust financial system. They need access to reasonably priced capital, cash management solutions, and tools to manage day-to-day business risk.

For example:

- Agricultural companies need access to competitively priced derivatives to hedge swings in commodity prices.
- Multinational corporations use derivatives to hedge fluctuations in currencies and interest rates.
- Company expansions necessary to support growth are financed by short- and long-term debt serviced by banks.
- Emerging companies rely on investment banks with a global footprint to underwrite public offerings and provide counsel on the timing and type of capital to issue.

Companies that experience cash fluctuations due to inventory production or lag time between production and sales depend on cash management tools to ensure that they have the liquidity to pay suppliers and employees.

Sams Carpet Cleaning and Repairs

"Several years ago we were looking to refinance our 17,850-square-foot building in order to save money that we could use to expand our customer base. By working closely with our bank and a Missouri State program, we were able to secure a loan that allowed us to lower our interest rate and generate more cash flow. This freed up additional funds to invest in technology, training, and expansion. For a small business like ours, the cost savings and extra capital came at a great time and allowed us to invest in updating our local business."

Jeff and Susan Sams, Owners

We talked directly to corporate treasurers, CFOs, founders, and CEOs. Collectively, these are the corporate employees who are accountable for making sure that their companies have the resources and funds necessary to manage and safeguard corporate finances—the fuel to sustain and grow any company.

The overall message we heard is that companies have many different financing needs and rely on financial institutions of all sizes. Further, the financial regulatory environment is getting worse and hampering their ability to acquire the financial resources they need.

While this report provides insight into how businesses of all sizes use the financial system and how financial services regulation impacts that system, many questions remain. Specifically:

- Can our financial system succeed in meeting the demands of Main Street companies?
- Will changes in the regulation of financial institutions continue to limit credit availability or put a strain on market liquidity?

It is already clear, however, that current financial regulations are making it hard for companies to lift the American economy. In fact, 76% of survey respondents believe that the regulations on the financial services sector will not help their companies' outlook over the next three years.

The Chamber is committed to advancing an agenda that promotes well-functioning and strong capital markets so that American businesses have the tools and resources necessary to drive economic growth.

FACES DaySpa

"My husband and I opened FACES DaySpa more than two decades ago and have watched it grow into a successful business. A couple years ago we wanted to expand by opening a new FACES Lash Studio. We prefer to own our facilities, rather than renting, so we needed to secure a mortgage from our bank for the property, as well as a loan to upfit the new space. We put together a business plan for FACES Lash Studio and negotiated a purchase price for the real estate. Over the years, FACES has built a close, supportive relationship with our bank which has watched our business grow and is familiar with the success of FACES Day Spa. As a result, we were able to secure both the mortgage and loan on agreeable terms that let us get the Lash Studio off the ground. Now the new business is thriving and has generated enough cash that it allowed us to pay off the upfit loan already. None of this would have been possible if it wasn't for our bank, which continues to be a valuable and reliable partner for our small business."

Patricia Owen, President

Methodology

The U.S. Chamber's Center for Capital Markets Competitiveness (CCMC), working with Brunswick Insight, surveyed more than 300 corporate treasurers, controllers, CFOs, and CEOs from a wide range of companies with gross revenues from under $100,000 to more than $100 million. The online survey, which built upon CCMC's survey work in 2013, was conducted from April 21, 2016, to May 8, 2016. Questions covered topics such as economic outlook, regulatory challenges, cash operations, relationships with financial institutions, and what types of institutions companies use for different financial functions, among other topics.

State of Corporate Finance

Companies Have Different Financing Needs and Rely on Financial Institutions of All Sizes

From the large multinational manufacturer that uses over-the-counter derivatives to hedge gas prices to the small town florist that uses a short-term loan from the local bank, companies of all sizes rely on the financial services industry to drive growth. Businesses access and use various financial products and services and rely on multiple banks and other financial institutions to mitigate day-to-day business risk, raise capital, issue debt, and manage liquidity.

Since 2013, companies are using more and more varied financial services to provide the tools and services necessary to operate and grow their businesses in an increasingly competitive global market. Unfortunately, the cost and complexity of obtaining these services in the United States has risen due to the regulatory environment.

Great Plains Energy I Kansas City Power & Light Company

"The electric power industry is one of the most capital intensive business sectors in the United States with 2015 capital expenditures totaling over $100 billion alone. Easy access to the money market and capital markets is essential for Kansas City Power & Light Company and other utility companies to continue to invest in the electric grid to ensure all Americans enjoy safe and reliable power for years to come. We use working capital obtained under or supported by lines of credit provided by financial institutions to conduct daily operations then repay those funds with money raised through debt and equity offerings to permanently finance investments like needed generation facilities and transmission lines. Without the help of Wall Street and banks our business would be impossible. Unfortunately, banking and securities regulation advanced under Dodd-Frank, Basel III, and Money Market Fund reforms have all combined to limit access to capital, restrict legitimate risk management tools, and increase borrowing costs that will serve to limit future capital formation and increase the cost of electricity for everyone."

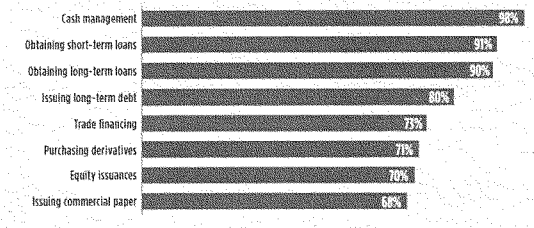
James Gilligan, Assistant Treasurer

Key Findings

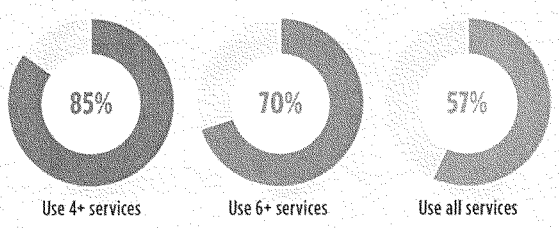
- More than half of companies surveyed utilize all eight products and services listed on a routine basis and 85% used 4 or more.
- 20% of small and midsize companies said that they use four or more financial institutions to issue commercial paper, raise corporate debt, or access trade financing.
- Large businesses also used four or more financial institutions in a variety of contexts, particularly when obtaining long-term loans, purchasing derivatives, and issuing corporate debt.
- 86% indicated that it is important for financial services providers to offer a wide spectrum of services.
- 68% (up from 50% in 2013) indicated that it is important for their financial services provider to have a global footprint.
- 65% want providers to specialize in specific products.

Services Used

Use of bank services

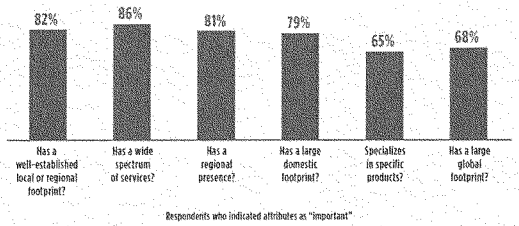


Percentage of respondents that use each service.



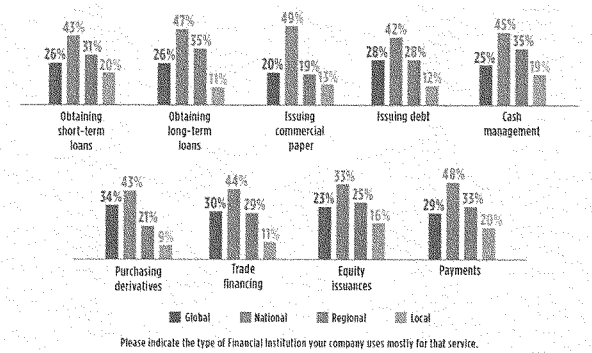
Importance of Bank Attributes

How important is it for your company to have a bank that:



Respondents who indicated attributes as "important"

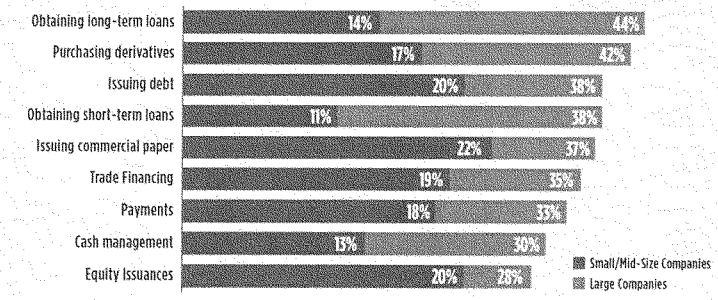
Use of Different Bank Types



Please indicate the type of Financial Institution your company uses mostly for that service.

Number of Institutions Used

Percentage of respondents that use 4 or more financial institutions for each activity



The Future: What Are Companies Facing

Cash Crunch

With a reliance on constrained financial services partners, cash flow and credit access pose the greatest finance challenge to U.S. businesses

Companies often fail or face turmoil because of cash management problems. For example, supplier invoices can come due before revenues or growth in sales needs to be supported by added investment. Managing cash and liquidity are top concerns of Main Street businesses and, in the last five years, regulations and economic changes have forced one in three companies to take new or unexpected steps to manage their cash. This challenge is especially acute for America's smallest businesses.

Key Findings

- 43% of respondents said that maintaining cash flow and liquidity are their chief concerns.
- Companies are most concerned about accessing credit, managing day-to-day currency risk, and raising short term capital. All are necessary functions to manage cash flow and liquidity.
- Regulations and economic changes have forced one in every three companies to take new or unexpected steps to manage their cash.
- 50% said that increased bank capital charges have increased their costs and challenges.

Quality Support, Inc.

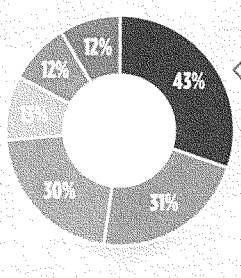
"In 1989, after 21 years in the Marine Corps, I started Quality Support, Inc., with only $600, a small loan from my Dad...and a dream. I did not even own a suit back then. I worked day and night for a number of years and finally saw progress in the form of more and more contracts. Our big break came when we were offered a very high level contract in the United Kingdom. It was our credit card company that gave us a much needed line of credit that allowed us to take on this important contract in London and make it all work. The contract put my company on the map and on a path to sustainable growth. Without this financing, I'm not sure where we would be today. I cannot thank our credit provider enough for what they did to support our small business in those early days. After 26 years in business, Quality Support continues to operate successfully, in a very competitive and challenging environment."

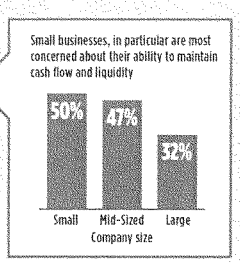
Wayne Gatewood, Jr., Founder and CEO

Top Macro Concerns

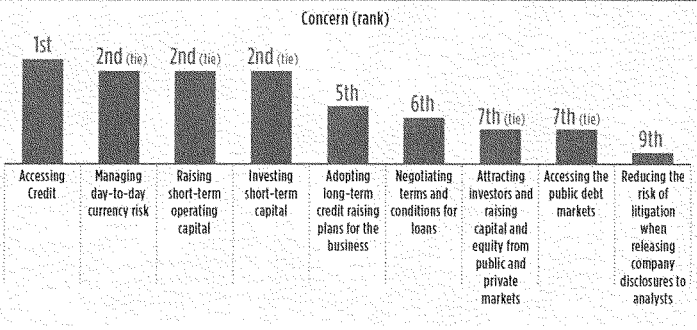
Over the next 12 months, which of the following issues do you foresee as the biggest financial concerns for your business?

- Maintaining cash flow and liquidity
- Managing risks on price fluctuations on exchange rates, interest rates, and commodities
- Dealing with uncertainty over new financial regulations
- Restrictions on diversifying credit from banks and other lenders
- Market liquidity
- Managing risks from international credit markets





Operational Concerns



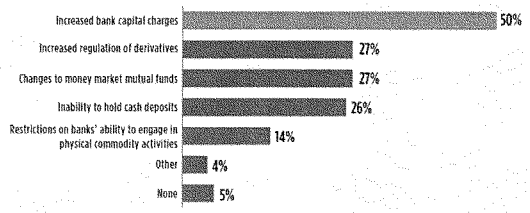
Changes in Cash Management Practices

In the past five years, has your company taken any new or unexpected steps to manage cash operations?

Yes - 34%

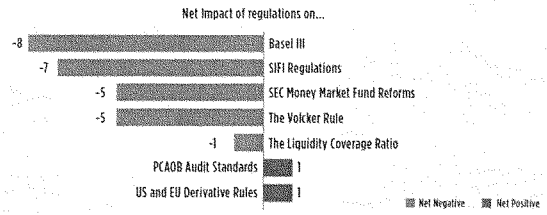
Sources of Costs

Thinking about the past 2-3 years, which of the following specific regulatory changes have caused increased costs or other challenges for your company?



Most Negative Regulations

In recent years, many new financial rules and regulations have been implemented. Would you say that the following regulations have had a positive or negative impact on your company?



The numbers reflect the net of the percentage of businesses who said each regulation had a positive impact minus the percentage of businesses who said the impact of each regulation was a negative on their business. For example, the negative numbers indicate that more businesses felt the impact was negative for the company.

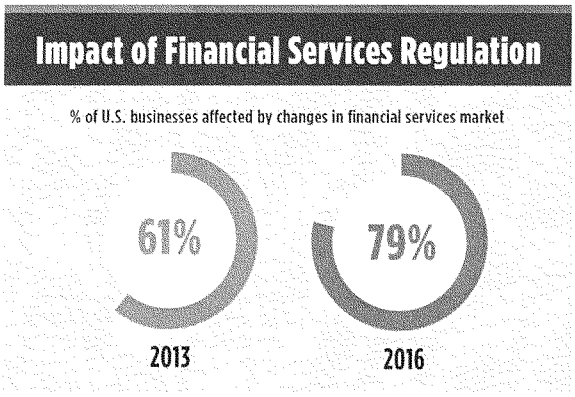
Impact of Financial Regulations on Main Street Companies

The trickle-down impact of regulatory overreach on customers

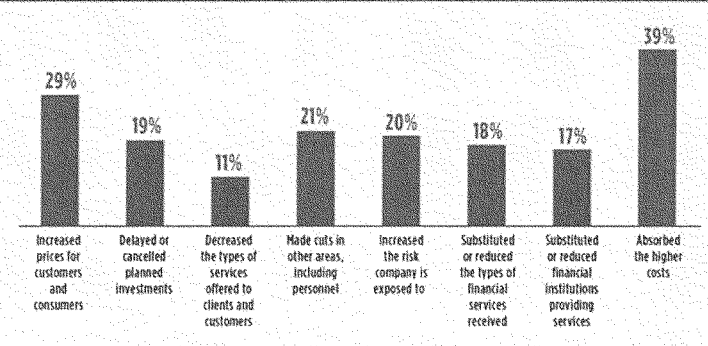
Businesses depend on a healthy, well-regulated financial system to spur economic growth. However, the past decade has been turbulent—from the financial crisis to its legislative response. While many of these reforms have improved the resilience of our financial system, a number of policy responses have gone too far and are negatively influencing Main Street companies and their customers.

Key Findings

- 79% of the businesses respondents are affected by changes in the financial services market.
- 29% have increased prices for customers and consumers as a result of changes to the financial services market (double the level seen in 2013).
- 39% have absorbed the higher costs.
- 19% have delayed or cancelled planned investments.
- 76% believe that the regulations on the financial services sector will not help their companies' outlook over the next two to three years.



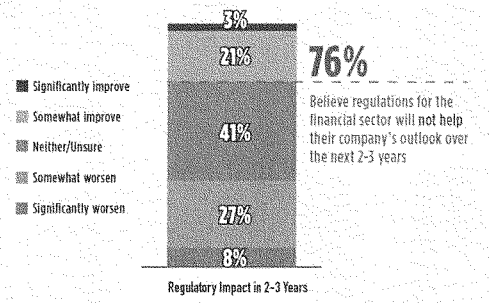
Impact of Financial Services Regulation



Which of the following actions has your company taken as a result of changes to the financial services market?

Looking Forward

Do you expect the regulations [for the financial services sector] to improve or worsen the outlook for your own company over the next 2-3 years?



Appendix

Glossary of Key Terms

Bank regulatory capital: The amount of capital that a bank must hold as required by its financial regulators. This is usually expressed as a ratio of required equity versus the assets held by a bank, adjusted for the assets' potential risk. Bank regulatory capital levels are established by international and domestic standard-setters and regulators, such as the Basel Committee on Banking Supervision and the Federal Reserve, respectively.

Bond: A debt security that represents a fixed-income claim on the cash flows and assets of a company.

Cash flow: The amount of cash and cash-equivalents moving in and out of a business. Businesses need positive cash flow in order to pay short-term obligations, such as everyday expenses, as well as maintain a cash buffer for unanticipated payments.

Viking Masek

"Our bank has been a key partner in Viking Masek's success over the last 16 years. When the company decided to transition from a sales organization to an integrated manufacturer in 2006, our bank provided the critical financing needed to purchase our facilities and then remained alongside us three years later when our continued growth required a new addition to our building. In addition to financing subsequent expansions, our bank has worked with us to develop a line of credit that has made our growth possible by allowing us to fund increased inventory and accounts receivable as our demand has grown. The close relationship we have built with our bank has been a key ingredient in the success of our business, which now employs more than 50 people."

Robert "RC" Huhn, Chief Financial Officer

Cash management tools: These tools assist a company with their short-term financial management needs and include a wide variety of products and services, including money market funds and certificates of deposit.

Commercial bank: A chartered financial institution that provides a variety of services to businesses, including accepting deposits, making loans, and other payment-related services.

Commercial paper: An unsecured short-term debt instrument issued by a company to raise short-term capital and manage near-term liabilities.

Debt financing: A form of raising capital that includes issuing bonds and other forms of indebtedness through the public and private markets or borrowing money directly from a lender. Debt financing requires paying interest and principal at specified dates.

Derivatives: Financial contracts whose value is driven by the value of another asset or security (known as an "underlying"). Commonly used derivatives include forwards, futures, and swap contracts. For example, swap contracts are used by businesses to manage risk, such as locking in a fixed rate of interest for an overseas payment.

Equity financing: A form of raising capital that allows cash to be contributed to a business in exchange for an ownership interest. Investors participating in equity financing typically have voting rights and share in the percentage of the firm's profits or potential losses.

Investment banks: Financial institutions that provide advisory services and help to raise capital for businesses in the public markets, including through underwriting, asset management, sales and trading, and research.

Liquidity: This refers to the volume of activity in a market, as well as a general measure of the ease of selling securities, such as bonds and stocks, or converting assets to cash. Market makers, like investment banks, help facilitate the flow of trading and ensure efficient, liquid capital markets.

Long-term loans: A loan or other long-term debt obligation that generally lasts more than one year.

Payment systems: These financial tools permit settlement of financial transactions by transferring monetary value – such as by wiring payment.

Risk management tools: These tools, such as derivatives, assist a company in managing their exposure to a variety of different risks, such as changes in interest rates, commodity prices, or foreign currencies.

Short-term loans: A loan or other short-term debt obligation that generally lasts less than one year.

Trade financing: A form of domestic or international financing that allows a firm to extend credit to its customer by selling its goods and services and permitting the customer to pay some date after the receipt of goods and services.

U.S. Chamber of Commerce
Center for Capital Market Competitiveness
1615 H Street, NW
Washington, DC 20062

TESTIMONY BEFORE
THE UNITED STATES HOUSE OF REPRESENTATIVES

COMMITTEE ON FINANCIAL SERVICES

SUBCOMITTEE ON
CAPITAL MARKETS, SECURITIES, AND INVESTMENTS

Hearing on
"Examining the Impact of the Volcker Rule on
Markets, Businesses, Investors, and Job Creation"

Testimony of

Charles K. Whitehead
Myron C. Taylor Alumni Professor of Business Law
Cornell Law School

Professor of Law and
Director of the Law, Technology, and Entrepreneurship Program
Cornell Tech

March 29, 2017

Chairman and Members of the Committee, thank you for inviting me to testify today regarding the impact of the Volcker Rule[1] on the financial markets and the general economy. My name is Charles Whitehead, and I am a Professor of Law at Cornell University specializing in capital markets, financial institutions and transactions, business organizations, and mergers and acquisitions. Before becoming an academic, I spent 17 years in the private sector and held senior legal and business positions in the financial services industry in New York and Tokyo.

I testify today in favor of repealing the Volcker Rule. A principal goal of the Volcker Rule is minimizing risky trading activities by banks and their affiliates and, consequently, enabling banks to pursue a "traditional" banking business in providing capital to businesses and consumers. What the Rule fails to reflect is change in how credit is provided today, moving from traditional banking to increasing participation by banks in the capital markets. This necessarily involves the banks' use of their own balance sheets to buy and sell securities as part of a market-making function. Artificially constraining their ability to do so affects the smooth operation of the capital markets.

There is certainly an argument for regulating risky trading activities. But the Volcker Rule addresses the wrong problem in the wrong way. The Volcker Rule was sold to Congress as a response to the 2008 financial crisis, an attempt to reduce risk in banks principally by banning short-term proprietary trading directly by banks and their affiliates and indirectly through investments in hedge funds and private equity funds. But why was restricting short-term proprietary trading a solution to the crisis? The answer is far from apparent and is unsupported by the facts that Congress had at the time. As Treasury Secretary Geithner testified, "most of the losses that were material . . . did not come from [proprietary trading] activities."[2]

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[1] Dodd-Frank Wall Street Reform and Consumer Protection Act, Pub. L. No. 111-203, § 619, 124 Stat. 1376, 1620 (2010) (codified at 12 U.S.C. § 1851 (2014)) (the "Dodd-Frank Act"). The Volcker Rule technically is not a "rule," but part of the statutory text in the Dodd-Frank Act, implemented in 2013 through final regulations (the "Final Rule") adopted by The Office of the Comptroller of the Currency, the Federal Reserve, the Federal Deposit Insurance Corporation, the Securities and Exchange Commission, and the Commodity Futures Trading Commission. *See* OCC, Federal Reserve, FDIC, and SEC, Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 79 Fed. Reg. 5536 (Dec. 10, 2013); CFTC, Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 79 Fed. Reg. 5808 (Jan. 31, 2014). The Final Rule became effective as of April 1, 2014. The Federal Reserve granted banks and their affiliates an extended conformance period until July 21, 2015. Unless the context otherwise requires, when I refer to the Volcker Rule in this testimony, I mean to refer to the statutory text and its implementing regulations.

[2] Hearing Before the Congressional Oversight Panel, 111th Cong. (2009) (testimony of Sec. of Treasury Timothy Geithner) (testifying about the causes of the 2008 financial crisis).

Rather, many of the most significant bank losses arose from traditional extensions of credit, especially loans related to real estate.[3]

I believe it is fair to say that the Rule's proponents were less interested in curing a particular cause of the financial crisis[4] and more interested in championing the view that commercial banking should be separated from investment banking, particularly proprietary trading and principal investing.[5] By barring proprietary trading by banks and their affiliates, the Rule's sponsors hoped that utility services, such as taking deposits and making loans, would once again dominate the banking business.[6] But that view reflected hope over experience. In light of the fluid and evolving nature of the financial markets, it was unlikely that regulation could force a return to the financial sector model of an earlier era when banks and bank lending were kept separate from the capital markets.

What has been the result? The Volcker Rule imposes a static divide – a financial Maginot Line – between short-term proprietary trading and banking, but does so within a world where capital markets and bank loans compete for corporate lending, and fluid financial markets continue to evolve and can sweep around a fixed position.[7] Changes in the financial markets spurred by the Volcker Rule still expose banks to the kinds of risks the Volcker Rule was intended to minimize or eliminate. Hedge funds and other, less-regulated entities whose activities can affect banks and bank risk taking picked up the proprietary trading that exited banks and their

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[3] *Id.* Chairman Volcker himself acknowledged that the restrictions in the Volcker Rule would not have prevented the financial crisis: "It certainly would not have solved the problem at AIG or solved the problem with Lehman Brothers, alone. It was not designed to solve those particular problems." Hearing Before the S. Comm. On Banking, Hous. & Urban Affairs, 111th Cong. (2010) (statement of Paul A. Volcker, Chairman, President's Econ. Recovery Adv. Bd.). To the extent trading contributed to bank losses, short-term proprietary activity may have been less of a concern than the losses suffered from longer-term holdings of risky asset-based (primarily mortgage-backed) securities not covered by the Volcker Rule. *See* Matthew Richardson et al., *Large Banks and the Volcker Rule*, *in* REGULATING WALL STREET: THE DODD-FRANK ACT AND THE NEW ARCHITECTURE OF GLOBAL FINANCE 181, 203-04 (linking bank losses in the 2008 financial crisis to the banks' strategy of holding mortgage-backed securities as long-term investments).

[4] *See* Kim Dixon & Karey Wutkowski, *Volcker: Proprietary Trading Not Central to Crisis*, REUTERS, Mar. 30, 2010 (reporting that Chairman Volcker, although still supporting the ban on proprietary trading, conceded it was not central to the financial crisis).

[5] *See* DAVID SKEEL, THE NEW FINANCIAL DEAL 86-87 (2011) (noting that, due to changes in market practices and technology, proprietary trading has become crucial to investment banking).

[6] *See* 156 CONG. REC. S5894 (daily ed. Jul. 15, 2010) (statement of Sen. Jeff Merkley) (describing the rationale for the Dodd-Frank Act).

[7] *See* Charles K. Whitehead, *Reframing Financial Regulation*, 90 B.U. L. REV. 1, 2-5, 36-40 (2010) (describing changes in the financial markets relating to market participants and financial instruments).

affiliates.[8] Moreover, in order to make up for losses in revenues, banking entities[9] shifted their risk-taking activities to other businesses – increasing their risk taking,[10] potentially through activities with which they were less familiar than the proprietary trading they were compelled to abandon.[11]

The problems around the Volcker Rule are exacerbated by practical difficulty in implementing the Rule itself. What is proprietary trading, and how is it distinguished from market-making? When implementing the Rule, the regulators noted that it was difficult to define certain permitted activities because it "often involves subtle distinctions that are difficult both to describe comprehensively within regulation and to evaluate in practice."[12] Specifically, in the Final Rule's proposing release, the regulators found that "[a]lthough the purpose and function of [market making activities and proprietary trading] are markedly different . . . clearly distinguishing these activities may be difficult in practice."[13] Likewise, industry participants have complained that the lack of definitional bright lines makes it difficult for banks to comply with the Rule.[14] As a result, banking entities have had to incur substantial costs in order to implement cumbersome supervisory and compliance regimes;[15] and in order to avoid stepping over the line, many have pulled back from permissible market-making activities.[16] The resulting increase in

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[8] *See* Charles K. Whitehead, *The Volcker Rule and Evolving Financial Markets*, 1 HARV. BUS. L. REV. 39, 46 (2011) (noting that banks will continue to be exposed to proprietary trading through their reliance on less-regulated hedge funds as one means to hedge credit risk).

[9] The term "banking entity" is defined *infra* at note 20.

[10] *See* Jussi Keppo & Josepf Korte, *Risk Targeting and Policy Illusions – Evidence from the Announcement of the Volcker Rule*, MGMT. SCIENCE 2-3 (Articles in Advance, 2016) (concluding that overall bank risk levels did not decline after announcement of the Volcker Rule); Sohhyun Chung et al., The Impact of Volcker Rule on Bank Profits and Default Probabilities 2-3 (Working Paper, June 19, 2016) (finding that the Volcker Rule raised the default probabilities of 34 U.S. banks by decreasing the size of the liquid trading book and increasing the illiquid banking book).

[11] *See infra* notes 52-56 and accompanying text.

[12] *See* Prohibition and Restrictions on Proprietary Trading and Certain Interests in, and Relationships With, Hedge Funds and Private Equity Funds, 68 Fed. Reg. 68,849 (Nov. 7, 2011).

[13] 68 Fed. Reg. 68,869.

[14] *See, e.g.*, Deloitte, The Volcker Rule's Impact on Infrastructure 2-3 (Jul. 2011) (noting that "[c]onstructing tests that definitively delineate between [proprietary trading and permitted activities] may be quite difficult" and that banking entities "will require robust infrastructure and processes to monitor and comply.").

[15] *See* Robin Greenwood et al., The Financial Regulatory Reform Agenda in 2017 11-12 (2017) (Harv. Bus. Sch. Project on Behav. Fin. and Fin. Stability, Working Paper 2017-9).

[16] *See* Jack Bao et al., The Volcker Rule and Market-Making in Times of Stress 10 (Fed. Res. Fin. and Econ. Disc. Series 2016-102) (finding that the illiquidity of stressed bonds has increased after adoption of the Volcker Rule); *see also* Darrell Duffie, Market Making Under the Proposed Volcker Rule 4-6 (Stan. Univ. Working Paper, Jan. 16, 2012) (stating that the Volcker Rule will reduce the overall quality and capacity of market-making services provided to U.S. investors).

investors' execution costs and the decline in market liquidity means that investors will demand higher yields on new bond issuances. The challenge is not how much capital is raised, but the incremental cost to issuers of raising it – a cost that affects Main Street as much as it affects Wall Street.[17]

The result is costly regulation with limited upside and the potential for greater downside.[18] There are legitimate reasons to be concerned over the risks associated with a bank's trading operations. But those risks can be more effectively addressed through other means, such as imposing capital charges on a bank's trading books and the traditional bank regulators' focus on risk management and assessing a bank's safety and soundness.[19] For those reasons, the Volcker Rule should be repealed.

Background

The Volcker Rule is intended to reduce risk taking by U.S. "banking entities" – essentially deposit-taking commercial banks, companies that control those banks, and any affiliate of any of the foregoing.[20] It does so by prohibiting a banking entity from "engag[ing] in proprietary trading" of securities, derivatives, commodity futures, and options on those instruments for their own account or "acquir[ing] or retain[ing] any equity, partnership, or other ownership interest in or sponsor[ing] a hedge fund or private equity fund."[21]

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[17] *See infra* notes 71-72 and accompanying text.

[18] Professor John Coates has argued that the Volcker Rule is a structural law that is designed to change the organizational culture of banks by, among other things, reducing bankers' incentives to take risk and reducing the authority of traders. *See* John C. Coates IV, *The Volcker Rule as Structural Law: Implications for Cost-Benefit Analysis and Administrative Law*, 10 CAP. MARKETS L.J. 447, 454 (2015). In light of its non-quantifiable goals, and the difficulty of anticipating private market response to the new regulatory structure, Professor Coates argues that the Volcker Rule should not be subject to a cost-benefit analysis. *Id.* at 468. Difficulty in assessing private market responses to changes in financial regulation is not uncommon, and the Volcker Rule is no exception. *See* Charles K. Whitehead, *The Goldilocks Approach: Financial Risk and Staged Regulation*, 97 CORNELL L. REV. 1267, 1272-73, 1299-1302 (2012). Nevertheless, without addressing Professor Coates' specific contention – namely, that structural law should never be subject to a formal cost-benefit analysis – when new regulation like the Volcker Rule imposes substantial costs on market participants, and the benefits are vague or open to interpretation, serious consideration should be given to whether those costs are justified by the likely merits. *See infra* note 72 and accompanying text.

[19] *See* Greenwood et al., *supra* note 15, at 12.

[20] The definition of "banking entity" appears at 12 U.S.C. § 1851(h)(1). The Volcker Rule also limits similar activities by certain systemically important financial institutions supervised by the Federal Reserve Board. 12 U.S.C. § 1851(a)(2).

[21] 12 U.S.C. § 1851(a)(1).

Proprietary Trading: What's in a Name?

Traditionally, proprietary trading referred to activities by trading desks that were allocated capital to invest for the firm's own account as opposed to other functions, such as assisting the firm in its asset-liability management.[22] The Volcker Rule's definition is both broader and narrower. The Rule is broader, because as implemented, it prohibits a banking entity from engaging as principal in *any* purchase or sale of the designated financial instruments, unless the activity is excluded from the definition of "proprietary trading" or an exemption is available. It is narrower, because "proprietary trading" principally covers the buying and selling of financial instruments for near-term gain; it does not extend to longer-term proprietary holdings.[23]

The problem, of course, is distinguishing proprietary trading activity from other trading that uses a banking entity's balance sheet, and distinguishing near-term from long-term trading activities. Generally speaking, trading activity is classified as proprietary if it satisfies one of three tests set out in the Final Rule (relating to the trade's purpose (the Purpose Test), its treatment under the market risk capital rules (the Market Risk Capital Rule Test), and whether the trade relates to the banking entity's status as a dealer, swap dealer, or security-based swap dealer (the Status Test)) and is not otherwise excluded from the proprietary trading definition.[24]

Of the three, the Purpose Test is the most ambiguous – principally due to its reliance on the "purpose" of the trade in classifying whether it is proprietary or not. The purchase or sale of a financial instrument will be considered near-term and proprietary (and, therefore, subject to the Volcker Rule, absent an exemption) if it is principally for the purpose of short-term resale, benefiting from actual or expected short-term price movements, realizing short-term arbitrage profits, or hedging one or more positions resulting from purchases or sales of financial instruments in one of the foregoing transactions.[25]

The Final Rule includes a rebuttable presumption that any financial instrument held for fewer than 60 days (or whose financial risk is substantially transferred

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[22] *See* Camille L. Orme & Whitney A. Chatterjee, *The Volcker Rule*, *in* REGULATION OF FOREIGN BANKS & AFFILIATES IN THE UNITED STATES (9th ed. 2016, Randall D. Guynn, ed.).

[23] Specifically, the activity must be for the "trading account" of the banking entity. A "trading account" is a set of transactions "used for acquiring or taking positions in the [covered financial instruments] principally for the purpose of selling in the near term (or otherwise with the intent to resell in order to profit from short-term price movements)" or as otherwise determined by applicable regulation. 12 U.S.C. § 1851(h)(6).

[24] A description of the three tests can be found in Orme & Chatterjee, *supra* note 22, at 1317-19.

[25] Final Rule §__.3(b)(1)(i).

within 60 days) meets the Purpose Test and, therefore, is proprietary. The presumption can be rebutted if, based on the facts and circumstances, the banking entity can demonstrate that the instrument was not purchased or sold for any of the purposes covered by the Purpose Test.[26] That means that two identical trades may be treated differently based on whether or not the banking entity is able to rebut the presumption that they are proprietary. Doing so requires some evidence of the trade's purpose and the trader's intentions – difficult to establish, particularly in light of the limited regulatory guidance on how the presumption can be rebutted in practice.[27]

Market-Making: What's in a Name? Part II

Among the proprietary trading exceptions, market-making is perhaps the most important.[28] It mirrors a classic bank function – providing liquidity to lenders without affecting the borrower's access to a stable source of capital – relying on the capital markets rather than traditional banking channels to do so. The exception was included in light of the importance of market-making to well-functioning capital markets and, in turn, the general economy.[29]

Market-making supports secondary trading liquidity, comprised of market liquidity and funding liquidity. Market liquidity refers to the ease by which an investor can sell a portfolio asset, like a stock or a bond. An asset's market liquidity is low when it becomes relatively difficult to raise money by selling the asset – where, in effect, there are sellers but relatively few buyers, causing a drop in the sale price. Anticipating that risk, investors are more likely to demand a higher return on their investment; the greater the risk, the greater the overall cost of raising capital.

Funding liquidity refers to the ability of investors and other market participants to finance their investment portfolios. Many investors use the assets they buy as collateral against short-term borrowings, often structured as sales at a discount (or

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[26] *See* Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 79 Fed. Reg. 5535, 5550 (Jan. 31, 2014).

[27] *See* Orme & Chatterjee, *supra* note 22, at 1318 n.78.

[28] 12 U.S.C. § 1851(d)(1)(B). Other exceptions include trading in U.S. Treasuries and other government instruments, 12 U.S.C. § 1851(d)(1)(A), risk-mitigating hedging, *id.* §1851(d)(1)(C), trading on behalf of customers, *id.* § 1851(d)(1)(D), and proprietary trading by non-U.S. banking entities occurring solely outside the United States, *id.* § 1851(d)(1)(H). Even then, the statutory exceptions to the Volcker Rule are subject to broad prudential backstop provisions that prevent banking entities from engaging in activity that would "involve or result in a material conflict of interest," "result, directly or indirectly, in a material exposure by the banking entity to high-risk assets or high-risk trading strategies," "pose a threat to the safety and soundness of such banking entity," or "pose a threat to the financial stability of the United States." 12 U.S.C. § 1851(d)(2)(A). *See also* Orme & Chatterjee, *supra* note 22, at 1380-83.

[29] 79 Fed. Reg. 5576, 5581.

a "haircut") and repurchases in the "repo" market. The size of the haircut is a reflection of the lender's ability to sell the collateral if the borrower defaults. Thus, a decline in market liquidity is likely to increase the haircut. It also limits how much the investor can borrow and, therefore, its business and operations – most likely prompting investors to demand an even greater return on the assets they buy.[30]

Stated differently, market and funding liquidity are two sides of the same coin. If market liquidity drops, the resulting rise in haircuts will lower the amounts available to buy new assets, in turn, prompting a further drop in market liquidity. This feedback loop is precisely what occurred during the 2008 financial crisis, resulting in a rapid decline in bond market liquidity.[31]

Even outside of a crisis, the relationship between market and funding liquidity can limit the amount of new capital that is available to end-users – those who rely on the capital markets to raise funds – or increase the overall cost of funding. More to the point, investors purchase securities on the basis of there being an adequate secondary market for resale, which largely depends on market-making activities. Unless an alternative source of liquidity appears, a decline in market-making is likely to increase portfolio risk and either reduce returns to investors or increase the issuer's cost of capital, or both.[32]

In order to qualify as market-making, the Volcker Rule requires that the trading desk that manages the exposure "routinely" be ready to purchase and sell the financial instruments for which it is making a market and be able to quote, purchase and sell, or otherwise enter into long and short positions in, those types of financial instruments for its own account, in commercially reasonable amounts, and throughout market cycles on a basis appropriate for the liquidity, maturity, and depth of the market for the relevant financial instruments.[33] In addition, the amounts, types, and risks of the financial instruments in the trader's market-making inventory must be designed not to exceed, on an ongoing basis, the reasonably expected near-term demands of clients, customers, or counterparties, based on the liquidity, maturity, and depth of the market for the relevant financial instruments, and a demonstrable

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[30] *See* Markus K. Brunnermeier & Lasse Heje Pedersen, *Market Liquidity and Funding Liquidity*, 22 REV. FIN. STUD. 2201, 2201-07 (2009);
[31] *See id.* at 2203-05.
[32] *See infra* notes 69-72 and accompanying text; *see also* Duffie, *supra* note 16, at 18-19.
[33] Final Rule § __.4(b).

analysis of historical customer demand,[34] the current inventory of financial instruments, and market and other factors regarding the amount, types, and risks of the financial instruments.

Compliance Complexity

Each banking entity is required to institute a compliance program that is "reasonably designed to ensure and monitor compliance" with the Volcker Rule.[35] The scope of each compliance program will vary based on "the types, size, scope and complexity of activities and business structure of the banking entity."[36] The program requirements are organized into five tiers, based on the banking entity's asset size and the volume of its trading activities. In general, however, for banking entities that conduct proprietary trading, each compliance program requires the banking entity to implement a wide array of policies and procedures, training, internal controls, and testing that may be enterprise-wide (to the extent applicable to one or more trading desks) or implemented for a particular business unit.

A banking entity must also report certain quantitative measures of its trading activities to the regulators if its trading assets and liabilities meet certain thresholds.[37] Those trading metrics must be calculated each trading day at the trading desk level for each desk that relies on, among others, the exemption for market-making.[38] The Final Rule includes detailed directions on how to calculate the metrics, including risk and position limits and usage, risk factor sensitivities, Value-at-Risk and Stress VaR, comprehensive profit and loss attribution, inventory turnover, inventory aging, and the ratio of customer-facing trades to trades with non-customers.[39] Those metrics are not intended as a means to assess compliance with the Volcker Rule, but rather are used to monitor trends and identify activities for further review.[40] Additional metrics may be needed in order to implement an effective compliance program.[41]

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[34] The types of information that could be used in this analysis include: "(i) [r]ecent trading volumes and customer trends; (ii) trading patterns of specific customers or other observable customer demand patterns; (iii) analysis of the banking entity's business plan and ability to win new customer business; (iv) evaluation of expected demand under current market conditions compared to prior similar periods; (v) schedule of maturities in customers' existing portfolios; and (vi) expected market events, such as an index rebalancing, and announcements." 79 Fed. Reg. 5610 to 5611.

[35] Final Rule § __.20(a).

[36] *Id.*

[37] *Id.* § __.20(d).

[38] *Id.* Appendix A §§ I, II.

[39] *See also* Orme & Chatterjee, *supra* note 22, at 1386-87 (summarizing the required metrics).

[40] 79 Fed. Reg. 5765.

[41] Final Rule Appendix A § I; 79 Fed. Reg. 5761.

Out of the Frying Pan Into the Frying Pan

Not surprisingly, much of the proprietary trading activity – often, internal hedge funds and walled-off speculative trading desks – was sold or pushed out of banking entities in anticipation of the Volcker Rule being implemented.[42] In many cases, the trading activity moved to less-regulated hedge funds.[43]

A key question is whether moving those risk-taking activities to hedge funds insulated banking entities from the problems the Volcker Rule was intended to address. There are a number of reasons to believe it does not.

Seven (or Fewer) Degrees of Separation

It is difficult today to wall-off one sector of the financial markets from another. Before the 2008 financial crisis, standard risk measurement methods underestimated how closely commercial banks, investment banks, hedge funds, and insurance companies are linked. As a result of that linkage, when financial conditions worsen for one type of institution, the effects can spread quickly to others. Spillovers among financial institutions may be small in times of financial stability, but quickly escalate when the system is under stress, particularly among certain types of entities. Key among them are hedge funds. One recent study found that "hedge funds may

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[42] *See* MICHAEL S. BARR, HOWELL E. JACKSON & MARGARET E. TAHYAR, FINANCIAL REGULATION: LAW AND POLICY 684 (2016).

[43] *See* Sam Jones, *More Goldman Traders to Exit for Funds*, FIN. TIMES, Jan. 9, 2011 (reporting that senior members of Goldman Sachs' last big proprietary trading desk left to launch a private hedge fund); Aaron Lucchetti, *Morgan Stanley Team to Exit in Fallout from Volcker Rule*, WALL ST. J., Jan. 11, 2011, at C1 (reporting that Morgan Stanley's proprietary trading unit will leave to form an independent trading firm); *see also Private Equity Groups Diversify*, FIN. TIMES, Dec. 20, 2010 (reporting that private equity firms are capitalizing on the forced divestiture of proprietary trading units by purchasing stakes in newly-created funds launched by those units). To be sure, the Dodd-Frank Act expanded hedge fund regulation by, among other things, eliminating the private advisor exemption from the Investment Advisers Act of 1940 and, with certain exceptions, requiring private fund advisers to register with the Securities and Exchange Commission. Dodd-Frank Act § 403. As a practical matter, however, the new requirements did little to affect the hedge fund industry, since many of the largest advisers were already registered. About 70% of hedge fund assets were managed by advisers that had voluntarily registered. *See After Dodging Many Bullets, Hedge Funds Are Back in Regulators' Sights*, KNOWLEDGE@WHATRON (Mar. 18, 2009) (noting that many hedge funds were willing to voluntarily register in order to attract institutional investor funds). Moreover, hedge funds typically are not subject to the prudential financial regulation that helps police the amount of risk that a bank can incur. *See* Whitehead, *supra* note 7, at 15-16, Appendix B.

be the most important transmitters of shocks during crises, more important than commercial banks or investment banks."[44] The reason relates to the trading strategies of hedge funds and their interconnectedness with other entities, including banks. Hedge funds are often highly leveraged and, in times of crisis, are likely to be forced to liquidate assets at fire-sale prices, causing hedge funds as a group to sustain heavy losses. Consequently, under some circumstances, hedge funds may perform in the same way, irrespective of management style, causing an overall decline in hedge fund stability at the same time.[45] This can lead to defaults that threaten banks directly as counterparties or creditors, and indirectly through the effect of the hedge funds' fire sales on the credit market.[46] Moreover, to the extent hedge funds provide a means for banks to outsource credit risk (through, for example, credit default swaps that transfer bank credit risk, often to hedge fund counterparties), a problem in the hedge fund industry can directly affect how banks manage risk precisely at the time they most need it, during a financial crisis.[47]

The Volcker Rule is also intended to suppress a bank's risk-taking "culture".[48] Its approach, however, presupposes a financial industry that no longer exists. Whether or not a bank has a risk-taking culture increasingly depends less on the CEO or the entity itself, and more on the opportunities for employment that exist elsewhere within the financial markets, including in hedge funds.[49] The focus on entities misses the effect on compensation (and risk-taking) of the competition among financial firms to hire good employees. That effect is significant. In a competitive market, firms are expected to adjust compensation in line with market demand, assessing and paying employees based on their relative ability to generate returns. In principle, that competition should align employee and employer incentives, allo-

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[44] Reint Gropp, *How Important Are Hedge Funds in a Crisis?* 1-2 (FRBSF Economic Letter 2014-11, Apr. 14, 2014).

[45] *See* Nicole M. Boyson et al., *Hedge Fund Contagion and Liquidity Shocks*, 65 J. FIN. 1789, 1814-15 (2010) (linking contagion in the hedge fund industry to liquidity shocks).

[46] *See* Gropp, *supra* note 44, at 2-3.

[47] *See* Whitehead, *supra* note 8, at 66.

[48] Chairman Volcker commented that one of the policy purposes of the Volcker Rule was to address a banking "culture" that was "manifested in the huge incentives to take risk inherent in the compensation practices for the traders. Can one group of employees be so richly rewarded, the traders, for essentially speculative, impersonal, short-term trading activities while professional commercial bankers providing essential commercial banking services to customers, and properly imbued with fiduciary values, be confined to a much more modest structure of compensation?" Paul A. Volcker, Commentary on the Restrictions on Proprietary Trading by Insured Depository Institutions 2 (Feb. 13, 2012).

[49] *See* Simone M. Sepe & Charles K. Whitehead, *Paying for Risk: Bankers, Compensation, and Competition*, 100 CORNELL L. REV. 655, 658-60 (2015) (finding that greater risk taking can increase short-term bank profits and, in turn, employee compensation, potentially at the expense of long-term bank value, so long as the employee can depart before any losses materialize).

cating the best employees to the most profitable firms. In the case of banks, however, combining performance-based pay with competition – where employees can move from one employer to the next – has had perverse results. Greater risk taking can increase short-term bank profits and the amount an employee is paid, potentially at the expense of longer-term bank value.[50] Employees, therefore, have an incentive to incur risk so long as they can depart for a new employer before any longer-term losses (and corresponding drop in pay) materialize. Competition results in an upward spiral in pay and limits the bank's ability to efficiently adjust compensation to reflect risk taking and long-term outcomes.[51] Stated differently, even if proprietary traders move to a different entity, a bank's executives are still trapped into providing risk-prone incentives to employees due to the pressures that arise from the market-wide competition for talent.

Unintended Consequences

A recent study focused on the Volcker Rule's effect on the investment, dividend, and recapitalization decisions, and also the profits and default probabilities, of 34 banks. It found that the Volcker Rule raised bank default probabilities. It did so by decreasing the bank's trading portfolio and increasing its illiquid banking portfolio, which is more difficult to manage.[52] Another recent study found that announcement of the Volcker Rule caused banks to reduce the size of their trading portfolios, but did not reduce their overall risk taking. To keep their risk targets, banks simply raised the trading risk of their remaining portfolios.[53]

This shift in bank risk taking should not be a surprise. It has happened before. When first introduced, risk-based capital requirements (and later increases in those requirements) had disparate effects on banks, decreasing a bank's risk taking in some cases but increasing it in others. Managers who were risk-averse chose to trade off

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[50] Although banking has evolved, a portion of a bank's losses may not be realized until the long term due to its investment in illiquid assets with maturities that are longer than a bank's demand deposits. *See* Jonathan R. Macy & Geoffrey P. Miller, *Deposit Insurance, the Implicit Regulatory Contract, and the Mismatch in the Term Structure of Banks' Assets and Liabilities*, 12 YALE J. ON REG. 1, 7 (1995). The Treasury, the Federal Reserve, and the Federal Deposit Insurance Corporation also noted the effect of compensation on bank risk prior to the financial crisis: "Flawed incentive compensation practices in the financial industry were one of many factors contributing to the financial crisis that began in 2007. Banking organizations too often rewarded employees for increasing the organization's revenue or short-term profit without adequate recognition of the risks the employees' activities posed to the organization." Guidance on Sound Incentive Compensation Policies, 75 Fed. Reg. 36,395, 36,396 (June 25, 2010).

[51] *See* Sepe & Whitehead, *supra* note 49, at 659.

[52] *See* Chung et al., *supra* note 10, at 3 (concluding that "in the default probability sense, the Volcker Rule is not effective").

[53] *See* Keppo & Korte, *supra* note 10, at 2-3.

profits for decreased risk. Managers who chose to maximize a bank's expected profits shifted investments into higher-risk portfolios. A 1998 study found that banks reacted differently depending on their capital positions and the particular regulatory requirements. Specifically, using a cross-section of bank data from 1984 to 1993, the study found a U-shaped relationship tied to changes in capital position and risk taking.[54] Severely undercapitalized banks were likely to take on significant risk – a moral hazard problem – whose cost was largely borne by the Federal Deposit Insurance Corporation ("FDIC"). Risk-taking incentives declined as capital increased, partly because banks bore the full cost of a loss if FDIC insurance was not triggered. Yet, risk taking increased again at higher capital levels as bank managers, whose banks were now sufficiently capitalized to protect against insolvency, chose to invest in riskier assets in order to offset higher costs.[55] The point is that, like the change in risk taking that occurred when risk capital requirements were introduced, a bank's managers may very well shift risk-taking in response to the Volcker Rule in order to offset the loss of the proprietary trading business.[56] The resulting increase in default probabilities is an unintended consequence.

All of the foregoing reflects the problem of having a static divide in a liquid market. Physically removing proprietary traders from banking entities may minimize the direct effect of their activities. But, in today's world, the indirect effects can be just as significant.

A Rose By Any Other Name

It was clear from the outset that implementing the Volcker Rule would be a challenge. One of the greatest hurdles has been identifying what constitutes proprietary trading in the first place. The reason for the challenge is the way in which

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[54] *See* Paul Calem & Rafael Rob, *The Impact of Capital-Based Regulation on Bank Risk-Taking*, 8 J. FIN. INTERMEDIATION 317, 318-20 (1999).

[55] *Id.* at 318-20, 329-31.

[56] In fact, this is what also occurred following adoption of the Gramm-Leach-Bliley Act of 1999, Pub. L. No. 106-102, § 101, 113 Stat. 1338, 1341 (codified as amended in scattered sections of 12 and 15 U.S.C.) (the "GLB Act"). Even though the wall between bank and non-bank activities had eroded prior to passage of the GLB Act, it heralded the ability of commercial banks to compete directly with traditional investment banks in the capital markets. Commercial banks gained a sizeable share of the business, very often leveraging their ability to extend credit through traditional lending in order to secure capital markets mandates. To offset lost revenues, investment banks moved into new business lines, and grew the amounts they borrowed to finance them, taking on new risks with which they had only limited prior experience. For investment banks, combining the two – new (and often greater) risk-taking and leverage – was lethal and eventually triggered the 2008 financial meltdown. *See* Charles K. Whitehead, *Size Matters: Commercial Banks and the Capital Markets*, 76 OHIO ST. L.J. 765, 775-802 (2015).

the Volcker Rule defines proprietary trading, in particular under the Purpose Test.[57] It is inherently difficult to implement regulations that are tied to a trader's intent. How can this be objectively measured? Federal Reserve Governor Jay Powell recently commented, "What the current law and rule do is effectively force you to look into the mind and heart of every trader or every trade to see what intent is. Is it proprietary trading or something else? If this is the test you set for yourself, you are going to wind up with tremendous expense and burden."[58] The result of tying proprietary trading to intent has been regulation that is overly complex and compliance programs that are costly to implement and administer[59] and often inadvertently capture the beneficial activities that are expressly permitted by the Volcker Rule.[60]

Quantifying Intent?

Recall that the Final Rule requires banking entities to report quantitative metrics on each trading desk.[61] Regulators have been collecting that data since July 2014, one year prior to the Volcker Rule's effective date. When adopting the Final Rule, the regulators committed to "evaluate the data collected during the compliance period both for its usefulness as a barometer of impermissible trading activity and excessive risk-taking and for its costs."[62] To date, the regulators have not announced the status of any analysis or any results, nor have they commented on how the data may be used to enforce compliance with the Rule. The silence is troubling, and may reflect the fact that the data is overwhelming, varying across asset classes, and from

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[57] *See supra* notes 24-27 and accompanying text.

[58] Steve Matthews, *Fed's Powell Urges Congress to Take Another Look at Volcker Rule*, BLOOMBERG.COM (Jan. 7, 2017).

[59] The Financial Stability Oversight Council (the "FSOC") studied and provided recommendations on the Volcker Rule before the Final Rule was adopted. *See* FIN. STABILITY OVERSIGHT COUNCIL, STUDY & RECOMMENDATIONS ON PROHIBITIONS ON PROPRIETARY TRADING & CERTAIN RELATIONSHIPS WITH HEDGE FUNDS & PRIVATE EQUITY FUNDS (2011) (the "FSOC Study"). Among other things, the FSOC Study noted that banking entities would be required to develop new regulatory and supervisory tools beyond their current risk management systems. *See id.* at 31 (noting that current risk management frameworks, because they are designed principally to limit losses, will need to be redeveloped to prioritize compliance with the Volcker Rule's prohibitions). Regulators, as well, need significant resources to hire and train staff with quantitative and market expertise, to develop and analyze data, and to review information in order to identify prohibited activities. *See id.* at 43-44. In addition, banking entities are now required to collect and test new data, including metrics to assess industry-wide trading on a desk-by-desk basis. *See id.* at 42.

[60] *See infra* notes 64-65 and accompanying text; *see also* Greenwood et al., *supra* note 15, at 11-12.

[61] *See supra* notes 37-41 and accompanying text.

[62] 79 Fed. Reg. 5772.

firm to firm and even desk to desk, suggesting that the Volcker Rule as implemented by the regulators is simply too complex for the regulators to effectively monitor.[63]

Romulus and Remus: Proprietary Trading and Market-Making

A particular difficulty has been distinguishing permissible activities, like market-making, from impermissible proprietary trading. As the Volcker Rule's notice of proposed rulemaking described:[64]

> It may be difficult to distinguish principal positions that appropriately support market making-related activities from positions taken for short-term, speculative purposes. In particular, it may be difficult to determine whether principal risk is been retained because (i) the retention of such risk is necessary to provide intermediation and liquidity services for a relevant financial instrument or (ii) the position is part of a speculative trading strategy designed to realize profits from price movements in retained principal risk.

In other words, although the intentions around market-making and proprietary trading are different, the activities are difficult to distinguish operationally. "Market making is inherently a form of proprietary trading. A market maker acquires a position from a client at one price and then lays off the position over time at an uncertain average price. The goal is to 'buy low, sell high.' In order to accomplish this goal on average over many trades, with an acceptable level of risk for the expected profit, a market maker relies on his expectation of the future path of market prices."[65]

One requirement for market-making is meeting reasonably expected near-term customer demands.[66] But predicting future demand can be difficult, and so market-makers may hesitate to acquire financial instruments in advance of an anticipated (but not guaranteed) rise. Likewise, it may be difficult to respond to a rapid pop-up in demand that exceeds a banking entity's internal compliance metrics. A trade that exceeds those limits "should not be permitted simply because it responds

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[63] *See* Lee Reiners, *Killing the Volcker Rule*, THE FINREG BLOG (Jan. 11, 2017). To the extent regulators do adopt metrics to separate permissible from impermissible activities, they must be sensitive to differences across firms – that potentially could result in arbitrage opportunities – as well as the need to adjust those metrics over time in order to reflect the changes in customer-oriented trading that are likely to occur.

[64] Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships with, Hedge Funds and Private Equity Funds, 76 Fed. Reg. 68,846, 68,869 (Nov. 7, 2011).

[65] Duffie, *supra* note 16, at 3-4.

[66] 12 U.S.C. § 1851(d)(1)(B).

to customer demand. Rather, a banking entity's compliance program must include escalation procedures that require review and approval of any trade that would exceed one or more of a trading desk's limits, demonstrable analysis that the basis for any temporary or permanent increase to one or more of a trading desk's limits is consistent with the requirements of this near term demand requirement and with the prudent management of risk by the banking entity, and independent review of such demonstrable analysis and approval."[67] As a result, market-makers are likely to find it difficult to respond to rapid rises in customer demand. And dealers who fear violating the Volcker Rule may choose to forgo legitimate market-making because they are unable to properly manage their inventory. Ambiguity as to what is legal market-making and what is prohibited proprietary trading may push banking entities toward more conservative trading strategies.[68]

The result is less market liquidity. In fact, a recent study concluded that bond market liquidity around ratings downgrades has deteriorated following adoption of the Volcker Rule. Alarmingly, the deterioration around those events has been as high during the post-Volcker Rule period as it was during the 2008 financial crisis. Consequently, the Volcker Rule may have serious consequences for the functioning of the bond markets during times of stress, precisely when liquidity is needed the most.[69]

Of course, entities not subject to the Volcker Rule may step in as market-makers. It is unclear, however, whether non-Volcker Rule dealers will be able to commit sufficient capital to make up the shortfall.[70] Hedge funds, as investors, may be subject to the same market fluctuations that their counterparties hope to mitigate, meaning that they are more likely not to buy or sell instruments at the time a market-maker is most needed. The same is true for insurance companies and asset managers who, as investors, are not traditionally in the business of making a market in the instruments in which they invest.

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[67] 79 Fed. Reg. 5612.

[68] *See* Duffie, *supra* note 16, at 4.

[69] *See* Bao et al., *supra* note 16, at 29. The Division of Investment Management of the Securities and Exchange Commission also noted changes in the bond markets following adoption of the Volcker Rule: "This apparent reduction in market-making capacity may be a persistent change, to the extent it is resulting from broader structural changes such as fewer proprietary trading desks at broker-dealers and increased regulatory capital requirements at the holding company level. A significant reduction in deal market-making has the potential to decrease liquidity and increase volatility in the fixed income markets." Securities and Exchange Commission, Division of Investment Management, IM Guidance Update (Jan. 2014).

[70] *See id.* at 23 ("Volcker-affected dealers tend to be larger than non-Volcker dealers and handled 93% of dealer-customer volume around stress events in the pre-[financial] crisis period.").

To date, this new participation has not been enough to offset the decreased liquidity in bond trading.[71] The resulting increase in investors' execution costs and the loss of market liquidity means that investors will demand higher yields on new bond issuances. The challenge is not how much capital is raised, but the incremental cost to issuers of raising it. The higher cost of new capital affects Main Street as much as it affects Wall Street. As a result, "all investors and savers will be affected. And investors and savers are not just large, complex financial institutions, but include workers whose pension funds and 401(k)'s invest in these securities. Families will have less access to credit and thus less ability to buy homes, cars, and put children through college. Businesses will find it harder to borrow, which will make it harder for them to do research and development, make capital investments, and create jobs. Asset prices will be pushed down, which will punish investors and savers. It is not clear what problem this rule is meant to solve, making it likely that this aspect of the new regulatory regime for large, complex financial institutions strikes a poor tradeoff between the gains from the regulation and the impairment to markets and overall economic vitality."[72]

A Few Words About Funds

The Volcker Rule restricts banking entities from sponsoring or investing in private equity funds and hedge funds, except under limited circumstances. The concern was that banking entities could continue to engage in proprietary trading through affiliated funds without those provisions. The restrictions were also meant to address reputational and market pressures that firms felt during the financial crisis to make investors whole or invest more capital into funds they had sponsored.[73]

In defining hedge funds and private equity funds, the Volcker Rule references two exemptions, §§ 3(c)(1) and 3(c)(7), from the definition of "investment company" under the Investment Company Act of 1940.[74] Although most hedge

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[71] *See id.* at 29.

[72] Phillip L. Swagel, Detecting and Avoiding Future Problems in the New Regulatory Regime (Dec.8, 2011), http://blogs.rhsmith.umd.edu/financialpolicy/2011/12/ (excerpt from the testimony of Phillip L. Swagel, Fellow at the University of Maryland Center for Financial Policy and former Treasury official, before the Comm. on Banking, Housing, and Urban Affairs, Subcomm. on Fin. Inst. and Consumer Protection, Dec. 7, 2011). Professor Duffie at Stanford has raised a similar concern. "Homeowners, businesses, and some municipalities would face higher borrowing costs. Firms would face higher costs for raising new capital. These increased costs would occur directly in the form of higher price impacts at the point of financing, and indirectly from the lower appetite of investors to own securities that would trade in thinner and more volatile secondary markets." Duffie, *supra* note 16, at 19.

[73] *See* BARR, JACKSON & TAHYAR, *supra* note 42, at 685.

[74] 12 U.S.C. § 1851(h)(2).

funds and private equity funds rely on one of those exemptions, the references are overbroad and inadvertently pick up a range of vehicles outside what was originally anticipated.[75]

To the extent the ban on proprietary trading is repealed, the limitation on investing in or sponsoring hedge funds and private equity funds should be repealed as well. After all, as described above, short-term proprietary trading was not the culprit leading to the financial crisis,[76] and removing that activity from banking entities has not removed its influence on banks.[77] To the extent there are concerns that a bank will bail out a sponsored fund, there are more direct ways to address this possibility. For example, a simple ban on making customers whole (such as appears in some countries, like Japan) will be sufficient to bar banking entities from propping up the funds that they sponsor.

Conclusion

As I noted at the outset, the Volcker Rule addresses the wrong problem in the wrong way. There is certainly an argument for regulating risky trading activities. But the problems leading up to the financial crisis did not arise from short-term proprietary trading, and so – particularly in light of the Volcker Rule's substantial costs – it is unclear why banning that activity from banking entities is necessary. Doing so inadvertently sweeps up a number of legitimate trading businesses and, as a result, potentially raises the cost of new capital.

The Volcker Rule should be replaced. In its place, there are other ways in which risk-taking can be regulated. A robust focus on risk-based capital requirements, designed to boost the amount of loss-absorbing common equity within a financial firm, may be the more appropriate tool. Imposing strict capital requirements on a banking entity's trading book, without trying to parse the difference between proprietary trading and market-making, will more efficiently accomplish the same ends – namely, a reduction in risk taking – that the Volcker Rule originally set out to do.

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[75] *See* BARR, JACKSON & TAHYAR, *supra* note 42, at 685-86.
[76] *See supra* notes 2-6 and accompanying text.
[77] *See supra* notes 42-56 and accompanying text.

March 28, 2017

The Honorable Bill Huizenga
Chairman
Subcommittee on Capital Markets,
Securities, and Investment
2129 Rayburn House Office Building
Washington, DC 20515

The Honorable Carolyn B. Maloney
Ranking Member
Subcommittee on Capital Markets,
Securities, and Investment
4340 Thomas P. O'Neill, Jr. Federal Building
Washington, DC 20515

Dear Chairman Huizenga and Ranking Member Maloney:

On behalf of our nation's venture capital investors and the entrepreneurs they support, I write to express our thoughts on the Volcker Rule which will be the subject of a hearing before your subcommittee on Wednesday, March 29, 2017 entitled, "Examining the Impact of the Volcker Rule on the Markets, Businesses, Investors, and Job Creators."

As Congress undertakes a thorough review of the Volcker Rule, we urge you and your colleagues to explore the impact of the rule on capital formation for startups, particularly in the Midwest and other areas of the country not typically associated with startup activity but nevertheless vital to the health of our national entrepreneurial ecosystem. Investing in venture capital does not create systemic risk, yet the Volcker Rule has served to drive out investment in many venture capital funds who are not big enough to receive investment from major institutional pools of capital. This is investment that could have been put to use building new companies and creating new job opportunities across the U.S.

Young companies, many of which are supported by venture capital investment and mentorship, create an average of 3 million new jobs a year and have been responsible for almost all net new job creation in the U.S. in the last forty years. From FedEX to Genentech, startup entrepreneurs have fueled economic growth and expanded opportunities for the American worker. The American entrepreneurial spirit is key to expanded economic opportunity in the U.S., but is not being fully realized due to the unintended consequences of the Volcker rule on venture capital fund formation. Without modifications, the Volcker Rule will stand in the way of interested investors deploying capital to venture capital funds across the country who can use that capital to support the growth of the next generation of innovative American companies.

Whether intentional or not, the Volcker Rule has significantly hurt venture capital fund formation, reducing opportunities for young startups across the U.S. to receive the investment

and support they need to take their companies to the next level. As your subcommittee continues to explore modifications to the Volcker Rule, NVCA and our over 300 members firms stand ready to work constructively with you on commonsense areas of reform. Thank you for your attention to this important matter. We are encouraged by the conversation and excited to work with you on solutions to address the problem.

Sincerely,

Bobby Franklin

Bobby Franklin
President and CEO

Federal Reserve December 2016 Staff Report

"Our main finding is that the Volcker Rule has a deleterious effect on corporate bond liquidity and dealers subject to the Rule become less willing to provide liquidity during stress times."

Federal Reserve December 2016 Staff Report

"Indeed, we find the disturbing result that illiquidity in stress periods is now approaching levels seen during the financial crisis."

HFSC CM Subcommittee Hearing entitled
"Examining the Impact of the Volcker Rule on Markets, Businesses, Investors, and Job Creators"
March 29, 2017

Questions for the Record from Congressman Huizenga (R-MI)

Mr. Ronald J. Kruszewski

1. In your testimony before the Committee you discussed the impact that the Volcker Rule has on liquidity in the financial markets. You state: "Since the financial crisis, several rules have been implemented which have significantly increased the quantity and quality of the capital and increased internal liquidity of our financial institutions, most more stringent than internationally agree standards. But the Volcker Rule doesn't do anything to increase capital or internal liquidity at firms, but it does impact firms' ability to make markets and provide liquidity, particularly in times of stress, as the Federal Reserve itself has written."

Based on this, can you elaborate on the impact the Volcker Rule has on liquidity and how this impact could be exacerbated during times of stress?

You briefly discuss the Federal Reserve report, can you elaborate on the data that they provide on how liquidity has been impacted? Is there any additional data that demonstrates how liquidity has been impacted?

Response:

A key function of financial intermediaries is providing market making services to customers. Restricting such services through overly complex and intent-based rules lessens the ability of financial intermediaries to provide this necessary service to customers. As noted throughout my written testimony, the Volcker Rule lessens liquidity—particularly in over-the-counter (OTC) markets—by creating a compliance structure that forces firms to take an overly conservative approach even to the permitted activities such as market making to remain within the confusing parameters of the Rule. The Rule presumes that all activity is prohibited proprietary trading and then requires firms to prove that the activity meets the requirements of an exclusion or an exemption. The prescriptive conditions for engaging in market making have led many financial institutions subject to the Rule to scale back their trading operations as well as inventories of financial assets to remain within the Rule's strict guidelines. As I've noted, market makers provide liquidity by buying, selling and holding infrequently traded financial products in inventory, granting buyers and sellers immediacy in transactions that may not be otherwise available.

While we are seeing the impact of Volcker in the current benign trading environment through reduced inventories of –most notably—corporate bonds, a stressed market situation will only force firms to further withdraw from active customer facilitation activities. During times of stress, financial institutions will be disincentivized from providing liquidity, precisely when doing so could stem a nascent crisis, if trading in a stressed environment subject them to complex standards and negative presumptions. The chilling effect introduced by the Volcker Rule could cause problems in

one part of the financial sector to spread quickly to the broader economy when it otherwise could have been absorbed by the market liquidity—a pro-cyclical effect that could exacerbate any crisis.

The Federal Reserve report illustrates the impact the Volcker Rule has had already on liquidity conditions in the OTC markets and illustrates, in a real-world situation, concerns around the potential impact during stressed market conditions. By looking at a narrow set of circumstances—the downgrades of specific corporate bonds from investment grade to speculative-grade—the Federal Reserve report could assess Volcker Rule-specific impacts. The conclusion of the report was clear: "bond liquidity deterioration around rating downgrades has worsened following the implementation of the Volcker Rule." Most importantly, the data that formed the basis of the report (which is not publicly available) allowed for an analysis that was able to isolate the impact of the Volcker Rule on this market by stripping out the effects of Basel III and CCAR on the activities of entities subject to the Volcker Rule.

2. During questioning, you commented on the charts that Ms. Maloney put up during her opening statement: "I believe that this very debate and the -- and the confusion in this debate was highlighted by putting up charts on VaR, which is value at risk -- and then using that to make an argument about Volcker."

"I find it to be apples and oranges at best. VaR is risk on the balance sheet. And what we're talking about is the mechanisms to provide liquidity in the plumbing of capital markets. And Volcker absolutely hinders that."

What is the purpose of VaR? Is it meant to measure liquidity?

Ms. Maloney claimed that the two charts she displayed demonstrate that Volcker has not had an impact. Do you agree or disagree? How would you read the charts?

RESPONSE:

As I noted during questioning, VaR is not a measure of liquidity and adds nothing to a discussion of the impact of the Volcker Rule on market liquidity. VaR is a risk measure, not a liquidity measure. Indeed, the generally accepted definition of VaR does not look at liquidity at all: VaR is a statistical technique used to measure and quantify the level of financial risk within a firm or investment portfolio over time. Thus, the charts shown by Congresswoman Maloney show a steadiness in risk over the period surveyed (ie, a quantification of potential losses over a given time-frame) while saying nothing about willingness to provide liquidity through market making. A higher or a lower VaR over time tells us very little about a firm's willingness to meet a customer's expectations of immediacy and availability. As the Federal Reserve report has shown, firms have, in fact, been less willing, particularly during a stress event, to provide the necessary customer facilitation since Volcker.

I believe that the charts fail to illuminate anything around the impact of Volcker on either the riskiness of the firms' activities or the willingness to continue customer facilitation activities, and

therefore fail to illuminate anything around the impact of Volcker on market liquidity. The charts reflect the riskiness of the trading desks' positions and the potential loss that could be taken. None of this indicates a willingness to provide immediacy or to keep in inventory corporate bonds for customers.

Hearing entitled "Examining the Impact of the Volcker Rule on the Markets, Businesses, Investors, and Job Creators"

Capital Markets, Securities, and Investment
March 29, 2017 10:00 AM in 2128 Rayburn HOB

Question for the Record for Marc Jarsulic
Submitted by Rep. Keith Ellison

In recent months, Republicans have repeatedly cited a September 2016 Federal Reserve staff study, which examined a sample of corporate bonds that were downgraded to junk status and sold between January 2006 and March 2016. Based on the increased intermediation costs for these sales during times of issuer stress, the authors found "the Volcker Rule has a deleterious effect on corporate bond liquidity and dealers subject to the Rule become less willing to provide liquidity during stress times." However, as critics of the study have pointed out, the implications of the paper for liquidity in the overall corporate bond market are limited.

Will you discuss the limits of the study and how it came up with a conclusion contrary to the vast majority of research on the Volcker Rule's impact on corporate bond market liquidity?

Response by Marc Jarsulic
Vice President, Economic Policy
Center for American Progress

Representative Ellison, I appreciate the opportunity to respond to your question. As you correctly point out, the Federal Reserve staff working paper by Bao et al. (2016) on the Volcker Rule's impact on market liquidity came up with a conclusion counter to a wide array of research on the subject.[1] It is useful then, to first briefly outline the substantial evidence on the current state of corporate bond market liquidity before turning to the results of the Bao et al. study.

Several different widely used indicators of market liquidity show that the corporate bond market is as liquid, and according to some indicators more liquid, than prior to the financial crisis. The bid-ask spread

[1] Bao, Jack, Maureen O'Hara, and Alex Zhou, "The Volcker Rule and Market-Making in Times of Stress," Finance and Economics Discussion Series, Division of Research & Statistics and Monetary Affairs, Federal Reserve Board, December 2016, available at https://www.federalreserve.gov/econresdata/feds/2016/files/2016102pap.pdf.

and price impact of trades—two frequently used measures of market liquidity—are both very low compared to pre-crisis levels, after spiking significantly during the financial crisis. While trade size has not recovered to pre-crisis levels, the decline in the price impact of trades suggests that smaller trade sizes are not a reflection of decreased liquidity. Even though the corporate bond inventories at broker-dealers have fallen sharply since the financial crisis, analysts at Goldman Sachs have pointed out that private label mortgage backed securities were counted as corporate bonds in the inventory calculation.[2] The precipitous drop in private label mortgage backed securities accounts for the drop in dealer inventories following the crisis and does not reflect a steep drop in traditional corporate bonds.

Based on these and other data, the general conclusion of several studies is that there has not been a significant reduction in corporate bond liquidity between the pre-crisis and post-crisis periods.[3] Moreover, researchers at the Federal Reserve Bank of New York also determined that liquidity risk, the extent to which corporate bond market liquidity is vulnerable to market shocks, is below pre-crisis levels.[4]

The conclusion presented in the Federal Reserve staff working paper from Bao et al. runs counter to the evidence cited above. The paper asserts that the corporate bond markets have less liquidity under conditions of stress in the post-Volcker period, relative to the period before the financial crisis.

However, the statistical evidence which supports this conclusion is contradicted by a statistical robustness check that is also reported in the paper. Hence the paper really presents no good reason to believe that liquidity has declined.

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[2] Goldman Sachs Credit Strategy Research, "Primary dealer data overstate decline in corporate bond inventories," The Credit Line, March 17, 2013.

[3] Adrian, Tobias et al., "Market Liquidity after the Financial Crisis," Federal Reserve Bank of New York Staff Reports, October 2016, available at https://www.newyorkfed.org/medialibrary/media/research/staff_reports/sr796.pdf?la=en; Mizrach, Bruce, "Analysis of Corporate Bond Liquidity," FINRA Office of the Chief Economist Research Note, December 2015, available at https://www.finra.org/sites/default/files/OCE_researchnote_liquidity_2015_12.pdf; Trebbi, Francesco and Kairong Xiao, "Regulation and Market Liquidity," Working Paper, University of British Columbia, 2016, available at http://faculty.arts.ubc.ca/ftrebbi/research/tx.pdf; Bessembinder, Hendrik et al., "Capital Commitment and Illiquidity in Corporate Bonds," Working Paper, Arizona State University and Southern Methodist University, 2016, available at http://finance.bus.utk.edu/UTSMC/documents/BillMaxwellPapertopresent042016.pdf.

[4] Adrian, Tobias et al., "Has Liquidity Risk in the Corporate Bond Market Increased?" Liberty Street Economics, Federal Reserve Bank of New York, October 6, 2015, available at http://libertystreeteconomics.newyorkfed.org/2015/10/has-liquidity-risk-in-the-corporate-bondmarket-increased.html.

The authors consider liquidity when bonds are under stress, using regression analysis to show that immediately after large credit downgrades, the price declines experienced by corporate bonds are larger in the "Post-crisis" (May 1, 2009 – July 20, 2010), "Post-Dodd Frank" (July 21, 2010 – March 31, 2014), and "Post-Volcker" (April 1, 2014 – March 31 2016) periods when compared to the "pre-Crisis" period (January 1, 2006 – June 30, 2007). They find these results are statistically significant at the 5 percent confidence level. They also find that the price decline measure in the "Post-Volcker" period is greater than in the immediately preceding "Post-Dodd Frank" period, and not statistically significantly different from the effects in the "Crisis" and "post-Crisis" periods. This, they say, means that bond markets have less liquidity under conditions of stress, Post-Volcker, in comparison to the pre-Crisis period.

However, their own regression analysis of the impact of the same downgrades on the bid-ask spread for these bonds tells a different story. The bid-ask spread is a standard measure of asset market liquidity. And when Bao et al. measure liquidity under stress using the bid-ask spread as the independent variable in their regressions, the statistical support for the claim of deteriorating liquidity in the Post-Volcker period vanishes.

Using this standard liquidity measure, Bao et al. cannot reject the hypothesis that there is no impact of bond downgrades on the bid-ask spread for any time period other than the Crisis period at the 5 percent confidence level. That is, none of the coefficients that measure impact in subsequent periods is statistically significantly different from zero at the 5 percent confidence level.[5] Moreover, the difference between the post-Dodd Frank and post-Volcker coefficients is no longer statistically significant at the 5 percent confidence level.[6]

Since the bid-ask spread is a standard measure of asset market liquidity, a detached observer would conclude that the authors' results do not provide consistent statistical support for the claim that liquidity has declined, even when restricting attention to bonds that have experienced significant ratings downgrades. The regression results for two measures of liquidity point to different conclusions—which is exactly why economists look for robustness when analyzing policy changes.

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[5] The relevant statistical results are in Bao et al. (2016), Table 5.
[6] Bao et al. (2016), p. 19.

In addition, there are important methodological issues the that authors of this paper overlook in their analysis of price impacts. For example, the regression analysis of price impacts does not adequately control for the composition of the sample in different time periods, a concern that is amplified because the bid-ask spread analysis points in a different direction. We know that many of the firms downgraded in the study's post-2014 sample (at least 19 out of 55) are tied to the oil and gas sectors, which were under considerable stress during this period.[7] Hence the observed bond price declines may be a function of large embedded losses in oil and gas bonds that are not fully captured by changes in ratings, rather than diminished market making capacity. There should be an explicit control for this and other sectoral-related events, to more accurately account for that fraction of price changes that have nothing to do with overall bond market liquidity.

Moreover, the study does not take into account the reality that banks began to respond to the Volcker Rule well before 2014. Banks began reducing proprietary trading well before that, as news reports from 2010 and 2012 indicate.[8] As a consequence, price changes in the period defined as "Post-Dodd Frank," actually correspond to a period in which the Volcker Rule had an effect on the behavior of market participants. So any differences in the regression coefficients estimated for the "Post-Volcker" and "Post-Dodd Frank" periods cannot be attributed unambiguously to the operation of Volcker Rule.

Hence, based on evidence presented by the authors themselves, and on consideration of methodological issues they did not address, there is little reason to conclude that this paper provides sound evidence that bond market liquidity has been negatively affected by the operation of the Volcker Rule.

Thank you, Representative Ellison for the chance to respond to your question on this important topic.

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[7] Sam Goldfarb, "Moody's Ratings Downgrades Become Another Thorn in Oil Patch," *The Wall Street Journal*, April 17, 2016, available at https://www.wsj.com/articles/moodys-another-thorn-in-oil-patch-1460937835.

[8] For example, see Tommy Wilkes, "Banks move high risk traders ahead of U.S. rule," *Reuters*, April 3, 2012, available at http://www.reuters.com/article/us-volckerrule-trading-idUSBRE8320GS20120403; Nelson Schwartz, "Bank of America Cuts Back Its Prop Trading Desk," *The New York Times*, September 29, 2010, available at https://dealbook.nytimes.com/2010/09/29/bank-of-america-cuts-back-its-prop-trading-desk/; Kevin Roose, "Citigroup to Close Prop Trading Desk," *The New York Times*, January 27, 2012, available at https://dealbook.nytimes.com/2012/01/27/citigroup-to-close-prop-trading-desk/.

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August 29, 2016

The Honorable Janet L. Yellen
Chair
Board of Governors of the Federal Reserve System
20th Street and Constitution Avenue NW
Washington, DC 20551

The Honorable Thomas J. Curry
Comptroller of the Currency
Office of the Comptroller of the Currency
250 E Street SE
Washington, DC 20219

The Honorable Martin J. Gruenberg
Chairman
Federal Deposit Insurance Corporation
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The Honorable Mary Jo White
Chair
Securities and Exchange Commission
100 F Street NE
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The Honorable Timothy Massad
Chairman
U.S. Commodity Futures Trading Commission
Three Lafayette Centre
1155 21st Street NW
Washington, DC 20581

Dear Chair Yellen, Comptroller Curry, Chairman Gruenberg, Chair White, and Chairman Massad:

I am writing with regard to the ongoing implementation of the Volcker Rule, and to request an update on the quantitative trading metrics that your agencies have been collecting pursuant to the rule. As you know, the Volcker Rule prohibits U.S. banking entities from engaging in proprietary trading, while permitting legitimate market-making and hedging activities.[1] The prohibition on proprietary trading took effect on July 21, 2015.[2]

To help the agencies distinguish permitted market-making and hedging activities from prohibited proprietary trading, the final rule requires banks with significant trading operations to report a

[1] *See* 12 C.F.R. 248.3(a) (prohibiting banks from engaging in proprietary trading); 12 C.F.R. 248.4(b) (allowing banks to engage in "market making-related activities"); 12 C.F.R. 248.5 (allowing banks to engage in "risk-mitigating hedging activities"). The rule also allows banks to engage in legitimate underwriting activities. *See* 12 C.F.R. 248.4(a) (allowing banks to engage in "underwriting activities").
[2] Board of Governors of the Federal Reserve System, *Board Order Approving Extension of Conformance Period* (December 10, 2013).

series of quantitative trading metrics to the regulators.[3] Specifically, the final rule requires these banks to report — for each trading desk — seven different quantitative metrics: (1) risk and position limits and usage; (2) risk factor sensitivities; (3) value-at-risk (VaR) and stress VaR; (4) comprehensive profit and loss attribution; (5) inventory turnover; (6) inventory aging; and (7) customer facing trade ratios.[4] These metrics are intended to help the agencies identify trades that warrant further scrutiny in order to determine whether a bank has engaged in prohibited proprietary trading.[5]

The agencies have been collecting these quantitative metrics on the trading activities of large banks since July 2014.[6] Thus, the agencies currently have nearly two years of quantitative trading data, spanning periods both before and after the effective date of the proprietary trading ban.

I believe that these quantitative trading metrics can provide important information not only about the efficacy of the Volcker Rule, but also about the general trading activities of U.S. banks, and the degree to which these trading activities have changed over the past two years. For example, there has been a vigorous debate about the liquidity of certain U.S. fixed-income markets, such as corporate bonds, and about whether the liquidity of these markets has deteriorated in recent years.[7] Data on the inventory turnover, inventory aging, and customer-facing trade ratios in the fixed-income market-making units of the large banks could prove particularly informative in this debate.

Moreover, the agencies stated in the final rule that they intended to "evaluate the data collected during the compliance period both for its usefulness as a barometer of impermissible trading activity and excessive risk-taking and for its costs."[8] The agencies indicated that they would "revisit the metrics and determine, based on a review of the data collected by September 30, 2015, whether to modify, retain or replace the metrics."[9]

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[3] *See* 12 C.F.R. 248, Appendix A.

[4] *Id.*

[5] *See* Prohibitions and Restrictions on Proprietary Trading and Certain Interests in, and Relationships With, Hedge Funds and Private Equity Funds, 79 Fed. Reg. 5765 (January 31, 2014) (noting that the quantitative metrics "will be used to monitor patterns and identify activity that may warrant further review.").

[6] *See* Board of Governors of the Federal Reserve System, *Volcker Rule: Frequently Asked Questions* (last updated March 4, 2016) (noting that banks had to start recording daily metrics on July 1, 2014, and had to report these daily metrics to the agencies starting on September 2, 2014), *available at* http://www.federalreserve.gov/bankinforeg/volcker-rule/faq.htm.

[7] *See e.g.*, Bank for International Settlements, Committee on the Global Financial System, *Fixed Income Market Liquidity* (January 21, 2016); JPMorgan, *U.S. Fixed Income Weekly: U.S. Corporate Bond Market Liquidity — An Update* (April 4, 2015); Blackrock, *Addressing Market Liquidity* (July 10, 2015); Barclays, *The Decline in Financial Market Liquidity* (June 16, 2015); Citi, *The Liquidity Paradox: The More Liquidity Central Banks Add, the Less There Is in Markets* (May 4, 2015); *see also* Richard Barley, "Liquidity Specter Haunts Corporate-Bond Markets," *Wall Street Journal* (January 11, 2015), *available at* http://www.wsj.com/articles/liquidity-specter-haunts-corporate-bond-markets-heard-on-the-street-1421009028; Eric Platt and Joe Rennison, "Megadeals Are Monopolising Bond Liquidity," *Financial Times* (April 6, 2016), *available at* http://www.ft.com/cms/s/0/6c6b0f12-f921-11e5-8e04-8600cef2ca75.html.

[8] 79 Fed. Reg. 5772 (January 31, 2014).

[9] *Id.*; *see also id.* at 5765 ("The Agencies will review the data collected and revise this collection requirement as appropriate based on a review of the data collected prior to September 30, 2015.").

Accordingly, I respectfully request an analysis of the quantitative trading metrics collected pursuant to the Volcker Rule — properly tailored to protect confidential supervisory information — that addresses the following issues:

- The extent to which the data showed significant changes in banks' trading activities leading up to the July 21, 2015 effective date for the prohibition on proprietary trading. To the extent that the data did *not* show a significant change in the banks' trading activities leading up to the July 21, 2015 effective date, whether the agencies believe this is attributable to the banks having ceased their proprietary trading activities prior to the start of the metrics reporting in July 2014.

- Whether there are any meaningful differences in either overall risk *levels* or risk *tolerances* — as indicated by risk and position limits and usage, VaR and stress VaR, and risk factor sensitivities — for trading activities at different banks.

- Whether the risk levels or risk tolerances of similar trading desks are comparable across banks reporting quantitative metrics. Similarly, whether the data show any particular types of trading desks (e.g., high-yield corporate bonds, asset-backed securities) that have exhibited unusually high levels of risk.

- How examiners at the agencies have used the quantitative metrics to date.

- How often the agencies review the quantitative metrics to determine compliance with the Volcker Rule, and what form the agencies' reviews of the quantitative metrics take.

- Whether the quantitative metrics have triggered further reviews by any of the agencies of a bank's trading activities, and if so, the outcome of those reviews.

- Any changes to the quantitative metrics that the agencies have made, or are considering making, as a result of the agencies' review of the data received as of September 30, 2015.

- Anything else in the data that any of the agencies — either individually or collectively — consider to be notable or important from a policymaking perspective.

The Volcker Rule's prohibition on proprietary trading is critically important, and I strongly support the agencies' efforts to implement this rule. I would appreciate a response no later than October 30, 2016. If you have any questions about this request, please contact Ben Harney on my staff at (202) 225-7944.

Sincerely,

Carolyn B. Maloney
Ranking Member
Subcommittee on Capital Markets and Government Sponsored Enterprises

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