Comments and Discussion

COMMENT BY

VIRAL ACHARYA Metrick and Tarullo introduce the notion of a "congruence principle" in regulating financial risk-taking in order to limit the unchecked buildup of risks in nonbank financial intermediaries when risks are regulated in parts of the financial sector, notably at commercial banks and bank holding companies. The idea behind congruence (not necessarily identity) in financial regulation for different parts of the financial sector is that the externality margin by which risk-taking contributes to systemic risk—a collapse of the entire financial sector or a significant portion of it—should be equalized across different parts; in other words, the private gains from undertaking risks should be offset by regulatory costs that reflect the systemic risk contribution of undertaking such risks. Where such offsets are missing, systemic risk would simply migrate to the lightly regulated parts of the financial sector.

Metrick and Tarullo give examples of the growth of non-prime mortgage finance in the United States prior to the global financial crisis and the postcrisis reshuffling of holdings of the US Treasury securities as leading case studies of how risks move from regulated to unregulated parts once regulations are designed, with specific suggestions in these settings of how to apply the congruence principle.

I find Metrick and Tarullo's contribution a timely one, as a decade plus after the global financial crisis risks have begun to proliferate in nonbank financial intermediaries (and even in corporate balance sheets), as witnessed in March 2020 at the onset of the COVID-19 pandemic. It is a reminder that if the approach to financial regulation is not system-based, then we risk facing similar risk imbalances as had developed in the buildup to the global financial crisis, with inevitable financial fragility down the line.

My observations and suggestions on their important contribution are as follows.

CONGRUENCE PRINCIPLE Is the congruence principle that Metrick and Tarullo advocate different from the well-accepted notion that a sound approach to financial sector risk-taking should "regulate by function rather than form"? As my colleague at NYU Stern, Larry White, puts it beautifully in his "waterfall theorem of regulatory arbitrage": *risk travels within the financial sector until it reaches the balance sheet that has the lowest regulatory capital requirement to hold it!* Perhaps when the congruence principle is applied to financial institutions, the two approaches seem the same; however, there may be value to the notion of the congruence principle when applied at the level of financial instruments. Let me elaborate.

It seems to me that one rationale for using the term "congruence principle" would be if the authors were to expand the scope of its definition. The long history of regulatory arbitrage and financial fragility suggests that regulation needs to be harmonized not just across institutional forms but also across financial products (assets, liabilities, etc.) when the latter are similar. Consider the authors' own example of holding mortgages on bank portfolios versus repackaging them as AAA-rated mortgage-backed securities because of the substantial arbitrage in capital requirements due to differences in regulatory risk weights on mortgages versus mortgage-backed securities. Often, such discrepancies combine with regulatory arbitrage via institutional forms to create a complex web of financial transactions that serve no purpose other than being a runaround of regulatory requirements.

Several other examples come to mind, notably capital charges for loans versus those guaranteed by an AAA-rated counterparty, epitomized in the risk-taking by AIG, Inc., that led to its eventual collapse, and capital treatment of liquidity guarantees based on the maturity being below one year versus more than one year, assuming less than one year is necessarily for working capital requirements, when this interpretation was abused for providing guarantees to asset-backed commercial paper held in shadow banking (Acharya, Schnabl, and Suarez 2013).

My suggestion, therefore, would be to adopt this broader definition for the congruence principle as applicable to financial instruments and not just across financial institutions; simply regulating by function rather than form could lead to excess pressure to compromise regulation by violating the congruence principle across systemically important assets and liabilities by repackaging risks through financial engineering.[1]

1. See Acharya and Öncü (2013) for a definition of systemically important assets and liabilities, with a specific application to sell and repurchase (repo) contracts.

BANKING AND SHADOW BANKING LINKAGES When it comes to shadow banking and banking, it is almost always the case that shadow always touches the feet. While the banking and shadow banking linkage does come through where Metrick and Tarullo discuss how regulatory arbitrage simply transfers problems around the financial sector when eventual shocks hit, it would be better to recognize explicitly that banking is more often than not connected to shadow banking. The connections take several forms: explicit guarantees (lines of credit to support commercial paper); implicit guarantees (commercial bank support of specialized investment vehicles or structured investment vehicles prior to the global financial crisis); flow of funds (freezing corporate bond markets can trigger corporate drawdowns on bank credit lines, as occurred in March 2020); and information contagion and interconnectedness.

Such discussion would help bolster the case substantially for getting into the cracks of the financial sector with the congruence principle, as leaving them open in fact threatens commercial banking, which remains the core of payments and settlement systems, deposit provision, and so on.

Equally important, I wonder if it is time to recognize that central banks have essentially embraced head on the idea of being the buyer/market maker of last resort to systemically important markets beyond just being the traditional lender of last resort to banks. This approach was initiated during the global financial crisis and was most recently deployed across the board, including for risky corporate bonds, in the aftermath of the COVID-19 pandemic. This recognition necessitates a system-wide approach that respects the congruence principle across institutions and instruments; in other words, it has now become a no-brainer that we can no longer support any case for not moving *all* large or important markets to centralized platforms for trading and clearing with the necessary transition costs. Central banks have expanded the safety net substantially and likely irreversibly, so the focus must be on ensuring private insurance in all contracts that are the beneficiaries. Metrick and Tarullo's congruence principle can be made the benchmark for ensuring such private insurance is required in a comprehensive manner across different parts of the financial sector.

POLITICAL ECONOMY OF DOMESTIC AND INTERNATIONAL REGULATORY STANDARDS Another thesis states that it is not so much that regulators aren't aware of the congruence principle or of regulating by function rather than form but that the political economy of regulation induces specific regulators to either guard or give way on regulation of their turf while compromising or turning a blind eye on what is outside their turf. Under political pressures and compulsions, regulators may value short-term growth over

long-run financial stability or let the excess occur immediately outside of their sphere of influence. It is thus important to think through arrangements for regulatory decision making that make it robust to political economy pressures. How can international regulatory arbitrage be prevented, as this is what has ultimately caused some banking regulations to weaken globally? Can the Bank for International Settlements or the Financial Stability Board be charged to adopt the congruence principle across institutions and instruments? Would the adoption of the congruence principle simply transform the political economy problem to a complete race to the bottom in terms of the *level* of financial sector regulation (for instance, reduce the level of capital requirements)? These issues appear worthy of discussion while thinking through implementation of the congruence principle in practice.

One other recommendation is that Metrick and Tarullo can lay out clearly the difference between congruence and identity. Is it possible to state some principle for understanding this difference? If not, I am concerned this difference may evolve into a case by case exception, which is precisely how regulatory arbitrage is enforced by financial institutions and their lobbyists in the first place; in particular, they rely on regulatory discretion and its vulnerability to demands based on exceptionalism for relaxation of rules in specific segments of the financial sector.

WAYS TO IMPLEMENT THE CONGRUENCE PRINCIPLE To this end, here are some practical approaches to implementation that Metrick and Tarullo might consider in their future drafts and in their efforts to improve financial sector regulation.

Can the Financial Stability Oversight Council (FSOC) be a mechanism to embrace the congruence principle across institutions and instruments, beyond its current focus on systemically important financial institutions (SIFIs), as it comprises various regulatory representatives and the Secretary of the Treasury of the United States?

The "Hotel California" principle: when regulators support a part of shadow banking ex post by extending the safety net to it, regulators must automatically be bestowed the powers to regulate that part of the financial sector going forward as systemically important. If such a principle had been adopted, it would not have taken as long and with such difficulty to regulate money market funds in the aftermath of the global financial crisis when they were accorded a generous central bank backstop.

Regulatory or macroprudential stress tests should be for the system as a whole rather than just for a set of institutions. That is, stress tests should extend beyond the presently identified SIFIs and provide the analytical basis for whether regulation is congruent across parts of the financial sector or not

(failing which, the congruence principle can be implemented or relevant parts be designated as SIFIs). One example of the success of such an approach might have been the "conversational" FSOC stress test conducted at the time of the European sovereign debt crisis in 2011 when it was clear that the US money market funds were at risk on their commercial paper holdings of European banks and they were persuaded to scale down their exposures in a timely manner.

REFERENCES FOR THE ACHARYA COMMENT

Acharya, Viral V., and T. Sabri Öncü. 2013. "A Proposal for the Resolution of Systemically Important Assets and Liabilities: The Case of the Repo Market." *International Journal of Central Banking* 9, no. 1: 291–350.

Acharya, Viral V., Philipp Schnabl, and Gustavo Suarez. 2013. "Securitization without Risk Transfer." *Journal of Financial Economics* 107, no. 3: 515–36.

COMMENT BY

HYUN SONG SHIN[1] This is an important and timely piece. I would like to draw out one theme in my discussion: the greater heft of nonbank financial intermediaries (NBFIs) in the financial system.

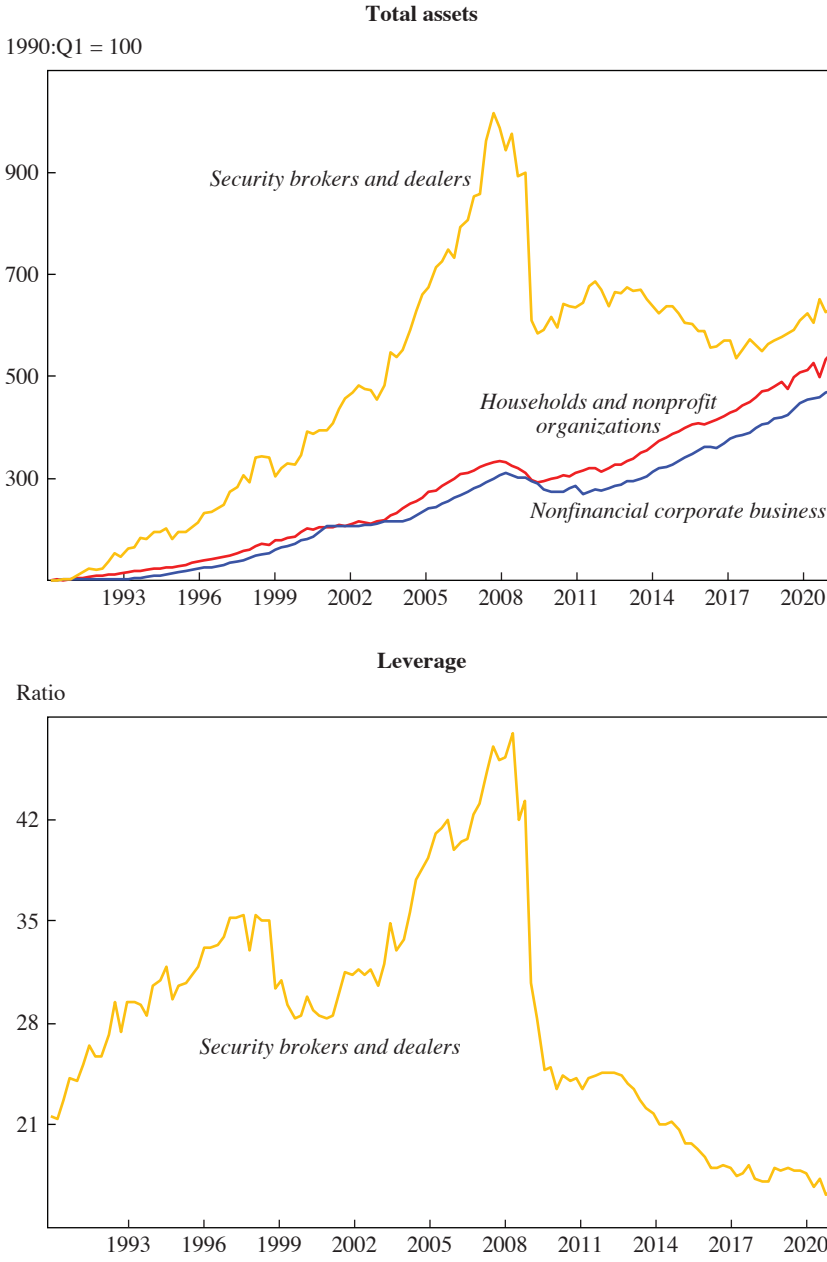
Figure 1 provides a historical sweep of the growth and subsequent contraction of the securities broker-dealer sector in the United States. The top panel shows the time path of total assets of the broker-dealer sector, normalized to 100 in the first quarter of 1990, in comparison to two other sectors—the household sector and nonfinancial corporate sector—also normalized to 100 in 1990:Q1.

On the eve of the financial crisis of 2008, the total assets of the household sector and nonfinancial corporate sector had roughly tripled in size from 1990:Q1, but the broker-dealer sector had grown by about a factor of ten. The immediate precrisis period is discussed in the authors' first example of the growth of mortgage securitizations. The bottom panel of figure 1 on the trajectory of leverage of the broker-dealer sector tells an even more dramatic story. Leverage (defined as total assets divided by book equity) started at just over 20 at the beginning of the period, but rose to around 50 on the eve of the crisis, before dropping sharply with the onset of the crisis.

Thereafter, both the total assets and the leverage of the broker-dealer sector declined further. Total assets of the broker-dealer sector are only modestly higher in relative terms compared to the household and nonfinancial

1. My thanks to Viral Acharya, Sirio Aramonte, Claudio Borio, Stijn Claessens, Neil Esho, Andreas Schrimpf, Vladyslav Sushko, and Nikola Tarashev for helpful discussions and to Giulio Cornelli and Anamaria Illes for research support.

Figure 1. Total Assets and Leverage of the US Securities Broker-Dealer Sector



Sources: Federal Reserve, *Flow of Funds*; BIS calculations.
Note: Leverage (bottom panel) is calculated as total assets divided by equity.

corporate sectors, while leverage has come down to levels that are lower than at any time in recent memory.

When taken at face value, the charts in figure 1 could be read as saying that market-based financial intermediation has been in headlong retreat since the 2008 crisis. However, Metrick and Tarullo's paper tells us that figure 1 is misleading in that respect. While it is true that the on-balance sheet activity of the traditional broker-dealer sector has been subdued, market-based intermediation activity has migrated to places that are not easily captured in the traditional balance sheet aggregates. Figure 1 obscures these structural changes.

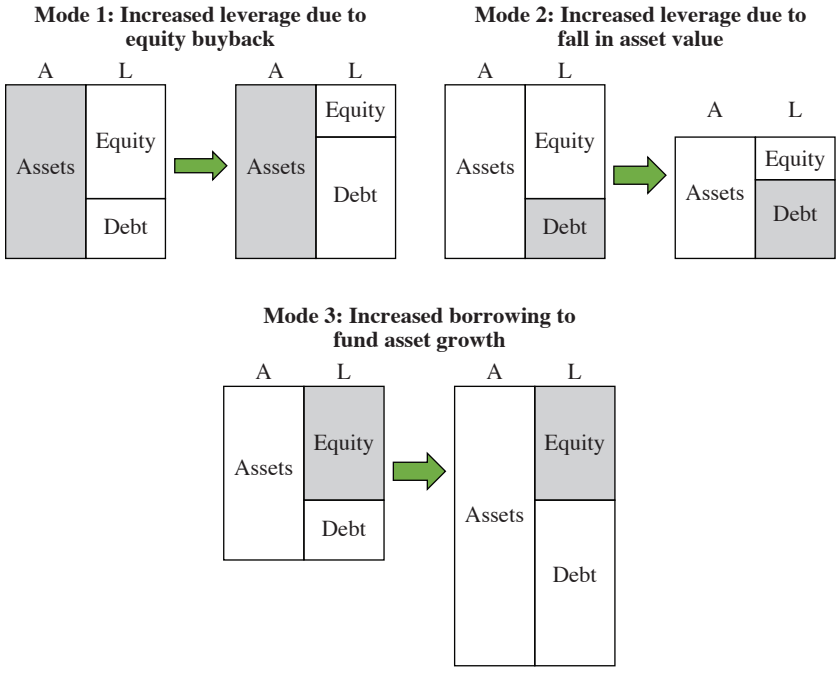
Metrick and Tarullo's discussion of the Treasury market and how it has changed in recent years sheds important further light on these structural changes. They point to the greater role being assumed by hedge funds in both spot and futures markets in Treasury securities. They also highlight the increased importance of central clearing of Treasury repos that has enabled the assembling of leveraged positions by hedge funds by combining long positions in cash Treasuries and short hedging positions in futures exposures. These "mix and match" approaches to assembling an overall position reduce the informativeness of traditional balance sheet series in the Federal Reserve's Flow of Funds as a measure of total exposures.

In the new environment, margin requirements take on a pivotal role for the propagation of financial conditions through the system as a whole. Metrick and Tarullo's main contention is that currently margins are set mainly with a view of the credit risk faced by the clearing house in mind, even when the fluctuations of margin have wider repercussions for the risk-taking capacity of the financial system as a whole. Their notion of congruent regulation is an attempt to formulate a more holistic approach to having in view the risk-taking capacity of the system as a whole. In this context, the leverage ratio of the Basel III bank capital rules assumes an organizing conceptual role.

Metrick and Tarullo's discussion renews attention to the weakness of the traditional picture of the propagation of systemic risk through the "domino" model of cascading defaults. According to the domino model, if Bank A has borrowed from Bank B, while Bank B has borrowed from Bank C, and so on, then a shock to Bank A's assets that leads to default will hit Bank B. If the hit is big enough, Bank B's solvency will be impaired, in which case Bank C would be hit, and so on down the line. Insolvency is seen as the driver of systemic risk in the domino model.

However, while insolvency often figures in systemic crises, it need not do so. Fluctuations in leverage can be a more potent channel of propagation

Figure 2. Three Ways to Increase Leverage



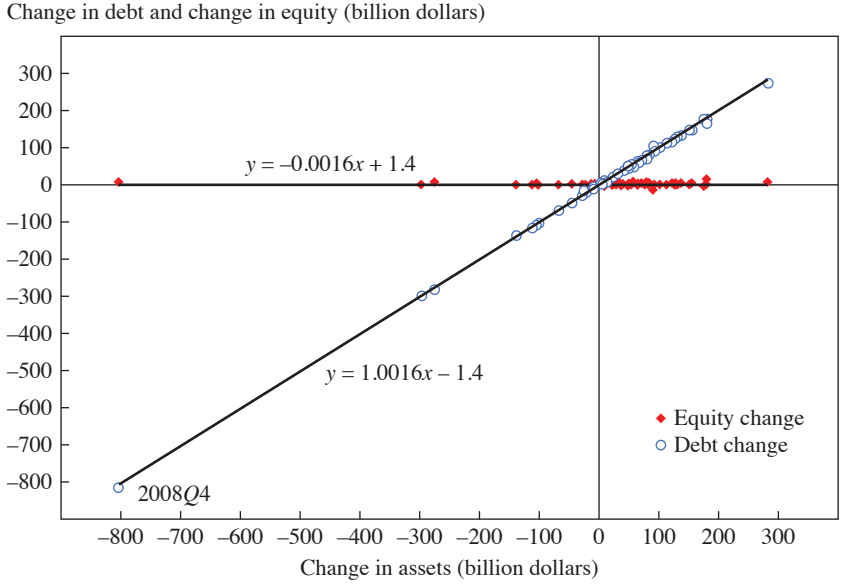
Source: Author.

of systemic risk, especially in settings with market-based intermediation. This is because leverage and balance sheet size move one for one.

To explain, consider three ways of increasing leverage illustrated in figure 2. The first is through an equity buyback through a debt issue (mode 1). The second is through a dividend financed by an asset sale (mode 2). The third is through a reduction in margin requirements that allows the market participant to maintain a larger balance sheet for a fixed amount of its own funds or book equity (mode 3). In each of the three cases, the shaded portion of the balance sheet indicates the component of the balance sheet that is held fixed.

For market-based intermediaries, it turns out that the bottom panel is the relevant case. Leverage moves one for one with asset size, in line with fluctuations in the margin required for each dollar of assets. The one-for-one change in total assets and leverage comes through most clearly for the broker-dealer sector as a whole, as shown in figure 3, taken from Adrian and Shin (2014).

Figure 3. Broker-Dealer Sector Debt Changes and Equity Changes



Source: Adrian and Shin (2014).

In figure 3, the horizontal axis shows the quarterly change in the total assets of the broker-dealer sector from the Federal Reserve's Flow of Funds in dollar terms. The vertical axis then shows how much of the change in assets is reflected in a change in the equity of the sector and how much of the change in assets is reflected in the change in debt. The hollow circles show the relationship between the change in assets and the change in debt, while the diamonds show the relationship between the change in assets and the change in equity. In figure 3, the slope of the relationship between the change in assets and the change in debt is essentially one, meaning that every dollar change in assets goes hand-in-hand with a dollar change in debt. Meanwhile the relationship between the change in assets and change in equity is essentially flat with a slope that is close to zero. This combination of co-movements in balance sheet aggregates is exactly that depicted in the bottom panel of figure 2.

Attainable leverage is the reciprocal of the size of the margin, and so leverage and financing volumes are high in tranquil times but low during stressed times, meaning that financing to others in the system contracts with the onset of stress, sometimes sharply. The dot for 2008:Q4 in figure 3 stands out.

In this way, fluctuations in margin (and the corresponding fluctuations in leverage) are mirrored in the fluctuations in the balance sheet size of system participants and of total financing and degree of interconnections of the system as a whole. In this context, a sharp increase in margins after a protracted period of thin margins will tighten financing conditions for the system as a whole. While insolvencies may exacerbate the stress, they are not necessary for stress propagation. Pecuniary externalities—spillovers that work through prices—can become more potent.

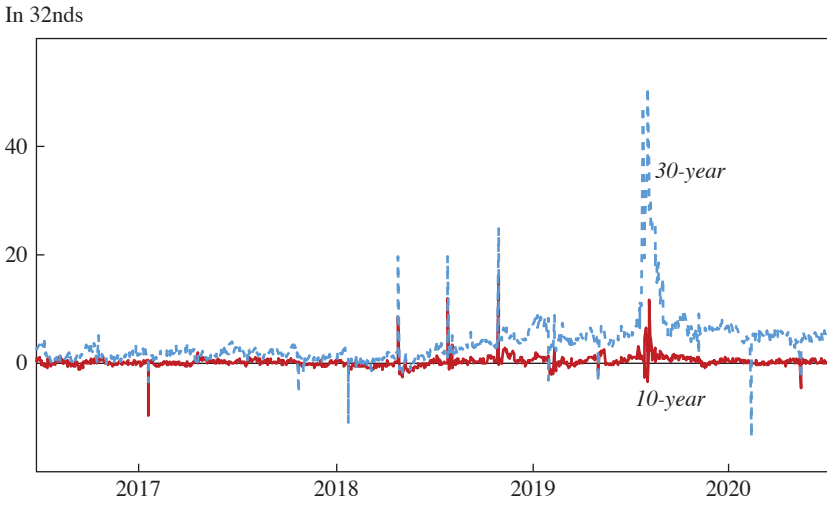
Metrick and Tarullo's second example—their discussion of the Treasury market—underscores these features. The propagation of stress from the fluctuations in leverage should not be viewed in terms of cascading insolvencies of the domino model. Credit risk of the underlying asset is not a necessary condition for stress propagation to emanate from that market. In Morris and Shin (2008), we stressed the point that systemic assets can also be safe assets from a traditional credit risk perspective. Instead, it is the deleveraging channel and the associated pecuniary externalities—the externalities that operate through prices such as spreads and traded risk measures—that can be the most important channel of stress propagation.

Figure 4 illustrates the pecuniary externalities in action during the March 2020 stress episode in the Treasury market. It shows the difference between the price of the notional Treasury securities implied by the respective futures contract (adjusted for the carry that would have come from the coupon of the equivalent cash bond) and the price of the corresponding cheapest-to-deliver cash bond that can be delivered in fulfilment of the futures contract. When the two prices diverge, it means that there is an arbitrage opportunity by taking a long position in one and a short position in the other.

Typically, the futures price–implied Treasury price is higher, reflecting the fact that a futures contract is a zero-money-down bet and does not take up balance sheet capacity at the time when the bet is entered into. In contrast, the equivalent cash bond that is held on the balance sheet will entail a need for balance sheet capacity and associated balance sheet costs. For these reasons, the arbitrage would typically involve taking a short position in the futures contract to hedge the pricing risk of a large, leveraged position in the underlying cash bond.

However, figure 4 shows that this positive spread widened very sharply in March 2020, imposing losses on the convergence trade. The price of the futures-implied Treasury security rose sharply relative to the underlying cash bond. For an arbitrage trader who has a long position in the cash bonds but a short position in the futures-implied bond, this widening would have entailed marked-to-market losses. Schrimpf, Shin, and Sushko (2020)

Figure 4. Price Difference between the Futures-Implied Price of US Treasury Security and the Corresponding Cheapest-to-Deliver Treasury Security



Source: Bloomberg.

Note: Each series is constructed as the difference between the price of the notional bond corresponding to the futures contract adjusted for the cost of carry (coupon income and financing cost) and the corresponding cheapest-to-deliver cash bond.

provided a contemporaneous analysis of the events in the Treasury market in March 2020. Subsequently, more detailed studies that utilize the underlying micro data series have shed further light on the role of leveraged hedge funds in the stress event of March 2020 (Kruttli and others 2021; Barth and Kahn 2021).

Government bond yields provide the benchmark for all other financial assets. Significant disruptions to the functioning of Treasury markets will have broader repercussions, including for the conduct of monetary policy, as we saw again recently in the "taperless tantrum" of late February 2021.

Metrick and Tarullo make the reasonable point that coming to a clear diagnosis of the issue still leaves the question of how the remedies can be put in place when the issues cut across traditional demarcations among regulators.

REFERENCES FOR THE SHIN COMMENT

Adrian, Tobias, and Hyun Song Shin. 2014. "Procyclical Leverage Value-at-Risk." *Review of Financial Studies* 27, no. 2: 373–403.

Barth, Daniel, and Jay Kahn. 2021. "Hedge Funds and the Treasury Cash-Futures Disconnect." Working Paper 21-01. Washington: US Department of the Treasury, Office of Financial Research.

Kruttli, Mathias S., Philip Monin, Lubomir Petrasek, and Sumudu W. Watugala. 2021. "Hedge Fund Treasury Trading and Funding Fragility: Evidence from the COVID-19 Crisis." Working Paper. Washington: Board of Governors of the Federal Reserve System. https://www.federalreserve.gov/econres/feds/hedge-fund-treasury-trading-and-funding-fragility-evidence-from-the-covid-19-crisis.htm.

Morris, Stephen, and Hyun Song Shin. 2008. "Financial Regulation in a System Context." *Brookings Papers on Economic Activity*, Fall, 229–74.

Schrimpf, Andreas, Hyun Song Shin, and Vladyslav Sushko. 2020. "Leverage and Margin Spirals in Fixed Income Markets during the Covid-19 Crisis." *BIS Bulletin* no. 2. Basel: Bank for International Settlements.

GENERAL DISCUSSION Don Kohn commended the authors for doing a great job defining the central problem of risk moving away from the banking system, the regulatory arbitrage, and financial stability risk. He concurred with the congruence concept of linking up regulations to achieve same leverage across transactions. Kohn appreciated the authors' cleverness in finding existing authority for proactive coordination across agencies.

However, Kohn expressed skepticism at agency willingness for buying into these recommendations. Recalling resistance to what seemed like simple money market fund reform five years ago, he observed that it might be very hard to achieve this coordination.[1] As a potential legislative solution for implementation, Kohn suggested that agencies on the Financial Stability Oversight Council (FSOC) should be given a financial stability mandate in addition to their existing mandates. Additionally, they must be made to create a financial stability office that engages with all the rule making and interacts with other offices. Kohn expressed doubt at agencies taking actions recommended by the authors without a financial stability mandate.

Austan Goolsbee pointed out that legislative and political figures will work to prevent the proposed regulation, as reflected by the existence of the shadow banking system. Subsequently, Goolsbee wondered if there is a way to quantify how much more damaging it is to have the Federal Reserve do emergency rescues or interventions instead of overturning the politics of the regulatory system.

Daniel Tarullo responded by first addressing the political economy considerations of Kohn's and Goolsbee's questions. He agreed with Kohn and

1. Money Market Fund Reform; Amendments to Form PF, 79 Fed. Reg. 47,735 (August 14, 2014).

Goolsbee in anticipating the institutional and political difficulties tied to implementation. Addressing Kohn, Tarullo argued that, from a lawyer's perspective, the Dodd-Frank Act already incorporates financial stability into the SEC's mandates, although that is not explicitly stated. Tarullo remarked that legislation reaffirming this mandate would be great. He speculated that President Biden's appointees to the regulatory financial agencies would have greater inclination to take on these reforms as compared to their immediate predecessors or even compared to President Obama's appointees.

With respect to Goolsbee's quantification remark, Tarullo opted to give a qualitative response. In the case of lack of regulatory prospects leading to a free ride for nonbank financial intermediaries, Tarullo said that he would anticipate an accelerated outmigration of financial activity from the prudentially regulated sector, which would start eroding the franchise value of the existing prudentially regulated structure. While he conceded that the paper's recommendations are somewhat messy, he expressed skepticism at the prospects of other alternatives. He agreed that some of Viral Acharya's recommendations would underscore responsibility even short of Kohn's legislative approach. However, he argued that if the Treasury and the Federal Reserve resist the kind of regulation he and Andrew Metrick have recommended, then the Federal Reserve would have to make decisions about providing liquidity every time there's a market dislocation and weigh the moral hazard cost of reinforcing market reliance on the Federal Reserve during distress.

Further addressing Acharya's suggestions about using other institutional mechanisms to implement the congruence principle, such as FSOC, extending the safety net, and system-wide stress tests, Tarullo commented that one of the mechanisms was partially incorporated into the Dodd-Frank Act: even if institutions like Morgan Stanley and Goldman Sachs were to divest their depository institutions and cease to be bank holding companies, they would continue to remain regulated by the Federal Reserve because they received government capital during the global financial crisis. But, he also stated he would be in favor of generalizing this requirement in future legislation. Tarullo remarked that President Obama made similar suggestions in his 2008 speech as a candidate at the Cooper Union by proposing that any entity getting assistance from the Federal Reserve during a financial crisis should by definition be a prudentially regulated entity.[2] Tarullo observed that the Federal Reserve injected liquidity into the markets rather than

2. Barack Obama, "Renewing the American Economy," speech given at the Cooper Union, New York, March 27, 2008, https://www.nytimes.com/2008/03/27/us/politics/27text-obama.html.

financial institutions during the great financial crisis, which he speculated would make it harder to implement this idea.

With regards to stress testing, Tarullo reflected that, while it's a good idea, system-wide stress testing would be tough to implement from a bureaucratic standpoint, especially in the balkanized regulatory system in the United States. He contemplated that its implementation would relatively be easier in the United Kingdom because of its more unified regulatory approach. Further, he acknowledged that from a policy and analytical standpoint, stress testing is unimpeachably a good idea. Finally, Tarullo agreed with the general comments on FSOC and further argued that the paper's proposal for the Treasury to take leadership on Treasury-backed repo would aid the Treasury to leverage its position within the FSOC.

Metrick observed that many comments questioned the practicality of the paper's suggestions. In response, he noted that the paper's proposed concept of congruence seeks to address these concerns by leveraging existing statutory authority. He argued that congruence is different than regulating function rather than form, which would indeed require legislation and a paradigm shift in the United States. Instead, he continued, the congruence concept encourages agencies to consider their existing authority in the context of systemic risk. For example, instead of looking at its margining authority in context of protecting investors, the Securities and Exchange Commission should consider it as being congruent to the financial stability concerns of bank regulators. Metrick concluded that this is what makes the congruence principle different than regulating form and function and achievable under current statutory authority.

Andrew Atkeson noted that Larry Fink had stated in a prior conversation with him that he believed the Employee Retirement Income Security Act (ERISA) was responsible for Wall Street getting so big. Atkeson reflected that this might be the case because the funding of defined benefit pension funds required under ERISA created big pools of institutional money. He observed that this is a root cause of the demand for risk-taking in the financial sector because the taxpayers would bail out these pension funds if they go bad. Accordingly, Atkeson wondered if instead of regulating intermediaries, it would make sense to directly regulate these funds and treat them as investors in the United States and globally.

Metrick responded by stating that while he didn't think these funds have historically been a part of the problem, they could be a part of the solution. Atkeson argued that the funds could indirectly have been a problem through hedge funds, which Metrick agreed was an interesting thought. Tarullo also agreed that it was interesting but noted that he would be reluctant to identify

that as today's source of motivation for many things, which would shift to different channels tomorrow. Tarullo argued that financial stability regulation should focus on sources of financial risk. However, he acknowledged that intermediaries such as mutual funds and exchange traded funds that don't take on risk themselves but are maturity transformers might need direct attention because the scope of their maturity transformation has grown exponentially since the global financial crisis.

Acharya observed that while it is possible that the pension funds' search for yield might manifest itself through hedge funds or other institutional investors, he wondered if the returns are comparable to traditional fixed-income investments. He highlighted this as an important financial stability angle to monetary policy, which needs to distinguish between longer-term value enhancing investments and longer-term high-risk speculative investments. Acharya speculated that the root cause of the problem is that the long end of traditional fixed-income investments and other safe assets does not yield enough returns for pension funds, which should potentially be tackled by monetary policy rather than financial regulation.