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Via Electronic Mail

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Secretary
Board of Governors of the Federal Reserve System
20th Street & Constitution Avenue, N.W.
Washington, D.C. 20551
Docket Nos. OP-1586, OP-1587 and OP-1588

Re: Stress Testing Transparency Proposals (Docket Nos. OP-1586, OP-1587 and OP-1588)

Ladies and Gentlemen:

The Clearing House Association L.L.C.¹ appreciates the opportunity to comment on the Board of Governors of the Federal Reserve System's December 2017 package of proposals to increase the transparency of key aspects of its stress testing and capital planning framework. We support transparency and objectivity in regulation as essential to producing policies and outcomes that are better crafted, less uncertain, and more credible. Accordingly, we strongly support these efforts by the Federal Reserve to review and solicit comment on ways to improve its stress testing and capital planning framework through greater transparency.

The proposed changes would represent a marked improvement to the transparency of the Federal Reserve's stress testing and capital planning framework. However, even if revised as proposed, the stress testing and capital planning framework, including the Federal Reserve's Comprehensive Capital Adequacy Review process and capital plan rule,² continues to present

¹ The Clearing House is a banking association and payments company that is owned by the largest commercial banks and dates back to 1853. The Clearing House Association L.L.C. is a nonpartisan organization that engages in research, analysis, advocacy and litigation focused on financial regulation that supports a safe, sound and competitive banking system. Its affiliate, The Clearing House Payments Company L.L.C., owns and operates core payments system infrastructure in the United States and is currently working to modernize that infrastructure by launching a new, ubiquitous, real-time payment system. The Payments Company is the only private-sector ACH and wire operator in the United States, clearing and settling nearly \$2 trillion in U.S. dollar payments each day, representing half of all commercial ACH and wire volume.

² 12 C.F.R. § 225.8.

substantial problems. As we have previously described,³ the Federal Reserve’s current approach to CCAR stress testing significantly impairs firms’ ability to manage their businesses by allocating capital efficiently and effectively, which in turn inhibits economic growth and vibrant capital markets and reduces the global competitiveness of the U.S. banking system.

To address these problems, this letter provides a range of suggestions for how the Federal Reserve could revise its stress testing and capital planning framework so that it continues to serve its prudential purposes but better promotes economic growth, vibrant capital markets, and the global competitiveness of the U.S. banking system. Because we believe that further changes beyond the scope of this proposal should be considered by the Federal Reserve, we also provide several additional suggestions for CCAR stress testing, which are described in Annex A.

Our recommendations reflect three overarching policy concerns with the proposals. First, the scope and extent of the information that the Federal Reserve proposes to disclose about its models are insufficient, as the information is limited to only general information and certain parameters and formulas relating to a subset of the Federal Reserve’s models—*i.e.*, those used to estimate hypothetical loan losses. In discussing the current proposal, Federal Reserve Vice Chairman Quarles recently stated “I personally believe that our stress testing disclosures can go further.”⁴ In line with these remarks and to improve public confidence in supervisory stress testing and the ability of stakeholders to assess supervisory models and make recommendations for enhancements, the Federal Reserve should disclose all material aspects of its models, including underlying formulas and equations, and should do so for all models it uses in its stress testing and capital planning framework. We understand that, as described in the proposals, the Federal Reserve’s decision not to publicly disclose its models has been based on the concern that full disclosure regarding supervisory models will encourage firms to “reverse engineer” their businesses by allocating capital or temporarily manipulating their balance sheets in a manner that “games” the Federal Reserve’s models, or simply to converge to assess and manage their businesses according to the supervisory models. But these concerns are unfounded, as they reflect a fundamental misunderstanding and mischaracterization of the consequences of greater transparency. When firms adjust their behavior to reflect the inherent views of risk contained within a regulatory framework, that is not improper “gaming”; but rather, compliance.

Second, the Federal Reserve’s existing Policy Statement on the Scenario Design Framework for Stress Testing (the “Scenario Design Policy Statement”) and proposed new Stress Testing Policy Statement would continue to include economic stress scenarios that are overly severe and particularly implausible when coupled with the instantaneous global market shock and counterparty default scenario components, as well as the Federal Reserve’s balance sheet,

³ See The Clearing House, *Submission to the U.S. Treasury Department: Aligning the U.S. Bank Regulatory Framework with the Core Principles of Financial Regulation* (May 2, 2017), at 9-12, available at https://www.theclearinghouse.org/~media/TCH/Documents/TCH%20WEEKLY/2017/20170502_TCH_Submission_to_UST_re_Core_Principles_Study.pdf (hereinafter, “May 2017 Treasury Submission”).

⁴ See Vice Chairman Randal K. Quarles, *Early Observations on Improving the Effectiveness of Post-Crisis Regulation*, Speech at the American Bar Association Banking Law Committee Annual Meeting, Washington, D.C. (Jan. 19, 2018), available at <https://www.federalreserve.gov/newsevents/speech/quarles20180119a.htm>.

risk-weighted asset, and CCAR capital action assumptions. Relatedly, although the proposal indicates that the Federal Reserve intends to include a funding shock in the adverse and severely adverse stress scenarios, it has not addressed whether that shock—which is expected to increase the stringency of stress tests—would be duplicative of other regimes that address funding-related risks. Nor does the proposal provide sufficient detail on the shock to allow for full comment.

Third, the proposals would continue to predicate outcomes in the Federal Reserve’s CCAR exercise on the results of the Federal Reserve’s own models. Although we believe that supervisory models and supervisory stress tests should continue to play a role in the Federal Reserve’s stress testing and capital planning framework, we also believe that there are substantial benefits to shifting to a framework in which CCAR outcomes are instead primarily based on the results of internal models that are designed and implemented by the firms themselves and overseen, but not designed, by Federal Reserve supervisors. Among other benefits, a more certain and precise stress testing and capital planning framework that better reflects each firm’s idiosyncratic risks and businesses would promote lending, investment, vibrant capital markets and the efficient allocation of capital. Changing the role of supervisory stress models in CCAR could also mitigate the significant model risk that results from the concentrated use of one set of models—supervisory models—to determine CCAR outcomes.⁵ At the same time, doing so would not reduce firms’ safety and soundness, as each firm would remain subject to robust Federal Reserve supervision of its capital planning and other processes, including through quantitative stress tests in DFAST and CCAR. Basing CCAR outcomes on firms’ own internal models and capital planning processes would also definitively eliminate any concern that more transparency regarding the Federal Reserve’s supervisory models might give rise to the “gaming” of those models—though, as noted above and described in detail in this letter, we think such concerns are unfounded.

I. Executive Summary

- Although we commend the Federal Reserve for seeking to improve the transparency of its stress testing and capital planning framework, the disclosure proposal is insufficient, and much greater disclosure and transparency are warranted.
 - The Federal Reserve should provide enhanced disclosure for all of its models.
 - The Federal Reserve should provide full detail on the design and results of all of its models.
 - The significant benefits of full disclosure and transparency regarding supervisory models would outweigh potential disadvantages.
 - The Federal Reserve should provide the enhanced disclosures as soon as the information is available and should not wait until the first quarter of each year in order to promote the objectives of greater transparency.

⁵ See Gallardo, German G., Til Schuermann, Michael Duane, *Stress Testing Convergence* (Nov. 5, 2015), *Journal of Risk Management in Financial Institutions*, Vol. 9, 1, pp. 32-45, available at <https://www.henrystewartpublications.com/sites/default/files/gallardo.pdf>.

- The Scenario Design Policy Statement provides for economic stress scenarios that are overly severe and particularly implausible when coupled with the instantaneous global market shock and counterparty default scenario components, as well as the Federal Reserve’s balance sheet, risk-weighted asset and CCAR capital action assumptions.
- It is not possible to fully comment on the potential funding shock because detail on the nature, scope and calibration of the shock has not been provided.
- We commend the Federal Reserve for acknowledging that firms’ balance sheets would not necessarily grow in stressed economic scenarios, and urge the Federal Reserve to make the more realistic assumption that firms’ balance sheets and risk-weighted assets would not increase but, rather, may grow smaller in a stressed economic environment.
- The Federal Reserve should phase in any material model change—not only “highly material” or “highly significant” changes—over two years.
- The Federal Reserve should not implement additional scenarios beyond those currently required by DFAST.
- There are considerable benefits to shifting to a framework in which CCAR outcomes are predicated not on the Federal Reserve’s supervisory models, but on firms’ own internal models, which are unique to each firm, more risk-sensitive, more tailored, more precise, and subject to robust internal controls and independent Federal Reserve supervision.
 - The Federal Reserve’s models generate imprecise and non-representative results due to a lack of firm-specific tailoring.
 - Predicating the CCAR quantitative assessment on the Federal Reserve’s supervisory models inhibits lending, economic growth, and liquid capital markets, and also creates significant model concentration risk.
 - Basing the CCAR quantitative assessment on the results of firms’ own internal models would improve the precision and reduce the uncertainty of the CCAR exercise, and mitigate the significant model concentration risk resulting from the use of the Federal Reserve’s models to determine CCAR outcomes.
 - It is not necessary to base CCAR outcomes on the Federal Reserve’s supervisory models in order to achieve important supervisory objectives, including instilling public confidence in the banking system, providing consistent and equitable treatment among firms, and enabling comparisons across firms.

II. Although we commend the Federal Reserve for seeking to improve the transparency of its stress testing and capital planning framework, the disclosure proposal is insufficient, and much greater disclosure and transparency are warranted.

Although we commend the Federal Reserve for seeking to improve the transparency of its stress testing and capital planning framework, we do not believe that the current disclosure proposal is sufficient. Increased disclosure and transparency regarding the Federal Reserve’s supervisory models are crucial for two reasons. First, as the Federal Reserve itself discusses,⁶ increased disclosure would allow stakeholders, including academic experts and other members of the public, to assess the fundamental soundness of the Federal Reserve’s models and to make recommendations for possible improvements. Ultimately, transparency and disclosure relating to supervisory stress testing promote market and public confidence in the banking sector generally. Second, greater disclosure and transparency can reduce the uncertainty regarding the results of the Federal Reserve’s supervisory models, thereby reducing uncertainty of CCAR outcomes and mitigating related constraints on lending, economic growth, and liquid capital markets. Greater disclosure and transparency, and the attendant decrease in uncertainty regarding the results of supervisory stress tests, would remain important even if the Federal Reserve revises CCAR and its capital plan rule as described below in Section VIII so that firms’ own internal models would determine CCAR outcomes and the Federal Reserve’s models would play a “challenger” role. In order to achieve greater benefits in promoting market and public confidence in the banking sector and reducing the uncertainty of CCAR outcomes, the Federal Reserve should significantly increase disclosure and transparency regarding its supervisory models beyond those disclosures contained in the current proposal.

A. The Federal Reserve should provide enhanced disclosure for all of its models.

As a threshold matter, we note the limited scope of the proposal, as the proposed enhanced disclosure would cover only models relating to loan losses.⁷ Limiting the scope of increased disclosure to these types of models severely limits the potential benefits of the Federal Reserve’s transparency initiative. Indeed, even with regard to loans, the proposal is insufficient in scope: stakeholders cannot adequately assess the supervisory loan-related models with information on loan-loss models alone, as information on provisioning models is indispensable for understanding the treatment of loans in supervisory stress tests. Likewise, for critical models that are unrelated to loans, more disclosure is needed. For example, the Federal Reserve’s disclosure regarding stressed trading and counterparty losses is limited to the single line under projected “Losses, revenue, and net income before taxes” in its annual DFAST results.⁸ We

⁶ See 82 Fed. Reg. 59547, 59547-48.

⁷ Although the first element of the proposed enhanced descriptions (information about the structure of the models) is described in general terms, the second element expressly mentions providing key *loan* characteristics, which would not apply to non-loan-related models. In addition, the second and third enhancements (modeled loss rates on pools of loans, and portfolios of hypothetical loans and associated loss rates) specifically relate only to loans.

⁸ See Federal Reserve, *Dodd-Frank Act Stress Test 2017: Supervisory Stress Tests Methodology and Results* (June 2017) (hereafter, the “2017 DFAST Results”), at 25, available at <https://www.federalreserve.gov/publications/files/2017-dfast-methodology-results-20170622.pdf>.

recommend that the Federal Reserve provide further detail, consistent with the stressed loss results that firms submit on the FR Y-14A Summary Schedule (which presents losses by asset class for Schedule A.4 – Trading and for various components for Schedule A.5 – Counterparty Credit Risk). We urge the Federal Reserve to provide disclosure with respect to *all* the models it uses in its supervisory stress tests, including, most importantly, its models for estimating:

- Net interest income, noninterest income and noninterest expense;
- Losses related to operational risk events;
- Gains and losses on trading and private equity positions, including the models used for the global market shock and the counterparty default scenario components;
- Changes in the size and composition of firms' balance sheets and risk-weighted assets;
- Income tax expense; and
- Deductions from capital (*e.g.*, for deferred tax assets).

B. The Federal Reserve should provide full detail on the design and results of all of its models.

Although the proposed disclosure would provide information about the structure of certain models, the proposed level of detail is not sufficient to enable the public to fully evaluate those models or for firms to adequately understand the results they produce. In particular, the lack of detailed disclosure relating to the design and results of the Federal Reserve's models makes it difficult to assess the accuracy of the models. In addition, the level of detail that would be provided would not appreciably reduce uncertainty of supervisory stress test results.

Although we believe the Federal Reserve should disclose all material aspects of its models, including all formulas and equations and representative information on the results the models produce, we believe the following information would be particularly valuable to stakeholders in evaluating the Federal Reserve's supervisory models and reducing uncertainty:

- Detailed descriptions of all models and model specifications, including principal modelling assumptions and equations (*e.g.*, asset correlation assumptions relating to balance sheet and risk-weighted asset projections, and differing assumptions and equations used to project domestic and international exposures);
- Quantitative (*e.g.*, statistical) and qualitative information on back-testing and performance testing for all models, at both aggregated and firm-specific levels, as well as quantitative and qualitative information on the calibration of each model;
- Discussions of significant limitations and weaknesses of all models, as well as the reasons the Federal Reserve determined that it would be appropriate to use models despite their significant limitations or weaknesses;

- Sample inputs and outputs for all models (*e.g.*, sample inputs and outputs relating to the global market shock);
- Year-over-year descriptions of changes to loss rates, pre-provision net revenues (“PPNR”), and other model outputs attributable to changes in the applicable scenarios, assumptions, and models;
- Detailed disclosures on portfolios and sub-portfolios, including modeled loss rates (mean, 25th and 75th percentile for each scenario) for:
 - Residential mortgage portfolios (including agency conventional vs. jumbo and FHA; fixed-rate versus adjustable-rate; loan-to-value segmentations; borrower credit score segmentations; and geographic segmentations);
 - Auto loan, credit card and other consumer loan portfolios (including, where applicable, loan-to-value segmentations; borrower credit score segmentations; and geographic segmentations); and
 - Commercial and wholesale portfolios (including commercial and industrial segmentations; secured versus unsecured; commercial real estate product type segmentations; loan-to-value segmentations; credit rating segmentations; and geographic segmentations); and
- Forecasted PPNR metrics by scenario (including net interest income, noninterest income, noninterest expense, and operational risk) for hypothetical firms that vary by balance sheet, asset concentration, and historical PPNR levels.

In addition, the proposed new Stress Testing Policy Statement provides that firm-specific fixed effects (variables that identify a specific firm and capture unobserved differences in the revenues, expenses, and losses among firms) generally are not incorporated into supervisory models, but that exceptions are made “where appropriate.”⁹ The Federal Reserve should provide additional detail on, as well as examples of, firm-specific fixed effects and provide a comprehensive description of when it makes exceptions to incorporate those effects into supervisory models.

C. The significant benefits of full disclosure and transparency regarding supervisory models would outweigh potential disadvantages.

The Federal Reserve has expressed concern that full disclosure regarding its supervisory models would allow firms to “reverse engineer” their businesses by allocating capital in a manner that “games” the Federal Reserve’s models or would result in firms simply converging in how they assess and manage their businesses based on the supervisory models. Both concerns are unfounded, and reflect a fundamental mischaracterization of the consequences of greater transparency. Those concerns also fail to take account of the Federal Reserve’s ability to establish the economic scenarios for each capital planning and stress testing cycle and, if

⁹ 82 Fed. Reg. 59528, 59531.

warranted, to impose additional shocks, which provide sufficient mechanisms for the Federal Reserve to address areas of potential macroprudential or microprudential concern.

Simply put, the notion that the details of a regulatory regime—such as the details of the Federal Reserve’s models that currently determine firms’ binding capital constraints—cannot be made public because those subject to the regime might align their behavior with the inherent incentives of that regime is untenable. Acting in this way is not “gaming” or “reverse engineering”; it is compliance. This is why no Federal banking agency has argued that the standardized risk weights cannot be disclosed because of the concern that banking organizations might then migrate towards assets assigned lower risk weights. Nor has the Federal Reserve ever argued that its G-SIB surcharge methodology should be kept secret so that G-SIBs do not adapt their businesses to produce a lower surcharge—indeed, in that context, the Federal Reserve has stressed that influencing G-SIBs’ behavior is the very point of regulation.¹⁰ Were the Federal Reserve’s models disclosed, it very well may be that a firm would choose to alter its businesses away from activities that, according to the Federal Reserve’s models, present greater risk of loss under stress, and towards those that present lesser risk. But the result—a firm less susceptible to losses under stress as determined by the Federal Reserve’s models—is not a policy problem; it is the very objective of the CCAR exercise as currently constructed. Indeed, the proposal on enhanced disclosures recognizes that it is entirely appropriate for firms to make capital allocation and other business decisions based on how certain exposures or activities are treated in CCAR, noting that “more detailed disclosures of how the Federal Reserve’s models assign losses to particular positions could help those financial institutions that are subject to the stress test understand the capital implications of changes to their business activities, such as acquiring or selling a portfolio of assets.”¹¹ It is not improper for firms to make business decisions taking into consideration the consequences of those decisions under applicable regulatory frameworks.

A second and related concern is that firms’ adaptation of their behavior in response to disclosure of the Federal Reserve’s models could actually increase overall risks to the extent that the models inaccurately identify the relevant risk of different assets—*i.e.*, get things wrong. But the appropriate mitigant to that risk is not to keep these models secret; rather, it is to make the Federal Reserve’s models as accurate as possible. And of course, disclosing those models and subjecting them to public notice-and-comment is the very best way to make those models as accurate as possible.

A third and related concern expressed by the Federal Reserve is that firms’ adaptation of their behavior in response to disclosure of the Federal Reserve’s models might lead to greater and undue concentration across firms in assets that those models consider relatively less risky. This concern, however, incorrectly disregards the role that firms’ own models currently play in their capital planning processes and the CCAR quantitative assessment, which limit the ability of and incentives for firms to try to take advantage of perceived weaknesses in the risk capture or

¹⁰ See, e.g., Federal Reserve, *Regulatory Capital Rules: Implementation of Risk-Based Capital Surcharges for Global Systemically Important Bank Holding Companies*, 80 Fed. Reg. 49082, 49109 (Aug. 14, 2015) (“higher capital requirements create incentives for SIFIs to shrink their systemic footprint, which further reduces the risks these firms pose to financial stability”).

¹¹ 82 Fed. Reg. 59547, 59547-48.

risk calibration of supervisory models. Firms are required to develop models that are tailored to their particular risk profiles; they cannot use the same “one-size-fits-all” supervisory models as the Federal Reserve’s to evaluate their risks. In any event, to the extent the Federal Reserve’s models might incentivize undue industry concentration in assets that are riskier than the Federal Reserve’s models predict, we do not think the appropriate way to address this concern is to keep the models secret. Rather, the best way to guard against industry concentration as a result of flaws in supervisory models is to revise CCAR and the capital plan rule so that firms’ own internal models determine CCAR outcomes, as we propose below. Firms’ diversified and tailored internal models would inherently diversify the firms’ behavior in response to projected losses in CCAR. And even in a framework in which the Federal Reserve’s supervisory models continue to determine CCAR outcomes, the best mitigant to risky industry concentrations is to subject those models to public notice-and-comment in order to promote their accuracy.

Finally, some have suggested that a firm might actually manipulate its balance sheet so as to temporarily shift towards those assets considered less risky under the Federal Reserve’s models during the CCAR measurement period, and back towards more risky assets thereafter. As an initial matter, this concern seems to ignore the realities of the market—the practical difficulties, business impacts, and potential large transaction costs of temporarily buying and selling a large portfolio of (typically illiquid) assets and then reversing the transactions shortly thereafter are more than prohibitive. And even if it were not, the appropriate policy response to any scheme to evade a regulatory regime is to monitor and address evasion, not to make that regulatory regime secret. (We note that monitoring in this context is not a difficult endeavor, as a firm’s manipulation of a significant portion of its balance sheet before and after the CCAR cycle would not appear difficult for its supervisor to identify, particularly in light of the extensive CCAR- and DFAST-related reporting requirements.)

D. The Federal Reserve should provide the enhanced disclosures as soon as the information is available and should not wait until the first quarter of each year in order to promote the objectives of greater transparency.

The Federal Reserve states that it expects to provide the enhanced disclosures in the first quarter of each year, prior to the April 5 due date for CCAR and DFAST submissions.¹² The disclosure would be based on data and scenarios from the prior year, but would reflect any updates to the Federal Reserve’s supervisory models. We urge the Federal Reserve to provide enhanced disclosures as soon as the information is available and not to wait until the first quarter of each year. Providing the information prior to the first quarter of each year would promote the very objectives underlying the package of proposals: enhancing the credibility of stress tests, facilitating comments from the public, helping the public understand and interpret stress test results, and assisting firms subject to CCAR in understanding the capital implications of changes to their business activities. The earlier information is available, the sooner stakeholders can begin to assess that information and, where applicable, provide feedback to the Federal Reserve.¹³

¹² See 82 Fed. Reg. 59547, 59548.

¹³ See *id.* at 59547-48.

More generally, we believe that firms would benefit from receiving information and feedback from the Federal Reserve earlier in the capital planning and stress testing cycle. For example, in the current design of CCAR and DFAST, firms submit their own projections of stressed losses and planned capital actions concurrently, months in advance of when they are informed of the supervisory projections of stressed losses. As a result, firms do not have the benefit of considering supervisory stress test results when determining their planned capital actions, such as how much capital to return to shareholders in the form of dividends and share repurchases. Revising CCAR and DFAST so that firms are informed of supervisory stress test results before submitting their planned capital actions would reduce uncertainty in the CCAR process and support firms' governance processes, including the ability of their boards of directors to oversee risk management and capital planning processes and capital planning decisions.

III. The Scenario Design Policy Statement provides for economic stress scenarios that are overly severe and particularly implausible when coupled with the instantaneous global market shock and counterparty default scenario components, as well as the Federal Reserve's balance sheet, risk-weighted asset and CCAR capital action assumptions.

The proposed amendments to the Scenario Design Policy Statement would (i) provide specific guidance regarding when the rise in the unemployment rate in the severely adverse scenario would be lower than the typical increase, and (ii) include a quantitative guide for the path of house prices in the severely adverse scenario. Although we welcome the Federal Reserve's initiative to review and seek comment on the Scenario Design Policy Statement, we do not believe that the proposal would address the statement's fundamental flaw: the Scenario Design Policy Statement results in economic stress scenarios that are overly severe and particularly implausible when coupled with the instantaneous global market shock and counterparty default scenario components, as well as the Federal Reserve's balance sheet, risk-weighted asset and CCAR capital action assumptions. Indeed, the proposed quantitative guide for the path of house prices may exacerbate this flaw. Implausible and overly severe economic stress scenarios require firms to hold excessive capital against losses that have never been realized and that are extremely unlikely to ever be realized, which has consequences for economic growth and the vibrancy of capital markets.

The Federal Reserve currently sets the peak unemployment rate in the severely adverse scenario at the greater of a three to five percentage point increase from the beginning of the scenario, or ten percent. The proposed amendments to the Scenario Design Policy Statement would specify that the Federal Reserve expects to incorporate an increase of less than four percentage points when the unemployment rate at the start of the scenario is elevated but the economy is recovering and has already realized—or is in the process of realizing—losses resulting from a previously elevated unemployment rate. We fully support this proposed change, as it would entail smaller increases in the unemployment rate when conditions at the outset of the scenario are already stressed. This change would reduce the projected degree of labor market deterioration, corresponding deterioration of related variables, and excessive impairment of capital when firms' capital ratios are already under cyclical pressures. Ultimately, the change would reduce the procyclicality of stress tests and capital management during times of economic

stress, which would also prevent the banking sector from unduly exacerbating adverse economic conditions.

Although we believe the Federal Reserve should adopt the proposed change relating to the peak unemployment rate, we also note that it is presently irrelevant in light of the prevailing unemployment rate and economic conditions and would not address significant flaws in the current Scenario Design Policy Statement—flaws that are highly relevant given the current unemployment rate and economic conditions. As we have previously described, the magnitude of projected increases in the unemployment rate in the severely adverse scenario are extremely unlikely to ever occur.¹⁴ In addition, the speed with which the unemployment rate has been projected to rise in the first four quarters of the planning horizon in recent stress scenarios is also unprecedented.¹⁵ The accelerated increase in unemployment significantly increases the severity of the stress scenarios and stress tests since higher losses are projected in earlier quarters and those losses persist throughout the planning horizon, which increases overall projected losses. We urge the Federal Reserve to revise the overall framework for determining the peak unemployment rate and rate of change in the unemployment rate so that the severely adverse scenario is consistent with historical experience.

The proposed amendments to the Scenario Design Policy Statement would also establish quantitative guidance for the change in house prices. The change would generally reflect a decline in the HPI-DPI ratio¹⁶ of at least twenty-five percent, or, if larger, a decline severe enough so the ratio reaches its Great Recession trough. Although we support the Federal Reserve's initiative to develop a quantitative guide for the change in house prices, we have significant concerns with the guide in the proposal. Like the unemployment rate increase, the proposed house price guide would also provide for changes that are extremely unlikely to ever be realized. Moreover, the guide is pro-cyclical as it is likely to impose severe declines following a recession characterized by declining housing prices. For example, if applied to the 2012 stress test exercise, the quantitative guide would have imposed an extreme 27% HPI decline even though (1) the HPI-DPI ratio was already at an all-time low, (2) the inventory of unsold homes was at or near all-time lows, and (3) housing affordability was at all-time highs. Simply put, conditions at the outset were inconsistent with such an adverse HPI price forecast. To mitigate the pro-cyclicality of the proposed guide and the likelihood that it would provide for implausible changes in house prices, we recommend that the Federal Reserve provide that the change in house prices would generally reflect the *smaller* of a decline in the HPI-DPI ratio of 25 percent or a decline severe enough so the ratio reaches its Great Recession trough.

¹⁴ Bill Nelson and Mya McGregory, The Clearing House, *CCAR Scenarios are Countercyclical, but Fed Staff's Projections show them to be Farfetched*, Eighteen53 Blog (May 17, 2017), available at <https://www.theclearinghouse.org/eighteen53-blog/2017/may/16-ccar-scenarios>.

¹⁵ See Francisco Covas, The Clearing House, *TCH Research Note: 2016 Federal Reserve's Stress Testing Scenarios*, The Clearing House (Mar. 2016), available at <https://www.theclearinghouse.org/-/media/action%20line/documents/volume%20vii/20160316%20tch%20research%20note%20ccar.pdf?la=ii>.

¹⁶ This is the ratio of the nominal house price index (HPI) to nominal, per capita, disposable income (DPI).

Finally, we note that, unlike the proposed new Stress Testing Policy Statement, the Scenario Design Policy Statement does not address governance mechanisms. We recommend that the Federal Reserve provide, for public comment, a proposed description of the Federal Reserve's principles and policies for scenario design governance. Disclosure of and transparency regarding those principles and policies would benefit all stakeholders and promote greater public confidence in the Federal Reserve's stress testing and capital planning framework.

IV. It is not possible to fully comment on the potential funding shock because detail on the nature, scope and calibration of the shock has not been provided.

In the proposal relating to its Scenario Design Policy Statement, the Federal Reserve provides notice that it plans to incorporate funding shocks, particularly as to wholesale funding, into the adverse and severely adverse scenarios. The Federal Reserve expects funding shocks to increase the stringency of stress tests, with the extent of the impact depending on how the stress is implemented (*e.g.*, which liabilities are stressed) and the duration and magnitude of the stress.¹⁷ We are, however, unable to fully comment at this time on the potential funding shocks because the proposal does not provide critical information on the shocks, including:

- The Federal Reserve's objectives in adding this funding shock in light of its existing approach to modelling interest expense and the reasons why the Federal Reserve believes its existing PPNR models do not adequately capture funding risk in the context of capital stress testing.¹⁸
- How the funding shock differs from the liquidity stress tests to which firms are already subject.
- Which firms would be subject to the shocks (*i.e.*, whether they would be add-on components applicable to all or only a subset of firms).
- Which liabilities would be stressed (*i.e.*, what would be considered "wholesale funding" for this purpose).
- Whether the shocks would apply only to "short-term" wholesale funding or to any funding that is regarded as "wholesale" for this purpose.
- If IHCs would be subject to the shocks, how inter-affiliate borrowings would be treated.
- How severe the shocks may be.

¹⁷ See 82 Fed. Reg. 59533, 59537.

¹⁸ See 2017 DI'AST Results, at 70 and 71 ("The five components of interest expense modeled include interest expense on deposits, federal funds and repurchase agreements, trading liabilities and other borrowed money, subordinated debt, and all other interest expenses. . . . The specific macroeconomic variables included in the models differ across equations based on statistical predictive power and economic theory. Macroeconomic variables used to project interest income and interest expense include yields on short- and long-term Treasury securities, and corporate bond spreads.").

- How the Federal Reserve would address the idiosyncratic nature of funding costs, which are not conducive to assessment through a one-size-fits-all supervisory model.
- How the funding shock would account for reductions in firms' funding needs during periods of economic stress, including where firms' funding needs decline proportionately with declines in trading asset values and client financing collateralized by clients' trading assets.

We also note that the Federal Reserve has not discussed how funding shocks would affect the overall design, calibration, coherence and plausibility of its economic stress scenarios, nor has it offered any analysis of whether the introduction of funding shocks in the CCAR and DFAST exercises would be duplicative of other regimes that already address funding-related risks, such as the Comprehensive Liquidity Assessment and Review, the liquidity coverage ratio, and the liquidity risk management requirements in Regulation YY. Before introducing funding shocks into economic stress scenarios, we urge the Federal Reserve to provide, for comment, information as to:

- The anticipated design, calibration and scope of application of the funding shock.
- The Federal Reserve's analysis of the interplay between funding shocks in CCAR/DFAST with other funding-related supervisory frameworks.
- The objectives of the funding shock and how those objectives are being achieved without either (i) introducing duplicative measures of stress or (ii) measuring funding-related risks through a liquidity stress test that is duplicative of other regimes.

V. We commend the Federal Reserve for acknowledging that firms' balance sheets would not necessarily grow in stressed economic scenarios, and urge the Federal Reserve to make the more realistic assumption that firms' balance sheets and risk-weighted assets would not increase but, rather, may grow smaller in a stressed economic environment.

The proposed new Stress Testing Policy Statement explains that the supervisory stress tests incorporate an assumption that the aggregate credit supply does not contract in the stressed scenarios in order to allow the Federal Reserve to evaluate the ability of firms to withstand economic stress while continuing to provide credit to the economy.¹⁹ To operationalize this assumption, the Federal Reserve notes that it will assume that firms' balance sheets will be of "constant or increasing" and "fixed or growing" magnitude. The Federal Reserve's models have generally projected increases in balance sheets and risk-weighted assets, including in the severely adverse scenario.²⁰ The assumption of expanding size in stress tests reduces banks'

¹⁹ See 82 Fed. Reg. 59528, 59530.

²⁰ See, e.g., 2017 DFAST Results, at 73 (stating "Industry loan and asset growth rates are projected over the planning horizon using the macroeconomic variables prescribed in the supervisory scenario. The growth rates embed the assumption that the industry will continue to lend using standards that are consistent with

projected post-stress capital ratios, is equivalent to an increase in minimum capital levels and has the potential to discourage lending in an actual stress scenario.²¹ Although we fully support the recognition that firms' balance sheets may be of *constant* or *fixed* size—instead of always assuming *increasing* or *growing* size—we urge the Federal Reserve to eliminate any assumption that firm balance sheets remain stable or grow, and make the more realistic assumption that firms' balance sheets and risk-weighted assets may actually shrink in periods of macroeconomic stress, as the *demand* for credit, particularly from credit-worthy borrowers, may decline. Eliminating that assumption would appropriately reflect distinctions among credit supply, credit demand and the amount of credit. In a recession, credit demand falls.

We also urge the Federal Reserve to refine its assumptions on changes in firms' balance sheets and risk-weighted assets to reflect balance sheet composition, in particular to reflect that mark-to-market trading losses would result in smaller trading books and, correspondingly, reductions in the sizes of firms' balance sheets and risk-weighted assets.

VI. The Federal Reserve should phase in any material model change—not only “highly material” or “highly significant” changes—over two years.

The proposed new Stress Testing Policy Statement notes that the Federal Reserve phases in “highly material” model changes into supervisory stress tests over two years and assesses whether model changes would have a “highly significant” impact on projected losses, components of revenue, or post-stress capital ratios. The Federal Reserve also asks what thresholds it should use to determine whether model changes will have “highly significant” effects.²² We recommend that the Federal Reserve apply a lower threshold, phasing in any material model changes—and not merely “highly material” changes that have “highly significant” effects—over two years. A lower threshold would further the Federal Reserve's objectives of mitigating sudden and unexpected changes to supervisory stress test results and ensuring that changes in supervisory stress test results primarily reflect changes in underlying risk factors and scenarios from one year to another.

VII. The Federal Reserve should not implement additional scenarios beyond those currently required by DFAST.

The Scenario Design Policy Statement notes that the Federal Reserve anticipates that it generally will not provide additional scenarios beyond the three—baseline, adverse and severely adverse—currently required by DFAST, but that it may provide additional scenarios if it determines they are warranted. We urge the Federal Reserve not to implement any additional scenarios beyond those currently required by DFAST. Although the adverse scenario is

long-run behavior. This tends to raise the projected growth of lending by removing the effects of BHC tightening that often occur in stressful periods.”).

²¹ TCH Research, *Comment on the OFR brief “Capital buffers and the future of bank stress tests,”* eighteen53 Blog (Feb. 13, 2017), available at <https://www.theclearinghouse.org/eighteen53-blog/2017/february/13%20-%20comment%20on%20the%20ofr%20brief>.

²² 82 Fed. Reg. 59528, 59533.

presently required by DFAST, we have previously recommended reducing reporting requirements relating to that scenario in light of, among other things, the greater supervisory focus on the baseline and severely adverse scenarios.²³ In addition, the U.S. Treasury Department has recently recommended eliminating the adverse scenario from DFAST,²⁴ and the U.S. Senate Banking Committee has recently approved legislation to do so.²⁵ Providing additional scenarios would increase burdens on firms without a corresponding supervisory benefit and would be inconsistent with regulatory reform initiatives to reduce the burdens of DFAST.

VIII. There are considerable benefits to shifting to a framework in which CCAR outcomes are predicated not on the Federal Reserve’s supervisory models, but on firms’ own internal models, which are unique to each firm, more risk sensitive, more tailored, more precise, and subject to robust internal controls and independent Federal Reserve supervision.

As we have previously described,²⁶ a stress testing and capital planning framework centered on opaque supervisory models that are not tailored to any particular institution has inherent limitations. Although the Federal Reserve considers its supervisory stress test results as well as firms’ own stress test results in the CCAR quantitative assessment,²⁷ the Federal

²³ See The Clearing House, *Comment Letter re: Amendments to the Capital Plan and Stress Test Rules* (Docket No. R-1548; RIN 7100 AE-59) (Nov. 23, 2016), at 5-6, available at https://www.theclearinghouse.org/-/media/action%20line/documents/volume%20vii/20161123_tch_comments_ccar.pdf?la=en.

²⁴ See U.S. Department of the Treasury, *A Financial System That Creates Economic Opportunities, Banks and Credit Unions*, Report to President Donald J. Trump, Executive Order 13772 on Core Principles for Regulating the United States Financial System (June 2017) (hereinafter, the “Treasury Banking Report”), at 12 (recommending “reducing the number of supervisory scenarios from three to two – the baseline and severely adverse scenario”), available at <https://www.treasury.gov/press-center/press-releases/Documents/A%20Financial%20System.pdf>.

²⁵ On December 5, 2017, the Senate Banking Committee approved the Economic Growth, Regulatory Relief, and Consumer Protection Act, S. 2155, which would eliminate the adverse scenario as a mandatory scenario in DFAST and reduce the minimum number of supervisory scenarios from three to two. See Senate Banking Committee, Majority Press Releases, *Banking Committee Advances S. 2155, the “Economic Growth, Regulatory Relief and Consumer Protection Act.”* (Dec. 5, 2017), available at <https://www.banking.senate.gov/public/index.cfm/2017/12/banking-committee-advances-s-2155-the-economic-growth-regulatory-relief-and-consumer-protection-act>.

²⁶ See Francisco Covas, The Clearing House, *Banks’ Own Models Should Play a Key Role in U.S. Supervisory Stress Tests*, 2017 Q3 Banking Perspectives – Rethinking Regulation and Supervision, available at <https://www.theclearinghouse.org/research/banking-perspectives/2017/2017-q3-banking-perspectives/bank-models-stress-tests> (hereinafter, “Banks’ Own Models Should Play a Key Role in U.S. Supervisory Stress Tests”).

²⁷ See, e.g., Federal Reserve, *Comprehensive Capital Analysis and Review 2017: Assessment Framework and Results* (June 2017) (hereinafter, the “2017 CCAR Results”), at 9 (“The CCAR quantitative assessment is based both on: (a) the results of the firm’s internal stress tests and (b) post-stress capital ratios estimated by the Federal Reserve under the supervisory scenarios”), available at <https://www.federalreserve.gov/publications/files/2017-ccar-assessment-framework-results-20170628.pdf>. The “quantitative assessment” refers to the Federal Reserve’s assessment of whether a firm demonstrates “an ability to maintain capital above each minimum regulatory capital ratio on a pro forma basis under

Reserve’s supervisory stress tests ultimately determine outcomes in the quantitative assessment. Because a firm would not submit a capital plan in which its planned capital actions resulted in its own stress test results showing that it could not satisfy minimum capital requirements in each economic scenario over the planning horizon, a firm would “fail” the quantitative assessment only if the Federal Reserve’s supervisory models produced greater declines in capital ratios than the firm’s own internal models. The outcomes of the Federal Reserve’s supervisory models therefore serve as the binding constraint that determines whether a firm “passes” the CCAR quantitative assessment. Despite this, the Federal Reserve uses models that produce results that are not tailored and are therefore not representative of the particular risk profile of any specific firm, meaning that the constraints imposed on a firm through CCAR are based on an imprecise analysis of that firm’s unique risks. The use of imprecise supervisory models also contributes to the adverse effects of CCAR, including the inefficient allocation of capital and reduced availability of credit.

To be clear, as we discuss in Section VIII.D below, we are not recommending the elimination of supervisory models; nor are we recommending that the Federal Reserve cease conducting supervisory stress tests and publishing the results under the DFAST severely adverse and adverse scenarios. Rather, we are only recommending that the role of those models be changed, such that they cease to be the primary basis of the Federal Reserve’s annual quantitative assessment and are used, instead, to review and challenge firms’ own models.

A. The Federal Reserve’s models generate imprecise and non-representative results due to a lack of firm-specific tailoring.

Because the Federal Reserve uses a “one-size-fits-all” approach to develop and apply its supervisory models, the Federal Reserve makes important simplifying assumptions that are not sensitive to meaningful variations among firms’ businesses and portfolios. This approach differs starkly from the supervisory expectations for firms’ own models, which are unique to each firm and required to be tailored at a granular level to firms’ own idiosyncratic risk profiles.²⁸ Moreover, although the Federal Reserve collects vast amounts of information from firms participating in CCAR, the information the Federal Reserve collects is not tailored to the activities or portfolios of any particular firm. Indeed, as we have previously explained,²⁹ the Federal Reserve may be unable to develop models that could produce representative results for certain portfolios—a limitation that firms are in a better position to mitigate through the development of models for their portfolios that reflect their particular exposures, risks and businesses.

expected and stressful conditions throughout the planning horizon.” 12 C.F.R. §§ 225.8(f)(2)(ii)(A) and (B)(1).

²⁸ See Federal Reserve, Division of Banking Supervision and Regulation, *Federal Reserve Supervisory Assessment of Capital Planning and Positions for LISC Firms and Large and Complex Firms*, SR Letter 15-18 (Dec. 18, 2015); Federal Reserve, Division of Banking Supervision and Regulation, *Federal Reserve Supervisory Assessment of Capital Planning and Positions for Large and Noncomplex Firms*, SR Letter 15-19 (Dec. 18, 2015); Federal Reserve, Division of Banking Supervision and Regulation, *Guidance on Model Risk Management*, SR Letter 11-7 (Apr. 4, 2011).

²⁹ See *Banks’ Own Models Should Play a Key Role in U.S. Supervisory Stress Tests*.

In addition, the Federal Reserve projects PPNR using models that link the subcomponents of revenues and expenses reflected in regulatory reports to macroeconomic variables, but those subcomponents are not sufficiently tailored to capture the diversity of business activities among firms.³⁰ In contrast, firms' own internal models use inputs that are significantly more sensitive to the firms' own idiosyncratic risks and business activities than the fields in regulatory reports. Compared to firms' own internal models, which are tailored level to firms' own idiosyncratic risk profiles, the Federal Reserve's use of a common set of one-size-fits-all models across firms leads to imprecise and non-representative supervisory projections.

In light of the limited information that is available on the Federal Reserve's stress testing models—including if the package of proposals is adopted as proposed—it is not possible to evaluate comprehensively the inputs to or consequences of the simplifying assumptions the Federal Reserve employs, nor is it possible to compare the results from the Federal Reserve's models in any detail to firms' own stress test results. However, because firms' own internal models are tailored and developed to reflect the risks, activities and portfolios that are unique to each firm, they are expected to result in higher-quality projections that are also more representative of the firms' particular exposures, risks and businesses.

B. Predicating the CCAR quantitative assessment on the Federal Reserve's supervisory models inhibits lending, economic growth, and liquid capital markets, and also creates significant model concentration risk.

The ultimate impact of the imprecision of the Federal Reserve's stress testing models is to constrain lending, economic growth, and the liquidity of capital markets. CCAR post-stress capital requirements are frequently firms' binding capital constraints.³¹ Accordingly, if the Federal Reserve's projections using its supervisory models are overly conservative and produce post-stress capital ratios that are artificially low, firms' capital requirements will be too high, which will adversely affect the cost and availability of credit, as well as the ability of firms to provide liquidity to the capital markets. In addition, if the Federal Reserve's models project higher loss rates than warranted for certain categories of loans or other products, the pricing, terms and availability of those loans and products will be adversely affected. Indeed, our prior research indicates that the Federal Reserve's supervisory stress tests impose dramatically higher capital requirements for small business loans, residential mortgage loans, and trading assets

³⁰ See *id.* See also Schuermann, Til, Michael Duane, Peter Reynolds, *Stress Testing Bank Profitability*, *Journal of Risk Management in Financial Institutions*. Winter 2013/2014, Vol. 7 Issue 1, pp. 72-84, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2333951.

³¹ See The Clearing House, *The Capital Allocation Inherent in the Federal Reserve's Capital Stress Tests* (January 2017), available at https://www.theclearinghouse.org/~media/TCH/Documents/TCH%20WEEKLY/2017/20170130_WP_Im_plicit_Risk_Weights_in_CCAR.pdf. See also Greenwood, Robin, Samuel G. Hanson, Jeremy C. Stein, and Adi Sunderam, *Strengthening and Streamlining Bank Capital Regulation*, *Brookings Papers on Economic Activity* (forthcoming), available at <https://scholar.harvard.edu/files/stein/files/brookings-2017-paper.pdf> (August 2017).

relative to the capital that firms' own internal models and the Basel III standardized approach would require.³²

Of course, we strongly support the maintenance of robust capital by all banking organizations as an essential tool for promoting safety and soundness—our concerns here are not about the stringency of capital required, but rather the distortive effects of a capital requirement that is miscalibrated to the risks it purposes to address. Here, the implicit capital requirements imposed under CCAR are in large part a function of the Federal Reserve's imprecise and non-representative supervisory models. Higher and miscalibrated capital requirements have real world consequences, including on economic growth, the availability of credit, firms' ability to provide liquidity to capital markets, and the attractiveness of the U.S. financial markets.³³ Moreover, predicating CCAR outcomes on firms' own internal models would not reduce safety and soundness because the Federal Reserve would continue to determine the supervisory economic scenarios, establish modeling standards for firms,³⁴ review firms' models and model risk management processes, and supervise firms' capital planning processes,³⁵ including through quantitative stress tests in DFAST and CCAR.

The use of the Federal Reserve's models to determine CCAR outcomes is problematic, not only because of imprecision but also because it makes the outcomes of the CCAR exercise inherently uncertain. As we have noted, and as economists have shown, an increase in uncertainty depresses current investment, especially for investment projects that are long-lived and that are economically costly to reverse.³⁶ Given that the CCAR quantitative assessments effectively determines firms' binding capital constraints, uncertainty about post-stress capital

³² See *The Capital Allocation Inherent in the Federal Reserve's Capital Stress Tests*, *supra* note 31. See also Viral V. Acharya, Allen N. Berger, Raluca A. Roman, *Lending Implications of U.S. Bank Stress Tests: Costs or Benefits?*, *Journal of Financial Intermediation* (Aug. 18, 2017) (forthcoming), available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2972919; and Cortés, Kristle, Yuliya Demyanyk, Lei Li, Elena Loutskina, Philip Strahan (October 2017), *Where are the Large Banks? Stress Tests and Small Business Lending* (manuscript), available at http://sydney.edu.au/business/_data/assets/pdf_file/0008/337463/Cortes_Stress_tests_SMB_Lending_Oct_30_2017.pdf.

³³ See Treasury Banking Report, at 37 (“an excess of capital and liquidity in the banking system will detract from the flow of consumer and commercial credit and can inhibit economic growth”) and 49 (“the continual ratcheting up of capital requirements is not a costless means of making the banking system safer”).

³⁴ See SR Letter 11-7; see also SR Letter 15-18 and SR Letter 15-19.

³⁵ As noted in Annex A, we believe the qualitative assessment in CCAR should be eliminated in favor of the traditional examination process for all firms. Removing the qualitative assessment for all firms would only impact the mechanism by which supervisory expectations for capital planning are enforced, and not the supervisory expectations themselves. The elimination of the qualitative assessment would not alter in any way the Federal Reserve's actual supervisory expectations and requirements in this area. Nor is there anything about the examination process or the Federal Reserve's supervisory authority more generally that would limit its ability to qualitatively assess a firm's capital planning processes through ordinary examination and supervisory processes.

³⁶ See *Banks' Own Models Should Play a Key Role in U.S. Supervisory Stress Tests*.

ratios and the treatment of particular exposures in the Federal Reserve's supervisory stress tests is expected to result in underinvestment in certain lending activities. A central activity of banking organizations—transforming short-term liquid investments (such as deposits) into long-term illiquid assets (such as loans)—is inherently a long-lived investment project, which means that uncertainty stemming from the Federal Reserve's stress testing and capital planning framework is likely to depress lending. More generally, the lack of transparency and the uncertainty regarding supervisory stress test results inhibits economic growth and vibrant capital markets due to the challenges firms face in efficiently and effectively managing their businesses and allocating capital.

Although full disclosure of the design and operation of the Federal Reserve's supervisory models, as we suggest above, would mitigate some of this uncertainty, uncertainty would not and could not be eliminated even if the Federal Reserve disclosed all material aspects of its models, including all formulas and equations. Uncertainty would remain because firms would not have insight into or control over changes to the models from one year to another, nor could they be certain that their estimates of supervisory stress test results would match the actual results determined by the Federal Reserve using its own models. Indeed, the proposed new Stress Testing Policy Statement notes that the Federal Reserve may revise its supervisory models for a variety of reasons, and that those revisions may at times have a material impact on stress test results.³⁷

Further, the use of the Federal Reserve's supervisory stress tests to determine CCAR outcomes creates significant model risk because the binding capital constraints for CCAR firms are established according to the concentrated use of a single set of models—the Federal Reserve's.³⁸

C. Basing the CCAR quantitative assessment on the results of firms' own internal models would improve the precision and reduce the uncertainty of the CCAR exercise, and mitigate the significant model concentration risk resulting from the use of the Federal Reserve's models to determine CCAR outcomes.

The use of supervisory models to determine outcomes in the CCAR quantitative assessment reflects concerns that arose during the financial crisis regarding the strength of firms' models and modelling practices as they existed at the time. Since the financial crisis, firms have developed significantly more advanced, robust and comprehensive risk identification, risk quantification, projection and modelling capabilities. Revising the CCAR quantitative assessment so that firms' own models determine outcomes would appropriately reflect the enhancements to capabilities and the extensive progress firms have made in their capital planning practices.

Because firms tailor their own internal models to their own data and risk profiles, the models of one firm differ from those of another, and each firm's internal models produce results

³⁷ 82 Fed. Reg. 59528, 59531.

³⁸ See Gallardo, *supra* note 5.

that reflect its particular exposures, risks and businesses. In addition, firms use their own internal models to assess their post-stress capital adequacy and develop their capital plans. Basing CCAR outcomes on firms' own internal models would, therefore, address the problems described above, that result from the use of the Federal Reserve's supervisory models to determine whether a firm "passes" the CCAR quantitative assessment.

Firms' risk identification and quantification capabilities, together with the detailed information firms possess about their unique activities, portfolios and historical experiences, enable them to develop models that use data in more robust and tailored ways, resulting in more precise and representative stress test results. In addition, because firms design their internal models to reflect their own business activities and exposures, their models are more tailored to their activities and have greater risk sensitivity and specificity compared to the Federal Reserve's supervisory models, which are designed to apply to the entire population of firms participating in CCAR. Moreover, to the best of our knowledge (which is necessarily limited by the opacity of the Federal Reserve's stress testing and capital planning framework), the Federal Reserve does not subject its model development, validation and application practices to the same standards that it applies to firms—*e.g.*, those set forth in SR Letter 15-18.

If firms' own internal models determined outcomes in the CCAR quantitative assessment, the Federal Reserve's stress testing and capital planning framework would allow for better and more efficient capital management. In that case, firms' ability to return capital to their shareholders would be based on assessments of post-stress capital adequacy through more representative, precise and tailored models—*i.e.*, firms' own internal models. In addition, the same models firms use to assess their post-stress capital adequacy, develop their capital plans and decide how much capital to return to shareholders would determine CCAR outcomes. As noted above, the use of firm models to determine CCAR outcomes would not reduce the level of supervision the Federal Reserve has over a firm, including its ability to oversee whether a firm operates in a safe and sound manner or has adequate capital planning capabilities.

In addition, we note that although the Federal Reserve has decided to use its supervisory models and supervisory stress test results in the CCAR quantitative assessment, it is not required by statute to do so. In particular, nothing in Section 165 of the Dodd-Frank Act requires the Federal Reserve to use supervisory DFAST results in the CCAR quantitative assessment. Section 165(i) requires the Federal Reserve to "conduct annual analyses . . . to evaluat[e] . . . whether [BHCs with \$50 billion or more in total consolidated assets and nonbank financial companies supervised by the Federal Reserve] have the capital, on a total consolidated basis, necessary to absorb losses as a result of adverse economic conditions." The Federal Reserve could conduct that analysis without using supervisory stress test results to determine binary pass/fail outcomes in the CCAR quantitative assessment.

The use of firms' own internal models for purposes of the CCAR quantitative assessment is further supported by both the current strength of firms' capital planning capabilities, which have undergone significant enhancement and supervisory oversight in recent years, as well as the Federal Reserve's existing supervisory review of each internal model used for CCAR purposes. Of course, to preserve the benefits of banks being able to tailor risk models to reflect their own experience, it will be important for the Federal Reserve to supervise firms' internal models, with a focus on reviewing the quality of each firms' governance and other processes for

developing and maintaining its models. A supervisory process that recognizes and supports such a tailored approach (*i.e.*, heterogeneity) across banks models would be important to achieving the benefits outlined above.

D. It is not necessary to base CCAR outcomes on the Federal Reserve’s supervisory models in order to achieve important supervisory objectives, including instilling public confidence in the banking system, providing consistent and equitable treatment among firms, and enabling comparisons across firms.

The Federal Reserve states in its proposed new Stress Testing Policy Statement that the use of supervisory models is intended to instill public confidence in the banking system, to provide consistent and equitable treatment among firms, and to enable comparisons across firms.³⁹ We strongly agree that those are important supervisory objectives. Predicating outcomes in the CCAR quantitative assessment on supervisory models is neither necessary nor desirable to achieve them.

The Federal Reserve has chosen to link the DFAST and CCAR exercises by, among other things, using supervisory DFAST results in the CCAR quantitative assessment.⁴⁰ But, as discussed above, the Federal Reserve is not required to do so. Revising its capital plan rule so that supervisory stress test results are not used to determine outcomes in the CCAR quantitative assessment would not affect the Federal Reserve’s DFAST rules and requirements for firms participating in CCAR,⁴¹ including the publication of supervisory stress test results⁴² and disclosure of firms’ own stress test results.⁴³ Using supervisory DFAST results in the CCAR quantitative assessment is, therefore, entirely unrelated to the Federal Reserve’s objective of enabling comparisons across firms and providing information to the public in order to instill public confidence in the banking system. DFAST, on its own and decoupled from CCAR, could further those objectives.

Moreover, public confidence in CCAR, as well as consistent and equitable treatment among firms participating in CCAR, simply requires the use of representative and precise stress test results to determine CCAR outcomes. Predicating the CCAR quantitative assessment on the results of firms’ own internal models would achieve all of those goals. As discussed above, firms’ own internal models are more representative and precise than the Federal Reserve’s supervisory models. In addition, firms’ own models are subject to robust internal control and independent Federal Reserve supervision. Firms’ enhanced risk identification and risk quantification capabilities further support the development and application of their models.

³⁹ *See id.*, at 59530.

⁴⁰ *See, e.g.*, 2017 CCAR Results, at iv (“The [DFAST] supervisory stress test results, after incorporating firms’ planned capital actions, are also used for the quantitative assessment in CCAR.”).

⁴¹ *See* 12 C.F.R. Part 252, Subparts E and F.

⁴² *See* 12 C.F.R. § 252.46(b)(1).

⁴³ *See* 12 C.F.R. § 252.58.

We are not advocating for the elimination of supervisory models or supervisory stress testing. First, our proposed revisions to the CCAR exercise to predicate the quantitative assessment on firms' own internal models would not and need not entail any changes to the Federal Reserve's current DFAST rules. In addition, supervisory models could, and we believe should, be used to review and challenge firms' own internal models, which would promote consistency and equitable treatment among firms participating in CCAR. Indeed, the publication of the Federal Reserve's DFAST results, along with the continued disclosure of firms' own DFAST results, would support public confidence in firms' own models and stress testing and capital planning capital capabilities, as stakeholders could continue to assess how firms' own stress test results compare to those of the Federal Reserve. Using supervisory models to assess firms' capital planning processes, instead of to establish binding capital constraints, would also be consistent with international practices.⁴⁴

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The Clearing House appreciates the opportunity to comment on the proposals. If you have any questions, please contact the undersigned by phone at (212) 613-0138 or by email at Greg.Baer@theclearinghouse.org.

Respectfully submitted,



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⁴⁴ See Basel Committee, *Supervisory and Bank Stress Testing: Range of Practices* (Dec. 2017), at 6 (“Supervisory stress test results are primarily used by supervisory authorities for reviewing and validating the Internal Capital Adequacy Assessment Process (ICAAP) of banks and their liquidity adequacy assessments.”), available at <https://www.bis.org/bcbs/publ/d427.pdf>; Bank of England, *The Bank of England's Approach to Stress Testing the UK Banking System* (Oct. 2015), at 16 (“[T]he [Bank of England's] approach to deriving the results of its 2014 stress test was closer to [an approach in which supervisory models are used primarily to cross-check the outputs of banks' models], with banks' own submissions used as the starting point for the final projections.”), available at <https://www.bankofengland.co.uk/-/media/boe/files/stress-testing/2015/the-boes-approach-to-stress-testing-the-uk-banking-system.pdf?la=en&hash=CF6C217F37C1F8C61655CC1C0FAC5B8DD8B3C88E>.

Annex A

As noted in the introduction, even if the Federal Reserve’s stress testing and capital planning framework is revised as proposed, key aspects of that framework would continue to present substantial problems that can and should be addressed through further action by the Federal Reserve. To address those problems, all of which we have identified and addressed in further detail in prior publications, submissions and letters to the Federal Reserve,⁴⁵ we recommend that the Federal Reserve:

- Eliminate for all firms the annual, pass-fail qualitative assessment in CCAR in favor of the traditional examination process;
- Correct counterfactual and incorrect assumptions about how firms would behave in a crisis;
- Permanently suspend any action increasing effective post-stress minimum requirements under CCAR; and
- Modify application of the leverage ratio so that it serves as a backstop to risk-based capital measures rather than as a binding measure.

We summarize each of these recommendations below, and would welcome the opportunity to work with the Federal Reserve to revise its stress testing and capital planning framework so that it better promotes safety and soundness, economic growth and vibrant capital markets, as well as the global competitiveness of the U.S. banking system.

A. Eliminate for all firms the annual, pass-fail qualitative assessment in CCAR in favor of the traditional examination process.

The Federal Reserve’s CCAR process subjects some banks to a separate annual “qualitative” assessment of their capital planning processes and prohibits them from distributing capital to shareholders or adjusting share repurchases if the Federal Reserve determines that these processes are deficient. Despite the Federal Reserve’s issuance of capital planning guidance in 2015, this qualitative assessment process remains highly subjective. Furthermore, the results are effectively unappealable and have major consequences for bank shareholders—meaning that the qualitative assessment gives the Federal Reserve extraordinary power over the banks to which it renders a verdict. The Federal Reserve has already rightly ended the annual CCAR qualitative assessment in favor of the traditional examination process for all but the largest banks subject to CCAR, and should extend this approach to all banks.

⁴⁵ See May 2017 Treasury Submission, at 9-12; The Clearing House, *Comment Letter re: Incorporation of the GSIB Surcharge into CCAR* (June 2, 2016), available at https://www.theclearinghouse.org/-/media/action%20line/documents/volume%20vii/20160602_tch_comments_on_%20incorporation_of_gsib_surcharge_into_ccar.pdf; Greg Baer and Jeremy Newell, The Clearing House, *The Leverage Ratio: Neither Simple nor Sensible*, Eighteen53 Blog (June 26, 2017), available at <https://www.theclearinghouse.org/eighteen53-blog/2017/june/26-leverage-ratio>.

B. Correct counterfactual and incorrect assumptions about how firms would behave in a crisis (e.g., continuing share repurchases and, as discussed in Section V, growing their balance sheets under severe stress).

The Federal Reserve’s stress testing and capital planning framework attempts to measure the ability of banks to withstand a very severe economic downturn (and, where relevant, market shock) by determining the effect of the supervisory scenarios on banks’ capital adequacy. The Federal Reserve’s models assume that banks do nothing to shrink their balance sheets, reduce their dividends, or postpone planned share repurchases under severely adverse economic conditions—almost certainly deeply counterfactual assumptions. Thus, a large bank that passes the CCAR exercise not only has sufficient capital to avoid failure under historically unprecedented adverse conditions—but also has enough capital to emerge from such an event doing business as usual, and without taking actions that would be normal (or even compelled) under the circumstances. These counterfactual assumptions needlessly raise the stringency of the stress tests, and should be corrected.

C. Permanently suspend any action increasing effective post-stress minimum requirements under CCAR (e.g., through incorporation of the G-SIB capital surcharge).

Former Federal Reserve Governor Tarullo has indicated that the Federal Reserve is considering further increasing the amount of capital large banks must hold after undergoing the stress test.⁴⁶ Those banks are already required to have enough capital going into such a severe economic and market stress to emerge, not just solvent, but robustly capitalized. The Federal Reserve is considering requiring G-SIBs to emerge with even more capital, enough to meet not only the minimum capital requirements but also an additional G-SIB surcharge.

No cost-benefit (or other) analysis has yet been offered to support such an approach. Because these are the banks that provide support to U.S. capital markets, and because the G-SIB surcharge effectively taxes banks for engaging in capital markets activity,⁴⁷ such a change would further reduce market liquidity, thereby increasing the cost of corporate finance, reducing financing options for mid-sized companies, which are increasingly shut out of corporate debt markets, and increasing the systemic risk that comes with illiquid markets. Permanently suspending any action that would increase effective post-stress minimum requirements under CCAR would prevent a further reduction in the quality and availability of U.S. capital markets, with no damage to safety and soundness or financial stability whatsoever.

⁴⁶ See Governor Daniel K. Tarullo, Interview by David Westin, “Tarullo Sees Higher Big-Bank Capital Minimums, Small-Bank Relief,” Bloomberg (June 2, 2016), *available at* www.bloomberg.com/news/articles/2016-06-02/tarullo-says-eight-biggest-banks-to-face-higher-capital-rules; Governor Daniel K. Tarullo, Next Steps in the Evolution of Stress Testing (Sept. 26, 2016), *available at* <https://www.federalreserve.gov/newsevents/speech/tarullo20160926a.htm>; see also 80 Fed. Reg. 49082 at 49093.

⁴⁷ As described more fully in the May 2017 Treasury Submission, of the G-SIB surcharge’s five factors, four focus almost exclusively on capital markets activity, and the fifth focuses partially on such activity.

D. Modify application of the leverage ratio so that it serves as a backstop to risk-based capital measures rather than as a binding measure.

Unlike other major international banks, commercial banks in the United States have been required to satisfy a leverage ratio requirement for on-balance-sheet assets since 1981. More recently, Basel III introduced a 3 percent supplementary leverage ratio for internationally active banks, which includes both on- and off-balance-sheet assets.⁴⁸ Beginning in 2022, the Basel supplementary leverage ratio will include a surcharge for G-SIBs equal to 50 percent of their risk-based surcharges.⁴⁹ U.S. regulators have not only applied the 3 percent supplementary leverage ratio requirement to all larger banks, but have also imposed higher requirements for U.S. G-SIBs—an enhanced supplementary leverage ratio (“eSLR”) of 5 percent at the holding company level and 6 percent at depository institution subsidiaries.⁵⁰ Unlike the Basel surcharge, the eSLR is *currently* effective. Consequently, for several of the largest U.S. banks, the eSLR, as opposed to a risk-based requirement, is a current or potential future binding constraint and therefore drives bank capital and business planning.⁵¹

A leverage ratio measures the capital adequacy of a bank by dividing its capital by its total assets (and, in some cases, off-balance-sheet exposures) without taking into account the risk of any particular asset or exposure. Requiring the same amount of capital to be held against every asset makes the holding of low-risk, low-return assets relatively more costly when compared with the holding of higher-risk assets, higher-return assets. Put another way, if a capital regulation requires a bank to hold the same amount of capital against each asset, the bank will by necessity gravitate to relatively higher-risk, higher-return assets. A leverage ratio can still be a useful tool as a backup measure, but serious problems have emerged for U.S. banks because U.S. regulators have set the minimum leverage ratio for the largest U.S. banks at nearly double the current international standard, without adequate analysis of (i) whether such a high leverage ratio is necessary to prevent excessive risk taking or (ii) the impact of such a high leverage ratio on lending, market activity and economic growth. The banks most affected by the leverage ratio requirement are the very same banks that provide support to U.S. capital markets and ensure the safekeeping of investor assets, and in the course of doing so hold large amounts of low-risk, liquid assets like central bank placements and U.S. Treasury securities.

The overall impact of the leverage ratio as a measure of capital adequacy—and the resulting misallocation of capital—has increased dramatically in recent years as a result of other regulatory mandates. Large banks presently are required by liquidity regulations to hold about a quarter of their balance sheets in high quality liquid assets (“HQLA”)—predominantly cash, U.S. Treasury securities and other government securities. Large banks now hold approximately three

⁴⁸ See Basel Committee on Banking Supervision, *Basel III: A global regulatory framework for more resilient banks and banking systems* (June 2011), available at www.bis.org/publ/bcbs189_dec2010.pdf.

⁴⁹ See Basel Committee on Banking Supervision, *Basel III: Finalising Post-Crisis Reforms* (December 2017), available at <https://www.bis.org/bcbs/publ/d424.pdf>.

⁵⁰ See 79 Fed. Reg. 187.

⁵¹ See Federal Financial Analytics, Inc., *Mutual-Assured Destruction: The Arms Race between Risk-Based and Leverage Capital Regulation* (Oct. 13, 2016).

times as much of these assets as they did pre-crisis. Those assets rightly receive a zero or low risk weight in risk-based capital measures, but the leverage ratio completely ignores their actual risk.

Another issue that has received attention is how the supplementary leverage ratio makes it more costly for U.S. banking organizations to provide clearing member services to clients on centrally cleared derivatives. While risk-based capital rules allow banking organizations to reduce the exposure amount of such derivatives by an initial margin posted by their clients, the leverage ratio ignores any such posted margin. As a result, the leverage ratio exaggerates the exposure amount of these derivatives and effectively requires banks to hold un-economic amounts of capital when providing clearing services to clients. Because of this, at least three major dealers have exited the business. Accordingly, former CFTC Chairman Massad called for the U.S. leverage ratio to be amended to take account of segregated margin;⁵² Governor Powell has recommended that the calibration of the of the eSLR be reconsidered in light of the effects of bank capital requirements on central clearing;⁵³ the U.S. Treasury Department has recommended adjustments to the calculation of the eSLR and transitioning from the current exposure methodology (“CEM”) to a more risk-sensitive approach to measuring counterparty credit exposures in light of the adverse effects of the eSLR and CEM on clearing activities;⁵⁴ and CFTC Chairman J. Christopher Giancarlo has described the adverse effects of the eSLR on U.S. G-SIBs’ clearing businesses, their clearing customers and the derivatives markets more generally and also recommended revisions to the eSLR to mitigate those effects.⁵⁵ Supporters of the status quo argue that the core theory of the leverage ratio is to ignore credit risk among assets and treat them all the same, but segregated margin does not present credit risk; rather, it is functionally the same as collateral, which the leverage ratio already recognizes.

The use of the leverage ratio as a measure of capital adequacy also harms U.S. firms’ competitive position in other ways. It increases the relative cost of undertaking custody, treasury services or other businesses that employ a servicing business model or take sizeable corporate deposits, and generally forces firms to trap excess capital against cash reserve balances deposited at the Federal Reserve and against U.S. Treasury securities. These are assets whose value banks are at no risk of misjudging; capital allocated to them could be far better deployed to lending or

⁵² See Timothy Massad, *Keynote Address by Chairman Timothy G. Massad before the Institute of International Bankers* (March 2, 2015), available at www.cftc.gov/PressRoom/SpeechesTestimony/opamassad-13.

⁵³ See Webcast of GW Law & Reuters: A Conversation on Financial Regulation, Washington D.C. (Oct. 3, 2017) at 37 minutes, 35 seconds (Governor Powell noting that the Federal Reserve is reviewing and considering revising the eSLR and noting the negative effects of the eSLR on central clearing), available at <http://www.reuters.tv//avJ/2017/09/29/reuters-summit-financial-regulation-in-2017?edition=XW>.

⁵⁴ See Treasury Banking Report, at 51-52 and 54; U.S. Department of the Treasury, *A Financial System That Creates Economic Opportunities, Capital Markets*, Report to President Donald J. Trump, Executive Order 13772 on Core Principles for Regulating the United States Financial System (October 2017), at 138, available at <https://www.treasury.gov/press-center/press-releases/Documents/A-Financial-System-Capital-Markets-FINAL-FINAL.pdf>.

⁵⁵ CFTC Chair J. Christopher Giancarlo, *Changing Swaps Trading Liquidity, Market Fragmentation and Regulatory Comity in Post-Reform Global Swaps Markets*, Speech at the International Swaps and Derivatives Association 32nd Annual Meeting, Lisbon, Portugal (May 10, 2017), available at <http://www.cftc.gov/PressRoom/SpeechesTestimony/opagiancarlo-22>.

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supporting market liquidity. Thus, the answer is not to dispense with the leverage ratio but rather to reduce the calibration to either the common U.S. standard, or deduct from the leverage ratio's denominator high-quality liquid assets like central bank reserves and U.S. Treasury securities.