Written Statement of Dr. Sean Campbell, Chief Economist, Financial Services Forum
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1. Introduction

Chairman Barr, Ranking Member Foster, and members of the Subcommittee, thank you for the opportunity to testify today. My name is Sean Campbell. I am the Chief Economist at the Financial Services Forum (Forum). I am a Ph.D. economist and I have been a full-time academic as well as a member of the Federal Reserve staff. I am also an adjunct lecturer at Johns Hopkins University. I was a Federal Reserve staff member from 2004 until 2018. During that time, I served as a staff economist in the Division of Research and Statistics and a member of the official staff in the Divisions of Research and Statistics and Banking and Supervision. I worked extensively on the Federal Reserve's stress testing program, serving as a member of the Federal Reserve's model oversight group (MOG). The MOG was charged with overseeing the Board's stress testing program, including reviewing and providing staff-level approval of the exercise's results and overseeing and providing staff-level approval of any changes to the quantitative models used in the stress testing program. In addition, during my time at the Federal Reserve, I worked on a range of bank capital and prudential policies, many of which occurred in response to the Financial Crisis of 2008.

The Forum represents the eight global systemically important banks (GSIBs) headquartered in the United States. Forum members play an essential role in the U.S. economy, lending to consumers and companies, providing underwriting and other services within the capital markets, and managing and safeguarding the assets of individuals and institutions. Forum institutions hold over 40 percent of U.S. banking assets, underwrite over 75 percent of corporate and municipal debt and equity offerings, provide millions of individuals and families with essential banking services, are innovators in advancing new banking technologies, and employ over 700,000 people across the country. U.S. GSIBs also play a vital role in advancing the economic competitiveness of American business and the U.S. economy. Globally active companies, from the largest to mid-size to small businesses, rely on the largest banks to finance their operations, grow through trade, and offset the risk of losses that could occur due to fluctuations in currencies, interest rates, commodity prices, and other factors.

As the largest banks, Forum members meet the most stringent set of bank regulatory requirements and undergo the most rigorous supervision from the federal banking agencies. Collectively, the U.S. GSIBs maintain over $900 billion in Common Equity Tier 1 Capital, triple the level in 2009. The firms maintain more than $3 trillion in highly liquid assets, nearly triple the level immediately after the financial crisis. GSIBs meet a long list of other significant requirements put in place after the crisis, designed to result in strong and resilient institutions. The firms are annually measured for their ability to weather very severe economic conditions through stress tests administered by the Federal Reserve. Because of their strength, they have passed these tests – which assume no emergency government support – without difficulty. Over the past decade, stress tests have produced average hypothetical total GSIB losses of $132 billion compared to an average aggregate Tier 1 capital level of $915 billion, a clear example of the capital strength of the firms.

In recent years, the firms have not only satisfied hypothetical stress tests, but they have also been a strong source of support during real economic stress events. During the COVID-19 pandemic, Forum institutions acted quickly to conserve capital – by voluntarily suspending capital distributions – in anticipation of the needs of individual and business customers as major parts of the U.S. economy came to a halt. The GSIBs activated lines of credit, conducted record-setting levels of underwriting to support companies that fund themselves in the capital markets, and made accommodations for individuals and families who lost income suddenly and indefinitely. The GSIBs were leaders in delivering billions in federal income support payments, and billions in special small business loans as part of the Paycheck Protection Program. In the spring of 2023, as a few regional banks failed, the GSIBs remained demonstrably strong by consistently supporting their existing customers, accepting deposits from new customers, and providing billions in deposits to First Republic Bank. The strength and resilience of the largest banks has been repeatedly cited by former and current government officials responsible for financial policy and bank regulation, including the current Treasury Secretary, members of the Federal Reserve Board of Governors, the acting Comptroller of the Currency, and the chairman of the FDIC. As stated by the Federal Reserve when it announced the results of the 2023 stress tests, “Large banks are well positioned to weather a severe recession and continue to lend to households and businesses even during a severe recession."

2. Executive Summary

The importance of today's hearing demands a full and detailed assessment of transparency in the stress testing regime as well as the implications of a lack of transparency on government regulation and administration, as well as its effects on the economy. The remainder of my testimony considers these issues in detail, but I also provide a brief overview of my key findings here.

The stress testing regime is characterized by a high degree of variation in the amount of transparency provided to the public. Some aspects of the regime, such as the bank data collection as well as the scenarios that inform the exercise exhibit a significant degree of transparency. The quantitative models that determine how the data and scenarios are translated to losses and stressed capital ratios exhibit the lowest degree of transparency and are largely opaque to all but Federal Reserve system staff. While the Federal Reserve has published some limited information on these models in the past few years, the provided disclosures amount to form over substance. The provided disclosures result in a patina of transparency that, in practice, conveys little information that is useful for evaluating the validity of the models or their impacts. The resulting transparency patchwork can largely be traced to the beginnings of the stress testing regime in the Supervisory Capital Assessment Program (SCAP) that was conducted by regulators during the Financial Crisis. The approach to transparency in the current stress testing regime is largely the same as that found in the initial SCAP. While it is surely the case that a regulatory initiative that was hastily designed in the midst of a crisis was far from optimal, the last fifteen or so years have witnessed only minor, cosmetic, changes to the approach to transparency in today's stress testing regime.

Transparency in the stress testing regime is critical because open and transparent regulation is a cornerstone of long-established good governance standards. Indeed, certain laws such as the Administrative Procedures Act and the Government in the Sunshine Act demand a high degree of transparency from the government to ensure that government regulation benefits from a diverse set of views and feedback, appropriately limit the exercise of government authority, and to ensure public accountability. These goals are just as worthy in the context of the stress tests as they are in any other arena of banking or government regulation.

Relatedly, the lack of transparency in the stress tests does not comport with the degree of transparency afforded to the public in the context of related bank capital initiatives such as the GSIB capital surcharge or risk-weighted asset measurements – both of which have recently been subjected to public notice and comment following public proposals to modify these rules.[1] The lack of transparency in the stress testing regime is incongruous with the rest of the large bank capital regime and creates a clear and troubling disconnect in the government's approach to transparency in bank capital regulation.

Transparency in bank capital regulation, in general, and the stress tests, in particular, is important because bank capital and stress testing requirements impact credit allocation in the economy. As an example, using limited public disclosures, researchers have found strong evidence that the stress tests have limited funding for small business loans and certain healthcare-related industries. In the context of the non-stress testing components of the capital framework, the public is afforded the opportunity to comment on these impacts and regulators are required to consider these comments in crafting final rules. The public has no such opportunity in the case of the stress tests and the Federal Reserve is not obligated to consider any of the impacts that have been identified in the research. Allowing one branch of the capital framework to be wholly immune to the public's views on the economic impacts of credit allocation creates troubling conditions that only invites the inappropriate and unchecked exercise of government authority.

A lack of transparency in the stress testing framework is further problematic because it frustrates banks' ability to practice prudent risk management. Capital requirements, of which the stress tests are a part, serve to provide a signal about the relative riskiness of different bank assets. Prudent risk management demands that banks be aware of these relative risk levels and that they use this information as they conduct their own risk management and capital planning. Opacity in the stress testing regime denies banks critical information that is required for sound decision making. Moreover, banks are not denied specific, granular information as it relates to any other aspect of the bank capital regime. Whether it be specific risk-weight rules, or the specific rules governing the GSIB capital surcharge, banks have a full window into the

[1] On July 27, 2023 the banking agencies released a proposal to modify the schedule of risk-weights through the proposal commonly referred to as "Basel 3 Endgame" or "B3E" and the Federal Reserve issued a proposal to modify the GSIB Capital Surcharge.

specification and calibration of these rules and use that information to inform their risk management and capital management decision. Indeed, regulators fully expect that banks will make use of such information and have either called upon banks to do so or have applauded their efforts in this regard.

Finally, opacity in the stress testing regime creates unhelpful and unnecessary regulatory uncertainty. Because banks do not fully understand or know the capital rules to which they are subject, they may respond either by pulling back in general from economic activity as that is a clear and natural response to heightened uncertainty, or they may make incomplete and inefficient adjustments based on limited data that are unproductive and unduly costly.

The present lack of transparency in the bank stress testing regime represents a clear public policy failure that must be rectified in the near term. The "original sin" of the SCAP should not be allowed to be re-branded as the "immaculate conception" of stress testing. In my concluding remarks, I provide a discussion of possible remedies that should be considered as part of a broader, public, and transparent policy discussion. Options for improving the stress testing regime would include changes that would bring the stress tests closer in line with the rest of the regulatory capital framework which is subject to the standard notice and comment process, as well as improved engagement with the public in regards to the annual stress scenario and an independent audit of the entire stress testing infrastructure that would provide both the Federal Reserve Board and the public with greater confidence in the validity of the stress testing regime.

3. Stress Testing Stringency and GSIB Capital Adequacy

Over the last decade, the Federal Reserve's annual stress test scenarios have been more severe than the 2008 financial crisis, and importantly, the nation's largest banks have demonstrated they have ample capital to absorb losses, many times more in fact, and continue to lend into and support the economy during a severe economic scenario.

Since the introduction of the Supervisory Capital Assessment Program, or SCAP, in 2009, the Federal Reserve has been using a battery of undisclosed, quantitative models to make quantitatively specific statements about the capital adequacy of our nation's largest banks. As will be discussed in the remainder of this testimony, while the stress tests are characterized by a

significant lack of transparency, there is somewhat more transparency regarding the economic scenarios that serve as a key input into the stress tests.

A review of the macroeconomic scenarios that drive the severity of the stress tests show a consistent degree of variability or "dynamism" from year to year. More specifically, using data on the severely adverse macroeconomic scenario over the past decade shows a consistent level of variability in key scenario variables such as U.S. Real GDP, the unemployment rate, house prices, stock market volatility, and corporate bond yields has been roughly unchanged over this period (see Appendix Figure A1). As compared to the 2009 SCAP, for example, the severity of the shock to Real GDP, the unemployment rate and house prices are all more severe in the 2023 severely adverse scenario than they were in the SCAP (See Appendix Table A1). As a result, while the lack of transparency in the scenario design process prohibits a full and clear understanding of why the Federal Reserve chooses any particular scenario from one year to the next, the available data clearly shows that the scenarios are as volatile and dynamic today as they have been in the past.

Against this backdrop, it is useful to consider the performance of U.S. GSIBs in the annual stress tests. Due to important changes in the administration of the stress tests, banks no longer "pass" or "fail" the annual stress test exercise. Broadly speaking, however, it is clear that the individual and aggregate performance of U.S. GSIBs in the stress tests has improved over time. In the past several years, U.S. GSIBs have exhibited stressed capital ratios that are often more than twice the required minimum. Indeed, the Federal Reserve has recognized the strong capital adequacy of our nation's largest banks. As an example, last year the Federal Reserve commented that the 2023 results "demonstrate[d] that large banks are well positioned to weather a severe recession and continue to lend to households and businesses during a severe recession." In addition, the Federal Reserve's Vice Chair for Supervision stated that "today's results confirm that the banking system remains strong and resilient."

Some interpret the resilience of our nation's largest banks as demonstrated by the annual stress tests as a sign of weakness or reduced "dynamism" of the stress tests. This conclusion does not comport with the facts. The capital levels and capital adequacy of large banks, in general, and U.S. GSIBs, in particular, have increased substantially over the time that the annual stress tests have been conducted. In the original SCAP exercise, U.S. GSIBs maintained an average initial common equity capital ratio of 6.9 percent. In the 2023 exercise, U.S. GSIBs maintained an average initial common equity ratio of 12.9 percent. As the initial level of capital rises, it becomes

increasingly likely that any given stress test will result in a higher post-stress capital ratio thereby demonstrating greater capital adequacy. This result is not an indication of a less dynamic or stale stress test but simply a result of standard bank capital arithmetic: beginning with more capital, ceteris paribus, means ending with more capital. In addition, Forum member balance sheets have undergone significant change over the past fifteen years. As just one example, the nearly eight-fold increase in the size of the Federal Reserve's balance sheet since 2008, coupled with new and significant liquidity requirements, has dramatically increased the amount of low-risk assets held by banks.[2]

Taken as a whole, the available data that is available on the severity of the Federal Reserve's stress tests coupled with available data on U.S. GSIB capital levels paints a clear picture. The stress tests remain a stringent test of capital adequacy and Forum members have improved their performance in the annual stress tests due to a significant increase in capital levels.

4. Transparency in the Stress Testing Framework
    a. Scenario Articulation and Design

The Federal Reserve's Stress Testing Framework is complex, consisting of several inter-related parts. The degree of transparency associated with each part of the stress testing framework is different and should be considered appropriately. In particular, the degree of transparency provided to the public is comparatively greater in some aspects of the stress tests than others. Understanding the variation in transparency throughout the stress testing regime is helpful in assessing the appropriate amount of overall transparency that should be required of the stress testing framework.

The stress tests begin with the articulation of three scenarios – a baseline macroeconomic scenario, a severely adverse macroeconomic scenario, and a severely adverse global market shock scenario that is important for banks with significant trading activities. These scenarios represent one of three key inputs that determine the outcome of each year's exercise.

The output of the macroeconomic scenarios (baseline and severely adverse) is largely though not entirely transparent. Specifically, the Federal Reserve publishes the quarterly value of 28

[2] On December 26, 2007, the Federal Reserve's total assets were $890.6 billion. As of June 12, 2024, the Federal Reserve's total assets stand at $7.3 trillion, representing an 8.2 fold increase. Beginning in 2014, large banks became subject to the liquidity coverage ratio (LCR). Research has shown that the LCR has led to an increase in low-risk assets on bank balance sheets, especially U.S. GSIBs.

different macroeconomic and financial variables such as Real GDP, house prices, and the level of the stock market (16 domestic variables and 12 international variables) over the horizon of the stress test (13 quarters). In addition to these variables, however, the Federal Reserve's scenario discourse also includes a discussion of "Additional Key Features of the Severely Adverse Scenario". This discussion is qualitative and provides a rough sense of how some additional variables will be calibrated but the discussion does not provide the same degree of transparency that is provided in the case of the other 28 macroeconomic variables. As an example, the 2024 scenario discussion provides that "declines in aggregate U.S. house prices should be assumed to be concentrated in regions that have experienced rapid price gains over the past few years." This broad statement raises more questions than it answers. What is meant by rapid? How many years? How much will house price declines vary across different regions with different historical price patterns? To the extent that the macroeconomic scenario includes a finer-grained set of variables than the 28 macroeconomic variables that are publicly disclosed, it is not clear why other variables – such as regional or MSA level house prices – cannot be similarly disclosed. It is also entirely unclear what public policy goal is served by being explicit with respect to some macroeconomic variables and vague with respect to others.

In contrast to the macroeconomic scenarios, the global market shock is comprised of a large number -as in several thousand – shocks to risk factors that impact the value of capital market instruments and private equity holdings. These severely adverse shocks are disclosed to the public in their entirety. The disclosed variables are articulated at an extremely high degree of granularity and specificity. As an example, in 2023 the Federal Reserve disclosed the assumed severely adverse global market shock using a spreadsheet with 20 distinct spreadsheet tabs with each tab containing as many as 1,300 specific shocks.[3] Examples of specific shocks that were included in the 2023 global market shock include shocks to: Malaysian equities, Bulgarian sovereign debt, and the exchange rate between the Bangladeshi Taka and the Norwegian Kroner. Given the degree of granularity provided in the global market shock, it is difficult to understand the rationale for limiting the disclosure of important macroeconomic variables, such as regional house and commercial real estate prices, that have an important influence on the overall shape of the scenario and the results of the stress test.

[3] These data are available at, https://www.federalreserve.gov/supervisionreg/dfa-stress-tests-2023.htm

While the output of the stress scenario process is somewhat transparent, the process of formulating each year's scenario is not transparent. The main source of information on the scenario design process is the Federal Reserve's scenario design framework. The scenario design framework provides a broad and general discussion of the factors that influence how the scenario is specified but, by design, does not provide a specific and detailed discussion of how and why the scenario is calibrated in each specific year. The scenario design framework does govern the quantitative specification of a few variables. As an example, the scenario design framework requires that the unemployment rate generally increases to a maximum of at least 10 percent from its current level. Other variables, however, are only discussed qualitatively without any rigorous or specific guidance or limitations on their values. Consider the following discussion from the scenario design framework,

> **"[t]he Board will specify the paths of most other macroeconomic variables based on the paths of unemployment, income, house prices, and activity. Some of these other variables, however, have taken wildly divergent paths in previous recessions (e.g., foreign GDP), requiring the Board to use its informed judgment in selecting appropriate paths for these variables. In general, the path for these other variables will be based on their underlying structure at the time that the scenario is designed (e.g., economic or financial-system vulnerabilities in other countries)."**

The discussion above makes clear that while the scenario design framework does provide some broad and high-level guidance on the articulation of scenarios, it does not meaningfully limit or guide the selection of scenarios in any way that would give the public a detailed understanding of how or why certain scenarios are chosen from year to year.

Finally, while the Federal Reserve does publish a document detailing the scenarios that provides some broad ex-post rationalization for the choices made, the scenarios are not subject to the usual notice and comment process. As a result, the Federal Reserve is not required to explain to the public, ex ante, the rational and key risk considerations underpinning the stress scenario. Moreover, the Federal Reserve is not required to consider or reconcile their chosen scenario with the risk assessments of members of the public, which would include, for example, risk management experts, banking sector analysts, or professional economic forecasters. In this regard, it is worth noting that in discussing the baseline scenario, the Federal Reserve often compares its baseline with published forecasts such as the Blue Chip Economic Indicators or the IMF's World Economic Outlook, but no such comparison or discussion is generally provided in the

case of the severely adverse scenario.[4] The incongruity between the discussion and explanation of the baseline and severely adverse scenarios is important because the severely adverse scenario is the primary determinant of banks' performance on the stress test and its eventual stress capital buffer. Accordingly, a lack of any significant public engagement with regard to the adverse scenario makes it difficult for the public to clearly understand the thought process underlying the scenarios while also depriving the process of additional insights on key risks that should be considered as part of the scenario design process.

b. Bank-Specific Data Collection

Banks subject to stress tests are required to furnish a large volume of data to the Federal Reserve for use in the Federal Reserve's quantitative loss modeling exercise. The Federal Reserve requires that banks subject to the stress tests submit detailed and specific data on their exposures to loans, securities, derivatives, and an array of additional exposures through the Y-14 data submission process.

The Federal Reserve requires Y-14 data reporting at three frequencies – monthly, quarterly, and annual. The reporting forms and data requirements are substantial. As an example, the current reporting instructions for the quarterly report (FR Y-14Q) is in excess of 300 pages. The specific bank-level data that is provided as part of the Y-14 process is not made public because of its highly specific and confidential nature. In particular, the data includes client specific information on the size of loan amounts and the identification of borrowers that would raise clear privacy concerns. The specific variables, including their precise definition, that are required to be reported, however, are available to the public. In particular, the actual report forms as well as the reporting instructions themselves are publicly available.[5] Accordingly, members of the public, academics, bank analysts and other parties can fully understand what data is being collected as part of the stress testing process. This is an important source of transparency as it affords the public an ability to understand whether key attributes or variables that are relevant to a particular asset class or risk are being measured with sufficient precision to support a risk-based assessment of potential losses in a stress scenario. As an example, if the public is concerned about

[4] See for example, the discussion of the baseline and severely adverse scenario in the 2024 scenario disclosure document.

[5] The Federal Reserve maintains a website for the Y-14 reporting forms that contains: the current reporting forms, the current instructions, and prior versions of the report form and instructions. See for example, https://www.federalreserve.gov/apps/reportingforms/Report/Index/FR_Y-14Q.

developments in a particular sector, such as commercial real estate, existing disclosures make it possible for the public to assess whether the stress tests have regular and consistent access to the data that would be required to probe the crystallization of certain risk in that market.

The Y-14 report forms are all subject to the notice and comment process. Indeed, on June 21st of this year, the Federal Reserve issued for comment a proposal that would amend and modify the current Y-14 reporting forms. This notice and comment process is an appropriate transparency standard as it gives affected parties and the wider public an opportunity to evaluate proposed changes to the report forms. In addition to the Y-14 process, the Federal Reserve uses data from other regulatory filings such as the Y-9C, which are also subject to regular notice and comment, as well as additional publicly available data, data from certain vendors, and data from occasional "special collections" from the affected firms to inform the execution of the stress tests.

c. Quantitative Stress Test Models

The information from the scenarios and the bank-specific data that is collected as part of the Y-14 process is fed into a large suite of quantitative models that determine specific losses for each bank that is included in the stress testing exercise. As an example, a bank's Y-14 data on its commercial and industrial (C&I) loans are fed into the Federal Reserve's quantitative loss models along with the information in that year's stress scenario to produce that year's loan losses on C&I loans. These loan losses are then included with losses on every other asset class that is modeled by the Federal Reserve as well as projected net income that is generated by the Federal Reserve's pre-provision net revenue (PPNR) model. Finally, the projected income and losses are combined with each firm's proposed capital actions (dividends and buybacks) to compute projected capital levels over the stress scenario period.[6] Ultimately, the calculation also serves as the basis for each year's stress capital buffer (SCB) calculation.

There is less transparency regarding the specification of the Federal Reserve's internal loss models than any other aspect of the stress testing process. Each loss model (and the PPNR model) is developed in-house by a group of economists from the Federal Reserve system. The documentation and exact specifications of the models are reviewed and assessed by Federal Reserve system staff but are not made available to the public.

[6] This description is purposefully general and does not describe all of the specifics relating to the stress test calculation including, for example, the treatment of deferred tax assets, paxes and so on.

The quantitative models underpinning the stress test exercise are also not subject to the usual notice and comment process. As a result, the public is unable to comment on the precise specification of the models or how they relate to the underlying scenario variables. Moreover, Federal Reserve staff are unable to speak openly and transparently with a wide range of outside experts on the precise and specific nature of their models and how they might be improved to better assess risk in the banking system. Further, the Federal Reserve is not required to explain or otherwise substantiate specific modeling choices that have been made in their models. In the case of quantitative loss modeling, it goes without saying that the input assumptions have a critical impact on the results. Certain assumptions could have significant implications for generating differential results across banks but are not subject to review and comment from the public. In addition, the empirical practice of quantitative loss modeling is far from settled science. Rather, such efforts are better characterized as an art that is informed by data and historical experience. As a result, the scope for such models to benefit from public transparency and the input of a wide range of informed stakeholders is large.

While the degree of transparency that is provided concerning the Federal Reserve's quantitative loss models is low, some information is provided to the public on the broad nature and specification of these models. The Federal Reserve does provide a high-level discussion and summary of key models used in the stress testing process as well as data on loss rates for a range of specific assets for a selection of quantitative loss models.[7]

The provided descriptions give the public a broad sense of the nature of each of the models that is described but the description is sufficiently high-level so as to obscure key elements of each model's specification. The provided descriptions articulate key scenario variables and key data items that are included in the loss model but do not say how these variables are included or the quantitative significance of the variables that are included. To analogize, the descriptions effectively describe a lemon chiffon cake as consisting of some flour, some eggs, some sugar and some butter and flavorings – the ingredients in most any cake. Overall, the descriptions are not sufficient to allow for a critical examination of their specification or to assess their impact. An

[7] See https://www.federalreserve.gov/publications/2023-june-supervisory-stress-test-methodology-modeled-loss-rates.htm

example of one excerpt from the discussion of the Federal Reserve's PPNR model highlights this issue,

> **"The specific macroeconomic variables that enter each regression model differ across equations and are chosen based on statistical predictive power and economic theory. For example, yields on U.S. Treasuries are key variables in the models of the interest income and expense components, while GDP growth, stock market volatility, and stock returns are featured in many of the models of the noninterest income and noninterest expense components."**

The discussion above offers little specificity aside from a few examples of variables that are included in "many" of the models. Moreover, the provided discussion does not include any indication of the quantitative impact or contribution of these variables. While the discussion does provide a modicum of high-level and abstract discussion, the information provided would be of little use to the public or a quantitative analyst attempting to fully understand how the model translates bank data and scenario assumptions into stress test projections.

In addition to these broad, high-level, model descriptions the Federal Reserve also provides an annual discussion of changes that are made to the stress testing models. Like the model descriptions themselves, the description of model changes is broad and high-level. In addition, the changes are described in relation to models that are not transparently documented making it more challenging to fully understand the nature of the changes being described.

As a specific example, in 2023, the Federal Reserve disclosed the following model change,

> "**The international other consumer, international small-business, international first mortgage, and international home equity portfolios, which are components of the other retail loans model, will be assigned loss rates associated with a percentile of the historical loss distribution. Under the supervisory severely adverse scenario, this percentile is related to the frequency of severe recessions."**

The change described above does not provide any transparency to the magnitude of loss rates assigned beyond communicating that a loss rate associated with a "severe recession" is assigned. Clearly, without any further discussion of what is meant by a "severe recession" or what percentile of the loss distribution is employed, the provided description has effectively no empirical or substantive content that could be used to critically assess the reasonableness of the model change.

5. The Importance of Transparency in the Stress Testing Framework

    a. The Historical Source of the Federal Reserve's Lack of Stress Testing Transparency

Having described the range of transparency that exists within the stress testing regime, it is appropriate to discuss the importance of transparency in the stress tests. Before doing so, however, it is important to briefly discuss the historical evolution of the stress test as, in many things, history has much to do with where we are today.

As previously discussed, before the Financial Crisis bank regulators did not regularly use stress tests to assess capital adequacy. During the Financial Crisis, however, regulators decided to stress test the 19 largest banks in order to assess the health of the banking sector and instill public confidence in its solvency. The desire to quickly develop, execute, and communicate the results of the stress tests to the public, as well as to ensure the stability of the banking sector – given the economic effects of the Financial Crisis – outweighed the importance of providing transparency regarding the design of the stress tests.

While such a choice at that time was clearly defensible, though still debatable, there is no such compelling argument more than 15 years after the financial crisis. Indeed, the basic transparency contours of stress testing in today's stress tests bear a striking resemblance to the initial SCAP. Specifically, in the SCAP regulators disclosed the scenarios that were used as well as form templates that were used to collect data from each of the 19 firms but did not provide detailed disclosures on the supervisory models employed nor did they seek public comment on these models.[8] Fifteen years after the financial crisis it stands to reason that the approach to transparency within the stress tests is ripe for vigorous reconsideration.

    b. Transparency Promotes Good and Open Governance

Government regulation in the United States is characterized by a high degree of transparency and openness. Across a wide range of government functions, whether it be the regulation of taxes, auto safety standards, or food and drug safety, government regulation is conducted in the open under the scrutiny of the public eye. More specifically, there is a clear recognition that regulated entities and the public have a right to know and understand the

[8] In the SCAP, PPNR and loss projections were generated through a combination of supervisory and bank models. Today, only supervisory models are used in the stress testing process.

regulations to which they are being held. The case for such openness and transparency in the case of stress testing is no different from any other arena of government regulation.

There are three key rationales for openness and transparency in government regulation. First, openness and transparency bring to bear the widest and most diverse range of views in addressing a particular problem that is to be addressed by regulation. As regulation is generally involved in addressing complex problems, such problems are generally best addressed when more and not fewer ideas are considered in the crafting of a regulation. More generally, it is difficult to identify any serious mode of inquiry in which better outcomes are yielded by restricting, rather than expanding, the source of ideas and feedback that are considered. Second, openness and transparency guard against an inappropriate use or misuse of authority. History provides ample examples in which a lack of transparency and openness has been used to exercise an undue use of authority. Conducting government regulation in an open and transparent manner ensures that light can serve as a powerful disinfectant that promotes the appropriate exercise of authority and good governance. Third, openness and transparency in government regulation promotes accountability for regulators. A clear and unfiltered understanding of a regulation is a necessary precondition for the public to adequately evaluate its effects on the entities being regulated and the broader public. Regulators must always be accountable to the public so that they have appropriate incentives to get it right and so that regulation can be improved over time. Regulations that are not openly disclosed frustrate the public's ability to hold regulators accountable, which can, itself, lead to an exercise of authority that does not serve the public's interests.

c. The Stress Tests Drive Credit Allocation in the U.S. Economy

Perhaps the most compelling reason to provide more transparency to the stress testing process is that the stress tests have a clear and discernible impact on credit allocation in the U.S. economy. While the stress tests are not appropriately transparent, some limited information is made available to the public through annual stress testing disclosures. Further, the Federal Reserve has, on occasion, provided academic researchers with access to stress testing data that is not generally available to the public. The Federal Reserve requires appropriate anonymization of any disclosed data and approves any such research work product prior to publication. Using this limited data, various researchers have examined the impact that the stress tests have on credit

allocation. The findings clearly suggest that the precise specification and calibration of the stress test have had a measurable impact on credit allocation.

In one recent research paper, economists examined the impact of stress testing and concluded that

> "Banks subject to stress tests have strongly cut small business loans secured by home equity, an important source of financing for entrepreneurs. Lower credit supply has led to a relative decline in entrepreneurship during the recovery in counties with higher exposure to stress tested banks."

The results of this research underscore how the stress testing process affects the entire economy. Specifically, evidence suggests that the Federal Reserve's implementation of the stress tests is harming small businesses and is also leading to a lack of dynamism in the economy through reduced entrepreneurship.

In another recent paper, economists found that the stress tests have had measurable deleterious consequences for the hospital sector. Specifically, the researchers found that hospitals that obtain funding from banks subject to the stress tests were subjected to a reduction in credit at increased cost that has had a measurable impact on health care outcomes. Specifically, they found that,

> "affected hospitals shift their operations to increase resource utilization following a negative credit shock but reduce the quality of their care to patients across a variety of measures, including a significant increase in risk-adjusted readmission and mortality rates. The results indicate that access to credit can affect the quality of healthcare hospitals deliver, pointing to important spillover effects of credit market frictions on health outcomes."

As in the case of small businesses, available data and research clearly suggest that the stress tests have credit allocation ramifications that impact households, businesses and communities throughout the United States. For the very same reason that the public has a clear and compelling reason to understand and comment on risk-weighted asset calculations via the pending Basel III Endgame (B3E) or GSIB surcharge proposals, the public has a clear and compelling reason to

understand, comment upon, and generally engage with regulators on the precise form and function of the stress tests. Indeed, to the extent that the specification of the stress tests embeds a policy choice about the aggregate level of capital in the banking system and the resulting tradeoff for economic growth, such policy choices should involve and be transparent to a range of key stakeholders and public policy makers.

Because of insufficient transparency in the stress tests, we only know about the credit allocation that has been uncovered to date in the limited research available. It is likely that the stress tests are having much wider and more significant impacts but the public's ability to assess impact is significantly impeded by a lack of transparency. The public's ability to understand and consider the impact of the stress tests would be greatly improved if the stress tests adhered to the same level of transparency that characterizes the rest of the regulatory capital system. In addition, such transparency would improve the quality of research on the impacts of the stress test regime and make it more imperative that the Federal Reserve incorporate such findings into tits process.

d. Consistency with the Rest of the Capital and Bank Regulatory Framework

In discussions of stress testing and transparency, a claim is often made that somehow the stress tests are different and deserve a status and treatment that differs markedly from the rest of the capital framework. Such statements are incorrect. With the implementation of the stress capital buffer (SCB) framework, the stress tests are simply one part of an inter-related regulatory capital framework. More precisely, for U.S. GSIBs, their risk-based capital requirement is composed of three parts: 1) a minimum requirement of 4.5 percent, 2) a GSIB capital surcharge that varies depending on the firm's GSIB score, and 3) the stress capital buffer or "SCB" that is a direct result of the stress testing process. Finally, a bank's capital level is measured with respect to a schedule of risk-weights that are used to compute risk-weighted assets (RWA). A bank's capital level relative to its risk weighted assets (RWA) must always be in excess of 1) the required minimum plus, 2) the GSIB surcharge plus, 3) the SCB as described in the equation below,

$$4.5\% + GSIB\% + SCB\% \leq \frac{Capital}{RWA}.$$[9]

[9] Technically, both the GSIB surcharge and the SCB are "buffers" and banks may operate at capital levels below that prescribed by full compliance with these buffers. In practice, market participants expect and demand full compliance with all buffers and so the distinction between minima and buffers is merely academic.

As can be seen in the above equation, the stress tests are simply one part of the regulatory capital framework that operates alongside and interchangeably with other aspects of the framework. As an example, if a bank exhibits an increase in its SCB by, say, 1 percentage point, and also exhibits a decline in its GSIB surcharge of 1 percentage point then its regulatory capital requirement is unchanged and the bank's overall economic incentives are similarly unaffected.

At this point it is useful to consider the transparency standard that applies to each component of the regulatory capital framework so that it can be compared and contrasted to the stress testing regime.

Consider the schedule of risk-weights that define RWA. Currently, the banking agencies are reviewing public comments to proposed changes to the risk-based capital framework - a process known as Basel III Endgame or "B3E"; the proposal makes various changes to the existing risk-weight schedule. More generally, the risk-weights that apply to various bank assets are fully transparent at the most granular level and are known to banks and the public. The current B3E process sheds important light on the value of the open and transparent nature of the risk-based capital framework. Importantly, the public comment process has elicited voluminous comment on the proposed B3E changes. In response to these comments, regulators have already indicated that "broad material changes" will be made to the proposal.[10] Accordingly, it is abundantly clear that regulators have found the provided comments to be a useful source of comment and analysis that will ultimately improve the final regulation.

In the case of B3E, the public comment process has generated a wide range of comments from public stakeholders that are not banks. In particular, an analysis of the B3E public comments found that among 347 comment letters that were examined, 86 percent were provided by sectors outside the banking industry, such as small businesses, interest groups, civil rights groups, agriculture, energy, manufacturing, and other end-user communities, demonstrating it is not just banks that are impacted by bank regulation. Consequently, because the entire economy is affected by capital regulation, it is critical to ensure bank capital requirements are calibrated appropriately through an open, public, and transparent process.

[10] See, https://www.reuters.com/markets/us/powell-says-he-expects-broad-material-changes-basel-proposal-2024-03-06/

The voluminous comments by non-banks as part of the B3E process makes abundantly clear that non-banks have a clear and immediate interest in the precise form and calibration of bank capital regulation. The public's significant interest in the form and shape of capital regulation derives from one simple fact – households, businesses and communities are directly affected by bank regulation as it impacts the cost and availability of credit in the economy. Regulators themselves have openly acknowledged the value of these public comments to the B3E rulemaking process. Accordingly, the open and transparent B3E process has elicited a diverse range of views, provided relevant information which the banking agencies must consider, and provides a significant degree of public accountability. Considering the clear and significant benefits that public transparency has brought to the B3E process, it is difficult to understand why regulators are unwilling to reap such benefits in the context of the stress tests that function as one interdependent part of the overall bank capital regime.

Apart from the SCB, the regulatory capital requirement for U.S. GSIBs is also influenced by the GSIB capital surcharge. Like the SCB, the GSIB surcharge results in year-to-year variation in a bank's overall regulatory capital requirement. Quite unlike the SCB, however, the GSIB capital surcharge is completely transparent and known to banks and the affected public. More precisely, the GSIB surcharge capital rule was proposed and finalized through the notice and comment process. In addition, in July of 2023 the Federal Reserve publicly proposed and sought comment on a number of significant changes to the GSIB surcharge capital rule The technical specifications of the rule including the specific data elements that comprise the "GSIB score" as well as the precise mapping that translates scores to surcharges is available to the public. Accordingly, neither banks nor the broader public have any uncertainty regarding how the GSIB surcharge is calculated or applied to large banks.

Similar to the experience of the B3E rulemaking process, a review of the 73 public comment letters filed in conjunction with the recent GSIB surcharge proposal clearly document a wide array of stakeholders. Academics, public interest groups, energy and commodity concerns, and non-bank financial institutions have all provided valuable, public comment on the proposal. As in the case of the B3E process, the public comments provide an effective means to gather a diverse set of views, appropriately limit the exercise of regulatory authority, and promote public accountability that undoubtedly serves to improve the shape of the final rule.

Finally, while the whole of the risk-based regulatory capital framework, aside from the stress tests, is open and transparent to the public, it is important not to lose sight of the broader frame in which the risk-based capital framework sits. All manner of bank regulation is broadly open and transparent to a degree far exceeding that of the stress tests. Apart from risk-based capital requirements, banks are also subject to leverage-based capital requirements – all of which are subject to the open and transparent public comment process. Relatedly, bank liquidity requirements, single counterparty credit limits, derivative margining requirements, and activity restrictions such as the Volcker Rule are all crafted in accordance with a public notice and comment process and final regulations, in their entirety, are available to the public. Any argument or suggestion that somehow stress testing is "different" and should be subject to different transparency requirements conflicts with basic standards of good governance and public accountability while contradicting long-established practices that are widely adopted throughout the whole of the bank regulatory framework.

e. Promoting Prudent Risk Management and Resource Allocation

At their core, capital requirements are about risk. Regulator prescribed capital requirements make a clear statement about the risk of various bank assets that are intended to ensure that riskier assets are funded with more loss absorbing capital. This is an appropriate goal of capital regulation. For the risk signal embedded in capital regulation to have an effect, however, banks must understand the capital regulation to which they are subject so that they can adapt and plan accordingly. As an example, if the risk of a certain asset increases and regulatory capital requirements increase, a decision by a bank to moderate or otherwise hedge its exposure to that asset would generally be identified as prudent risk management.

In the case of risk-weights, the subject of the current B3E proposal process, banks actively consider the specific and granular risk weights assigned to various assets such as mortgages, small business loans, and auto loans. Indeed, the voluminous and productive commentary received as part of the B3E proposal process underscores the clear understanding the public has about how bank's use the information contained in regulatory capital standards to make prudent risk management choices. Risk-weights that are not tied to risk or embed incorrect risk assessments can result in poor risk management incentives and capital allocation decisions that are not consistent with real underlying risks and divert bank funding from its most productive and efficient use.

Similarly, as banks consider how to allocate bank funding to various assets they consider how such allocations would influence their regulator-defined systemic risk profile, as defined by the GSIB Score, and resulting capital requirements, as defined through the GSIB surcharge. In the context of the GSIB Score and Surcharge, regulators have broadly applauded banks' internalization of the rule and its impact on their capital requirements. As an example, in voting to approve the final GSIB Surcharge rule in 2015, Chair Janet Yellen remarked that,

> "In practice, this final rule will confront these firms with a choice: they must either hold substantially more capital, reducing the likelihood that they will fail, or else they must shrink their systemic footprint, reducing the harm that their failure would do to our financial system. Either outcome would enhance financial stability."[11]

As this statement makes clear, regulators understand and approve of the fact that banks internalize regulatory constraints and actively consider them when making business decisions. When capital regulations are appropriately specified, doing so ensures that banks are able to allocate the scarce resources they steward to the use that achieves the best risk-adjusted return for the economy.

Relatedly, the Basel Committee on Banking Supervision recently published a ten-year retrospective on the impacts of the GSIB surcharge framework, itself a global capital standard, in which they find that, "[t]he analysis suggests that G-SIBs have adjusted their balance sheets in a way that is broadly consistent with the incentives of the G-SIB framework." Accordingly, regulators clearly acknowledge and applaud the fact that banks use the information embedded in transparent capital regulations to inform their risk management decisions on a regular basis.

For reasons that are difficult to understand, regulators take an altogether different and generally dim view of banks' responding to the incentives embedded in the capital framework as it relates to stress testing. Such efforts by banks are typically labeled as "gaming" or "regulatory arbitrage" whereas the same action in the context of assessing risk weights or GSIB surcharges is viewed as a natural and indeed laudable feature of sound risk management.

A common argument that is used to support a lack of transparency in the context of the stress tests – but not in the context of risk-weights or GSIB surcharges – is that somehow, in some unspecified and unarticulated manner, banks would use information embedded in the

[11] https://www.federalreserve.gov/newsevents/press/bcreg/yellen-statement-20150720a1.htm

specification of the stress tests to make changes to their asset allocation that would reduce the stress test result without reducing actual risk.

This argument is highly problematic for at least three reasons. First, and foremost, an unstated predicate of the argument is that the calibration of the stress test is incorrect. That is to say, there is an aspect of the stress test that misidentifies risk – otherwise banks would be unable to change their asset allocation without changing the risk measured by the stress test. If there is a concern by regulators that the stress tests are flawed and incorrect, the first question to be answered should be, "how can we improve the stress tests and rectify the problem?" As has been discussed previously, history and experience clearly show that complex problems are best solved when more and not fewer eyeballs are fixed on the problem. Making the specification of the stress tests more transparent would improve the ability of outside experts, academics, and other stakeholders to identify any such inaccuracies in the stress testing framework. What's more, maintaining opacity in the stress tests will surely result in a stress testing framework that is more likely to exhibit the very flaws that regulators are concerned about in the first place.

Second, regulators appear to believe that the only remedy for a flawed and inaccurate stress test is opacity. This is incorrect and inconsistent with long-standing and existing regulatory practice. More specifically, regulators routinely use the supervisory and oversight authority to examine how banks comply with an entire array of bank regulations. If regulators are of the view that a particular aspect of the stress test is being exploited, they can identify the problem through the supervisory process and then publicly explain their reasoning and propose amendments to the stress tests to address the supposed problem through the usual notice and comment process.

Indeed, regulators regularly adopt this approach in the context of other regulations. As a specific example, one specific change being suggested in the Federal Reserve's recent GSIB Surcharge proposal relates to an aspect of the GSIB score calculation that regulators suggest is subject to manipulation by banks. In response, the Federal Reserve is not proposing to make the GSIB score and surcharge process opaque as is the case for the stress tests so that banks can no longer "manipulate" their scores. Rather, the Federal Reserve is publicly proposing a change to the GSIB surcharge calculation that they believe would address the issue. The Federal Reserve's public proposal is important as it allows the public to evaluate the claim being made by the Federal Reserve as it relates to potential manipulation, and it allows the public to comment on the

proposed solution and whether it addresses the putative concern at reasonable cost. In general, there is no compelling reason why a similar process could not work in the context of the stress tests. The public proposal and comment process is regularly used to address such concerns while providing for a range of views on the concerns raised as well as the proposed remedy.

Third, this argument effectively assumes banks are bad actors from the start and presumes mal intent. Using opacity to guard against manipulation assumes that any attempt by banks to adjust their asset allocation in light of the stress tests is being done for inappropriate reasons. A regulator should not hold an initial presumption that the entities it regulates are motivated by mal intent. Such a view creates an unhealthy dynamic between the regulator and the regulated entity that is overtly and unnecessarily adversarial. Regulators should engage with banks in an open and transparent manner that begins with an expectation that they aim to comply with both the letter and spirit of any regulation in an above-board and forthright manner.

Another argument that is commonly used to argue against transparency in the stress tests is the notion that if banks are provided with greater stress test transparency, we will observe a "model monoculture" that simply converges to the stress testing model. This argument does not comport with economic theory or observed practice. On the theory side, risk modeling and risk management is perhaps the single greatest competitive margin in banking. If all banks slavishly adhered to a single regulatory model, the incentive for a bank with better information to outcompete its competition by using that information would be extreme. Competition in the banking market would largely deal with the monoculture concern. As to observed practice, recall that banks already operate under a system of regulator prescribed risk weights. If the monoculture concern were at all relevant, we would already have seen the predicted convergence to a model monoculture as banks would have simply reverse engineered the risk management model embedded in risk weights. In practice, we observe a healthy degree of variation in banks' risk assessments. Moreover, bank regulations in other areas such as liquidity regulation also make use of such "regulator models" and we simply do not observe the sort of model monoculture that the argument predicts is certain to arise. Finally, and perhaps most importantly, regulators have wide latitude and authority to monitor and assess bank behavior. If such a model monoculture concern was realized in practice, regulators could identify the issue and take steps to address the identified problem – presumably in a public and transparent fashion.

f. Transparency Reduces Regulatory Uncertainty

An important cost of reduced transparency in the stress testing framework is regulatory uncertainty. Regulatory uncertainty arises when regulated firms are unable to understand the regulations to which they are subject and are likewise unaware of how those regulations may change in the future. In the case of the stress tests, a key source of regulatory uncertainty is variation in firm-level SCB's that are not attributable to any specific factors that banks can identify because they are not aware of how the stress tests are conducted. The fact that the stress tests result in significant variation in SCB's is clear. Looking at data on published SCB's over the past few years shows several cases in which SCB's vary by as much as a full percentage point from one year to the next. In some exceptional cases, SCB's have been known to vary by several percentage points.

The result of this regulatory uncertainty is to reduce the ability of banks to engage in capital planning and to reduce the effectiveness of whatever capital planning occurs. Banks often make long-term investments, such as lending a company funds for a term of five-years. The amount of capital required to fund a bank loan is a primary determinant of a bank's willingness and ability to fund a loan. If a bank believes that its regulatory capital requirement might increase by one or more percentage points over the course of the next five-years, its willingness to engage in such long-term investments will be meaningfully curtailed.

Likewise, investors rely on regulatory capital levels to assess the overall health of financial institutions. A firm that exhibits a sharp increase in its required capital may be viewed as more risky by its investor base. If the increase in capital is a result of changes to its GSIB surcharge or a change to B3E risk-weights, investors and bank management can jointly assess the nature of the increase. Indeed, banks often spend copious amounts of time on earnings calls discussing developments in their risk-weighted asset levels and GSIB surcharges. If, however, a firm sees a marked increase in its SCB, it very often will not have a clear understanding of the reason for the increase due to the lack of transparency in the stress testing framework. As a result, bank management and investors are often only left to wonder what prompted the increase. The resulting variability in capital requirements adds to the uncertainty surrounding investments and banks, which generally reduces the attractiveness of bank investments relative to, say, investments in unregulated non-banks.

Finally, when banks do not understand the determinants of their SCB, they are forced to make hard choices in an unnecessarily uncertain environment. Confronted with a significant increase to its SCB, a firm may conduct an analysis to try and understand the source of the increase. With incomplete information, the bank will have to form an uncertain judgement and may adjust its balance sheet based on imperfect information. As a result, the bank may reduce or otherwise adjust its balance sheet in ways that are not appropriate given the actual specifics of the stress test, but without more information it is impossible to make a more informed adjustment. As a result, activities and bank assets may be impacted merely as a matter of collateral damage rather than as a result of any actual link to increased risk.

6. Recommendation to Improve Transparency in the Stress Testing Process

The stress tests are characterized by a low level of transparency that deprives the public of a clear understanding of how large banks' capital levels are regulated. The approach taken in the stress tests is counter to the transparent approach taken in the rest of the bank regulatory framework and stands in stark contrast to well accepted and long-established norms of good governance. Clearly, significant reform to improve the amount of transparency and public oversight in the stress tests is required.

Importantly, in the name of transparency, when determining appropriate solutions, we should engage in a deliberate public process that considers a variety of alternative remedies and seeks input on those remedies from banks, the public, and other key stakeholders. Nevertheless, it is worth outlining some key areas where reform could be most useful while providing some thoughts on remedies that could be considered as part of public deliberation.

With regard to stress scenarios, consideration should be given to providing the public with a structured opportunity to comment on the scenarios. There are a variety of mechanisms that could be employed for this purpose ranging from engagement at roundtables and other public events to a formal notice and comment process. A more regular and structured engagement with the public on the form and shape of the stress scenarios would help ensure that the Federal Reserve considers and benefits from the widest range of views on risks to the U.S. economy and banking sector while also guarding against potential regulatory groupthink.

In addition, consideration should be given to making all variables that encompass the stress scenario fully transparent and public. Stress scenarios that provide quantitative paths for some variables and only a high-level discussion of others creates a hazy and inaccurate picture of the specific scenario under consideration.

With respect to the quantitative models that drive the stress testing process, consideration should be given to significantly increasing the amount and degree of transparency that is provided to the public. The standard notice and comment process that is used in the case of risk-weighted asset requirements (e.g. B3E), or GSIB surcharges, or any number of other regulatory requirements, should serve as the baseline in this discussion. To the extent that there are any departures from the notice and comment process, these departures should be specifically identified for the public, and such departures should be explained and supported through a public process.

Regarding the administration and execution of the stress tests, consideration should be given to the use of an outside and independent audit function that does not reside within the Federal Reserve system or the U.S. Government. The stress testing regime is highly complex consisting of large-scale data requirements, highly complex and sophisticated quantitative models, and a battery of related complex processes that are needed to execute the stress tests each year. Banks and other private entities are regularly required to have such complex internal processes audited and reviewed to the satisfaction of regulators and outside investors. The same motivations for such audits at private entities would also support a similar exercise in the case of the stress tests. Any audit process should consider, at a minimum,

- The accuracy of data collected and how it is maintained, stored and ultimately fed into the stress test models
- The composition of the specific computer code that is used to translate the documentation of each model into an actionable calculation that is included in the stress test
- The governance process that is used to maintain the stress testing infrastructure including the process for updating and documenting changes to models as well as any changes to data feeds that are implemented as models are updated
- The accuracy and correctness of the final stress test results that are generated in each year's exercise.

Such an audit process could be used to provide an independent, external report to the Federal Reserve Board and certain aspects of that audit report could be made available to the public to provide the public with additional evidence in support of the integrity of the stress testing regime.

7. Conclusion

The stress tests have emerged as a central component of the large bank capital regime since the initial SCAP exercise was conducted in 2009. Appropriately calibrated and conducted, the stress tests serve as an important tool to safeguard the safety and soundness of the banking system and our economy. There is no debate about whether the stress tests should be conducted. Rather the debate focuses on how the stress tests should be conducted.

The approach to transparency in today's stress tests is largely a vestige of the hurried, historical development of the stress tests that occurred during a deep financial crisis when the need to act quickly and decisively potentially outweighed the need for public transparency. Fifteen years following the SCAP, it is time to align stress testing transparency standards with the rest of banking and government regulation.

Transparency in regulation is a touchstone of good government. Regulatory transparency ensures that the public can understand how their public institutions operate in the light of day and allows the public to assess the impact of regulation on affected entities and the broader economy. Banking regulations that are opaque frustrate prudent risk management and create costly regulatory uncertainty that has deleterious effects on the whole economy.

A broad, public, and transparent public policy discussion should now ensue to place the stress testing regime's approach to transparency on more thoughtful and firmer footing that fits more comfortably within our nation's long held and practiced commitment to an open and accountable government.

Appendix

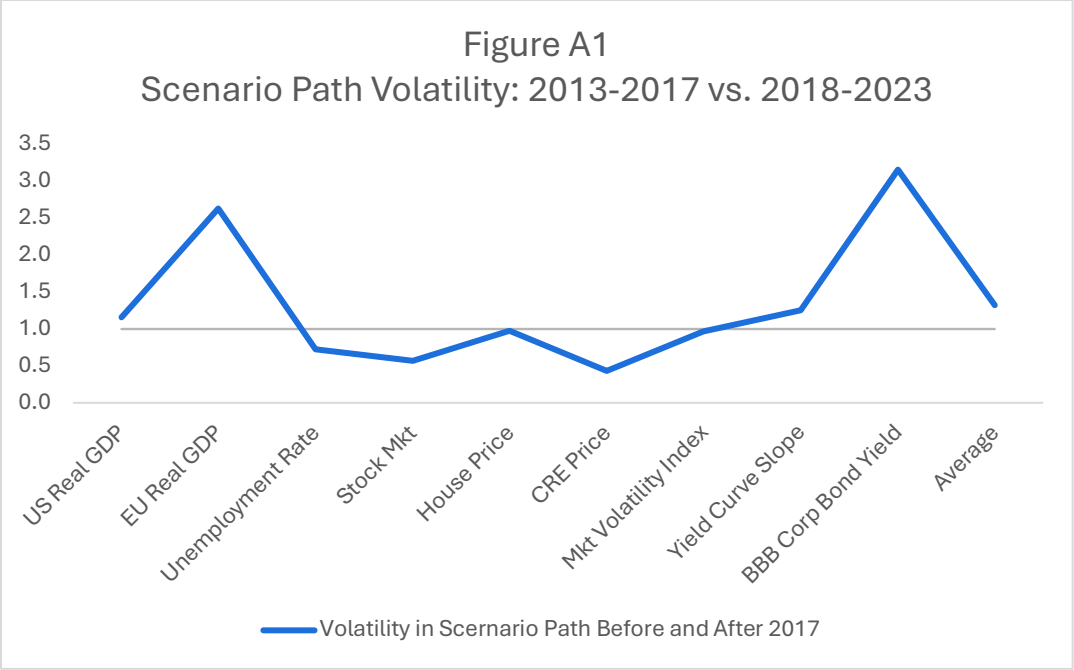

Table A1: SCAP vs. Stress Test 2024 [12]

Scenario Peak to Trough Stress (%)	SCAP	2024	Difference
Unemployment Rate Increase	3.4	6.3	2.9
U.S. Real GDP Decline	-3.3	-8.8	-5.5
House Price Decline	-27.5	-36.0	-8.6

[12] Data coming from: The Supervisory Capital Assessment Program: Design and Implementation, Apr. 2009 and 2024 Stress Test Scenarios, Feb. 2024.