COMMITTEE ON CAPITAL MARKETS REGULATION

BANK STRESS TESTING & UNDERSERVED BORROWERS

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COMMITTEE ON CAPITAL MARKETS REGULATION

Staff Report:

Bank Stress Testing & Underserved Borrowers:
Potential Distortions to Risk-Based Capital Allocations and Adverse Impacts on Underserved Borrowers

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Introduction

Stress testing is a forward-looking dynamic analysis used by the Federal Reserve (the "**Fed**") to determine whether the 33 U.S. banks with more than $100 billion in total assets subject to the tests ("**covered banks**") have sufficient capital to absorb losses during adverse economic scenarios.[1] Each year, the Fed designs and discloses hypothetical adverse economic scenarios and applies its own largely undisclosed models to determine the losses that covered banks would incur in the hypothetical scenarios.[2] The stress test assesses whether each covered bank can continue to meet regulatory minimum capital requirements given such scenarios, which involves the Fed projecting banks' assets (including loan balances), pre-provision net revenues, and provisions for loan losses for nine-quarters. Using the Fed's modeled losses (plus four quarters of planned dividends), the Fed sets a unique stress capital buffer ("**SCB**") for each covered bank. This SCB (plus the regulatory minimum capital ratio in stress) is effectively the minimum capital ratio that banks need to hold in normal times.

In general, banks are required to hold minimum ratios of loss-absorbing capital against risk-weighted assets (or unweighted assets in the case of leverage ratios), referred to generally as minimum capital requirements. Of course, for a given amount of capital, higher risk-weighted or total assets lead to lower capital ratios. Therefore, the Fed's assumption about risk-weighted or total assets in the stress scenario — the denominator in capital ratios — affects the minimum capital required by the Fed stress test. Higher assets (particularly loans) also lead to higher projected loan losses – also affecting the numerator in capital ratios. Accordingly, asset projections in the Fed stress test are a critical determinant of capital requirements and higher asset projections lead to increased capital requirements.

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[1] FEDERAL RESERVE SYSTEM, Stress Tests and Capital Planning (Aug. 10, 2020), https://www.federalreserve.gov/supervisionreg/stress-tests-capital-planning.htm#:~:text=Dodd%2DFrank%20Act%20stress%20testing,support%20operations%20during%20adverse%20economic.

[2] See, e.g., FEDERAL RESERVE SYSTEM, Dodd-Frank Act Stress Test 2020: Supervisory Stress Test Methodology, 3 (March 2020), https://www.federalreserve.gov/publications/files/2020-march-supervisory-stress-test-methodology.pdf.

In this report by the staff of the Committee on Capital Markets Regulation, we demonstrate that historical data of bank balance sheets during economic stress suggest that the Fed significantly overestimates covered banks' loan balances in their stress test, which inflates covered banks' assets and thus increases minimum capital requirements. Although we understand that the Fed has a legitimate macro-prudential goal of ensuring that banks have sufficient capital to fund the economy, its assumption that every loan type (commercial and industrial (C&I), commercial real estate, auto loans, credit cards, first-lien mortgages, junior liens and HELOCs, other consumer loans) behaves in the same manner in periods of economic stress is not supported by historical data, thus leading to a misalignment between capital costs and actual risk associated with specific loan types. Loan types that are assigned a higher capital cost than justified, such as credit card loans, may become disfavored by lenders, thereby increasing costs and decreasing credit availability to the customers of those loans. Moreover, since consumers who rely on these types of loans tend to be traditionally underserved consumer borrowers, the distortion of risk-based capital caused by the Fed assumptions harms an already vulnerable class of consumers.

Empirical data suggest that the most significant discrepancy between Fed assumptions and historical bank behavior occurs with respect to credit card loan balances. In short, the Fed assumes that bank loan balances for credit card loans will remain stable (net of assumed credit losses) throughout the stressed scenario, whereas in practice, the inevitable impact of a downturn results in lower balances — in part due to the higher assumed charged off balances in stress, and in part due to supply and demand dynamics. This is particularly true for lower FICO (a.k.a., subprime) credit card loans.[3]

[3] By assuming that all charged off loans are "re-originated" during the 9-quarter cycle, higher loss loan categories have implied "new" loan originations significantly above those of lower loss categories. This is most acute for low FICO loans — which includes many underserved consumers, including those new to credit and those with lower incomes. The Fed models charge-offs in credit card loans by FICO band. For the lowest FICO band — FICO below 650 — the assumed net charge-offs are 41.9% over the 9- quarter period. See FEDERAL RESERVE SYSTEM, Dodd-Frank Act Stress Test 2021: Supervisory Stress Test Methodology (April 2021). With the Fed's recovery assumption of approximately 10%, this equates to gross charge-offs (the figure that lowers balances) of over 46%. In order to assume a flat balance sheet and constant mix, the Fed is implicitly assuming that banks could re-originate almost half of their subprime card portfolio in 9 quarters, which is inconsistent with historical data.

Since credit card loans (and to a greater extent, subprime credit card loans) face a higher capital requirement under stressed conditions, covered banks are thus incentivized to reduce this type of lending. All else equal, this adverse treatment on credit card lending lowers the availability and increases the cost of credit. The negative impact on subprime credit card loans affects a class of loans that are vital for lower income consumers, as well as individuals new-to-credit and those with prior credit issues, including a disproportionate share of demand for such credit from communities of color. Reducing the ability for these households to obtain credit could materially impact their financial flexibility and well-being. In addition, lower participation by covered banks in the subprime lending market also contributes to the increasing concentration of such lending activities in a less regulated environment, e.g., by non-bank lenders that charge high rates of interest.

In this report, we first review the Fed's approach to its balance sheet assumptions in its stress test, summarizing the methodology through which the Fed projects loan balances. We then document empirically the inconsistencies between the Fed's assumptions and historical bank behavior during periods of economic stress. Next, we explain how these flawed simplifying stress test projections can distort capital allocation such that it does not reflect the underlying risk of the loans it is intended to support and negatively impacts underserved borrowers. We conclude with a recommendation for revising Fed stress test assumptions that would better reflect reality across loan categories, and likely enhance underserved borrowers' access to credit.

1. Federal Reserve balance sheet assumptions

The Fed projects individual firm's loan levels over the nine-quarter stress test period through a two-step process, whereby the Fed first projects industry-wide aggregate loan amounts for all loan types under the stress scenario in order to ensure that aggregate credit availability does not decline during an economic downturn. The Fed then translates the aggregate loan levels into specific loan projections for individual firms. This methodology results in individual firm loan levels remaining stable or even increasing under stress scenarios.

The Fed established a policy of assuming that aggregate industry-wide loan levels are stable or increase under stress scenarios[4] to ensure that individual bank capital levels remain sufficiently high during severe economic downturns to allow aggregate credit availability, and thus industry-wide lending, to continue despite the economic stress.[5] Specifically, the Fed wants to avoid credit crunches during times of stress by preventing firms from "assuming" that they can "shrink to health."[6]

The Fed also seeks to ensure through its stress test that loan levels of *all* types will not decline in a stressed scenario. The Fed does so by assuming that an individual firm will maintain a constant mix of loan types in their portfolio and that firms will maintain the same market share of aggregate industry-wide loans over time.[7] This constant market share assumption, combined with stable aggregate loan levels, leads to individual firm balance sheets that are projected to have stable loan balances by type during stressed market conditions.

2. Inconsistencies between Federal Reserve stress test assumptions and historical data

The Fed justified its assumption that loan balances remain stable under stressed conditions in part by analyzing loan balances in past recessions. Under their analysis, the Fed determined that

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[4] See Fed Stress Testing Policy Statement, Section 2.7, Federal Register Vol. 84, No. 40, Feb. 28, 2019.
[5] Id.
[6] Id.
[7] See Federal Reserve Independent Balance Sheet Projections, Dec. 16, 2013.

the loan balance of the median bank (among the top 50 bank holding companies) grew 4.3% and median balance sheet assets grew 9.9% over the nine quarters following the December 2007 peak of the 2007-2009 recession.[8] Based on this data, the Fed argues that "[p]rojections in which most banks see major contraction in loans or total assets over nine quarters, even in severe recessions, would thus be at odds with historical experience."[9]

Relying on the aggregate loan data underlying the Fed's analysis of the top 50 largest bank holding companies (**"BHCs"**) during the 2007-2009 recession in order to conclude that banks do not contract loans during severe recessions is incorrect for two reasons. First, several large commercial banks acquired large non-banks (such as savings and loans firms and thrifts, whose balances were not already reflected in the top 50 BHC data) during the recession. As a result, the mergers and acquisitions (**"M&A"**) activity among the 50 largest BHCs contributed to the aggregate increase in bank loans, so comparing pre-M&A loan balances to post-M&A loan balances is not an apples-to-apples comparison over a given time period. A more representative analysis of aggregate loan data would adjust for this M&A activity.[10,11] Second, new accounting rules implemented in 2010 (FAS 166/167) had the nominal effect of increasing reported bank loan balances by requiring banks to consolidate off-balance-sheet securitization activity onto their balance sheets.[12] This primarily impacted credit card securitizations. An accurate analysis of aggregate bank loans during the 2007-2009 recession should also adjust for this accounting change.

Comparing the unadjusted versus adjusted aggregate bank loan amounts for the top 50 bank holding companies highlights the significance of those two factors in distorting the aggregate loan data. As illustrated in **Figure 1**, the unadjusted aggregate loan data suggests that total loan balances

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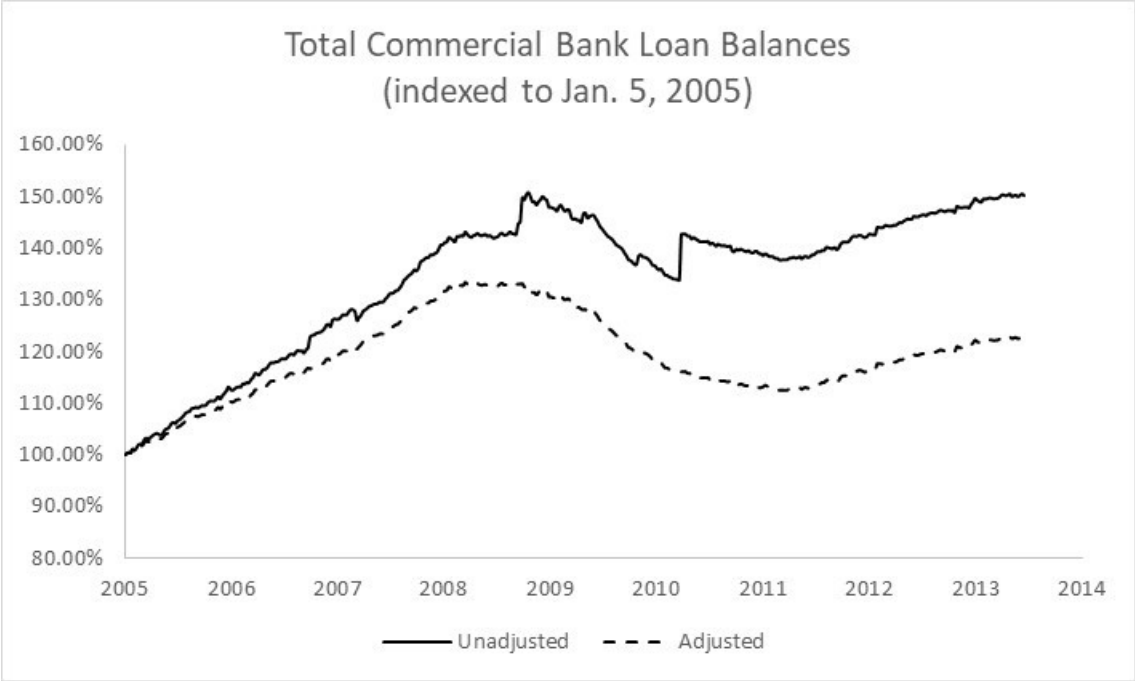
[8] See Federal Reserve Independent Balance Sheet Projections, Dec. 16, 2013.
[9] Id. at 2.
[10] See Merger Adjusting Bank Data: A Primer, FDIC Quarterly Vol. 13, No. 1, 2019.
[11] See Quarterly Trends for Consolidated U.S. Banking Organizations Fourth Quarter 2020, Federal Reserve Bank of New York Research and Statistics Group.
[12] See FAS 166/167; FDIC Quarterly Banking Profile First Quarter 2020.

at the top 50 BHCs grew 10% in the nine quarters beginning at the end of 2007.[13] However, after adjusting total loan balances to remove the effects of M&A activity[14] and the accounting rule change, total loans balances actually *decreased* by 9% over that time period. Therefore, the net effect of the M&A and accounting adjustments is a significant shift from 10% *growth* to a 9% *contraction* in aggregate loan balances.

Figure 1



During the 2007-2009 crisis, the contraction in loan balances was particularly pronounced for certain types of loans, which is also inconsistent with the Fed's stress test assumptions of stable loan levels for all types of loans. We analyzed the change in six different loan categories during the 2007-2009 crisis by calculating the percentage change in loan balances over the typical nine-quarter time horizon used in the Fed stress test analyses.[15] Since the Great Recession began to impact the different loan categories at different times, however, each loan category's nine-quarter period is evaluated from a different starting point, depending upon when that loan category first

[13] Data sourced from the Federal Reserve. Underlying data analyzed and verified by A.T. Kearney and reviewed by CCMR staff.
[14] By adjusting loan balances for large acquisitions and divestitures of non-commercial banks, such as thrifts.
[15] Loan data sourced from the Federal Reserve.

experienced a deterioration in credit quality.[16] Comparing the differential in loan growth across loan categories highlights the heterogeneity across loan types. While commercial real estate ("**CRE**") loans grew by 8.9% and home equity lines of credit ("**HELOCs**") grew by 18.5%, credit card loans dropped by 7.0%. Thus, the historical data from the 2007-2009 recession is inconsistent with a homogenous assumption that the balances of all loan types would remain stable, or slightly increase, during a period of economic stress.

The heterogeneity among loan types is also evident in the more recent period of economic stress caused by the global COVID-19 pandemic. Total loans from the fourth quarter of 2019 through the second quarter of 2020 at the top 50 BHCs rose slightly at 1.2%, driven by the increase in commercial borrowers drawing on available credit lines. In contrast, consumers cut back on their borrowing and paid down their outstanding credit balances. As a result, credit card loan balances declined significantly, falling 15.2%. Similar to the Great Recession, the data from the recent pandemic downturn clearly establish significant differences in loan balance behavior depending on the type of loan. Despite these clear differences among loan types seen in multiple periods of economic downturns, the Fed does not distinguish among loan types in its stress test projections.

3. Flawed stress test projections can disadvantage lower income borrowers

The projected loan balances used in the stress test analysis are significant because higher projected loan balances increase the denominator of the risk-based capital ratios. Higher projected loan balances — particularly in higher loss asset classes — also lead to higher projected charge-offs thereby also lowering the numerator of the risk-based capital ratios. These factors lead to lower projected capital ratios under stress, and consequently, a higher SCB requirement. A higher SCB requirement means a higher capital requirement in normal times. This in turn limits the ability of banks to lend and/or distribute capital.

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[16] The nine-quarter period for each loan category begins at the point in which the charge off rate for that loan type exceeded one standard deviation above the average charge off rate from the first quarter of 2005 through the second quarter of 2007. Loan data is from the Federal Reserve commercial bank aggregate (SA).

Discrepancies in the treatment of individual loan types can also inadvertently favor certain loan categories over others, thus distorting bank lending behavior today. Under the Fed's balance sheet assumption, projected loan balances remain stable, and the mix of loans is constant over the planning horizon. To illustrate, let's assume that at the beginning of the planning horizon, a firm's commercial loan balances are $300 billion and credit card balances are $100 billion. Under the Fed's balance sheet assumption, the projected loan balances in periods of stress would remain flat for each category of loans. Based on the historical data, however, the firm's actual loan balances under the stressed conditions would not be constant, as the credit card loan balances would likely become significantly lower (e.g., $90 billion), while the commercial loan balances would likely expand (e.g., $320 billion). By requiring a constant balance sheet without properly distinguishing among the various loan categories, the Fed is implicitly disadvantaging credit card loans and favoring commercial loans by requiring more capital than justified (based on historical observation) for credit card loans and less capital for commercial loans. Following the above example, the capital charge for credit card loans would be based on the Fed assumption of $100 billion, when it should be based on $90 billion, thus resulting in a higher than justified capital requirement for the credit card balances today. Conversely, the capital charge for commercial loans would be based on the Fed assumption of $300 billion, when it should be based on $320 billion, thus resulting in a lower than justified capital requirement for commercial loans today. Therefore, since credit card loans face a higher capital requirement under stressed conditions, the firm would be incentivized today to shift lending away from credit cards.

Credit cards are not only an important financial product for many consumers, particularly lower-income borrowers and individuals with little credit history (e.g. recent immigrants) or poor credit history, but they also can play a critical role in periods of short-term stress. This was most recently evidenced during the COVID-19 pandemic, in which credit cards provided an important source of temporary liquidity and served as an important payment option. Reducing the availability of credit card loans would thus negatively impact traditionally underserved and lower-income borrowers more than any other group, particularly in times when such credit is needed most. As illustrated in **Table 1**, low-income borrowers, for example, rely on credit card lending more than any other income group.

Table 1	
Income percentile	**Avg. credit card debt / median annual income**
Less than 20	23.5%
20-39.9	13.1%
40-59.9	8.3%
60-79.9	7.3%
80-89.9	6.5%
90-100	4.3%
Source: Federal Reserve Survey of Consumer Finances	

As illustrated above in **Table 1**, average credit card debt as a percentage of median annual income is highest for the lowest income groups. For example, the lowest 20th percent hold approximately 23.5% of credit card debt as a percentage of annual income, while the highest 20th percent hold only 4.3-6.5%. The lower the income, the greater the reliance on credit card borrowing. Therefore, reductions in credit availability through credit cards have a disproportionate effect on the lowest income borrowers.

4. Recommendation

Given the significant consequences on traditionally underserved and low-income borrowers, the Fed should be particularly prudent in ensuring that stress test projections are aligned with actual bank and bank customer behavior during economic downturns. As illustrated above, the assumption of stable loan balances and constant mix of loan types is not supported by historical evidence. This assumption would also appear to undercut the Fed's stated aim of implementing a stress capital buffer informed by a real-time stress testing regime to prepare the banking system to withstand a "real world test" of its resilience.[17] Therefore, the Fed should, at a minimum, distinguish among loan categories when projecting loan balances under stressed conditions. This

[17] Randal K. Quarles, Vice Chair For Supervision, "Jet Flight, Mail Bags, and Banking Regulation," Remarks at the Prudential Regulation Conference (June 3, 2021).

change would address the adverse impact of stress testing on credit card loans relative to other loan types and remove the incentive for banks to shift lending away from credit card borrowers. The result would be an increase in credit availability and reduced borrowing costs for traditionally underserved and low-income borrowers — outcomes consistent with the Fed's stated goal of keeping household borrowing costs low to promote a broad-based economic recovery.[18]

One possible approach to better aligning stress test projections with actual bank behavior would be to modify the Fed's constant mix assumption by considering loan type specific gross charge-offs or loan loss rates. The Fed can continue to assume stable aggregate loan balances, thus preserving its policy goal of ensuring sufficient capital to maintain aggregate credit availability, but allow the relative mix of loan types to fluctuate based on loan type specific charge off rates. To accomplish this, the Fed could simply assume that pre charge-off balances grow by a fixed amount (e.g., 6%) over the nine-quarter horizon, and then subtract gross losses as modeled for each bank and asset class to produce a net loan balance. For example, since credit card loan charge off rates are more impactful than commercial loan charge off rates during economic downturns, the mix of loan types should be equally reflective of the relative net growth of commercial loans versus credit card loans.

Suppose a bank holds $100 billion in credit card loans and $300 billion in commercial loans at the start of the nine-quarter stress period. The portfolio mix therefore is 25% credit card loans and 75% commercial loans. To keep loan balances flat across the industry, as noted above, the Fed could assume 6% gross balance growth for all loan types and then net out gross charge offs. This means that pre charge-off loans would grow by $6 billion in credit card loans and $18 billion in commercial loans. Further, the Fed could assume that the historical nine-quarter charge-off rate during economic downturns is 20% for credit cards loans and 4% for commercial loans.[19] Under this proposal, these charge-off rates would be applied to the specific loan categories, causing

[18] See Lael Brainard, Governor, "Achieving a Broad-Based and Inclusive Recovery" (Oct. 21, 2020) and "Remaining Steady as the Economy Reopens," Remarks at the Economic Club of New York (June 1, 2021) (noting that data from the pandemic indicate that this consumer segment faces increased challenges related to caregiving responsibilities and access to childcare contributing to reduced labor force participation, which may have increased short-term credit needs).

[19] Cumulative charge-off rates over a nine-quarter period of economic stress.

the credit card balance to drop by $14 billion ($6 billion growth minus charge-off losses of $20 billion) and the commercial loan balance to grow by $6 billion ($18 billion growth minus charge-off losses of $12 billion). The new asset mix of the portfolio would be approximately 22% credit card loans and 78% commercial loans, a change from the 25-75 portfolio mix prior to the charge-offs. As a result, when the Fed adds the assumption that total industry loan balances remain flat throughout the stress period, it would assume that the portfolio mix is 22% credit card loans and 78% commercial loans, rather than a constant 25-75% portfolio mix (which would be the case under the Fed's current stress testing policy). Obviously, given the significantly higher charge off assumption for subprime credit cards, the impact would be more pronounced than the simple example above. Further, given that aggregate Fed modeled loan charge-offs are approximately 6%, a 6% pre-charge-off growth rate would result in industry net loan balances being flat (with variations across individual firms based on their unique loan mix).

The result of this approach would be a more accurate reflection of loan balance growth for specific loan types during periods of stress. It would eliminate or reduce the distortion of capital allocation away from the real risk associated with that lending. And, importantly, it would remove the unintended adverse impact on credit card loans, particularly those to traditionally underserved and lower income borrowers, versus other lending categories. By removing this adverse impact, banks would no longer be incentivized to reduce credit card lending, thus bringing a broader range of consumers into the financial mainstream. As a result, this revision to stress test projections is one alternative that should be considered, but any revision that more accurately reflects actual loan balance fluctuations during times of stress would benefit underserved borrowers.

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