MOODY'S ANALYTICS

ARTICLE
APRIL 2020

Authors
Laurent Birade
Senior Director, Risk & Accounting Solutions

James Partridge
Director, Risk & Accounting Solutions

Alex Cannon
Associate Director, Advisory Services

Contact Us
Americas
+1.212.553.1658
clientservices@moodys.com

Europe
+44.20.7772.5454
clientservices.emea@moodys.com

Asia (Excluding Japan)
+85 2 2916 1121
clientservices.asia@moodys.com

Japan
+81 3 5408 4100
clientservices.japan@moodys.com

Unfunded Commitments: Unintended Consequences in Times of Turmoil

Understanding the consequences of large drawdowns in times of need

The COVID-19 pandemic and the associated slowdown in the economy has pushed many commercial entities to increase their borrowing. One form of this is an unprecedented drawdown of commercial lines of credit. We use recent observations in commercial funding markets and empirical evidence from consumer lending markets to analyze the potential range of impacts to capital levels at US financial institutions caused by this shift. We set out to establish upper and lower limits impacts for a limited set of banks using call report data.

This analysis finds that, while the banking industry as a whole could see a 1 to 3 percentage point reduction to CET1 ratios, specific institutions at the tail ends of the asset size distribution could experience as much as a 5 percentage point reduction to CET1 ratios. Intuitively, the primary driver of this impact is the amount of unfunded exposure to commercial borrowers. However, institutions with substantial additional off-balance sheet exposure to consumer credit lines could face an additional capital hit of over 8 percentage points.

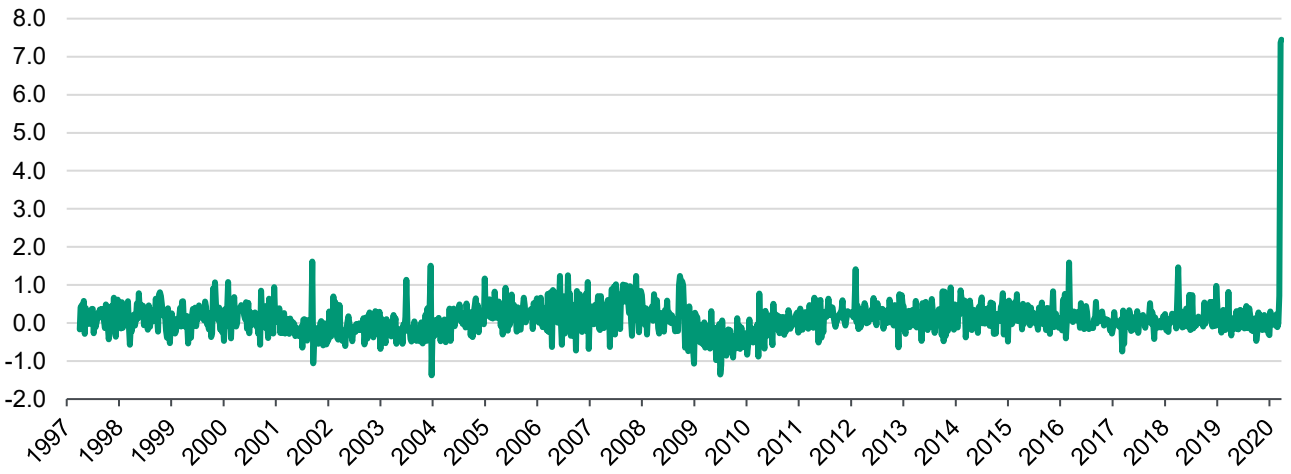
Table of Contents

Introduction

The coronavirus (COVID-19) has caused widespread economic disruption and, combined with the drop in oil prices, pushed us toward an inevitable recession. In the United States, for example, approximately 90% of the country is under some form of state-mandated shutdown with a few exceptions for essential businesses. With no ongoing way to generate cash flow, businesses are turning to lenders to immediately secure massive amounts of funding that may prove critical to their survival of this temporary shutdown.

As a result, we are seeing unprecedented drawdowns of revolving lines of credit to the point where historical experience cannot serve as a guide for what may happen. The industry data collected by the Federal Reserve has shown the largest-ever increase in the drawdown rate for commercial lending, as shown in Figure 1:

Figure 1 Commercial and industrial loans, all commercial banks, percent change, weekly, seasonally adjusted



Source: Federal Reserve Bank of St. Louis

Will similar events materialize over the next few weeks in the consumer markets and other commercial segments? Although it is impossible to say for sure, it would be prudent for institutions to understand what the potential impacts could be, given the uncertainty around the timeline of reopening the economy. In the following sections we present a common-sense methodology to evaluate these impacts based on two scenarios: one for average drawdowns and one for maximum drawdowns across all asset classes. We performed this analysis on four different segments of institutions, including a total of 66 Institutions.

Methodology and Assumption Overview

Our analysis consists of taking specific line items from call report data (as of December 31, 2019) for four banking segments to determine what the capital ratio impact would be under two scenarios. The first scenario consists of an average expected level of commitment drawdown while the other scenario consists of a full drawdown of all lines of credit. Since the publicly reported amounts of unfunded exposure are not presented at the asset class level, the average drawdown scenario assumes that the average percentage drawdown is applied in full to the remaining unfunded commitment—and as such may represent a more stressful estimate than what an individual institution's weighted average would represent. The segments are defined as:

- The top 25 institutions by assets
- A sample of 10 institutions between $20 billion and $50 billion in assets
- A sample of 10 institutions between $20 billion and $10 billion in assets
- A sample of 21 institutions with assets of $10 billion or less

Table 1 presents summary statistics from each sample of institutions.[1]

[1] The appendix gives a complete list of institutions analyzed.

Table 1 Summary statistics for each segment

	Max Assets Size	Min Assets Size	Assets Std Deviation
Top 25	2,337,646	108,739	617,396
$50-$20 billion	50,621	23,235	10,842
$20-$10 billion	18,067	10,056	2,911
$10 billion or less	8,950	138	2,586

Notes:
Figures reflect individual observations
Assets in millions

Source:FDIC Call Report- https://cdr.ffiec.gov/public/

In our analysis, we make assumptions on risk weighted asset (RWA) ratios, funding levels, and unfunded commitments already included in RWA, as well as the regulatory weight to apply to unfunded commitments. We detail our assumptions in the following section.

Calculation Overview

Data extraction was based on the FDIC database as of December 31, 2019. The fields extracted were:

- Total Assets
- Total RWA
- Tier 1 Capital
- Tier 1 Capital Ratio
- Unused Commitment (All)

The flow of calculation for each bank within each segment is as follows:

1. Compute the current ratio of assets to RWA
2. Compute the unused commitments already included in RWA using assumptions on average credit conversion factor[2] (CCF)
3. Compute the average drawdown of unused commitment excluding the already included amount in RWA for retail and commercial lines[3]
4. Compute the full drawdown of unused commitment excluding the already included amount in RWA
5. Compute the new RWA amount for both the average drawdown and full drawdown
6. Compute new Tier 1 capital ratios for both the average drawdown and full drawdown
7. Compute the delta between Tier 1 capital ratios at December 31, 2019 and the newly derived ratios based on the average and full drawdown

[2] CCF is a Basel regulatory term used to help define which portion of an unused commitment represents the exposure that should be counted toward risk weighted assets (RWA).
[3] For the paper, we approximated the percentage of lines that were retail vs. commercial so that we could apply a different funding rate, as commercial lines typically drawdown much faster than retail (on average).

We use the following equations to calculate the difference in the two scenario-based projected capital ratios from actual capital ratios:

$$\textbf{Delta capital ratio (average drawdown)} = Tier\ 1\ capital\ ratio - \frac{Tier\ 1\ capital}{Total\ RWA + (Unused\ commitment - Unused\ commitment\ already\ included\ in\ RWA) * average\ drawdown}$$

$$\textbf{Delta capital ratio (full drawdown)} = Tier\ 1\ capital\ ratio - \frac{Tier\ 1\ capital}{Total\ RWA + (Unused\ commitment - Unused\ commitment\ already\ included\ in\ RWA) * full\ drawdown}$$

A table of sample calculations is included in the appendix for the top 25 banks segment.

Key Assumptions and Scenario Definitions

Due to data limitations inherent in our primary data source, call reports, we are required to make some assumptions to complete the analysis. We made these assumptions to limit their influence on the results by providing different values by asset class and type, where appropriate. Further, we rely on recent data to obtain these values.

RWA rate (ratio of total assets to RWA). We assume that the asset mix of new commitments will be consistent with the current asset mix at each bank. This is required to derive an appropriate RWA for the unused commitment.

Effective CCF. We assume that the CCF applied to the unfunded commitments already included in the reported RWA are consistent with the values in Table 2. This assumption is required to avoid including the unfunded commitments already accounted for in the reported RWA, as this information is not available. Applying this assumption allows us to use a blended CCF of 25% for unfunded commitments that are already on the balance sheet.

Table 2 Effective CCF assumptions for RWA calculations

RWA for Unfunded - Assumptions	Basel IV	Weights
CCF less than 1 year	20%	25%
CCF over 1 year	50%	25%
CCF for letters of credit	20%	25%
CCF unconditional commit	10%	25%
Use blended rate of CCF	**25%**	**100%**

Source: https://www.sullcrom.com/siteFiles/Publications/SC_Publication_Bank_Capital_Requirements_12192017.pdf.

Scenarios: Average Drawdown and Full Drawdown. For this analysis, we define two scenarios that together allow us to provide bookends on the impacts of increased drawdowns moving forward. In the Average Drawdown scenario, we make separate assumptions on the usage of consumer and commercial lines to get a better approximation of the total effect on each bank, as firms differ on their exposure to consumer or commercial lending. We detail below how these assumptions were derived, as well as the source of information. The Full Drawdown scenario is defined as a complete drawdown of the unused amount, less what was already included in the most recent RWA observation, and so no additional assumptions are required.

Commercial Lines. To determine typical utilization values for commercial lines, we rely on a Moody's Analytics study of line of credit usage and the exposure at default of corporate credit lines.[4] In that study, the authors calculated usage rates by collateral type and then further separate these values based on whether the credit eventual defaulted. This data is taken from the Moody's Analytics Data Alliance database, which gives detailed information on commercial credit, including defaulted loans.

Table 3 shows these usage values for each segment (defined by asset type and default status), and the weights we applied to each value to get an overall usage assumption. We weighted secured and unsecured lines by 75% and 25%, respectively, and then divided the weight evenly among the secured lines. The result of this weighting scheme is in the "Weight" column. A weighted average usage is then calculated separately for defaulters and non-defaulters. To these values, we apply a weight of 98% to non-defaulters and 2% weight to defaulters, which reflects the default rate on these credits. These calculations result in an overall

[4] Usage and exposures at default of corporate credit lines: https://www.moodysanalytics.com/articles/2019/usage-and-exposures-at-default-of-corporate-credit-lines

usage assumption of 55.9%. We adjusted the specified weights to determine whether they affected the final results, and found little effect.

Table 3 Line of credit usage for defaulters and non-defaulters

	Defaulters			Non-Defaulters		
GROUP BY COLLATERAL	USAGE	WEIGHT	WEIGHTED USAGE	USAGE	WEIGHT	WEIGHTED USAGE
Real Estate	85%	10.7%	9.1%	71%	10.7%	7.6%
Agriculture	85%	10.7%	9.1%	64%	10.7%	6.8%
Cash & Securities	75%	10.7%	8.0%	60%	10.7%	6.4%
Contract	73%	10.7%	7.8%	57%	10.7%	6.1%
Other	69%	10.7%	7.4%	56%	10.7%	6.0%
Inventory & A/R	73%	10.7%	7.8%	52%	10.7%	5.6%
Equipment & Machinery	72%	10.8%	7.8%	51%	10.8%	5.5%
Unsecured (incl. Second Lien)	73%	25.0%	18.3%	46%	25.0%	11.5%
Weighted Average Usage			75.2%			55.5%
Defaulter weight assumption			2.0%			98.0%
Usage assumption						55.9%

Note: Assumes 75% weighting on secured lines and 25% weighting on unsecured lines

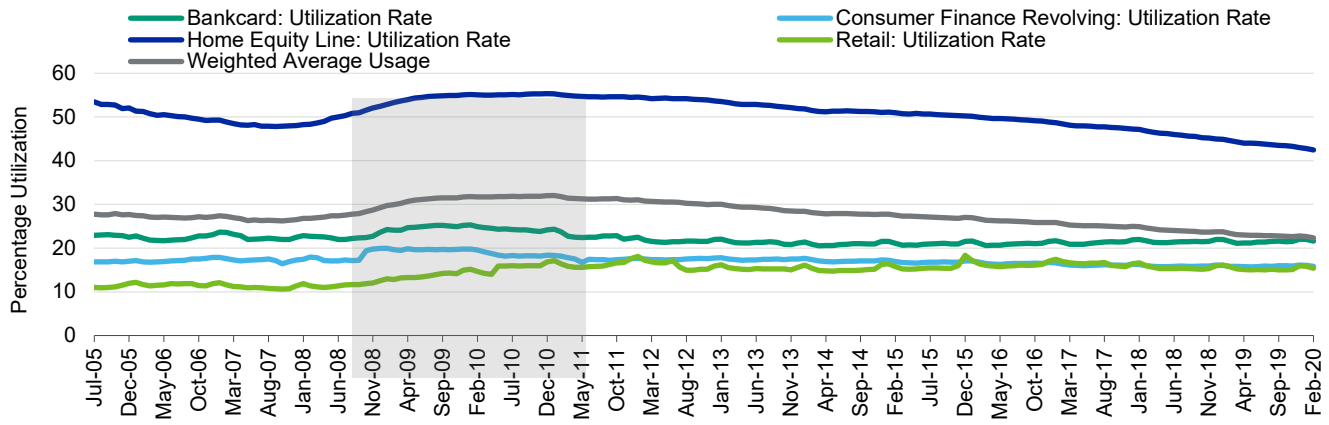
Source: Usage and Exposures at Default of Corporate Credit Lines - An Empirical Study

Consumer Credit Lines. We considered two sources of data to obtain estimates on consumer credit lines.[5] The first source was a study on credit lines and credit utilization, while the second was data from the CreditForecast.com database, which provides a complete historical view of line utilization. We settled on the second source as it gave detailed information on utilization. Historical values of utilization by asset class, as well as the weighted average usage, are depicted in Figure 2. Though forecasts for these rates are available, we do not use them because comparable forecasts for commercial credit are not available.[6]

[5] We looked at a study from Agarwal, Ambrose, and Liu on credit lines and credit utilization that was one of the few studies that looked at retail lines of credit utilization. Their main finding was that a 10% drop in FICO score leads to a 15.5% increase in line utilization.

[6] CreditForecast.com provides scenario condition utilization forecasts by credit line types, which can be useful to refine the analysis further.

Figure 2 Retail credit line utilization rates, percent



Source: CreditForecast.com and Moody's Analytics

We use the weighted average utilization across products (retail, bankcard, consumer finance and home equity) during the Great Recession, which is the period in our historical data that is most likely to mirror where we are in the business cycle. The utilization data was taken from September 2008 through September 2011, as represented in the graph. For this period, the weighted average usage was 31.09%.

Results Analysis

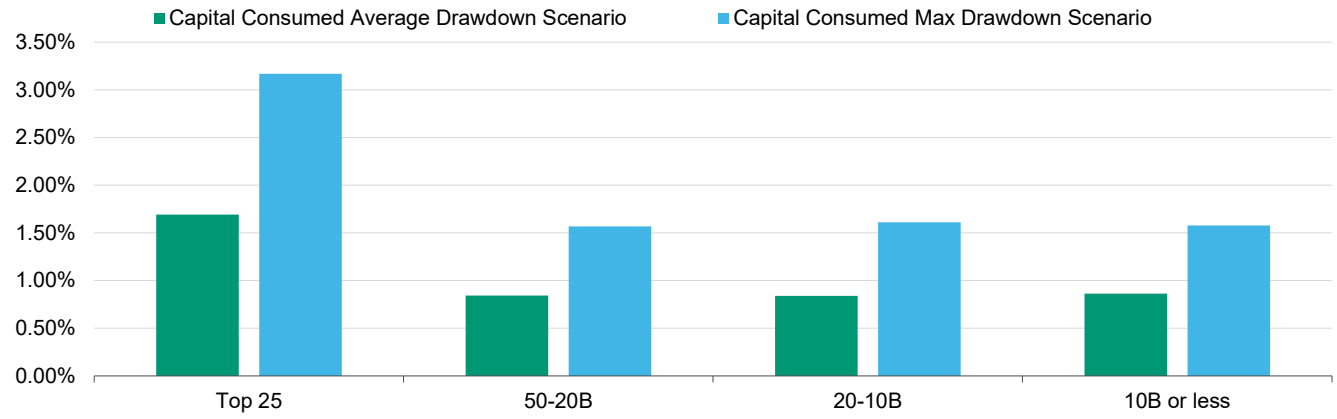
Institution segment-level results

At the bank segment level, our analysis shows that unused commitments could significantly reduce capital ratios in the event of a complete drawdown, as defined by our Full Drawdown scenario, where borrowers decide to max out their lines of credit. Using our segmentation, we observe that the top 25 institutions would undergo the most drastic reduction in capital. The other three segments behave similarly in their utilization pattern and seem to be less affected by an average and full drawdown of unused commitments. Those weighted average reductions would be approximately half of those observed in the top segment. We assume that these large institutions have better and broader access to capital such that they could navigate the worst-case scenario without undue stress to their balance sheets. (See Figure 3 and Table 4.)

It is worth noting that we observed an outlier[7] in the top segment, which may cause some distortion in the results. We quantified the impact of this outlier as minimal, contributing to an increase of the weighted averages by 6bps and 9bps in the Average Drawdown and Full Drawdown scenarios, respectively. We should also point out that while we focus on the capital impact of drawdowns, the liquidity impact should not be ignored; we did not test for liquidity impact as part of our analysis.

[7] Based on our analysis parameters, American Express shows very large drawdowns of unused commitment but their large portion of transactors in their portfolio could be a mitigating factor. We could not make any adjustments based on the limited information on the call report.

Figure 3 Weighted average capital reduction potential by institution size



Source: Moody's Analytics

Table 4 Capital impact of drawdown scenarios and maximum single institution drawdown by segment

	Capital Consumed Average Drawdown Scenario	Capital Consumed Max Drawdown Scenario	Max Institution Capital Consumed
Top 25	1.69%	3.17%	8.03%
$50-$20 billion	0.84%	1.57%	3.67%
$20-$10 billion	0.84%	1.61%	2.24%
$10 billion or less	0.86%	1.58%	4.85%

NOTE: Figures reflect Dollar Weighted Averages

Source: Moody's Analytics

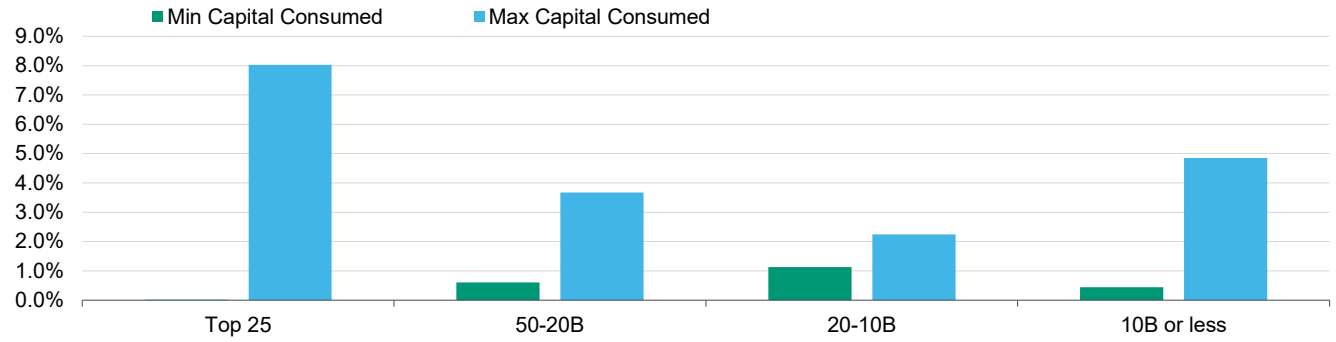
While the aggregate data shown in Figure 3 shows a moderated distribution of exposure down the size spectrum, the extremes reveal a slight dumbbell effect in the maximum observed possible exposure. This particular datapoint suggests that both the largest and smallest lenders may have increased exposure, generally speaking, compared to the rest of the banking space as a whole. The following section explores this observation in greater detail at the individual institution level to uncover rationalizations that could be made to explain the relationship to exposure we see from the aggregated data.

It was noted in a review of the data at an institution level that there appeared to be an extreme focus on either commercial lending or consumer lending. For analytical purposes, we delineated a level of concentration in the loan portfolios to see if focus on a particular asset class could be positively or negatively related to off balance sheet exposure. The following section describes that analysis and evaluates the results.

Institution-specific observations

While evaluating the range of potential impacts at the market level offers valuable insights into the overall exposure trends across the industry, there are specific companies in our sample data set that prompt further analysis. As seen in Figure 4, there is a range of exposure levels in each of the size segments we defined.

Figure 4 Institution-level capital reduction potential by bank size



Source: Moody's Analytics

	Max Assets Size	Min Assets Size	Assets Std Deviation	Max Capital Consumed	Min Capital Consumed	Std Deviation Capital Consumed
Top 25	2,337,646	108,739	617,396	8.03%	0.02%	1.55%
$50-$20 billion	50,621	23,235	10,842	3.67%	0.61%	0.85%
$20-$10 billion	18,067	10,056	2,911	2.24%	1.12%	0.40%
$10 billion or less	8,950	138	2,586	4.85%	0.44%	0.93%

Notes:
Figures reflect individual observations
Assets in millions

Source: Moody's Analytics

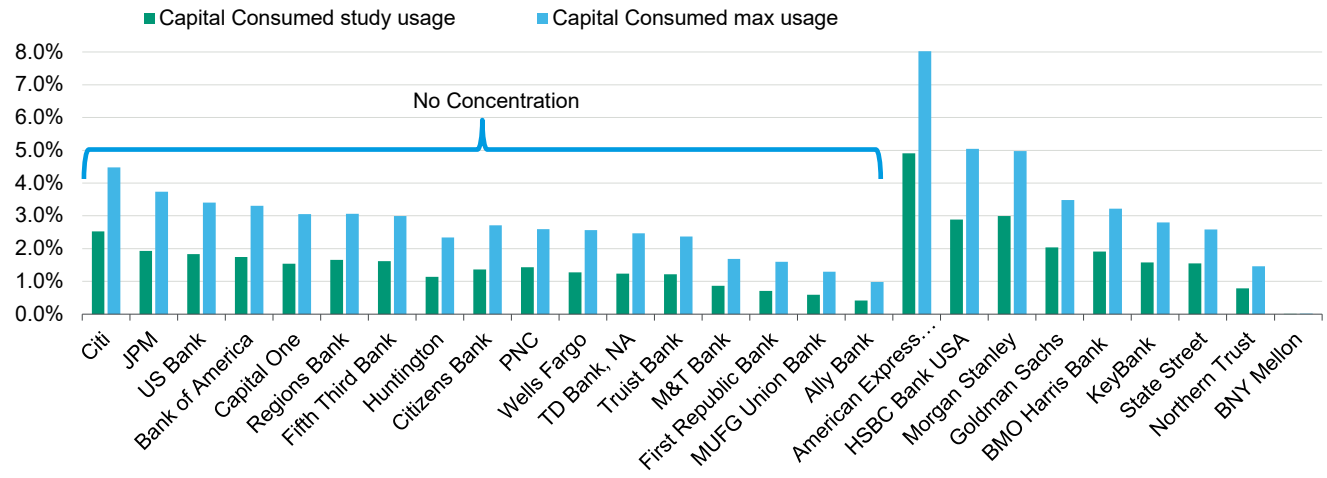
As we describe in the methodology section above, commercial and retail assumptions were segmented to align with observed crisis period drawdown behavior. To further analyze if broad asset class concentrations could be an indicative factor of increased off-balance sheet exposure, we evaluated institutions in our sample at an individual level. Portfolios were divided between broad categories of Commercial and Retail, and a "concentration" was defined as one of these segments being in excess of 70% of the total loan portfolio. Of the 66 total institutions examined, coincidentally 33 of them met the definition of having an asset class concentration. The following figures identify those institutions in the size segments that had concentrations as defined by this analysis.

What we observe at the individual institution level is that concentrations seem to be indicative of higher exposure risk in the larger and community institutions, and less indicative in the regionals and sub-regionals.

Top 25 financial institutions

As shown in Figure 5, the larger financial institutions typically do not have extreme asset class concentrations as defined by this analysis. However, you can see that where those concentrations exist, there are wider bounds of capital exposure to off-balance sheet commitments. American Express obviously having a predominance in consumer lending tells one story, while BNY Mellon—which is almost entirely commercial lending—has essentially zero capital implications from unfunded commitment drawdowns.

Figure 5 Capital consumption of the top 25 financial institutions by asset size



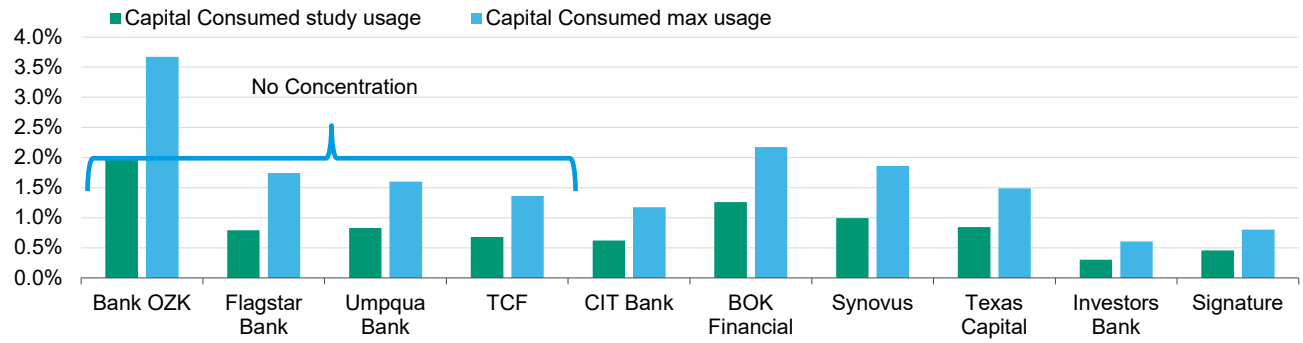
Source: Moody's Analytics

$50 billion-$20 billion financial institution segment

When you move down into the subregionals, the relationship between asset class concentration and off-balance sheet exposure is unclear. With a larger sample size in this space, you may be able to draw a relationship between those two factors; however, as a group, there are no standouts. Being regionally concentrated, perhaps these institutions manage this element of balance sheet risk in a way that naturally reduces their exposure to unfunded commitments.

You can see in Figure 6 that Bank OZK stands out here despite not having an extreme concentration using this analysis criteria. It is worth mentioning that the level of exposure for this particular institution is in line with the median levels across all banks, so while they may be an outlier among their peers, they are not necessarily at the extreme ends of the overall commercial banking space.

Figure 6 Capital consumption of the $20-$50 billion financial institution sample

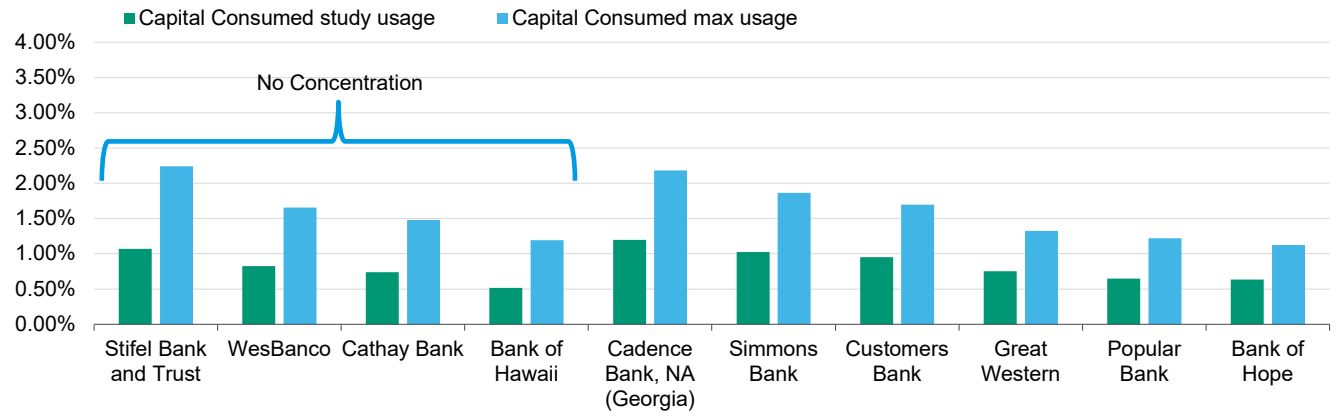


Source: Moody's Analytics

$20 billion-$10 billion financial institution segment

Continuing down the size spectrum, there is nothing in the sample in Figure 7 that indicates a relationship between lending focus and unfunded commitments. Again, with a larger sample size you may be able to draw a relationship between those two factors. Many individual institutions fit into this size range, so expanding the population would certainly be required for confirmation. Perhaps this is a continuation of the regional concentration posited in the subregional space above. These lenders are even more concentrated in specific geographies, so perhaps these institutions manage this element of balance sheet risk in a way that naturally reduces their exposure to unfunded commitments.

Figure 7 Capital consumption of the $10 billion-$20 billion financial institution sample



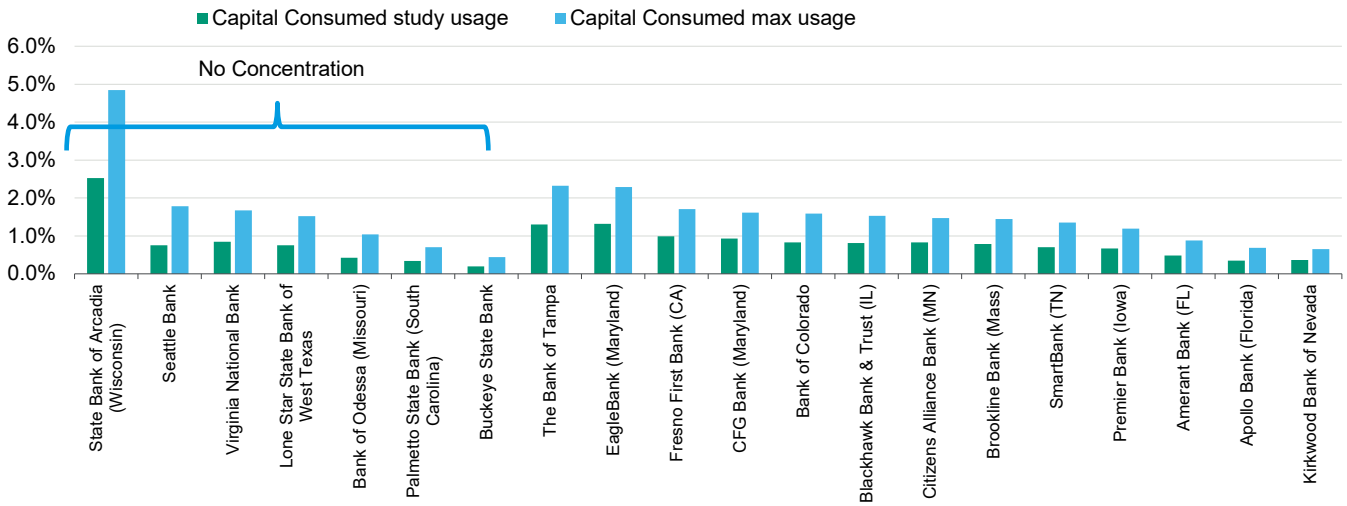
Source: Moody's Analytics

$10 billion or less financial institution segment

Compared to the largest banks, the smaller banks in Figure 8 look like a complete inversion. While the larger banks have a few institutions with concentrations, the smallest banks have only a few without concentrations. While the concentrations in the top 10 appear to indicate a relationship to off-balance sheet exposure, the smallest banks seem to show that the *lack* of a concentration would indicate exposure to off-balance sheet commitments. While unclear at first, this could line up with intuition, with the caveat that there seem to be few extreme examples in the selected sample.

Smaller community lending institutions do not have the scale and resources of the largest banks. They are typically more focused on particular asset classes with a proclivity toward certain industries. What this data could suggest is that community lenders who attempt to "do it all" and lend in a number of different capacities to various asset classes could be stepping outside of the credit lens to the point where they have lost the ability to focus on their core competencies.

Figure 8 Capital consumption of the $10 billion or less financial institution sample



Source: Moody's Analytics

Tangible Evidence of Focus

As we observed in our initial C&I lines of credit chart, we have never seen drawdowns like these. Even during the 2008 crisis, drawdowns only increased by 100bps. In the last couple of weeks drawdowns increase in consecutive weeks by more than 700bps for C&I lines of credit. In the latest earnings calls or Q1 2020, we are seeing more mentions of unused commitments and drawdown impact, as in the following examples.

Bank of America (BofA)

From the BofA investor call:[8] "In total, we saw $67 billion increase in commercial loans due to draws from the commercial clients in the month of March. 45% of these fundings came from large commercial clients. 40% were from large corporate bank customers and the remainder was spread across all the businesses….From a capital standpoint, we are already risk-weighting these commitments at 50% under standardized capital. So the additional impact to CET1 finished draws was roughly 25 basis points for the quarter."

Bank of America's comments underscore the relevance of our analysis.

Citigroup

From the Citigroup investor call:[9] "We had roughly right around about $30 billion, $32 billion worth of draws in the first quarter, so somewhere 10% or 11%, 12% of our outstanding, but unfunded….Obviously something we were paying attention to. We're in constant dialogue with our clients. But again, I think you know, certainly coming into the second quarter, we've actually seen really de minimis draws on the facilities and I think in our dialogues, we don't see or feel that pressure right now."

Citigroup is definitely seeing the draws, but the jump that happened in the first quarter does not seem to be continuing. Management is closely monitoring the situation based on the investor call.

Wells Fargo

From the Wells Fargo investor call:[10] "The growth in commercial loans in the first quarter included more than $80 billion in borrower draw activity in the month of March on commercial banking and corporate investment banking loans. Revolving loan utilization and wholesale banking was 48.6% in March, up 860 basis points from December. And as I mentioned, during the first two weeks of April, we've seen these draws slow."

Wells Fargo saw some increase in drawdowns on the commercial book, but these have slowed as of late. Another interesting note about the call was that the same is not true on the retail side and with bank cards—and home equity lines balances are actually declining.

This market focus should be a warning to remind us that appropriate analysis of unfunded commitment is a must. Scenario analysis around the levels of drawdowns, combined with mitigation strategies, would reflect sound risk management practices.

Conclusion

Unused commitments are off-balance sheet exposures that often get little attention; like on-demand deposit, they rarely attract attention unless there are some excessive market movements. The COVID-19 market shock has affected everyone from retail merchants no longer able to open their stores to local restaurant chains. What this analysis suggests is that as a group, certain lenders might be exposed to the risks presented by the coronavirus more meaningfully than others. The largest lenders that have concentrated their focus instead of diversifying their portfolios might be caught unaware as drawdowns ramp up. Conversely, community-based institutions that have branched out into new products and markets may soon regret expanding where they lack bench strength. We saw this same risk relationship play out in the 2007 crisis, where a few concentrated big banks got out in particular asset classes, and a staggering number of community banks were throwing money at competitive CRE deals outside of their typical purview. To be clear, this comparison to 2007 is not because of the crisis or on the risk in the system, but it is interesting to observe the same relational dynamic in both large and small lenders over a decade later. History may not always repeat, but it does rhyme.

The increased discussion of unused commitments on earnings calls should serve as a reminder that in times of turmoil, these off-balance sheet assets should be monitored closely. It is critical now to pay attention to all unused commitments and understand the potential impact and mitigation strategies available to maintain a capital ratio above minimum threshold and limit downside

[8] Investor call transcript can be found here: https://seekingalpha.com/article/4337821-bank-of-america-corporations-bac-ceo-brian-moynihan-on-q1-2020-results-earnings-call?part=single

[9] Investor call transcript can be found here: https://seekingalpha.com/article/4337832-citigroup-inc-c-mike-corbat-on-q1-2020-results-earnings-call-transcript?part=single

[10] Investor call transcript can be found here: https://seekingalpha.com/article/4337611-wells-fargo-company-wfc-ceo-charlie-scharf-on-q1-2020-results-earnings-call-transcript

surprises. We encourage every institution to look closely at this study and prepare to run similar scenarios on their balance sheet to understand best-case and worst-case impacts. Now is the time to prepare.

Contact us for more information on understanding the impact of unfunded commitments.

Additional resources from Moody's and Moody's Analytics

- Moody's Topic Page on COVID-19
  https://www.moodys.com/Coronavirus
- Forecasting the Impact of the COVID-19 Recession on Consumer Credit Losses
  https://www.moodysanalytics.com/-/media/article/2020/Forecasting%20the%20Impact%20of%20the%20COVID-19%20Recession%20on%20Consumer%20Credit%20Losses.pdf
- Moody's Analytics – CECL And IFRS 9 Recommendations: Handling Shifting Economic Scenarios
  https://www.moodysanalytics.com/-/media/article/2020/cecl-ifrs-9-recommendations-handling-shifting-economic-scenarios.pdf
- Moody's Analytics – Severe Pandemic, a Protracted Economic Slump, and Commercial Real Estate Forecast Scenarios
  https://vimeo.com/400733771?cid=OMH5PF4BPPF4311
- Moody's Investors Service - Worldwide, Coronavirus Aid Will Benefit Financial Institutions, But Could Raise Long-Term Risks
  https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1221566&cid=K40I4YN6YK64445

Institution sample analyzed

TOP 25	BANKS $10-$20 BILLION
JPM	Bank of Hawaii
Bank of America	Cathay Bank
Citi	Cadence Bank, NA (Georgia)
Wells Fargo	Simmons Bank
Goldman Sachs	Bank of Hope
Morgan Stanley	WesBanco
US Bank	Stifel Bank and Trust
PNC	Customers Bank
TD Bank, NA	Popular Bank
Capital One	Great Western
Truist Bank	
State Street	**BANKS $10 BILLION OR LESS**
BNY Mellon	EagleBank (Maryland)
HSBC Bank USA	Amerant Bank (FL)
Fifth Third Bank	Brookline Bank (Mass)
Ally Bank	Bank of Colorado
Citizens Bank	SmartBank (TN)
KeyBank	The Bank of Tampa
BMO Harris Bank	Blackhawk Bank & Trust (IL)
MUFG Union Bank	CFG Bank (Maryland)
Regions Bank	Citizens Alliance Bank (MN)
American Express National Bank	Lone Star State Bank of West Texas
Northern Trust	Apollo Bank (Florida)
M&T Bank	Seattle Bank
First Republic Bank	Virginia National Bank
Huntington	Premier Bank (Iowa)
	Palmetto State Bank (South Carolina)
BANKS $50-$20 BILLION	Fresno First Bank (CA)
Signature	Bank of Odessa (Missouri)
Synovus	State Bank of Arcadia (Wisconsin)
TCF	Kirkwood Bank of Nevada
CIT Bank	Buckeye State Bank
BOK Financial	
Texas Capital	
Investors Bank	
Bank OZK	
Flagstar Bank	
Umpqua Bank	

Appendix – Top 25 bank segment calculation example

Top 25 Banks - Calculation Example

							Utilizing Study Assumptions				Utilizing Maximum Possible Drawdown			
	($MM)	Total Assets	Total RWA	Tier 1 Capital Ratio	Unused Commit	RWA CCF included	Drawdown	New Tier1 Capital Ratio	New RWA	Capital Consumed	Drawdown	New Tier1 Capital Ratio	New RWA	Capital Consumed
1	Citi	1,453,998	1,020	13.03%	1,015	254	350	10.50%	1,266	2.53%	761	1,554	8.55%	4.48%
2	JPM	2,337,646	1,458	14.19%	1,116	279	368	12.26%	1,687	1.93%	837	1,980	10.45%	3.74%
3	US Bank	486,004	384	10.20%	325	81	106	8.38%	467	1.83%	244	576	6.79%	3.41%
4	Bank of America	1,852,983	1,241	12.46%	893	223	301	10.72%	1,443	1.74%	670	1,689	9.15%	3.31%
5	Capital One	328,999	213	13.35%	130	32	43	11.81%	241	1.54%	97	276	10.30%	3.05%
6	Regions Bank	125,641	105	11.58%	60	15	21	9.93%	123	1.66%	45	143	8.52%	3.06%
7	Fifth Third Bank	167,845	141	11.86%	76	19	27	10.24%	163	1.62%	57	189	8.86%	3.00%
8	Huntington	108,739	87	12.17%	35	9	11	11.03%	96	1.14%	26	108	9.83%	2.34%
9	Citizens Bank	165,742	143	10.95%	73	18	24	9.59%	163	1.36%	55	189	8.24%	2.71%
10	PNC	397,703	324	9.94%	187	47	67	8.50%	379	1.43%	140	439	7.34%	2.59%
11	Wells Fargo	1,712,919	1,153	12.59%	584	146	194	11.31%	1,283	1.28%	438	1,448	10.03%	2.56%
12	TD Bank, NA	320,472	182	14.76%	86	21	29	13.52%	199	1.24%	64	219	12.29%	2.47%
13	Truist Bank	463,700	367	10.56%	179	45	61	9.34%	415	1.22%	134	473	8.20%	2.37%
14	M&T Bank	119,432	103	10.34%	31	8	11	9.48%	112	0.86%	23	123	8.66%	1.69%
15	First Republic Bank	116,264	85	11.21%	26	6	8	10.50%	91	0.71%	19	99	9.61%	1.60%
16	MUFG Union Bank	337,400	98	14.47%	44	11	14	13.88%	102	0.59%	33	107	13.17%	1.30%
17	Ally Bank	167,492	135	12.30%	19	5	6	11.89%	140	0.42%	14	147	11.33%	0.98%
18	American Express National Bank	121,931	102	13.36%	245	61	71	8.45%	161	4.90%	184	255	5.33%	8.03%
19	HSBC Bank USA	172,888	119	17.32%	95	24	35	14.43%	142	2.89%	71	167	12.27%	5.05%
20	Morgan Stanley	146,645	86	18.49%	72	18	28	15.49%	103	2.99%	54	118	13.51%	4.97%
21	Goldman Sachs	228,836	259	11.28%	136	34	51	9.24%	316	2.04%	102	374	7.80%	3.48%
22	BMO Harris Bank	137,588	117	11.34%	73	18	28	9.43%	141	1.91%	55	164	8.12%	3.22%
23	KeyBank	143,390	129	10.96%	66	16	24	9.38%	150	1.57%	49	173	8.16%	2.80%
24	State Street	242,148	101	16.65%	59	15	25	15.10%	111	1.55%	45	119	14.07%	2.59%
25	Northern Trust	135,885	69	12.32%	24	6	9	11.53%	73	0.79%	18	78	10.86%	1.46%
26	BNY Mellon	311,387	19	11.31%	1	0	0	11.30%	19	0.01%	0	19	11.30%	0.02%

BP61665