

June 26, 2020 07:11 AM GMT

## US Banks | North America

## 2020 Stress Test: Play It Again, Sam

Fed announced an unprecedented round 2 of stress tests for 2020. Initiates a second test for dividends based on earnings. Suggests that over the next 2 years 4 US banks may have to cut dividends if our provision estimates hold.

**Reliving the Dream.** 2020 has been a year of firsts. First 3 month lockdown in New York City. First time unemployment breached 13% since the Great Depression. First time a private company took people to space. First time in a decade of stress tests that all the submitting banks will have to resubmit. As a result, the good news on the stress capital buffer (SCB) that we got last night looks like it will only be effective for a quarter or so. The Fed will be announcing a new set of stress test scenarios soon. The banks will have 45 days to resubmit their results. Hard to imagine the test is easier. More likely it is tougher to reflect the current unemployment rate of 13.3%, higher than 1H20's stress test with its peak unemployment of 10%. Perhaps it will be modeled after the Fed's V shaped recovery, which is 4% tougher for the industry. But beware the U or W which is 20% and 25% tougher than the stress test just announced yesterday.

**Hands-On Fed.** Expect Fed will continue to be very hands on until the economy stabilizes. This enables them to have the information to quickly act if the economic recovery shifts from V to U or W. The industry level results the Fed published show the weighted average Common Equity Tier 1 (CET1) at 12% in 4Q19. This drops to 10.3% in the severely adverse case that was just announced. But when the Fed runs its Covid Scenarios, this aggregate capital ratio drops to 9.9% in the V shaped recovery, 8.2% in the U shaped recovery, and 7.7% in the W shaped recovery. A hands-on Fed can pull the trigger on capital distributions more rapidly if needed.

### Dividend Curve Ball, Expect Dividend Cuts at WFC, COF, and RWA Cuts at GS.

We came into this test expecting that GS may need to cut RWAs to keep their dividend if its SCB was raised enough. That happened. In order for GS to hit its new regulatory required 13.7% CET1 ratio in 4Q20, they need to cut RWAs by 6% over 2 quarters (2Q and 3Q20). That's a lot and may result in slower revenue growth. But then the Fed threw us a curveball. Banks can pay a dividend in 3Q20 that is in-line with 2Q20 as long as it is not more than the average of the prior 4 quarters of net income. On this new metric, based on our 2Q20 EPS estimates, Wells and COF will need to cut their 3Q20 dividend to 36c and 0c, down from 51c and 40c. We already have Wells cutting their dividend to 30c in 4Q20, so this is happening just a quarter earlier than we forecasted. Based on consensus estimates, COF would only need to cut their dividend in half by 20c. Since the Fed can roll this rule forward, we guess that bank dividends will need to meet this criteria every quarter until the economy stabilizes. CECL found a way to

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### Banking - Large Cap Banks

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### Midcap Banks

North America

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creep into the stress test earlier than expected.

**Midcap Banks:** Five midcap banks (CFG, FITB, KEY, HBAN, and MTB) were included in this year's DFAST results. We were pleased with the results of the test, which indicate that all five of the midcap banks have sufficient CET1 capital to continue paying their dividend given our estimate of each bank's stress capital buffer ([Exhibit 5](#)). MTB and KEY stand out most positively both with 279 bps/\$3.0 bil and \$3.7 bil of excess CET1 capital, respectively, before they would breach their estimated CET1 regulatory minimum of 7.0%, including an SCB of 2.5%. HBAN and FITB have capital buffers over their SCB of 255 bps/\$2.3 bil and 235 bps/\$3.6 bil, respectively. CFG stands out with the lowest buffer, of the midcap banks, with 152 bps/\$2.3 bil of excess CET1 before it would breach its estimated CET1 regulatory minimum of 7.9%, which includes an SCB of 3.4%. We do not believe any of the five midcap banks will need to cut their dividend given the level of excess capital at these banks. However, versus expectations, Citizens was the biggest positive surprise in this year's results relative to what we had estimated its SCB to be using its 2018 DFAST results. We had previously estimated its 2018 SCB was 4.0% given the ~350 bps of CET1 drawdown in its 2018 DFAST results (excluding capital return and balance sheet growth), however in its 2020 DFAST results, their CET1 drawdown was just 290 bps, which resulted in an SCB of 3.4%. This provides CFG with an incremental 60 bps of cushion before it would need to consider cutting its dividend. Additionally, the Fed announced, for all banks, that it is capping the 3Q20 dividend at 2Q20 levels and no greater than the average of the previous four quarters of net income. As a result, we are removing any dividend hikes from FITB, KEY, MTB, and HBAN (we had already assumed no hikes for CFG), keeping the dividend flat through 2Q21 versus 2Q20. Based on our 2Q20 net income estimates, which includes another significant provision expense (70% the size of 1Q20 provision) and reserve build of 15 bps at these five banks, we do not believe a dividend cut will be necessary. We expect to get more clarity around each bank's SCB and capital plans after market close on Monday June 29th.

**European banks: DFAST in-line with expectations.** All US IHCs and units of European banks have passed the 2020 Dodd Frank Act Stress Test (DFAST). On balance, the comfortable excess capital in the IHCs is a positive, signalling resilience. This is particularly important in the current climate of temporary dividend bans across Europe. In our view the results of this year's DFAST/CCAR are unlikely to move the individual stock narrative.

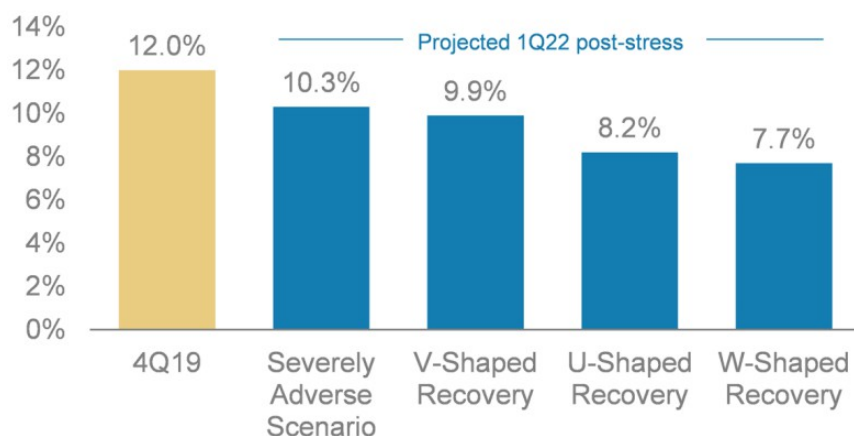
**Exhibit 1:** Expect WFC and COF to curtail the dividend to 36c (from 51c) and 0c (from 40c) in 3Q20... on 2Q20 consensus estimates COF would only have to cut their dividend in half to 20c

	Last 4 qtrs avg net income (3Q19- 2Q20e) (\$M)	3Q20 dividend estimate (\$M)	3Q20 Estimated Dividend Per Share (\$)	Dividends as a % of last 4 qtrs average	Will Dividend Need to be Cut (Y/N)	To What Level?
ALLY	130	71	\$ 0.19	54%	No	NA
AXP	829	348	\$ 0.43	42%	No	NA
BAC	4,496	1,562	\$ 0.18	35%	No	NA
BK	1,035	276	\$ 0.31	27%	No	NA
C	2,957	1,062	\$ 0.51	36%	No	NA
CFG	246	167	\$ 0.39	68%	No	NA
COF	(151)	182	\$ 0.40	-121%	Yes	\$ -
DFS	308	136	\$ 0.44	44%	No	NA
FITB	380	192	\$ 0.27	51%	No	NA
GS	1,446	447	\$ 1.25	31%	No	NA
HBAN	201	153	\$ 0.15	76%	No	NA
JPM	5,549	2,744	\$ 0.90	49%	No	NA
KEY	313	181	\$ 0.19	58%	No	NA
MTB	386	141	\$ 1.10	37%	No	NA
NTRS	343	147	\$ 0.70	43%	No	NA
PNC	2,639	488	\$ 1.15	19%	No	NA
RF	232	154	\$ 0.16	66%	No	NA
STT	542	183	\$ 0.52	34%	No	NA
TFC	1,548	607	\$ 0.45	39%	No	NA
USB	1,146	633	\$ 0.42	55%	No	NA
WFC	1,492	2,099	\$ 0.51	141%	Yes	\$ 0.36

Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 2:** V-Shaped, U-Shaped, and W-Shaped recoveries have a bigger capital hit than the Fed's 2020 Severely Adverse Scenario

### Aggregate CET1 Ratio

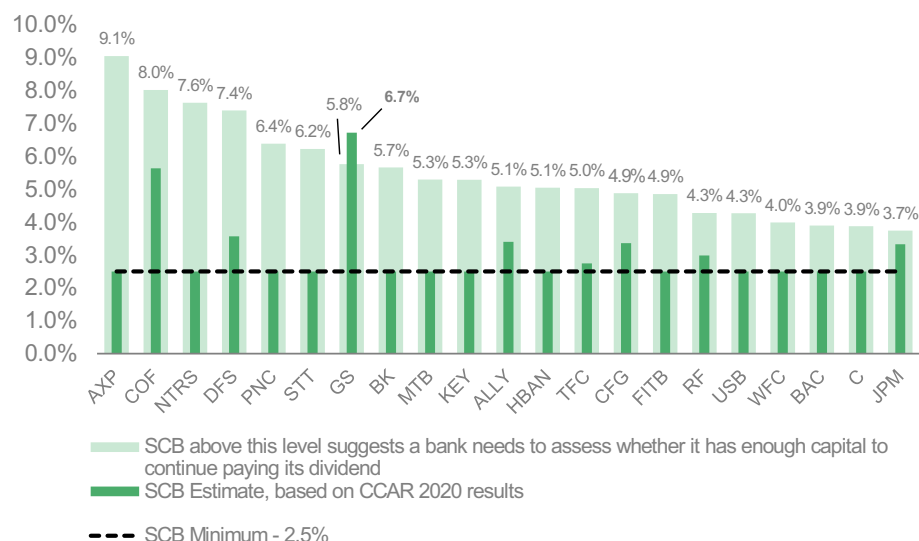


Source: Federal Reserve, Morgan Stanley Research

## Stress Capital Buffer (SCB)

**Exhibit 3:** Most banks have a lot of excess capital before they have to reassess the dividend... with GS at most risk... and JPM next in line...

## Stress Capital Buffer Estimates



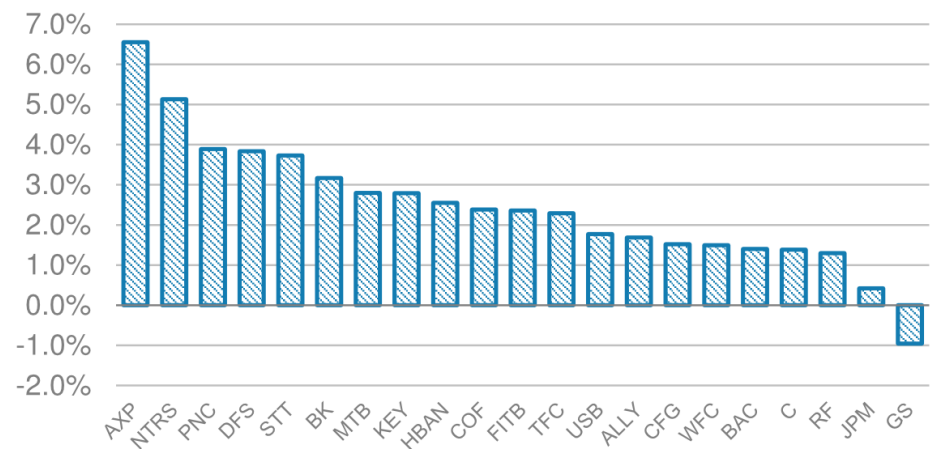
Note: CFG, FITB, HBAN, KEY, and MTB are midcap banks covered by Ken Zerbe  
 Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 4:** In order for GS to hit its new regulatory required 13.7% CET1 ratio in 4Q20, they need to cut RWAs by 6% over 2 quarters (2Q and 3Q20). JPM looks tight

	SCB Triggering Dividend Review	Estimated SCB (CCAR 2020)	Will SCB trigger dividend review? (Y/N)	SCB difference from dividend threshold
ALLY	5.1%	3.4%	No	-1.7%
AXP	9.1%	2.5%	No	-6.6%
BAC	3.9%	2.5%	No	-1.4%
BK	5.7%	2.5%	No	-3.2%
C	3.9%	2.5%	No	-1.4%
CFG	4.9%	3.4%	No	-1.5%
COF	8.0%	5.6%	No	-2.4%
DFS	7.4%	3.6%	No	-3.8%
FITB	4.9%	2.5%	No	-2.4%
GS	5.8%	6.7%	Yes	1.0%
HBAN	5.1%	2.5%	No	-2.6%
JPM	3.7%	3.3%	No	-0.4%
KEY	5.3%	2.5%	No	-2.8%
MTB	5.3%	2.5%	No	-2.8%
NTRS	7.6%	2.5%	No	-5.1%
PNC	6.4%	2.5%	No	-3.9%
RF	4.3%	3.0%	No	-1.3%
STT	6.2%	2.5%	No	-3.7%
TFC	5.0%	2.7%	No	-2.3%
USB	4.3%	2.5%	No	-1.8%
WFC	4.0%	2.5%	No	-1.5%

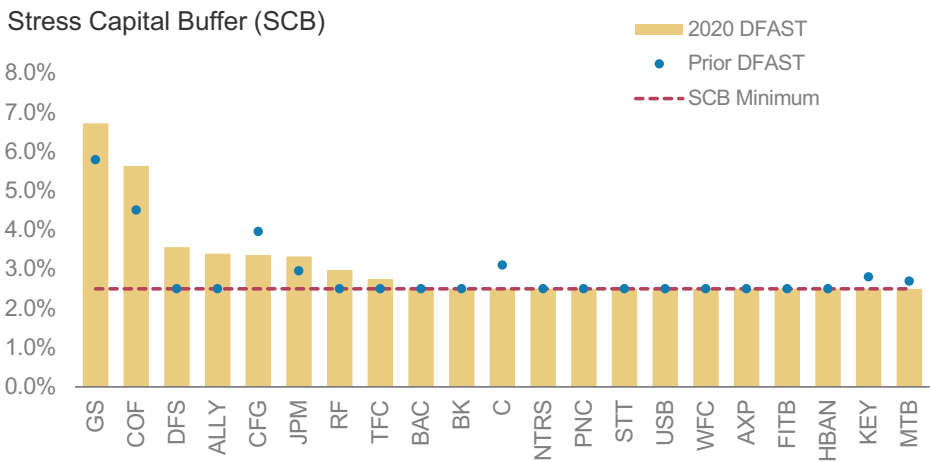
Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 5:** ...and AXP the least likely to cut  
SCB triggering dividend review minus SCB estimate



Note: CFG, FITB, HBAN, KEY, and MTB are midcap banks covered by Ken Zerbe  
Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 6:** Fed stress test impacts COF and GS the most, C and CFG improve the most from the prior test... 62% of banks have SCB at minimum required 2.5%

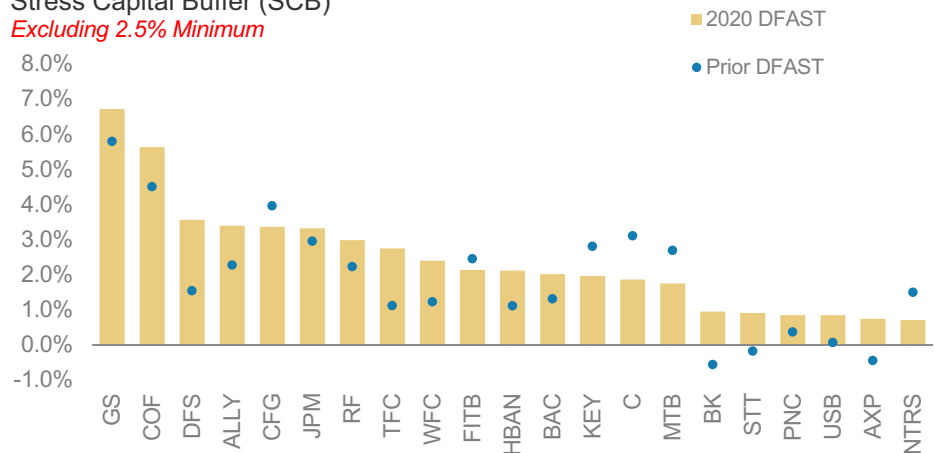


Note: CFG, FITB, HBAN, KEY, and MTB are midcap banks covered by Ken Zerbe  
Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 7:** If the Fed ever eliminated the 2.5% minimum, the median bank would pick up another ~30bps of excess capital

### Stress Capital Buffer (SCB)

*Excluding 2.5% Minimum*



Note: CFG, FITB, HBAN, KEY, and MTB are midcap banks covered by Ken Zerbe  
Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

**Exhibit 8:** Stress Capital Buffer (SCB) estimates based on 2020 stress test results

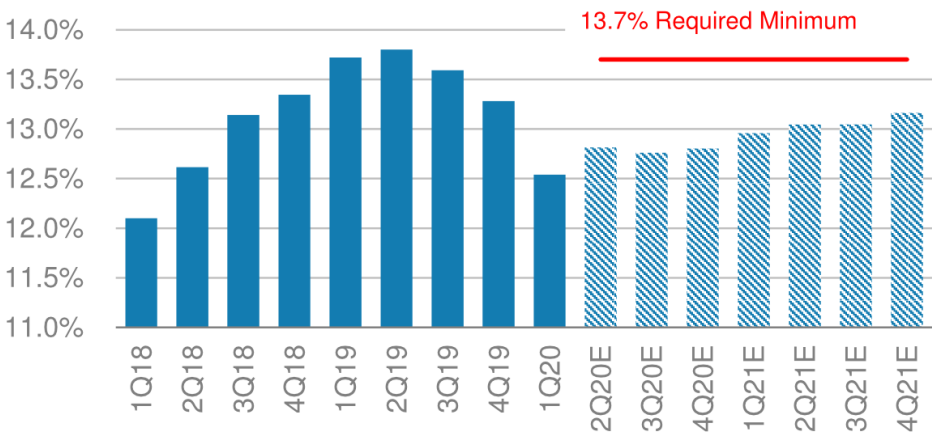
	CET1 (%)		RWA (\$B)		MSe Divi Ask (\$B)	Calc'd SCB			Reported		
						CET1 Stress	MSe Divi	DFAST	SCB Floor	Calc'd SCB -	SCB (2.5%
	4Q19 Actual	Stress Min	4Q19 Actual	Stressed 1Q22E		Test Hit	Ask Impact	2020	(2.5%)	SCB Floor	Floor)
					4Q20-3Q21	A	B	C = A+B	D	C-D	Max (C,D)
ALLY	9.5%	6.3%	145	144	0.29	3.2%	0.2%	3.4%	2.5%	0.9%	3.4%
AXP	10.7%	10.8%	169	170	1.43	-0.1%	0.8%	0.7%	2.5%	-1.8%	2.5%
BAC	11.2%	9.6%	1,493	1,482	6.3	1.6%	0.4%	2.0%	2.5%	-0.5%	2.5%
BK	12.5%	12.3%	149	149	1.1	0.2%	0.8%	1.0%	2.5%	-1.5%	2.5%
C	11.8%	10.3%	1,167	1,152	4.2	1.5%	0.4%	1.9%	2.5%	-0.6%	2.5%
CFG	10.0%	7.1%	143	143	0.7	2.9%	0.5%	3.4%	2.5%	0.9%	3.4%
COF	12.2%	6.8%	313	310	0.7	5.4%	0.2%	5.6%	2.5%	3.1%	5.6%
DFS	11.2%	8.2%	98	98	0.6	3.0%	0.6%	3.6%	2.5%	1.1%	3.6%
FITB	9.7%	8.1%	142	143	0.8	1.6%	0.5%	2.1%	2.5%	-0.4%	2.5%
GS	13.3%	6.9%	564	550	1.8	6.4%	0.3%	6.7%	2.5%	4.2%	6.7%
HBAN	9.9%	8.5%	88	88	0.6	1.4%	0.7%	2.1%	2.5%	-0.4%	2.5%
JPM	12.4%	9.8%	1,516	1,501	11.0	2.6%	0.7%	3.3%	2.5%	0.8%	3.3%
KEY	9.4%	8.0%	131	132	0.7	1.4%	0.6%	2.0%	2.5%	-0.5%	2.5%
MTB	9.7%	8.5%	103	104	0.6	1.2%	0.6%	1.8%	2.5%	-0.7%	2.5%
NTRS	12.7%	12.8%	72	70	0.6	-0.1%	0.8%	0.7%	2.5%	-1.8%	2.5%
PNC	9.5%	9.2%	341	339	1.9	0.3%	0.5%	0.8%	2.5%	-1.7%	2.5%
RF	9.7%	7.3%	106	105	0.6	2.4%	0.6%	3.0%	2.5%	0.5%	3.0%
STT	11.7%	11.5%	104	104	0.7	0.2%	0.7%	0.9%	2.5%	-1.6%	2.5%
TFC	9.5%	7.4%	376	375	2.4	2.1%	0.6%	2.7%	2.5%	0.2%	2.7%
USB	9.1%	8.9%	391	393	2.5	0.2%	0.6%	0.8%	2.5%	-1.7%	2.5%
WFC	11.1%	9.1%	1,246	1,235	5.0	2.0%	0.4%	2.4%	2.5%	-0.1%	2.5%

Note: CFG, FITB, HBAN, KEY, and MTB are midcap banks covered by Ken Zerbe  
Source: Federal Reserve, Company data, Morgan Stanley Research Estimates

GS

**Exhibit 9:** We are currently baking in a 13.0% CET1 Ratio for GS in 2021, at the lower end of their 13-13.5% target... Stress Capital Buffer of 6.7% per yesterday's results suggests a 13.7% required minimum

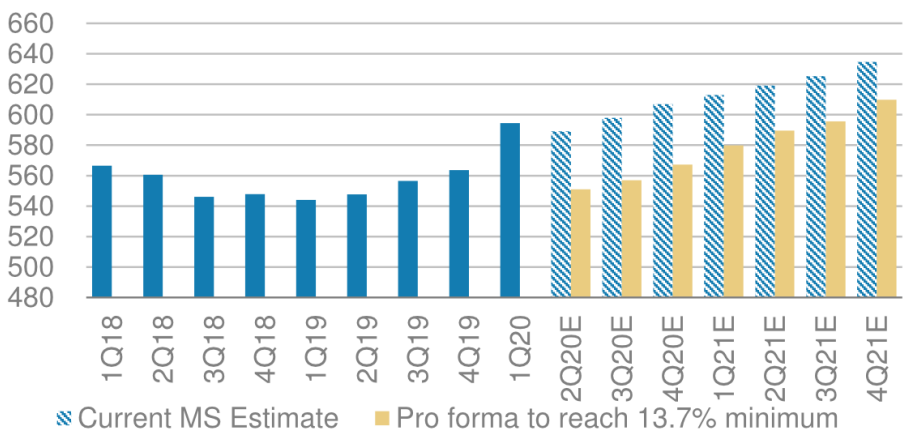
GS Standardized CET1 Ratio



Source: Company data, Morgan Stanley Research

**Exhibit 10:** They can get there with 5% lower RWAs relative to our estimates, but lower RWAs come with lower revenues... a 5% reduction in our 2021 revenues would bring EPS down ~6%

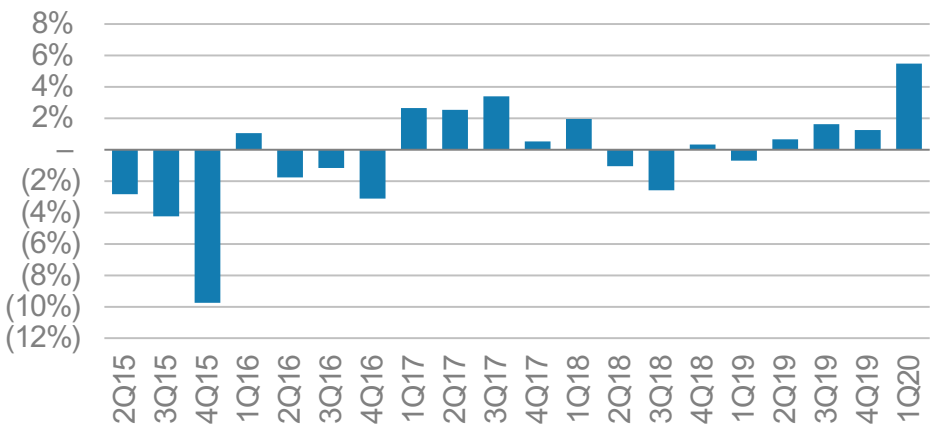
GS Standardized RWA (\$B)



Source: Company data, Morgan Stanley Research

**Exhibit 11:** GS has brought down RWAs by more than 5% once before in 4Q15, largely by reducing derivative notionals

GS Standardized RWA: Q/Q Change



Source: Company data, Morgan Stanley Research



# What happens if you go below a regulatory minimum?

**Exhibit 12:** Our estimates of the new Stress Capital Buffer on the back of this year's stress test suggest that almost every bank is currently above their required capital minimums, except GS...

	Non-Stress Environment						
Constraint	1Q20 Actual	Req. Min	+ SCB	GSIFI + Buffer	= Implied Min	Excess Cap (\$B)	
CET 1 Ratio							
Large Cap Banks & Consumer Finance							
WFC	10.7%	4.5%	2.5%	2.0%	9.0%	\$	21.1
BAC	10.8%	4.5%	2.5%	2.5%	9.5%	\$	19.9
C	11.2%	4.5%	2.5%	3.0%	10.0%	\$	14.9
PNC	9.4%	4.5%	2.5%	0.0%	7.0%	\$	8.7
TFC	9.3%	4.5%	2.7%	0.0%	7.2%	\$	8.1
USB	9.0%	4.5%	2.5%	0.0%	7.0%	\$	7.9
AXP	11.9%	4.5%	2.5%	0.0%	7.0%	\$	7.2
COF	12.0%	4.5%	5.6%	0.0%	10.1%	\$	5.6
BK	11.3%	4.5%	2.5%	1.5%	8.5%	\$	4.6
NTRS	11.7%	4.5%	2.5%	0.0%	7.0%	\$	3.7
STT	10.7%	4.5%	2.5%	1.0%	8.0%	\$	3.1
DFS	11.3%	4.5%	3.6%	0.0%	8.1%	\$	3.1
JPM	11.5%	4.5%	3.3%	3.5%	11.3%	\$	2.5
RF	9.4%	4.5%	3.0%	0.0%	7.5%	\$	2.1
ALLY	9.3%	4.5%	3.4%	0.0%	7.9%	\$	2.0
GS	12.5%	4.5%	6.7%	2.5%	13.7%	\$	(7.3)
Midcap Banks							
FITB	9.4%	4.5%	2.5%	0.0%	7.0%	\$	3.5
KEY	9.0%	4.5%	2.5%	0.0%	7.0%	\$	2.7
MTB	9.2%	4.5%	2.5%	0.0%	7.0%	\$	2.4
CFG	9.4%	4.5%	3.4%	0.0%	7.9%	\$	2.3
HBAN	9.5%	4.5%	2.5%	0.0%	7.0%	\$	2.2
Total Large Cap Banks & Consumer Finance						\$	107.0
Money-centers (BAC, C, GS & JPM)						\$	29.9
Midcap Banks						\$	13.1

Source: Company Data, Federal Reserve, Morgan Stanley Research Estimates.  
 Note: CET1 Ratio = Common Equity Tier 1 Capital / Standardized RWA.

**Exhibit 13:** If a bank goes below its minimum capital ratio after the final SCB is implemented on October 1st, payouts (dividends + buybacks + discretionary bonus payments) will become restricted starting at 60% of eligible income down to 0%, depending on how low the bank's capital ratio falls

**TABLE 2 TO § 217.11—CALCULATION OF MAXIMUM PAYOUT RATIO**

Capital buffer <sup>1</sup>	Payout ratio
Greater than the Board-regulated institution's buffer requirement <sup>2</sup>	No payout ratio limitation applies.
Less than or equal to 100 percent of the Board-regulated institution's buffer requirement, <i>and</i> greater than 75 percent of the Board-regulated institution's buffer requirement	60 percent.
Less than or equal to 75 percent of the Board-regulated institution's buffer requirement, <i>and</i> greater than 50 percent of the bank holding company's buffer requirement	40 percent.
Less than or equal to 50 percent of the Board-regulated institution's buffer requirement, <i>and</i> greater than 25 percent of the Board-regulated institution's buffer requirement	20 percent.
Less than or equal to 25 percent of the Board-regulated institution's buffer requirement	0 percent.

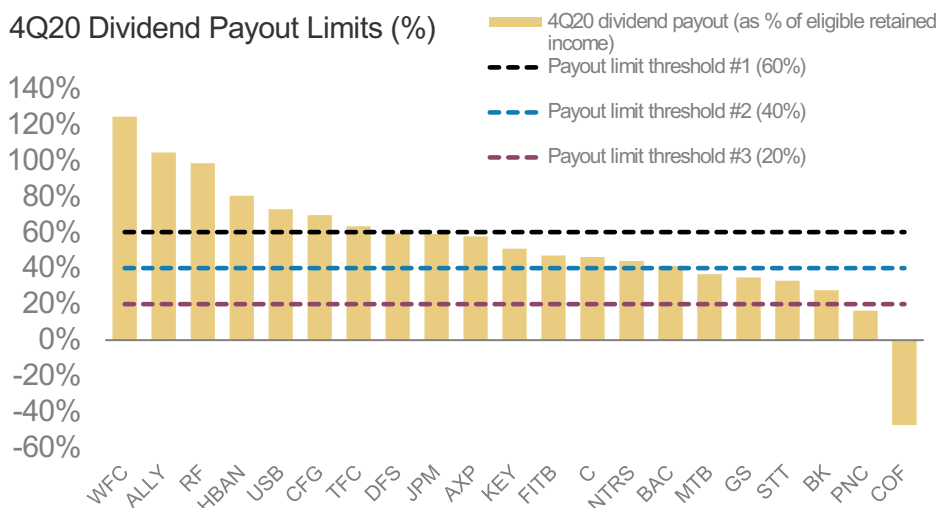
<sup>1</sup> A Board-regulated institution's "capital buffer" means each of, as applicable, its standardized approach capital conservation buffer, advanced approaches capital conservation buffer, and leverage buffer.

<sup>2</sup> A Board-regulated institution's "buffer requirement" means each of, as applicable, its standardized approach capital conservation buffer requirement, advanced approaches capital conservation buffer requirement, and leverage buffer requirement.

Note: Eligible retained income defined as the greater of a) net income for the 4 preceding calendar quarters net of distributions and b) the average of net income for the 4 preceding calendar quarters

Source: Federal Reserve, Morgan Stanley Research

**Exhibit 14:** We estimate ~40% of banks in our coverage could be at risk for cutting their dividend in 4Q20, if they were to go below minimum capital requirements...

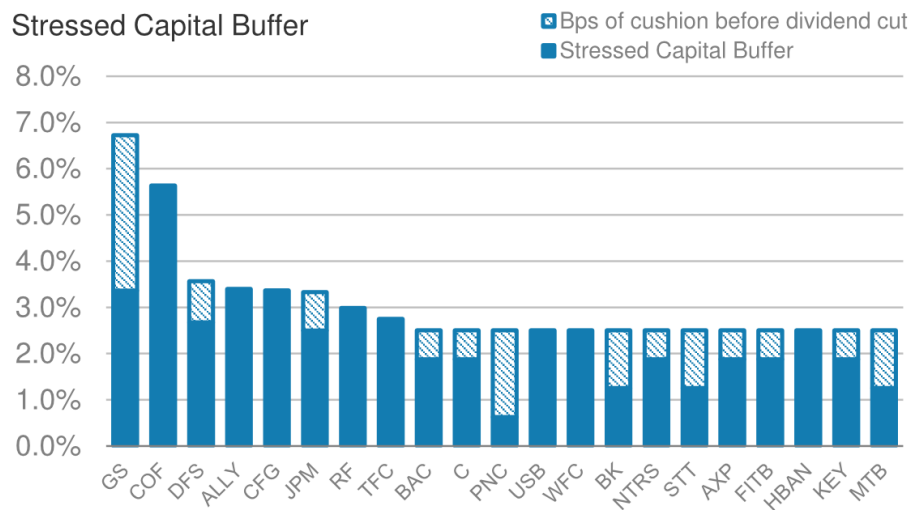


Note: 1) Eligible retained income defined as the greater of a) net income for the 4 preceding calendar quarters net of distributions and b) the average of net income for the 4 preceding calendar quarters. 2) We estimate COF eligible retained income to be negative in 4Q20.

Source: Federal Reserve, Company Data, Morgan Stanley Research estimates

**Exhibit 15:** ...as we estimate ~60% of banks in our coverage have a buffer within their SCB before having to cut their dividend, driven by a lower dividend payout ratio

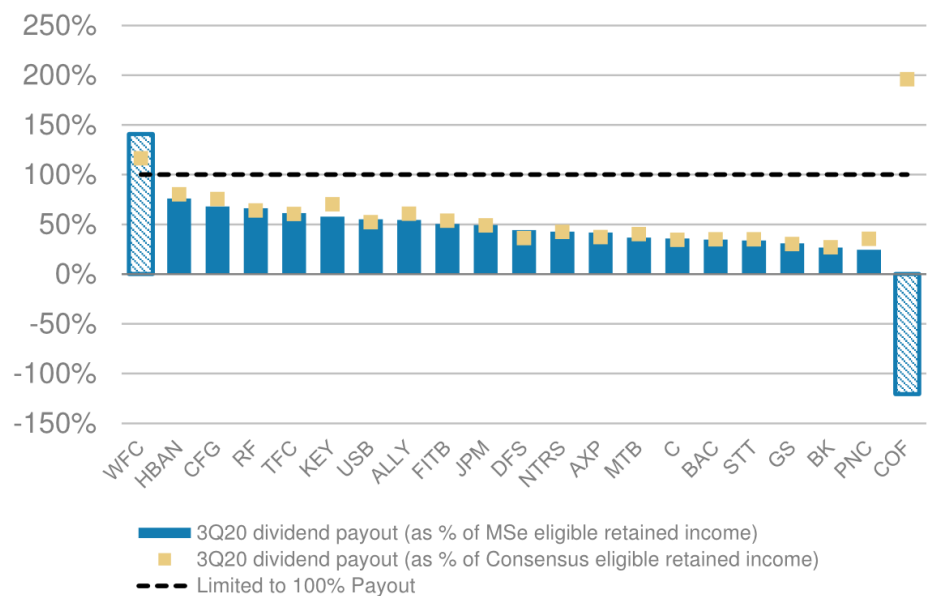
### Stressed Capital Buffer



Source: Federal Reserve, Company Data, Morgan Stanley Research estimates

**Exhibit 16:** In the interim period before resubmission of capital plans, as well as final SCB implementation in 4Q20, the Fed is also now capping banks' dividends at 100% of average net income over the four prior quarters... this implies COF and WFC dividends could be at risk in 3Q20

### 3Q20 Dividend Payout Limits



Note: We estimate COF's preceding 4 quarter net income eligible to be negative as of 3Q20.  
Source: Federal Reserve, Company Data, Morgan Stanley Research Estimates

**Exhibit 17:** ...and an additional 2 banks could be at risk if Fed extends this payout limitation past into 2021

Implied Dividend Per Share On Trailing 4 Quarter Avg Net Income if Dividend Rule Persists													
	1Q20	2Q20E	3Q20E	4Q20E	1Q21E	2Q21E	3Q21E	4Q21E					
BAC	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18	\$ 0.18					
C	\$ 0.51	\$ 0.51	\$ 0.51	\$ 0.51	\$ 0.51	\$ 0.51	\$ 0.51	\$ 0.51					
JPM	\$ 0.90	\$ 0.90	\$ 0.90	\$ 0.90	\$ 0.90	\$ 0.90	\$ 0.90	\$ 0.90					
GS	\$ 1.25	\$ 1.25	\$ 1.25	\$ 1.25	\$ 1.25	\$ 1.25	\$ 1.25	\$ 1.25					
TFC	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.45	\$ 0.45					
PNC	\$ 1.15	\$ 1.15	\$ 1.15	\$ 1.15	\$ 1.15	\$ 1.15	\$ 1.15	\$ 1.15					
RF	\$ 0.16	\$ 0.16	\$ 0.16	\$ 0.16	\$ 0.10	\$ 0.11	\$ 0.15	\$ 0.16					
USB	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42	\$ 0.42					
WFC	\$ 0.51	\$ 0.51	\$ 0.36	\$ 0.24	\$ 0.21	\$ 0.26	\$ 0.30	\$ 0.30					
BK	\$ 0.31	\$ 0.31	\$ 0.31	\$ 0.31	\$ 0.31	\$ 0.31	\$ 0.35	\$ 0.35					
NTRS	\$ 0.70	\$ 0.70	\$ 0.70	\$ 0.70	\$ 0.70	\$ 0.70	\$ 0.70	\$ 0.70					
STT	\$ 0.52	\$ 0.52	\$ 0.52	\$ 0.52	\$ 0.52	\$ 0.52	\$ 0.56	\$ 0.56					
ALLY	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.18	\$ 0.06	\$ 0.19	\$ 0.21	\$ 0.21					
AXP	\$ 0.43	\$ 0.43	\$ 0.43	\$ 0.43	\$ 0.43	\$ 0.43	\$ 0.48	\$ 0.48					
COF	\$ 0.40	\$ 0.40	\$ -	\$ -	\$ -	\$ -	\$ 0.40	\$ 0.40					
DFS	\$ 0.44	\$ 0.44	\$ 0.44	\$ 0.44	\$ 0.44	\$ 0.44	\$ 0.48	\$ 0.48					
CFG	\$ 0.39	\$ 0.39	\$ 0.39	\$ 0.39	\$ 0.39	\$ 0.39	\$ 0.40	\$ 0.40					
FITB	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.27	\$ 0.28	\$ 0.28					
HBAN	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.15	\$ 0.17	\$ 0.17					
KEY	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.19	\$ 0.20	\$ 0.20					
MTB	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.10	\$ 1.20	\$ 1.20					

Source: Federal Reserve, Company Data, Morgan Stanley Research Estimates

# Capital Constraints

**Exhibit 18:** Which Capital Ratio is the Constraint?

Stressed CET1 Ratio			Stressed T1 Ratio			Stressed Total Capital Ratio			Stressed T1 Leverage Ratio			Stressed SLR		
Severely Adverse Low Point			Severely Adverse Low Point			Severely Adverse Low Point			Severely Adverse Low Point			Severely Adverse Low Point		
Required Minimum			Required Minimum			Required Minimum			Required Minimum			Required Minimum		
Every year CCAR Bank														
BAC	9.6%	4.5%	11.1%	6.0%	13.8%	8.0%	6.9%	4.0%	5.6%	3.0%				
BK	12.3%	4.5%	14.6%	6.0%	15.7%	8.0%	6.5%	4.0%	6.0%	3.0%				
COF	6.8%	4.5%	8.3%	6.0%	10.7%	8.0%	7.0%	4.0%	5.9%	3.0%				
C	10.3%	4.5%	11.9%	6.0%	15.3%	8.0%	7.0%	4.0%	5.4%	3.0%				
GS	6.9%	4.5%	8.8%	6.0%	11.8%	8.0%	5.0%	4.0%	3.5%	3.0%				
JPM	9.8%	4.5%	11.6%	6.0%	13.8%	8.0%	6.4%	4.0%	5.1%	3.0%				
NTRS	12.8%	4.5%	14.6%	6.0%	16.8%	8.0%	8.7%	4.0%	7.7%	3.0%				
PNC	9.2%	4.5%	10.3%	6.0%	12.6%	8.0%	8.8%	4.0%	7.3%	3.0%				
STT	11.5%	4.5%	14.3%	6.0%	15.7%	8.0%	6.8%	4.0%	6.0%	3.0%				
TFC	7.4%	4.5%	8.8%	6.0%	11.4%	8.0%	7.6%	4.0%	6.4%	3.0%				
USB	8.9%	4.5%	10.4%	6.0%	12.6%	8.0%	8.5%	4.0%	6.8%	3.0%				
WFC	9.1%	4.5%	10.7%	6.0%	14.2%	8.0%	6.9%	4.0%	5.9%	3.0%				
Every other year CCAR Bank														
ALLY	6.3%	4.5%	7.9%	6.0%	9.9%	8.0%	6.4%	4.0%						
AXP	10.8%	4.5%	11.7%	6.0%	13.3%	8.0%	10.3%	4.0%						
CFG	7.1%	4.5%	8.2%	6.0%	10.4%	8.0%	7.3%	4.0%						
DFS	8.2%	4.5%	8.8%	6.0%	10.6%	8.0%	7.6%	4.0%						
FITB	8.1%	4.5%	9.3%	6.0%	12.4%	8.0%	8.1%	4.0%						
HBAN	8.5%	4.5%	9.9%	6.0%	11.9%	8.0%	8.1%	4.0%						
KEY	8.0%	4.5%	9.4%	6.0%	11.8%	8.0%	8.6%	4.0%						
MTB	8.5%	4.5%	9.7%	6.0%	12.0%	8.0%	8.5%	4.0%						
RF	7.3%	4.5%	8.5%	6.0%	10.7%	8.0%	7.5%	4.0%						

Source: Company Data, Federal Reserve, Morgan Stanley Research

## 2020 vs. Prior DFAST Results

**Exhibit 19:** Stressed B3 CET1 ratio 0.4% pts higher y/y to 8.5%

	Min. Stressed CET 1 Ratio Y/Y		
	2020 DFAST	Prior DFAST	% Pt Δ
AXP	10.8%	7.8%	3.0%
C	10.3%	8.2%	2.1%
NTRS	12.8%	10.7%	2.1%
JPM	9.8%	8.1%	1.7%
KEY	8.0%	6.8%	1.2%
BK	12.3%	11.3%	1.0%
MTB	8.5%	7.5%	1.0%
COF	6.8%	6.0%	0.8%
USB	8.9%	8.1%	0.8%
PNC	9.2%	8.5%	0.7%
FITB	8.1%	7.5%	0.6%
STT	11.5%	10.9%	0.6%
HBAN	8.5%	8.1%	0.4%
CFG	7.1%	6.8%	0.3%
BAC	9.6%	9.7%	(0.1%)
WFC	9.1%	9.5%	(0.4%)
ALLY	6.3%	6.8%	(0.5%)
TFC	7.4%	7.9%	(0.5%)
DFS	8.2%	8.9%	(0.7%)
GS	6.9%	7.6%	(0.7%)
RF	7.3%	8.1%	(0.8%)
<b>Median</b>	<b>8.5%</b>	<b>8.1%</b>	<b>0.4%</b>

Source: Company Data, Federal Reserve, Morgan Stanley Research

**Exhibit 20:** Stressed Tier 1 Capital ratio 0.4% pts higher y/y to 9.9%

	Min. Stressed Tier 1 Capital Y/Y		
	2020 DFAST	Prior DFAST	% Pt Δ
AXP	11.7%	8.8%	2.9%
NTRS	14.6%	12.0%	2.6%
C	11.9%	9.7%	2.2%
JPM	11.6%	9.8%	1.8%
KEY	9.4%	7.6%	1.8%
CFG	8.2%	6.9%	1.3%
BK	14.6%	13.6%	1.0%
COF	8.3%	7.4%	0.9%
MTB	9.7%	8.8%	0.9%
FITB	9.3%	8.5%	0.8%
USB	10.4%	9.7%	0.7%
PNC	10.3%	9.6%	0.7%
HBAN	9.9%	9.6%	0.3%
BAC	11.1%	11.2%	(0.1%)
STT	14.3%	14.6%	(0.3%)

RF	8.5%	8.9%	(0.4%)
WFC	10.7%	11.2%	(0.5%)
ALLY	7.9%	8.5%	(0.6%)
DFS	8.8%	9.5%	(0.7%)
GS	8.8%	9.5%	(0.7%)
TFC	8.8%	9.5%	(0.7%)
<b>Median</b>	<b>9.9%</b>	<b>9.5%</b>	<b>0.4%</b>

Source: Company Data, Federal Reserve, Morgan Stanley Research

**Exhibit 21:** Stressed PPNR/average assets 10 bps lower y/y to 3.0%

	Stressed PPNR / Average Assets		
	2020 DFAST	Prior DFAST	Δ (bps)
FITB	3.8%	2.9%	90
AXP	12.0%	11.4%	60
JPM	2.7%	2.3%	40
KEY	3.0%	2.6%	40
C	3.0%	2.9%	10
CFG	2.3%	2.2%	10
STT	1.5%	1.4%	10
PNC	3.1%	3.1%	-
BAC	1.7%	1.8%	(10)
BK	1.9%	2.0%	(10)
USB	3.7%	3.9%	(20)
COF	7.9%	8.2%	(30)
GS	1.1%	1.4%	(30)
NTRS	1.9%	2.2%	(30)
RF	3.0%	3.3%	(30)
ALLY	2.8%	3.3%	(50)
DFS	13.8%	14.3%	(50)
HBAN	3.0%	3.5%	(50)
MTB	3.9%	4.4%	(50)
WFC	2.6%	3.3%	(70)
TFC	2.5%	4.1%	(160)
<b>Median</b>	<b>3.0%</b>	<b>3.1%</b>	<b>(10)</b>

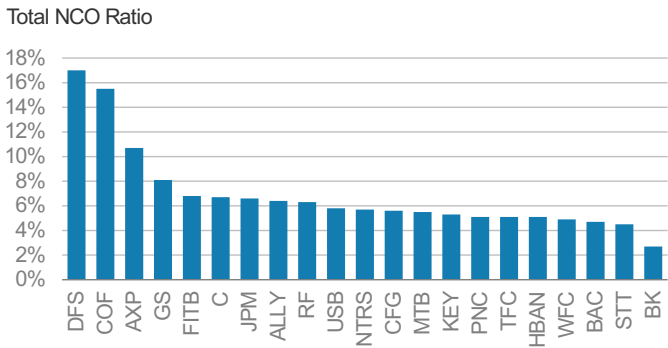
Source: Company Data, Federal Reserve, Morgan Stanley Research.

Note: (1) PPNR = Pre-Provision Net Revenue

Fed Stress Test

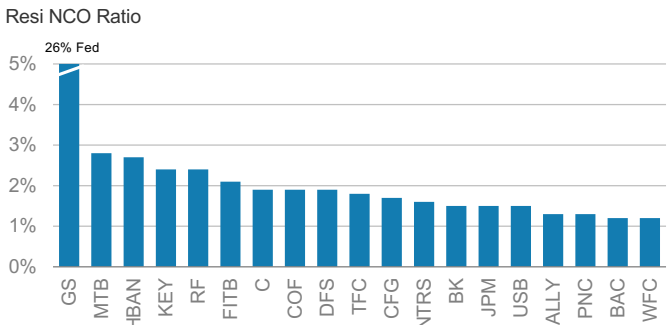
Stressed NCO Ratios (Severely Adverse Scenario)

Exhibit 22: Total NCO Ratio



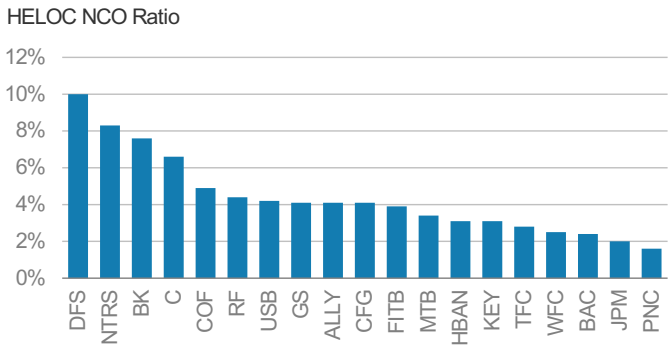
Source: Company Data, Federal Reserve, Morgan Stanley Research.

Exhibit 23: Resi Mortgage NCO Ratio



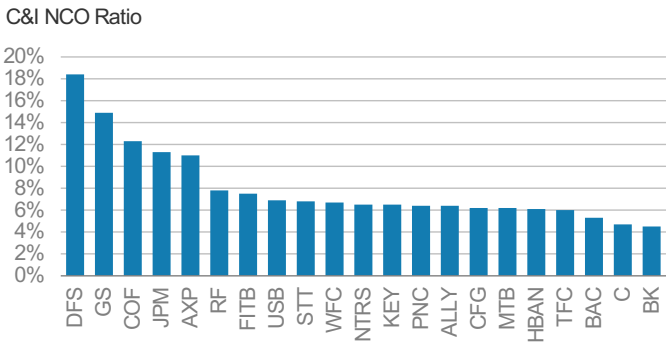
Source: Company Data, Federal Reserve, Morgan Stanley Research.

Exhibit 24: HELOC NCO Ratio



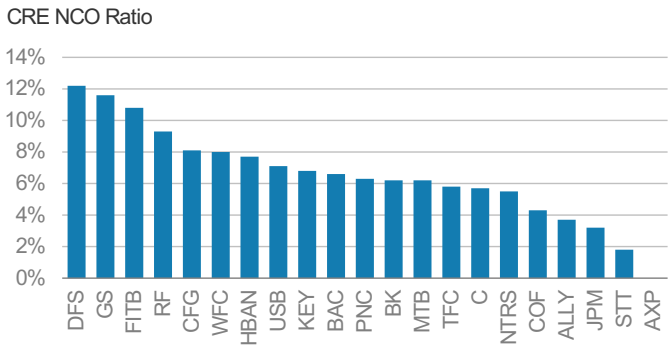
Source: Company Data, Federal Reserve, Morgan Stanley Research.

Exhibit 25: C&I NCO Ratio



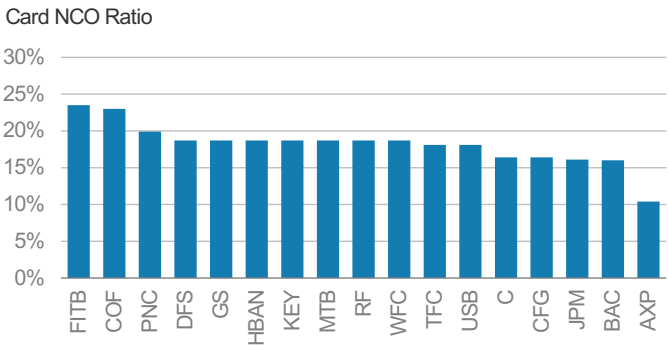
Source: Company Data, Federal Reserve, Morgan Stanley Research.

Exhibit 26: CRE NCO Ratio



Source: Company Data, Federal Reserve, Morgan Stanley Research.

Exhibit 27: Card NCO Ratio

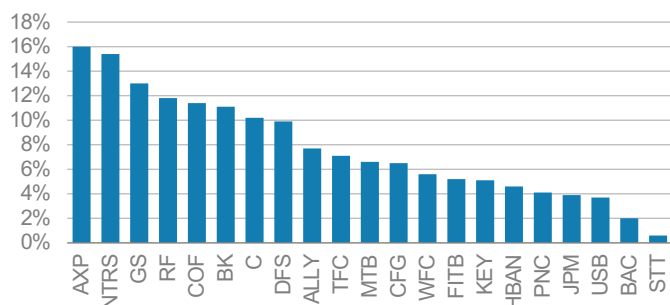


Source: Company Data, Federal Reserve, Morgan Stanley Research.



**Exhibit 28: Other Consumer NCO Ratio**

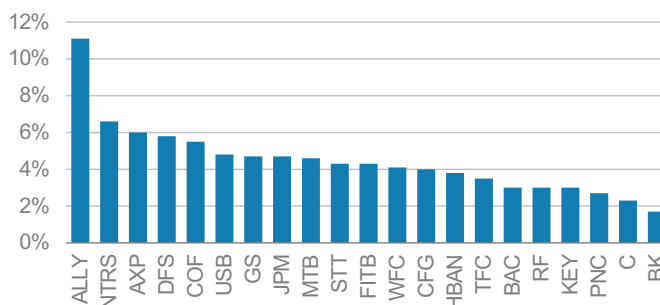
Other Consumer NCO Ratio



Source: Company Data, Federal Reserve, Morgan Stanley Research.

**Exhibit 29: Other NCO Ratio**

Other NCO Ratio



Source: Company Data, Federal Reserve, Morgan Stanley Research.

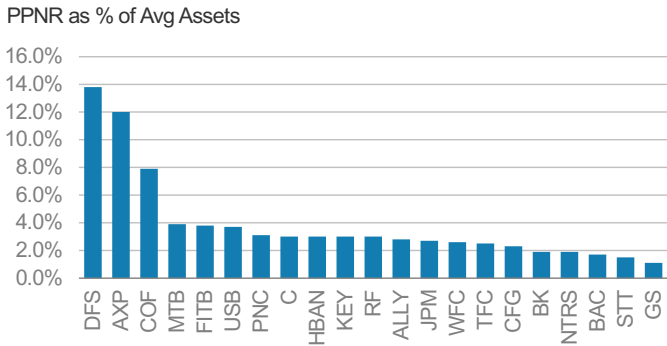
**Exhibit 30: Stressed NCO Ratios (Severely Adverse Scenario)**

Bank	Other							
	Total	Resi	HELOC	C&I	CRE	Card	Consumer	Other
	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test
ALLY	6.4%	1.3%	4.1%	6.4%	3.7%	0.0%	7.7%	11.1%
AXP	10.7%	0.0%	0.0%	11.0%	0.0%	10.4%	16.0%	6.0%
BAC	4.7%	1.2%	2.4%	5.3%	6.6%	16.0%	2.0%	3.0%
BK	2.7%	1.5%	7.6%	4.5%	6.2%	0.0%	11.1%	1.7%
C	6.7%	1.9%	6.6%	4.7%	5.7%	16.4%	10.2%	2.3%
CFG	5.6%	1.7%	4.1%	6.2%	8.1%	16.4%	6.5%	4.0%
COF	15.5%	1.9%	4.9%	12.3%	4.3%	23.0%	11.4%	5.5%
DFS	17.0%	1.9%	10.0%	18.4%	12.2%	18.7%	9.9%	5.8%
FITB	6.8%	2.1%	3.9%	7.5%	10.8%	23.5%	5.2%	4.3%
GS	8.1%	25.9%	4.1%	14.9%	11.6%	18.7%	13.0%	4.7%
HBAN	5.1%	2.7%	3.1%	6.1%	7.7%	18.7%	4.6%	3.8%
JPM	6.6%	1.5%	2.0%	11.3%	3.2%	16.1%	3.9%	4.7%
KEY	5.3%	2.4%	3.1%	6.5%	6.8%	18.7%	5.1%	3.0%
MTB	5.5%	2.8%	3.4%	6.2%	6.2%	18.7%	6.6%	4.6%
NTRS	5.7%	1.6%	8.3%	6.5%	5.5%	0.0%	15.4%	6.6%
PNC	5.1%	1.3%	1.6%	6.4%	6.3%	19.9%	4.1%	2.7%
RF	6.3%	2.4%	4.4%	7.8%	9.3%	18.7%	11.8%	3.0%
STT	4.5%	0.0%	0.0%	6.8%	1.8%	0.0%	0.6%	4.3%
TFC	5.1%	1.8%	2.8%	6.0%	5.8%	18.1%	7.1%	3.5%
USB	5.8%	1.5%	4.2%	6.9%	7.1%	18.1%	3.7%	4.8%
WFC	4.9%	1.2%	2.5%	6.7%	8.0%	18.7%	5.6%	4.1%
<b>Median</b>	<b>6.7%</b>	<b>1.9%</b>	<b>4.1%</b>	<b>6.4%</b>	<b>6.6%</b>	<b>16.4%</b>	<b>9.9%</b>	<b>4.3%</b>

Source: Company Data, Federal Reserve, Morgan Stanley Research

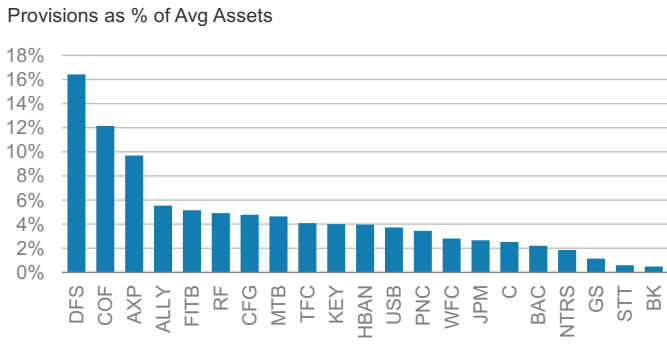
Stressed P&L Items as a % of Avg Assets (Severely Adverse Scenario)

Exhibit 31: PPNR as % of avg assets



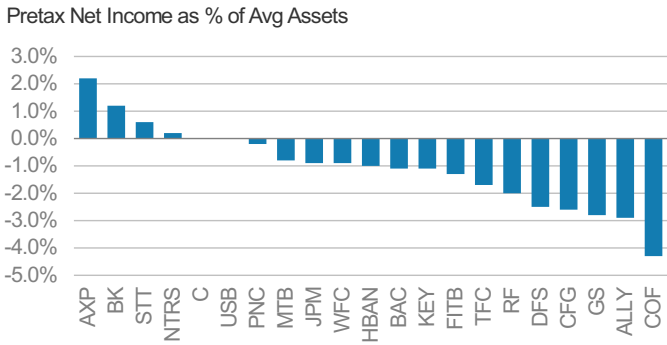
Source: Company Data, Federal Reserve, Morgan Stanley Research

Exhibit 32: Provisions as % of avg assets



Source: Company Data, Federal Reserve, Morgan Stanley Research

Exhibit 33: Pretax Net Income as % if avg assets



Source: Company Data, Federal Reserve, Morgan Stanley Research

**Exhibit 34:** Stressed P&L Items as a % of Avg Assets (Severely Adverse Scenario)

Bank	NII	Fees	Expenses	PPNR	Other Revenue	Provisions	Loss on AFS Sec	Trading Losses	Other Losses	Pretax Net Income
	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test	Fed Stress Test
ALLY	5.0%	3.8%	6.0%	2.8%	0.0%	5.5%	0.2%	0.0%	0.1%	-2.9%
AXP	8.5%	39.9%	36.4%	12.0%	0.0%	9.7%	0.0%	0.0%	0.0%	2.2%
BAC	4.2%	3.4%	5.9%	1.7%	0.0%	2.2%	0.0%	0.4%	0.2%	-1.1%
BK	1.7%	7.3%	7.1%	1.9%	0.0%	0.5%	0.1%	0.2%	0.0%	1.2%
C	5.8%	2.8%	5.5%	3.0%	0.0%	2.5%	0.0%	0.3%	0.1%	0.0%
CFG	5.7%	2.2%	5.6%	2.3%	0.0%	4.8%	0.0%	0.0%	0.1%	-2.6%
COF	13.9%	3.1%	9.1%	7.9%	0.0%	12.1%	0.0%	0.0%	0.0%	-4.3%
DFS	19.4%	3.4%	9.0%	13.8%	0.0%	16.4%	0.0%	0.0%	0.0%	-2.5%
FITB	6.2%	4.2%	6.6%	3.8%	0.0%	5.2%	0.0%	0.0%	0.1%	-1.3%
GS	1.0%	5.9%	5.9%	1.1%	0.0%	1.1%	0.0%	1.9%	0.9%	-2.8%
HBAN	6.3%	2.7%	6.1%	3.0%	0.0%	4.0%	0.0%	0.0%	0.0%	-1.0%
JPM	4.4%	4.4%	6.1%	2.7%	0.0%	2.7%	0.0%	0.8%	0.1%	-0.9%
KEY	5.9%	3.6%	6.5%	3.0%	0.0%	4.0%	0.0%	0.0%	0.2%	-1.1%
MTB	6.7%	3.3%	6.1%	3.9%	0.0%	4.6%	0.0%	0.0%	0.0%	-0.8%
NTRS	2.2%	7.0%	7.3%	1.9%	0.0%	1.9%	0.1%	0.0%	0.0%	0.2%
PNC	5.5%	4.0%	6.4%	3.1%	0.0%	3.4%	0.0%	0.0%	0.1%	-0.2%
RF	6.0%	3.7%	6.7%	3.0%	0.0%	4.9%	0.0%	0.0%	0.1%	-2.0%
STT	1.9%	7.9%	8.3%	1.5%	0.0%	0.6%	0.0%	0.3%	0.0%	0.6%
TFC	5.8%	3.7%	7.0%	2.5%	0.0%	4.1%	0.0%	0.0%	0.1%	-1.7%
USB	5.8%	4.3%	6.3%	3.7%	0.0%	3.7%	0.0%	0.0%	0.0%	0.0%
WFC	5.8%	3.8%	7.0%	2.6%	0.0%	2.8%	0.1%	0.5%	0.2%	-0.9%
<b>Median</b>	<b>5.8%</b>	<b>3.8%</b>	<b>6.5%</b>	<b>3.0%</b>	<b>0.0%</b>	<b>4.0%</b>	<b>0.0%</b>	<b>0.0%</b>	<b>0.1%</b>	<b>-1.0%</b>

Source: Company Data, Federal Reserve, Morgan Stanley Research.

## 2020 Bank-Run Stress Test

**Exhibit 35:** Difference between Fed-run and Bank-run 2020 Stress Test Loan Loss Ratios (for Banks that have Disclosed so far): Total, Resi, HELOC and C&I Loans

Bank	Total			Resi			HELOC			C&I		
	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff
BAC	4.7%	3.9%	0.8%	1.2%	1.1%	0.1%	2.4%	2.4%	—	5.3%	4.5%	0.8%
BK	2.7%	3.3%	(0.6%)	1.5%	0.2%	1.3%	7.6%	0.0%	7.6%	4.5%	3.7%	0.8%
COF	15.5%	14.0%	1.5%	1.9%	4.3%	(2.4%)	4.9%	4.0%	0.9%	12.3%	9.9%	2.4%
C	6.7%	6.3%	0.4%	1.9%	0.4%	1.5%	6.6%	4.7%	1.9%	4.7%	3.6%	1.1%
NTRS	5.7%	1.2%	4.5%	1.6%	0.5%	1.1%	8.3%	0.8%	7.5%	6.5%	1.9%	4.6%
PNC	5.1%	4.4%	0.7%	1.3%	1.4%	(0.1%)	1.6%	3.8%	(2.2%)	6.4%	4.5%	1.9%
USB	5.8%	5.1%	0.7%	1.5%	1.6%	(0.1%)	4.2%	2.7%	1.5%	6.9%	6.5%	0.4%
WFC	4.9%	3.1%	1.8%	1.2%	0.4%	0.8%	2.5%	2.6%	(0.1%)	6.7%	4.3%	2.4%
<b>Median</b>	<b>5.4%</b>	<b>4.2%</b>	<b>1.3%</b>	<b>1.5%</b>	<b>0.8%</b>	<b>0.7%</b>	<b>4.6%</b>	<b>2.7%</b>	<b>1.9%</b>	<b>6.5%</b>	<b>4.4%</b>	<b>2.1%</b>

Source: Federal Reserve, Company data, Morgan Stanley Research

**Exhibit 36:** Difference between Fed-run and Bank-run 2020 Stress Test Loan Loss Ratios (for Banks that have Disclosed so far): CRE, Card and Other Loans

Bank	CRE			Card			Other Consumer			Other		
	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff	Fed-run	Bank-run	Diff
BAC	6.6%	3.9%	2.7%	16.0%	15.6%	0.4%	2.0%	1.7%	0.3%	3.0%	2.0%	1.0%
BK	6.2%	6.8%	(0.6%)	0.0%	0.0%	—	11.1%	0.7%	10.4%	1.7%	4.0%	(2.3%)
COF	4.3%	4.0%	0.3%	23.0%	21.4%	1.6%	11.4%	10.5%	0.9%	5.5%	1.3%	4.2%
C	5.7%	4.4%	1.3%	16.4%	16.7%	(0.3%)	10.2%	9.2%	1.0%	2.3%	1.9%	0.4%
NTRS	5.5%	4.4%	1.1%	0.0%	0.0%	—	15.4%	1.4%	14.0%	6.6%	0.5%	6.1%
PNC	6.3%	3.6%	2.7%	19.9%	21.6%	(1.7%)	4.1%	7.0%	(2.9%)	2.7%	2.7%	—
USB	7.1%	3.8%	3.3%	18.1%	15.6%	2.5%	3.7%	4.9%	(1.2%)	4.8%	3.2%	1.6%
WFC	8.0%	2.8%	5.2%	18.7%	17.5%	1.2%	5.6%	4.3%	1.3%	4.1%	3.0%	1.1%
<b>Median</b>	<b>6.3%</b>	<b>4.0%</b>	<b>2.3%</b>	<b>17.3%</b>	<b>16.2%</b>	<b>1.1%</b>	<b>7.9%</b>	<b>4.6%</b>	<b>3.3%</b>	<b>3.6%</b>	<b>2.4%</b>	<b>1.2%</b>

Source: Federal Reserve Company data, Morgan Stanley Research

**Exhibit 37:** Estimated Peak Reserve Ratio in our models vs. 2020 Bank-Run Stress Test

Reserve Ratios				
	Peak Reserve Ratio	Quarter of Peak	CCAR 2020 Bank Run Stress Loss Ratio	% of Stress Losses
<u><i>Moneycenter</i></u>				
<b>GS</b>	3.9%	4Q20E	NA	NA
<b>JPM</b>	3.1%	4Q20E	NA	NA
<b>C</b>	4.0%	1Q21E	6.3%	63%
<b>BAC</b>	2.3%	1Q21E	3.9%	60%
<u><i>Super-regional</i></u>				
<b>WFC</b>	1.7%	1Q21E	3.1%	55%
<b>TFC</b>	2.0%	2Q21E	NA	NA
<b>PNC</b>	1.7%	4Q20E	4.4%	39%
<b>USB</b>	2.7%	2Q21E	5.1%	53%
<b>RF</b>	2.6%	2Q21E	NA	NA
<u><i>Trust Banks</i></u>				
<b>BK</b>	0.7%	4Q20E	3.3%	20%
<b>STT</b>	0.6%	4Q20E	NA	NA
<b>NTRS</b>	0.7%	4Q20E	1.2%	55%
<u><i>Consumer</i></u>				
<b>COF</b>	7.7%	1Q21E	14.0%	55%
<b>AXP</b>	6.7%	3Q20E	NA	NA
<b>ALLY</b>	3.0%	2Q20E	NA	NA
<b>DFS</b>	9.3%	1Q21E	NA	NA
<b>SYF</b>	13.4%	2Q21E	NA	NA

Source: Company data, Morgan Stanley Research

## European Banks

**Bottom line.** In line with our expectations, all the US units of European banks have passed the 2020 Dodd Frank Act Stress Test (DFAST). We don't expect DFAST results to impact European IBs' share price performance on Friday. At the margin, the comfortable excess capital in the IHCs is a positive, although what ultimately matters for dividends / share buybacks (particularly relevant for UBS and HSBC investment case medium term) is the excess capital at a Group level, not at a subsidiary level. This is particularly true in the current climate of temporary dividend bans across Europe. In our view the results of this year's DFAST/CCAR are unlikely to move the individual stock narrative.

**DFAST results in detail:** The average CET1 drawdown across European IHCs was -460bps (vs -240bps avg median across all participating firms), with the largest drawdown at Deutsche Bank USA (-780bps). Santander was one of the most resilient banks, with a modest 140bps CET1 drawdown. Compared to last year's DFAST, drawdowns were lower YoY at most banks, with the exception of HSBC, where the drawdown was 160bps higher. As a whole, the average headroom to 4.5% minima stood at 990bps at CET1 level and 190bps vs 3% min SLR level, which in our view screens as sufficient.

**Exhibit 38:** Overview of 2020 / 2019 DFAST results for European banks

Entity	Stressed CET1 Ratio				Stressed T1 Ratio				2020 Stressed Total Capital Ratio				Stressed T1 Leverage Ratio				Stressed SLR			
	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum
Barclays US LLC	13.4%	16.3%	-2.9%	4.5%	16.6%	19.4%	-2.8%	6.0%	20.5%	23.0%	-2.5%	8.0%	7.7%	9.4%	-1.7%	4.0%	6.4%	7.8%	-1.4%	3.0%
BNP Paribas USA	10.8%	15.8%	-5.0%	4.5%	10.8%	15.8%	-5.0%	6.0%	13.6%	18.0%	-4.4%	8.0%	7.1%	10.5%	-3.4%	4.0%	7.1%	10.5%	-3.4%	4.0%
Credit Suisse Holdings	19.5%	24.7%	-5.2%	4.5%	20.4%	25.5%	-5.1%	6.0%	20.5%	25.6%	-5.1%	8.0%	10.3%	13.7%	-3.4%	4.0%	9.1%	12.1%	-3.0%	3.0%
DB USA Corporation	18.4%	26.2%	-7.8%	4.5%	30.9%	37.7%	-6.8%	6.0%	31.4%	37.7%	-6.3%	8.0%	7.4%	9.8%	-2.4%	4.0%	6.9%	9.1%	-2.2%	3.0%
HSBC North America Holding	7.3%	13.0%	-5.7%	4.5%	9.1%	14.8%	-5.7%	6.0%	13.3%	18.4%	-5.1%	8.0%	4.7%	7.8%	-3.1%	4.0%	3.4%	5.7%	-2.3%	3.0%
Santander Holdings USA	13.2%	14.6%	-1.4%	4.5%	14.3%	15.8%	-1.5%	6.0%	15.8%	17.2%	-1.4%	8.0%	12.0%	13.1%	-1.1%	4.0%	12.0%	13.1%	-1.1%	4.0%
UBS Americas Holding	17.9%	22.1%	-4.2%	4.5%	23.8%	27.7%	-3.9%	6.0%	25.3%	29.0%	-3.7%	8.0%	9.9%	11.8%	-1.9%	4.0%	8.2%	n/a	n/a	3.0%

Entity	Stressed CET1 Ratio				Stressed T1 Ratio				2019 Stressed Total Capital Ratio				Stressed T1 Leverage Ratio				Stressed SLR			
	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum
Barclays US LLC	11.6%	14.5%	-2.9%	4.5%	14.5%	17.8%	-3.1%	6.0%	17.8%	21.0%	-3.2%	8.0%	7.5%	8.9%	-1.4%	4.0%	7.3%	6.3%	1.0%	3.0%
Credit Suisse Holdings	18.4%	25.8%	-7.4%	4.5%	19.3%	26.5%	-7.2%	6.0%	19.4%	26.6%	-7.2%	8.0%	8.5%	12.9%	-4.4%	4.0%	7.4%	11.3%	-3.9%	3.0%
DB USA Corporation	14.8%	22.9%	-8.1%	4.5%	26.2%	34.4%	-8.2%	6.0%	26.6%	34.4%	-7.8%	8.0%	6.9%	9.2%	-2.3%	4.0%	6.3%	8.4%	-2.1%	3.0%
HSBC North America Holding	8.5%	12.6%	-4.1%	4.5%	10.1%	14.2%	-4.1%	6.0%	14.2%	18.0%	-3.8%	8.0%	5.1%	7.5%	-2.4%	4.0%	3.8%	5.6%	-1.8%	3.0%
UBS Americas Holding	16.0%	21.7%	-5.7%	4.5%	19.9%	25.7%	-5.8%	6.0%	21.9%	27.0%	-5.1%	8.0%	8.8%	11.3%	-2.5%	4.0%	n/a	n/a	n/a	n/a

Entity	Stressed CET1 Ratio				Stressed T1 Ratio				2020 vs 2019 Stressed Total Capital Ratio				Stressed T1 Leverage Ratio				Stressed SLR			
	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum	Severely Adverse Low Point	Actual Ratio	Drawdown - Low point vs Ending	Required Minimum
Barclays US LLC	1.8%	1.8%	0.0%		2.1%	1.8%	0.3%		2.7%	2.0%	0.7%		0.2%	0.5%	-0.3%		-0.9%	1.5%	-2.4%	
Credit Suisse Holdings	1.1%	-1.1%	2.2%		1.1%	-1.0%	2.1%		1.1%	-1.0%	2.1%		1.8%	0.8%	1.0%		1.7%	0.8%	0.9%	
DB USA Corporation	3.6%	3.3%	0.3%		4.7%	3.3%	1.4%		4.8%	3.3%	1.5%		0.5%	0.6%	-0.1%		0.6%	0.7%	-0.1%	
HSBC North America Holding	-1.2%	0.4%	-1.6%		-1.0%	0.6%	-1.6%		-0.9%	0.4%	-1.3%		-0.4%	0.3%	-0.7%		-0.4%	0.1%	-0.5%	
UBS Americas Holding	1.9%	0.4%	1.5%		3.9%	2.0%	1.9%		3.4%	2.0%	1.4%		1.1%	0.5%	0.6%		n/a	n/a	n/a	

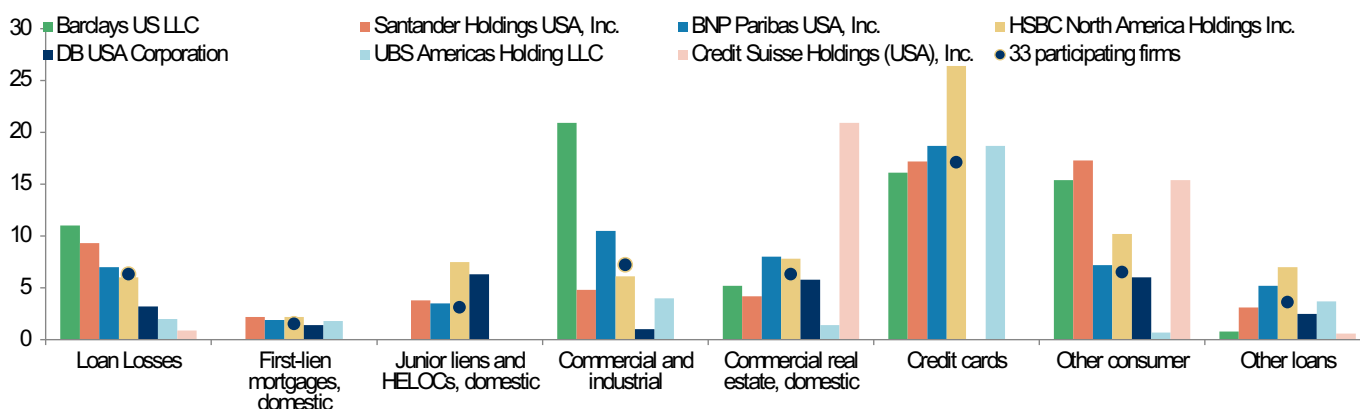
Source: Morgan Stanley Research, Fed DFAST Results

**Additional Covid sensitivity test.** Given this year's adverse scenario is essentially a pre-Covid framework, FED has also released an aggregate view of Covid stress on the US banking system - via additional downside scenarios - V/U/W shaped recoveries (see here for details <https://www.federalreserve.gov/publications/files/2020-sensitivity-analysis-20200625.pdf>). All additional downside scenarios result in higher drawdowns than the adverse test, with a few banks close to the regulatory minima. FED also communicated a temporary ban on share buy-backs, limitations on dividend growth and payout and announced additional stress analysis to be conducted later this year. Most importantly, banks will be required to re-assess their capital needs and resubmit their capital plans

later this year.

**Loan loss rates by bank give useful colour on levels and composition of potential credit risks.** Assumed cumulative loan loss rates as % loans in the stress test were: 11% for Barclays, primarily coming from credit cards; BNP 7%, split mostly evenly between CRE, commercial and other consumer in absolute terms; CS resilient at 0.9%, similarly to UBS at 2%; Deutsche Bank 3.2%, with half coming from CRE; HSBC 6%, broadly spread across the book; Santander 9.3%, with SCUSA/car loans driving the bulk of losses. The variation of loan loss rates within exposures within the same segment is also interesting, with Barclays for example assumed to have a 21% loss rate in commercial loans vs Deutsche Bank at just 1%. In commercial real estate on the other hand, the CS portfolio had a 21% assumed loss rate (although small in absolute \$ terms) vs 1.4% at UBS. In consumer/cards there was less divergence across banks, but HSBC stood out with having the highest assumed card losses across the banks.

**Exhibit 39:** Projected loan losses by type of loan for 2020:Q1–2022:Q1 under the severely adverse scenario



Source: Fed DFAST Results

**Does CCAR matter for European banks?** As a reminder, IHCs represent 5-16% of total group assets for these banks, hence over/under-capitalisation of each bank's IHC marginally interferes with overall capitalisation of the group and dividend distribution potential. IHCs do not comprise 100% of a bank's US-related business, particularly for the investment banks, which also have large branches, which in the case of Deutsche Bank are bigger by assets than the IHC itself. For this reason, the CCAR process on an IHC alone gives us more limited insight into a European bank's business in the US.

**Exhibit 40: US-based IHCs make up <15% of Group assets, and they are usually well capitalised vs the Group**

Income Statement (2019, \$mn)	Credit Suisse	Deutsche Bank	UBS	Barclays	BNP	HSBC	Santander
Net interest income	-159	526	1,752	3,090	2,437	2,143	6,479
Non Int income	5,812	5,423	10,418	6,578	1,827	2,736	3,713
Overhead expense	-5,721	-5,531	-10,826	-7,037	-3,555	-4,635	-6,367
Provisions	-1	-2	-26	-1,095	-155	-194	-2,291
Other	46	3	25	4	20	93	109
<b>Pre tax</b>	<b>-23</b>	<b>419</b>	<b>1,343</b>	<b>1,540</b>	<b>574</b>	<b>144</b>	<b>1,643</b>
Taxes	191	1,000	609	368	134	118	472
Adj / Minorities	-387	-2,039	-1,222	-747	-278	-237	-1,362
<b>Net Income</b>	<b>-219</b>	<b>-620</b>	<b>730</b>	<b>1,161</b>	<b>430</b>	<b>25</b>	<b>753</b>
Income Statement (2018, \$mn)							
Net interest income	-140	807	1,785	3,422	2,926	2,319	6,391
Non Int income	6,378	5,938	11,179	5,684	2,455	2,715	3,241
Overhead expense	-5,564	-6,070	-11,132	-7,918	-3,824	-5,228	-5,819
Provisions	10	-3	-11	-1,076	-127	73	-2,353
Other	0	10	-0	-2	-10	19	63
<b>Pre tax</b>	<b>683</b>	<b>682</b>	<b>1,822</b>	<b>110</b>	<b>1,419</b>	<b>-102</b>	<b>1,523</b>
Taxes	-278	-109	2,177	-213	-299	-210	-426
Adj / Minorities	-6	-49	0	-3	-80	-19	-390
<b>Net Income</b>	<b>399</b>	<b>524</b>	<b>3,999</b>	<b>-106</b>	<b>1,040</b>	<b>-331</b>	<b>707</b>
Key metrics (2019)							
Net Interest Income, YoY %	-13.3%	-34.8%	-1.9%	-9.7%	-16.7%	-7.6%	1.4%
Non Int Income, YoY %	-8.9%	-8.7%	-6.8%	15.7%	-25.6%	0.8%	14.6%
Costs, YoY %	2.8%	-8.9%	-2.7%	-11.1%	-7.0%	-11.3%	9.4%
Pre-tax Income, YoY %	-	-38.6%	-26.3%	-	-59.6%	-	7.8%
Cost of Risk (% Loans)	1bps	2bps	4bps	307bps	24bps	29bps	261bps
Cost/Income Ratio	101.2%	93.0%	89.0%	72.8%	83.4%	95.0%	62.5%
Return on Assets	-0.19%	-0.53%	0.52%	0.78%	0.36%	0.01%	0.53%

Source: Company Data (IHC disclosure), Morgan Stanley Research. Note: 1) Leverage ratio = Tier 1 leverage ratio.

**Exhibit 41: IHC income statement, 2019**

Income Statement (2019, \$mn)	Credit Suisse	Deutsche Bank	UBS	Barclays	BNP	HSBC	Santander
Net interest income	-159	526	1,752	3,090	2,437	2,143	6,479
Non interest income	5,812	5,423	10,418	6,578	1,827	2,736	3,713
Overhead expense	-5,721	-5,531	-10,826	-7,037	-3,555	-4,635	-6,367
Provisions	-1	-2	-26	-1,095	-155	-194	-2,291
Other	-11,397	-11,059	-21,628	-14,070	-7,090	-9,176	-12,624
<b>Pre tax</b>	<b>-23</b>	<b>419</b>	<b>1,343</b>	<b>1,540</b>	<b>574</b>	<b>144</b>	<b>1,643</b>
Taxes	191	1,000	609	368	134	118	472
Adj / Minorities	-387	-2,039	-1,222	-747	-278	-237	-1,362
<b>Net Income</b>	<b>-219</b>	<b>-620</b>	<b>730</b>	<b>1,161</b>	<b>430</b>	<b>25</b>	<b>753</b>
Income Statement (2018, \$mn)							
Net interest income	-140	807	1,785	3,422	2,926	2,319	6,391
Non interest income	6,378	5,938	11,179	5,684	2,455	2,715	3,241
Overhead expense	-5,564	-6,070	-11,132	-7,918	-3,824	-5,228	-5,819
Provisions	10	-3	-11	-1,076	-127	73	-2,353
Other	0	10	-0	-2	-10	19	63
<b>Pre tax</b>	<b>683</b>	<b>682</b>	<b>1,822</b>	<b>110</b>	<b>1,419</b>	<b>-102</b>	<b>1,523</b>
Taxes	-278	-109	2,177	-213	-299	-210	-426
Adj / Minorities	-6	-49	0	-3	-80	-19	-390
<b>Net Income</b>	<b>399</b>	<b>524</b>	<b>3,999</b>	<b>-106</b>	<b>1,040</b>	<b>-331</b>	<b>707</b>

Source: Company data (IHC disclosure), Morgan Stanley Research

**Exhibit 42: IHC balance sheet: Ex BNP & Santander, Assets have declined YoY**

Balance Sheet (2019, \$mn)	Credit Suisse	Deutsche Bank	UBS	Barclays	BNP	HSBC	Santander
Cash	11,422	13,966	4,696	10,081	3,077	5,147	7,644
Loans	12,627	11,890	59,484	32,098	65,115	65,927	90,960
Trading Assets	37,479	20,094	9,750	21,361	8,859	41,126	447
PPE / Intangibles / Minorities	25,476	7,433	23,258	17,011	12,679	13,796	32,637
Repos	27,763	55,570	31,758	60,943	12,132	73,941	0
Other	0	243	10,883	409	20,656	49,257	18,291
<b>Total Assets</b>	<b>114,766</b>	<b>109,196</b>	<b>139,829</b>	<b>141,903</b>	<b>122,519</b>	<b>249,194</b>	<b>149,980</b>
1Y % change	-6%	-11%	-1%	-9%	2%	-10%	11%
Main branch total assets	98,257	162,659	52,760	56,156	58,017		
Main branch total assets as a % of IHC	85.62%	148.96%	37.73%	39.57%	47.35%		
Group total assets (USD)	813,489	1,454,692	971,966	1,511,830	2,426,643	2,715,152	1,706,942
<b>IHC + Branch % of Group total assets</b>	<b>26.19%</b>	<b>18.69%</b>	<b>19.81%</b>	<b>13.10%</b>	<b>7.44%</b>	<b>9.18%</b>	<b>8.79%</b>
<b>IHC % of Group total assets</b>	<b>14.11%</b>	<b>7.51%</b>	<b>14.39%</b>	<b>9.39%</b>	<b>5.05%</b>	<b>9.18%</b>	<b>8.79%</b>
Balance Sheet (2018, \$mn)							
Cash	10,545	19,859	9,072	11,357	5,081	17,810	7,791
Loans	15,268	10,658	56,418	39,274	64,899	66,652	84,432
Trading Assets	30,979	22,484	11,621	28,054	11,584	43,032	312
PPE / Intangibles / Minorities	29,107	8,715	22,941	15,112	14,180	13,006	28,705
Repos	36,135	61,407	31,534	61,522	10,259	90,942	0
Other	0	257	10,236	367	13,596	46,379	14,395
<b>Total Assets</b>	<b>122,034</b>	<b>123,380</b>	<b>141,822</b>	<b>155,686</b>	<b>119,600</b>	<b>277,820</b>	<b>135,634</b>
1Y % change	-14%	-17%	1%	0%	-14%	2%	6%
Main branch total assets	69,474	173,052	49,761	63,103	54,762		
Main branch total assets as a % of IHC	56.93%	140.26%	35.09%	40.53%	45.79%		
Group total assets (USD)	783,489	1,546,179	958,490	1,445,729	2,340,064	2,558,124	1,673,639
<b>IHC + Branch % of Group total assets</b>	<b>24.44%</b>	<b>19.17%</b>	<b>19.99%</b>	<b>15.13%</b>	<b>7.45%</b>	<b>10.86%</b>	<b>8.10%</b>
<b>IHC % of Group total assets</b>	<b>15.58%</b>	<b>7.98%</b>	<b>14.80%</b>	<b>10.77%</b>	<b>5.11%</b>	<b>10.86%</b>	<b>8.10%</b>

Source: Company data (IHC disclosure and branch disclosure – note that we have taken the most sizable branch), Morgan Stanley Research.



**Exhibit 43: IHC off-balance sheet commitments & derivatives**

Off-Balance sheet & Derivatives (2019, \$mn)	Credit Suisse	Deutsche Bank	UBS	Barclays	BNP	HSBC	Santander
Loan commitments	1,032	25,064	3,920	91,437	25,380	99,378	30,710
Standby letters of credit	12	921	220	0	1,652	9,839	1,570
Commercial and similar letters of credit	0	0	0	0	84	126	23
Securities lent	57,644	0	40,908	54,700	19,379	981	0
Credit derivatives - notional amount (BHC as guarantor)	27,386	0	0	0	0	38,739	48
Credit derivatives - notional amount (BHC as beneficiary)	40,377	2	0	47,707	0	51,310	4
Credit derivative contrats w/ purchased credit protection - invest grade	53,179	0	0	4,849	0	17,284	4
Credit derivative contrats w/ purchased credit protection - subinvest grade	61,273	2	1,846	95,567	13,013	30,619	48
Interest rate futures & forward contracts	158,429	11,500	681	251,741	97,214	794,657	553
written options contracts (interest rates)	0	2,150	0	0	83	184,505	11,125
Purchased options contracts (interest rate)	166	2,150	0	0	80	523,857	14,757
Interest rate swaps	16,311	22,899	28,555	17,958	18,755	3,589,707	36,115
Futures and forward foreign exchange	177	0	0	0	922	562,407	1,052
written options contracts (FX)	0	0	0	0	0	51,641	13
purchased options contracts (FX)	0	0	0	0	0	51,623	9
FX swaps	6,729	0	1,407	0	0	815,395	2,816
Commodity and other futures and fwd contracts	6,627	0	19	3,675	0	77,269	0
Written options contracts (commodity and other)	5,125	0	15	146,763	767	93,074	115
Purchased options contracts (commodity and other)	4,167	99	15	139,970	767	97,857	115
Commodity and other swaps	67,174	0	0	0	146	11,527	10
Off-Balance sheet & Derivatives (2018, \$mn)							
Loan commitments	1,010	3,384	3,258	89,272	23,803	97,212	30,297
Standby letters of credit	7	1,079	305	3	1,622	9,340	1,470
Commercial and similar letters of credit	0	10	0	0	95	217	18
Securities lent	45,829	0	43,969	47,635	10,104	777	0
Credit derivatives - notional amount (BHC as guarantor)	21,615	939	0	0	0	45,384	8
Credit derivatives - notional amount (BHC as beneficiary)	34,317	4,937	0	58,754	0	51,914	1
Credit derivative contrats w/ purchased credit protection - invest grade	35,320	5,482	0	8,317	0	24,617	1
Credit derivative contrats w/ purchased credit protection - subinvest grade	50,478	392	4,502	58,088	29,498	23,618	8
Interest rate futures & forward contracts	240,330	19,632	1,229	217,525	117,758	930,064	334
written options contracts (interest rates)	3,000	0	0	0	39	134,937	8,675
Purchased options contracts (interest rate)	2,787	0	0	0	29	416,136	10,542
Interest rate swaps	17,732	16,868	29,341	25,711	17,440	5,033,157	35,044
Futures and forward foreign exchange	760	0	0	0	639	353,512	1,560
written options contracts (FX)	0	0	0	0	2	34,657	66
purchased options contracts (FX)	0	0	0	0	2	32,905	58
FX swaps	5,340	0	1,762	0	0	710,557	2,241
Commodity and other futures and fwd contracts	3,911	625	5	5,624	167	52,511	0
Written options contracts (commodity and other)	3,693	51,107	0	174,475	978	84,301	133
Purchased options contracts (commodity and other)	7,082	54,797	0	161,476	975	83,183	133
Commodity and other swaps	42,781	0	0	0	1,196	9,158	11

Source: Company data (IHC disclosure), Morgan Stanley Research

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STOCK RATING CATEGORY	COVERAGE UNIVERSE		INVESTMENT BANKING CLIENTS (IBC)			OTHER MATERIAL INVESTMENT SERVICES CLIENTS (MISC)	
	COUNT	% OF TOTAL	COUNT	% OF TOTAL IBC	% OF RATING CATEGORY	COUNT	% OF TOTAL OTHER MSC
Overweight/Buy	1220	38%	317	43%	26%	550	37%
Equal-weight/Hold	1433	45%	336	46%	23%	687	47%
Not-Rated/Hold	5	0%	1	0%	20%	4	0%
Underweight/Sell	554	17%	79	11%	14%	227	15%
<b>TOTAL</b>	<b>3,212</b>		<b>733</b>			<b>1468</b>	

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American Express Company (AXP.N)	O (04/25/2019)	\$97.85
Bank of America (BAC.N)	O (04/23/2013)	\$24.72
BNY Mellon (BK.N)	U (07/08/2019)	\$38.15
Capital One Financial Corporation (COF.N)	E (09/08/2017)	\$67.04
Citigroup Inc. (C.N)	O (11/14/2016)	\$52.68
Discover Financial Services (DFS.N)	O (01/28/2014)	\$52.06
Goldman Sachs Group Inc (GS.N)	E (11/21/2018)	\$207.10
J.P.Morgan Chase & Co. (JPM.N)	O (07/05/2017)	\$97.96
Northern Trust Corp. (NTRS.O)	E (06/08/2020)	\$78.44
PNC Financial Services (PNC.N)	E (07/25/2013)	\$106.45
Regions Financial Corp (RF.N)	E (02/11/2016)	\$11.65
Santander Consumer USA Holdings Inc (SC.N)	E (12/20/2016)	\$18.87
State Street Corporation (STT.N)	U (07/08/2019)	\$64.16
Synchrony Financial (SYF.N)	E (09/08/2017)	\$22.75
Truist Financial Corp (TFC.N)	E (01/07/2018)	\$38.55
U.S. Bancorp (USB.N)	U (11/14/2016)	\$38.05
Wells Fargo & Co. (WFC.N)	E (07/02/2018)	\$27.37

Stock Ratings are subject to change. Please see latest research for each company.

\* Historical prices are not split adjusted.

## INDUSTRY COVERAGE: Midcap Banks

COMPANY (TICKER)	RATING (AS OF)	PRICE* (06/25/2020)
<b>Ken A Zerbe, CFA</b>		
Bank OZK (OZK.O)	E (10/19/2018)	\$23.51
BankUnited Inc (BKU.N)	E (09/18/2018)	\$20.39
BOK Financial Corp (BOKF.O)	E (06/20/2011)	\$55.98
Cadence Bancorp (CADE.N)	E (09/25/2018)	\$8.55
CIT Group Inc. (CIT.N)	E (03/27/2017)	\$21.83
Citizens Financial Group, Inc (CFG.N)	O (11/03/2014)	\$25.26
Comerica Inc (CMAN)	E (11/26/2019)	\$38.68
Commerce Bancshares (CBSH.O)	U (09/20/2016)	\$59.42
Cullen/Frost Bankers (CFR.N)	U (11/12/2018)	\$73.89
East West Bancorp, Inc. (EWBC.O)	O (07/01/2019)	\$36.35
Fifth Third Bancorp (FITB.O)	E (07/05/2016)	\$20.50
First Horizon National (FHN.N)		\$10.23
First Republic Bank (FRC.N)	E (11/16/2016)	\$108.18
Huntington Bancshares (HBAN.O)	E (12/10/2015)	\$9.89
KeyCorp (KEY.N)	E (04/07/2020)	\$12.91
M&T Bank Corp. (MTB.N)	E (04/04/2011)	\$105.14
New York Community Bancorp, Inc (NYCB.N)	U (03/11/2019)	\$10.42
People's United Financial, Inc. (PBCT.O)	E (06/05/2017)	\$11.45
Prosperity Bancshares Inc (PB.N)	E (06/05/2017)	\$57.23
Signature Bank (SBNY.O)	O (07/01/2019)	\$105.49
SVB Financial Group (SIVB.O)	O (11/11/2015)	\$215.00
Synovus Financial Corp. (SNV.N)	O (11/12/2018)	\$20.71
TCF Financial Corp. (TCF.O)	E (08/16/2019)	\$29.17
Valley National Bancorp (VLY.O)	E (08/07/2012)	\$7.72
Webster Financial Corp (WBS.N)	E (07/01/2019)	\$28.07
Zions Bancorp (ZION.O)	E (11/16/2016)	\$34.25

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