Insight

Bank Capital Requirements: A Primer

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Executive Summary

- In the 10 years since the financial crisis, bank capital requirements are a seemingly permanent fixture in regulatory compliance for banks
- The full array of bank capital requirements is complex, overlapping, and originates from a variety of international and national sources
- Care must be taken to achieve a delicate balance between requiring banks to hold enough capital to prevent insolvency but not so much as to greatly hamper operations

Introduction

The Economic Growth, Regulatory Relief, and Consumer Protection Act, (s.2155) signed into law on May 24, 2018, is a landmark financial services deregulatory bill aimed at rolling back a number of the more controversial Dodd-Frank regulations enacted after the 2007-2008 financial crisis. As part of a hearing before the Senate Banking Committee on the implementation of s.2155 the Federal Reserve and the Federal Deposit Insurance Corporation (FDIC) have pledged to release a new rule before 2019 amending the leverage ratio requirements for community banks to between 8 and 10%.

At AAF we have written at length on Dodd-Frank, the Volcker Rule, and the need for legislative reform. It may however be valuable to set aside momentarily the policy perspective and simply focus on the mechanics of the capital requirement calculations for banks. Put even more simply, what does the leverage ratio mean and where does it fit within the universe of capital requirements for banks? Why have capital requirements at all?

A Bank's Balance Sheet

A Typical Bank Balance Sheet

Assets		Liabilities	
Reserves & cash items	4,000	Deposits	67,000
Securities	27,000	Debt	15,000
Loans	62,000		
Other assets	7,000	*Capital*	*18,000*
TOTAL	**100,000**	**TOTAL**	**100,000**

A balance sheet is the financial statement of a company's assets and liabilities. At its most simple, there are three elements: assets (something of value to a company); liabilities (a company's financial obligations); and capital (a company's assets less its liabilities). Balance sheets are said to "balance" because a company's assets will always equal liabilities and capital.

Capital represents that portion of a bank's assets not committed to meeting the bank's liabilities. There is an abundance of uses for capital: investment; reinvestment in the bank (perhaps in research and development); or returning a profit to shareholders via a dividend. Perhaps the most vital role of capital, however, is to provide a "cushion" in the event of unforeseen losses (perhaps a decline in the value of a bank's assets, or a rise in liabilities). Banks regularly make provisions for "expected losses" including bad debts. Capital, in contrast, is designed to cover "unexpected" losses.

Since 2014 and Basel III (more on that below), capital has been subdivided into tiers. It is attractive to think of capital as liquid cash on hand, but that is an oversimplification. The underlying unburdened assets that make up capital can range widely; as such, the characteristics of that capital (most importantly the liquidity or riskiness) can also range widely. For our purposes we need only focus on Tier 1 (T1) and Tier 2 (T2) capital. T1 capital can be described as the most "perfect" capital; comprising of equity capital and disclosed reserves, it represents the primary funding source of the bank. A bank is under no obligation at all to return this capital to shareholders – it is genuinely unencumbered. T2 capital by contrast is considered less reliable than T1 and might include undisclosed reserves, revaluation reserves, or hybrid capital instruments.

What then happens to a bank balance sheet in a crisis, and why is capital important? The key distinction of capital, as noted above, is its availability. Depositors and creditors have a contractual right to be repaid in full. If the value of a bank's assets drops below its liabilities to creditors, the bank is insolvent. Shareholders, however, have no such contractual right to be repaid. Banks either pay out their profits to shareholders (in the form of dividends) or

keep the profits on their balance sheet in the form of retained earnings. In the event of a crisis, those retained earnings are loss absorbing. The bank remains solvent and can continue to operate.

Banks (and indeed all companies) seek to hold the minimum possible capital. Holding capital is said to be "expensive" because of the opportunity cost – shareholders typically require higher returns (reflecting the greater risk they are taking that they might not get their capital back). Where banks seek to hold less capital, regulators usually seek for banks to hold more, as the presence of more capital improves a bank's likelihood of absorbing losses in a stress event. Banking margins are tight, however, and capital requirements thus represent a difficult balancing act; regulators seek to ensure that banks hold sufficient capital to absorb losses, but not so much that it ruins their competitiveness or even basic functioning.

For Banks, Size Matters

First, a word on bank classification. Broadly speaking there are four "tiers" of bank: global systemically important banks (G-SIBs); domestic systemically important banks (D-SIBs); mid-tier banks; and community banks. Where a bank is most appropriately classified (and *why* it was placed in a particular category) is complex and opaque, but can most readily be identified by size. Size in this instance refers to assets (i.e. loans) under management (AUM), or the total market value of all assets the bank holds. As a brief aside, the value of this key determining factor has been under assault from inception. The definitions of pretty much every element of the test, and the formulae used to calculate each element of the test, can vary not only from country to country but also from company to company. The test excludes consideration of a company's liabilities. From the perspective of systemic risk, the underlying assumption that size is directly proportional to risk is also under some challenge, with some regulators indicating that regulatory review is shifting from company size and individual designation to an activities-based focus.

Be that as it may, the 2007-2008 global financial crisis induced the creation of the Financial Stability Board (FSB), a global financial system monitoring body comprising the G-20 economies, to identify financial institutions that were "too big to fail" – in other words, banks whose failure might imperil not just themselves but the global financial system. These banks were identified as G-SIBS, and the FSB published the first official list in 2011, with the list updated every November. There are 30 banks presently on the list, including JP Morgan Chase and Bank of America.

The FSB framework also recognized as D-SIBs banks of domestic systemic importance (i.e. where failure would imperil the U.S. financial system if not the global financial system).

Practically there is considerable overlap between D-SIBs and mid-tier banks, which are more defined by reference to being neither a G-SIB nor a community bank. SunTrust, with $199 billion AUM as of March 31, 2018, is one such example.

Finally we have community banks, typically but somewhat loosely identified as banks with less than $1 billion AUM. Although community banks may not individually manage the assets of the G-SIBs, they certainly make up for it in sheer number. FDIC reported that in 2017, 4,920 of 5,670 (87%) of FDIC-insured banks had less than $1 billion AUM.

Identifying G-SIBs and D-SIBs is, of course, more than a cosmetic labelling system. The primary function of the FSB's identification scheme was to subject larger banks to stricter regulation, with the regulatory burden decreasing along with the banks' AUM. Enhanced supervision and regulation of the G-SIBs takes three primary forms: annual stress testing; the requirement to file "living wills;" and to operate meeting a minimum capital requirement.

The Capital Requirement Regulatory Universe

"There are different ways to count the number of loss absorbency constraints that our large banking firms face – which is perhaps in itself an indication of a surfeit of complexity if we can't be perfectly sure of how to count them – but the number I come up with is 24 total requirements in the framework. While I do not know precisely the socially optimal number of loss absorbency requirements for large banking firms, I am reasonably certain that 24 is too many". Randal Quarles, the Vice Chair for Supervision of the Federal Reserve's Board of Governors.

Capital requirements in the United States are driven by international agreement, Congress, and the work of regulators (most notably the Federal Reserve).

What follows is not an attempt to divine exact requirements for individual banks but an attempt to demonstrate what sort of tools regulators have available to them, and from where these tools originate.

Basel III

The most significant international regulatory framework governing bank capital adequacy and stress testing is the series of Basel Accords. Although the first of the Basel Accords, Basel I, was published in 1988, Basel II and Basel III were both published after the 2007-2008 financial crisis and are largely a response to that crisis. Basel III, like its predecessor, sought to "strengthen the regulation, supervision and risk management of banks" and was intended to apply only to internationally active banks.

The legal mechanics of applicability, and the implementation of Basel III in the United States, is somewhat confusing. In 1974, the G-10 economies, including the United States, established the Basel Committee on Banking Supervision, the authoring body of the Basel Accords. The Basel Accords are voluntary, and do not have direct effect – they must be implemented by national legislatures. A degree of national variation was also permitted, making Basel compliance a different matter in each of the participating nations. In 2011 the Fed announced that it would implement the vast majority of Basel III, and in fact, went significantly further than Basel III (known in regulation as "gold-plating") in a number of aspects by applying the Basel regime to both all banks and to all financial institutions with more than $50 billion in assets.

Since Basel, the Fed has applied two key capital requirements to U.S. banks: the ratio of T1 capital to total assets (the leverage ratio); and the ratio of T1 and T2 capital to risk-weighted assets (RWAs).

The leverage ratio is perhaps the simplest tool available to regulators for determining bank capital requirements. This ratio is purely the amount of T1 capital divided by total assets. This is a simple test of the "quality" of the capital a bank holds – where, as noted above, quality is directly related to liquidity. The leverage ratio is agnostic of the riskiness of a bank's assets. In order for a bank to be deemed "adequately capitalized," the ratio of T1 capital to total assets must be 3 or 4%.

RWA represents the risk-weighted total of assets held by the bank. Each asset the bank holds is multiplied by a percentage reflecting its riskiness, giving a picture of total assets by riskiness. Risk can range from 0% (typically for government-issued securities) to higher than 100% (perhaps for loans already in default). Banks with significant trading books also determine the capital they need to hold against these securities by reference to "market risk" calculations, using a value-at-risk (VaR) formula that tracks historic price movements. In order for a bank to be deemed "adequately capitalized," the ratio of T1 capital to RWA must be 4%. Regulators also apply a ratio of a combination of both T1 and T2 to RWA, where "adequate capitalization" requires a ratio of 8%. In both cases, banks that are not deemed adequately capitalized usually face regulatory restrictions on their business such that there is a strong incentive to remain adequately capitalized.

Note that these are distinct tests – although T1 is the key component in all three tests, they are not cumulative or combined, as each must be calculated separately.

Capital Requirements, Non G-SIBs

	T1 to Total Assets (%)	T1 to Risk-Weighted Assets (%)	T1 and T2 to Risk-Weighted Assets (%)
Well capitalized	5	6	10
Adequately capitalized	3 or 4	4	8
Undercapitalized	Does not meet one or more of tests to be adequately capitalized		
Significantly undercapitalized	2	3	6
Critically undercapitalized	2		

TLAC and the G-SIB surcharge

The capital requirements above apply to all banks, but in the aftermath of the financial crisis, and with a view towards better safeguarding too-big-to-fail banks, the G-10 decided to apply additional / alternate requirements through the Basel accords to the G-SIBs in response to their perceived additional danger to the financial system. This extra requirement typically takes the form of a capital "buffer," or a requirement in excess of the minimum capital requirement. Two additional measures are applied to G-SIBs: total loss absorbing capacity (TLAC); and the G-SIB surcharge.

TLAC, issued by Basel in 2014, redefines the minimum amounts of capital to be held by G-SIBs. TLAC simply doubles the Basel III requirements: G-SIBs must hold as minimum capital at least 6% of T1 to total assets and at least 16 to 20% of T1 and T2 to RWA. The final TLAC rule as implemented by the Fed in 2016, however, elected again to gold-plate, going above and beyond Basel requirements. Instead, banks must hold the greater of a) an 18% ratio of T1 and T2 to RWA plus a 2.5% TLAC buffer equal to RWA or b) a 7.5% ratio of T1 to total assets plus a 2% TLAC buffer equal to RWA.

Capital Requirements, G-SIBs, Total Loss Absorbing Capacity

Adequately capitalized	**T1 to Total Assets**	**T1 to Risk-Weighted Assets**	**T1 and T2 to Risk-Weighted Assets**
Basel requirement	6%		16 – 20%

Fed implementation – the higher of:	7.5% *and* a 2% buffer		18% *and* a 2.5% buffer

In addition to TLAC the G-SIBs also must apply the G-SIB surcharge, an additional tranche of capital G-SIBs must hold. First formulated by the Basel Committee in 2013, the surcharge acts as yet another RWA buffer. Under the Basel rules, surcharges are bank-specific and range from a 1.5% to 3.5% RWA surcharge relative to T1 equity. Again, the United States elected to gold-plate implementation of the G-SIB surcharge, and U.S. G-SIBs are required to hold the higher of either the Basel surcharge or an alternate formulation with similar inputs but calibrated to result in higher surcharges.

Capital Requirements, G-SIBs, G-SIB Surcharge

G-SIB (U.S. only)	**Method 1 Basel Surcharge(%)**	**Method 2 Federal Reserve Alternate Surcharge (%)**
JP Morgan Chase	2.5	3.5
Citigroup	2.0	3.0
Bank of America	2.0	2.5
Goldman Sachs	1.5	2.5
Wells Fargo	1.5	2.0
Morgan Stanley	1.0	3.0
Bank of NY Mellon	1.0	1.5
State Street	1.0	1.5

To illustrate the cumulative impact of these capital requirements on the G-SIBs, where a community bank would be required under U.S. law to hold 8% T1 and T2 to RWA, JP Morgan's requirement could be as high as 24%.

Other capital buffers

Individual governments and regulators have scope to apply whatever other capital requirements deemed appropriate in the form of capital buffers. The most important of these is the counter-cyclical buffer, which seeks to offset the cyclical nature of markets by offsetting excess aggregate credit growth. The counter-cyclical buffer ranges from an additional 0 to 2.5% of T1 to RWA across participating nations. The United States, however,

has chosen not to implement the counter-cyclical buffer. Other buffers may include measures such as capital conservation buffers. In 2014 the United States implemented the enhanced supplementary leverage ratio (eSLR) that applies to bank holding companies with assets over $700 billion "to maintain a supplementary leverage ratio greater than 3 percent plus a leverage buffer of 2 percent to avoid limitations on the firm's distributions and certain discretionary bonus payments."

Conclusions

Ten years past the global financial crisis, capital requirements for banks have become part of the expected regulatory compliance map for banks, global or otherwise. Few critics refute the need to mandate certain levels of capital reserves for banks to mitigate against systemic shock. The question remains, however, as to the appropriate level at which to set those capital requirements. As capital requirements have evolved, they have – with few exceptions – increased, despite the work that has been done by banks to derisk. It remains to be seen whether banks will receive significant relief in the form of regulatory reform.