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What Stress Tests Reveal About U.S. Banks' Capital Needs

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What Stress Tests Reveal About U.S. Banks' Capital Needs

The significant credit-market events of fall 2008 and the resulting loss of confidence prompted Standard & Poor's Ratings Services to reassess our view of the creditworthiness of financial institutions globally. As a result, we believe that several factors will combine to change the face of the banking industry, including: increased regulation, consolidation of weaker entities, fundamental reconsideration of the "originate-to-distribute" model, adaptation to higher volatility, and higher losses for this economic cycle (see "How The Credit-Market Crisis Is Changing The World Of Banking," published Nov. 25, 2008, on RatingsDirect).

In the U.S., when the current credit cycle began in 2007, we had factored an economic slow-down into our ratings, but not a severe recession nor the exceedingly high credit losses that usually accompany one. Since then, we have been more concerned that banks would experience higher credit losses than we had envisioned and that industry risk has risen high enough to hurt banks' creditworthiness. We lowered our Bank Industry Country Risk Assessment (BICRA) on the financial system of the U.S. (AAA/Stable/A-1+) to Group 2 from Group 1. Our BICRA rankings express our view of the strengths and weaknesses of a country's banking system compared with those of other countries on a scale ranging from Group 1 (strongest) to Group 10 (weakest; see " U.S. BICRA Revised to Group 2 from Group 1 on Increased Credit Deterioration ," published Dec. 17, 2008, on RatingsDirect).

We have seen governments intervene more than we expected in the U.S. and other markets. For the first time in the U.S., we have recognized this potential extraordinary government support for highly systemically important banks by communicating the difference between banks' standalone credit profile and our issuer credit ratings (see "Twelve Major U.S. and European Financial Institutions Have Ratings Lowered, Outlooks Revised", published Dec. 19, 2008, on RatingsDirect).

Our ongoing review of the financial institutions industry has led us to revise our expectations for credit losses and earnings. Apart from identifying credit and earnings risks from our new loss expectations, we seek to determine whether loan losses can erode common equity capital to the point that a capital infusion would become necessary relative to the rating level. The results of our base-case stress test--which is also our expected case--indicate widespread, though not necessarily severe, capital needs that could result in downgrades of several notches. Indeed, as a result of such stress tests and what they reveal about the potential impact on earnings and capital, we will examine our ratings on these banks more closely, both in absolute terms and relative to those on peers. At the same time, we would seek to understand any capital-raising plans the institution might have. We will assess these issues in concert with all other factors that build to the final ratings.

We intend to examine such banks in a portfolio review during the next several weeks to identify those that are most vulnerable to these credit issues. Individual banks' experience undoubtedly will vary based on their client mix, underwriting, and geography.

The more severe downside stress case obviously results in additional capital requirements for a large number of banks, but this is not the scenario that we would seek to incorporate into our stand-alone capital analysis at this time. Instead, we use the downside scenario to differentiate the level of credit risk among peers. We discuss results with management and consider mitigating aspects of the bank's risk profile. Higher potential credit losses indicate higher credit risk among peer groups, which informs our opinions on credit risk in the stand-alone credit profile.

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Our rated bank universe entered this cycle with an average rating of 'A' (bank level). This included roughly 60 banks (including foreign-owned and Puerto Rican banks) that represented about 75% of the industry's total assets. During the past year, stand-alone credit profiles have been worsening. We expect that trend to continue. Banks' stand-alone credit profiles may decline to an average 'BBB' as a result of our reassessment of industry risk and potential future losses. At the same time, our issuer credit ratings (ICRs) on the majority of the financial system on a weighted average basis (including Fannie Mae and Freddie Mac) will be higher due to the U.S. government's current and anticipated support programs for systemically important financial institutions.

A Tougher Credit Cycle Than We Expected

Markets are concerned about the rapid deterioration in bank loan portfolios in the U.S., as not only consumer loans, but commercial and commercial real estate delinquencies are on the rise. Poor underwriting standards in the past few years appear to be exacerbating the impact of a declining economy, producing mounting levels of write-offs that we believe will continue well into 2010. We are using the stress tests to estimate the potential impact of a fairly severe recession during the next two fiscal years, as well as a more severe downside case on the loan portfolios of our rated banks in the U.S.

Our starting point for the economic environment is somewhat more pessimistic, and we expect this to manifest itself in a meaningfully lower earnings capacity in the medium term.

Our stress scenarios do not include estimates of losses on structured securities held in trading accounts or held to maturity, which could cause us to raise loss estimates for a few of the banks for which this is a material factor.

Based on preliminary results, we foresee that about half these banks may need to raise additional common equity capital. Table 1 shows our credit loss assumptions as published in "Stress Testing U.S. Financial Institutions" on RatingsDirect April 29, 2009.

Table 1

Annual Loss Rate Assumptions For Base And Stressed Scenarios

Loan type	Historical peak loss rate (%)	Year recorded	Assumed base-case loss rate (%)	Assumed stressed-case loss rate (%)
Residential mortgage	0.98	2008 (Q4)	2	3
Home equity	2.54	2008 (Q4)	4	7
Construction and land	5.53	2008 (Q4)	8	10
Multifamily	2.78	1991	2	3
Commercial mortgage	2.12	1992	4	7
Foreign real estate	N.A.		4	7
Commercial and industrial	1.87	2002	2.5	3.5
Other consumer	3.56	2002	5	7.5
Credit cards	7.01	2008 (Q4)	10	13
Other loans	N.A.		3	4.5
Agricultural product and farm	3	1986	1	3
Depository institutions	1.13	2008 (Q4)	2	3
Loans to foreign governments	13.04	1991	0.5	0.75

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Table 1

Annual Loss Rate Assumptions For Base And Stressed Scenarios (cont.)				
Lease financing receivables	1.02	2002	2	4

N.A.—Not available.

The base or expected case embodies what we currently foresee for the U.S. banking industry, and we seek to incorporate this baseline expectation into our ratings. It is consistent with our base expectation of a severe U.S. recession, bottoming in late 2009, with a GDP decline of 3.9% in 2009 and unemployment reaching 9.7%. This assumes that the recession will be longer and deeper than any since 1945. The more severe "stress case" is based on our downside case of a 7.1% GDP decline and unemployment at 11.8%, which would be the worst recession than any since the Great Depression.

The stress loss expectations are of similar magnitude for many asset classes to those incorporated into our risk-adjusted capital framework for the U.S. (see "Methodology and Assumptions: Risk Adjusted Capital Framework for Financial Institutions," published April 21, 2009, on RatingsDirect). The loss rates for specific asset classes are higher than the broad economic assumptions may suggest because the relaxation of underwriting standards in the period leading up to the current cycle in the U.S. played a larger role than did the actual economic fundamentals.

In particular, the loss factors we assign to various asset classes are meant to represent the rated bank universe and the industry as a whole. Individual banks' portfolios can exhibit quite different characteristics due to their geographic or product mix, as well as quality of underwriting standards. For example, some of the largest banks are experiencing much higher residential mortgage losses than the average, and we could raise our loss assumptions there. On the other hand, some smaller banks have regularly run at lower loss rates than the average in commercial mortgages due to the particular nature of their loan mix, and we could adjust assumptions for that category. In assigning ratings and building individual scenarios and stress tests, we can consider these individual differences when determining the counterparty credit rating or issue-specific ratings.

In recent quarters, credit loss rates in the U.S. have already approached or even surpassed the assumptions of stress losses we used early in 2008 (see "Rated U.S. Banks Likely To Weather Market Difficulties," published May 6, 2008, on RatingsDirect). We believe that loss rates will continue to rise and exceed previous peak levels for certain loan classes. Our new loss assumptions reflect this expectation. For example, residential mortgages are running at almost four times previous peaks as of fourth-quarter 2008. Credit card losses are more than 7% annually, versus previous peaks of 6%, and some banks report their own expectations of 10% or more. Commercial and industrial loans are already close to previous peaks, but our forecasts of corporate defaults see increases for 2009 to levels greater than the past two recessions. Similarly, commercial real estate loans began to deteriorate later than consumer loans, so they are not yet exhibiting large losses, but these may ramp up quickly in 2009.

We measure the impact of the credit stress tests on the pretax margin as well as on three capital measures regulators and markets generally use: Tier 1/Risk-weighted assets (RWA), tangible common equity/tangible assets (TCE/TA), and TCE/RWA. This helps us size the potential need for capital raising according to these accepted measures. Still, the impact of credit stress testing on regulatory and market capital ratios does not form our opinion on capital adequacy. The latter results from our risk-adjusted capital framework because it is broader than just credit risk.

We have assumed that banks would need to maintain capital ratios at 6% for Tier 1 capital, 3% for TCE/adjusted assets, or 4% for TCE/RWA. These would represent minimum tolerance levels coming out of a stressful period,

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although we would expect such ratios to be built back up in more favorable times. The capital needs would naturally be much more dramatic if we had used a 6% target for TCE ratios, as the International Monetary Fund (IMF) did in its Global Financial Stability Report of April 2009.

Our important considerations include the following:

- Stressed loss rates continue for all of 2009 and 2010;
- Purchase accounting adjustments for loans acquired are deducted from losses during the two-year period;
- Preprovision income, normalized for unusual items and mark-to-market losses, remains at the run rate of fourth-quarter 2008, already reflecting the recession's impact. If the fourth quarter was unduly depressed, we would adjust our expectations accordingly;
- RWA remains flat, but we bring securitized credit card receivables on balance sheet;
- Loan-loss reserves will need to be raised to cover one year's worth of expected net charge-offs at the stressed loss rates;
- 50% of the unrealized losses on private-label mortgage-backed securities are deducted for the base case and 80% for the stress case--the risks of other complex securities holdings are not addressed in this stress test;
- Each bank's most recently announced dividend rate is used in the base case. In the severe stress case, we assume all banks eliminate common dividends;
- Tier 1 capital is estimated from projected TCE, adding the lesser of 33% or total non-Troubled Asset Relief Program (TARP) preferred and hybrids, plus all TARP preferreds. We add capital raises after December 2008.

The Base-Case Results

We expect capital in the system to be somewhat low, with the caveat that the quality of capital is not optimal because hybrids constitute an excessively large proportion. The base-case loss rates produced $230 billion of net charge-offs annually for the rated banks in the U.S. excluding Puerto Rico, and $336 billion for all Federal Deposit Insurance Corp. (FDIC)-insured banks, meaning $460 billion and $672 billion, respectively, during the two-year period. The latter figure is somewhat higher than the $601 billion of lifetime losses the IMF estimated in its April 2009 Global Financial Stability Report. We expect private-label mortgage securities to add $29 billion to losses annually. That leads to bottom-line losses for all but three banks. Ten banks out of our universe of 50 rated bank holding companies that are not subsidiaries of foreign banks fall short of 6% Tier 1/RWA at the end of 2010, by a total of only $6 billion. These 10 banks tend to be hurt by their concentrations in commercial real estate or credit cards. In some cases, we would seek to adjust the stress factors for better-than-average portfolio mixes within loan categories or superior performance.

We also looked at the impact of bottom-line losses on the TCE/RWA and TCE/TE ratios. On that basis a much larger number of banks do not maintain at least a 3% and a 4% ratio, respectively. Eighteen rated banks do not make the 4% TCE/RWA ratio, and 16 do not make a 3% TCE/TA ratio. The total amount of capital shortfall under those standards was $37 billion to get to 4% TCE/RWA and $31 billion to get to 3% TCE/TA. However, these banks may convert the preferred and hybrid securities into common equity. With that in mind, we compared the amount of preferred and hybrid securities in excess of the amount required to get the Tier 1 ratio to 6%. In two cases, this was sufficient to restore the TCE ratios to 4%, and would reduce capital shortfalls by $19 billion. In our opinion, this result clearly demonstrates the adequacy of capital in the system, but with the caveat that the quality of capital is not optimal because hybrids constitute an excessively large proportion. At the same time, it illustrates the

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risks that hybrid securities may defer payments or be converted. We reiterate the caveat that these loss estimates do not address the losses that may be inherent in the complex securities in the investment-banking operations.

Table 2

Banks With Insufficient Capital (Base Case)

(%)	Tier 1/RWA	TCE/TA	TCE/RWA	Worst capital shortfall (Bil. $)
Rated banks	20	38	32	37

The Stress-Case Results

The results are significantly more negative for the stress case. Keeping in mind that the assumed loss rates are generally 50% higher than in the base case and far higher than any historical benchmarks, this is not surprising.

Net charge-offs would total $335 billion annually for the 50 rated banks and $359 billion for all (about 8,300) FDIC-insured commercial banks and savings institutions. Private-label mortgage securities add $46 billion of losses annually. Under this scenario, all banks would lose money and diminish capital. Thirty-six of them fall below the 6% Tier 1 level. The total capital shortfall is $123 billion. Thirty-nine of them fall below a 3% TCE/TA ratio, and 41 fall below the 4% TCE/RWA ratio. The associated capital shortfalls are $184 billion and $174 billion, respectively.

This is not our expected case at this point, and we do not seek to incorporate such a stress into our capital analysis. However, it demonstrates the superior balance-sheet strength of the banks that can survive such a level of stress. Stronger banks have lower relative credit risk. Similarly, those that fare particularly poorly in this scenario would naturally tend to have lower ratings than their peers based on greater credit risk.

Table 3

Banks With Insufficient Capital (Stress Case)

(%)	Tier 1/RWA	TCE/TA	TCE/RWA	Worst capital shortfall (Bil. $)
Rated banks	72	78	82	123

Rating Implications

Credit risk and earnings are two important elements we consider when assessing financial institutions' creditworthiness. Nevertheless, many other financial and nonfinancial elements combine in our overall credit opinion. Although in general, the results of credit stress testing will likely affect the ratings on hybrid capital instruments--including all manner of preferred stock--ICRs could also be negatively affected.

Stress testing, which we have conducted since 2006, is an important tool in determining credit and earnings risks. Although we don't believe that accelerating lifetime losses into current marks to market of the balance sheets is the right way to analyze loan books, we recognize that market participants frequently do so. We believe that can destabilize financial institutions in periods of financial stress. More near-term, access to capital and funding outside of government support is very difficult. Higher capital requirements and poor economic prospects could also depress returns and limit access to capital. As a result, we will be looking at our expectations of losses through the cycle and a bank's access to capital to come to our ratings decisions.

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Clearly, among the institutions we follow, the regional banks are more vulnerable to these tests than are the large complex or trust banks. That is expected because the regional banks in general are more focused on lending. In addition, the larger banks have raised more capital recently and have had their stand-alone credit profiles already lowered. Many of the regional banks have entered this cycle with very strong capital levels, which should allow them to absorb a couple of years of losses more easily.

The unrated banks fare relatively worse, with a shortfall larger than that of the rated banks, despite the fact that they make up only 30% of the assets of the system. These smaller banks tend to be more concentrated in commercial real estate, construction, and mortgage loans, which we assume could have high loss rates. The capital increases indicated are also high, and are particularly worrisome because these banks may not have the same access to capital as the larger players.

The stress test, focusing as it does on credit losses in loan portfolios, has relatively little impact on the investment banks that continue to focus predominantly on investment banking and trading. These companies are not so directly affected by the pressures of the credit cycle, per se; on the other hand, we continue to be concerned about the confidence sensitivity that stems from their business models and reliance on wholesale funding. At the same time, the stress test does not address the risks of certain structured securities that are vulnerable to further mark-to-market declines for the investment-banking arms of the large universal banks.

This stress test helps identify institutions that are more vulnerable to having to defer payments on hybrids, or convert them to equity. If the hybrids are converted, we could consider that to be a distressed exchange, which would mean the ratings would go to 'D' (see "Rating Implications of Exchange Offers and Similar Restructurings," published Jan. 28, 2009, on RatingsDirect). If there is a deferral, we would lower ratings to 'CC'. The increased risk of either event occurring has prompted us to consider the need to lower our preferred stock ratings on these institutions. An alternative way of raising common equity capital for the bank would be to accept additional CAP convertible preferred from the U.S. government and convert it immediately to equity. If the issue is one of a Tier 1 capital shortfall, the instrument remains unconverted, and would serve as a form of hybrid capital, and would receive credit as such from us (see "Equity Content of U.S. Capital Assistance Program Convertible Preferred Stock," published March 17, 2009, on RatingsDirect). Given the extraordinary conditions in which financial institutions are now operating, we intend to keep monitoring their situations--individually and as an industry--extremely closely.

Related Research

- "FI Criteria: Bank Rating Analysis Methodology Profile," published March 18, 2004
- "Rated U.S. Banks Likely To Weather Market Difficulties," published May 6, 2008
- "US Banks: Back to Fundamentals," published October 15, 2008
- "How The Credit-Market Crisis Is Changing The World Of Banking," published Nov. 25, 2008
- "Franchise Stability, Confidence Sensitivity, And The Treatment Of Hybrid Securities In A Downturn," published Dec. 1, 2008
- U.S. BICRA Revised to Group 2 from Group 1 on Increased Credit Deterioration," published Dec. 17, 2008
- "Twelve Major U.S. and European Financial Institutions Have Ratings Lowered, Outlooks Revised," published Dec. 19, 2008
- "Methodology And Assumptions: Risk-Adjusted Capital Framework For Financial Institutions," published April

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- "Credit Stress Testing For Financial Institutions" and "Stress Testing U.S. Financial Institutions," both published on April 29, 2009.

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