

# The Bank Stress Test Cheat Sheet



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During a crash test, cars are smashed head on into a wall at 35 miles-per-hour. Then, the side of the car is bashed in by a 1.5 ton barrier traveling 38.5 miles-per-hour. And, finally, the car is flipped over. A bank stress test—like a crash test—simulates a violent impact.

Stress testing is a central component of the new bank safety reforms put in place by the Dodd-Frank Act. Bank regulators test if a bank's balance sheet is strong enough to withstand an economic crash. Bank crash tests simulate the impact of a massive recession worse than 2008, sky-rocketing unemployment rates, gut-churning losses in the stock market, along with other financial destruction.

## Why Stress Test a Bank?

Bank stress tests estimate the impact of extreme negative economic conditions on a bank's health. Stress tests are designed to answer the following questions: If—in the future—a devastating and unexpected economic crisis strikes how much money will a bank lose? And will the losses triggered by the crisis cause the bank to fail?

Bank failures are normally triggered when assets lose significant value. The value of bank assets—like mortgage loans, business loans, credit card loans, and commercial real estate loans—fall when consumers and businesses fail to keep up with their interest and principal payments.

Stress testing forces each big bank to contemplate how a future crisis will negatively impact the value of its specific asset holdings. When the economy slows and workers are laid off some will struggle to pay their credit card bills.

Rising credit card defaults and delinquencies will cause a bank's portfolio of credit card assets to shed value. A bank with a sizeable portfolio of credit card assets has to ask, "How

much value can we expect our credit card portfolio to lose if the economy stalls and unemployment spikes?”

## How Do You Stress Test a Bank?

For cars, a set of accidents are devised, and executed, and then the technicians come in to see how the test dummies fared. It is not much different for banks. Dodd-Frank directs the Fed to design three new challenging scenarios to test the survival skills of bank holding companies over a stressful 9-quarter-period.

The scenarios are: the mild “baseline,” the medium “adverse,” and the extra-strong “severely adverse.” The severely adverse scenario is the test scenario that matters most. In the words of former Federal Reserve Chairman Bernanke, the scenario simulates “unlikely but plausible” conditions similar to the most severe post-World War II U.S. recessions, including the recession that began in 2008.<sup>1</sup>

Just as a brutal head-on collision causes damage to a car’s frame, a stress test scenario causes a bank’s balance sheet to deteriorate. Regulators continue to measure a bank’s structural safety and soundness—as indicated by balance sheet data—throughout the stress test.

The crash test dummies in this case are the assets, liabilities, and shareholder’s equity of the bank. They are the passengers on a bank’s balance sheet.

1. **Assets:** This is what a bank owns.<sup>2</sup> This includes bank investments, and the funds that are owed to the bank, like mortgage and business loans. Bank assets represent the uses of a bank’s cash.
2. **Liabilities:** This is what a bank owes.<sup>3</sup> This includes deposits and the funds that the bank has borrowed, like the total value of a bank’s bonds. Bank liabilities are the sources of a bank’s cash.

3. **Shareholder's Equity:** This is the difference between a bank's assets and a bank's liabilities.<sup>4</sup> It is the portion of a bank that shareholder's own a claim to.

Shareholder's equity is mostly made up of the earnings the bank has retained—and not paid out to shareholder's as dividends—in addition to the proceeds that a bank has received from selling its own shares.

## **How Do You Measure Bank Capital?**

Bank equity capital is like a car's airbags. The role of equity capital is to absorb the impact of the losses that will occur during a severe financial collision.

The difference between what a bank owns (assets) and what a bank owes to others (liabilities) is a bank's net worth (shareholder's equity). Bank stress tests evaluate if a bank can remain solvent throughout a crisis. A bank is solvent if its assets are worth more than its liabilities. In other words, a solvent bank is a bank with a positive net worth.

To put it in the perspective of a family, if the Joneses owe \$300,000 on their mortgage and their house is also worth \$300,000, the net worth, or home equity, is \$0. This home adds nothing to the Jones family net worth because debt and assets are worth the same amount. But, if the home is valued at \$400,000 then the Jones family has \$100,000 in net worth even if they have no intention of selling their home for a long time.

In the case of a bank, if it holds \$100 billion in assets and has \$90 billion in liabilities, its net worth is \$10 billion. If the bank has issued 100 million shares of stock on the open market the book value of the share price will be \$100 per share (\$10 billion in equity divided by 100 million individual shares of stock).

A bank's equity value, or net worth, will only retain a positive dollar value if a bank's assets remain more valuable than its liabilities. And a bank's stock price rises when investors think the bank is going to pile up profits in the future. If profits materialize, the value of a bank's net worth increases. On the

other hand, when bank assets rapidly drop in value the bank's net worth falls too. As a result, their stock price plummets.

During the financial crisis, rapidly falling bank stock prices were a distress signal—bank asset values were falling sharply and eating into a bank's net worth. A large equity cushion is able to absorb larger asset losses, and a more severe crisis. That is why regulators judge bank safety by measuring a bank's equity airbag versus bank assets—it is a good indicator for how severe an impact a bank can handle while still retaining a positive net worth.

## **How Does a Bank Pass the Test?**

This equity cushion is of special interest for regulators when they stress test banks. Regulators focus on something called “Tier 1 Common Equity” when assessing a bank's performance throughout the stress test. Tier 1 Common Equity is a term regulators use to describe the equity received from issuing stock to investors plus the bank's retained earnings.

Retained earnings are the profits that a bank has chosen not to use to pay stock dividends or buy back shares with. For example, if a bank's annual net income is \$1.2 billion and it pays out \$100 million in dividends, and uses \$100 million to buy back shares, \$1 billion is added to its retained earnings.

To pass the stress test, the Fed requires banks to maintain an amount of shareholder's equity from selling shares of its stock plus retained earnings equal to at least 5% of a bank's total risk-weighted-assets. Banks must maintain this ratio even as asset values are being demolished during the stress test.

During the stress test, unemployment will soar, and housing prices decline sharply. If suddenly-unemployed homeowners become unable to pay their monthly mortgage payments the value of a bank's mortgage assets will drop.

A bank's total asset losses—including mortgage asset losses—will be compared with its equity buffer. If the bank falls below the required 5% threshold, regulators will require it to bolster equity capital by issuing additional stock, reducing their dividend payments, or selling assets to raise cash.

## Conclusion

The financial crisis destroyed bank balance sheets. At the end of 2008, the 18 biggest banks had just 5.6% of impact-absorbing Tier 1 Common equity capital as a percentage of their risk-weighted assets.

Stress testing—and increased levels of equity capital—have effectively reduced the risk of a big bank failure. No matter how serene economic conditions appear, banks will still be required to prepare to survive a destructive economic scenario each year.

### TOPICS

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### END NOTES

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John Vahey and Lauren Oppenheimer, "Bank Crash Tests," Report, Third Way, September 2013, p.3.

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**2.** Â

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Vahey and Oppenheimer, p. 5

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**3.** Ibid.

**4.** Ibid.