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SPECIAL REPORT

DISRUPTIVE BANK INTELLIGENCE FOR THE C-SUITE AND BOARDROOM

COVID-19 Stress Testing: An Essential Tool to Guide Banks through the Crisis and Beyond

The financial fallout from the coronavirus is not going away anytime soon. Now that the all-hands-on-deck efforts to secure federal Paycheck Protection Program loans has passed, community bank executives need to get a sense of how their banks will handle the rocky road ahead.

They must know which loans need to be watched, at what point their bank's capital safety net might be in jeopardy, and when to develop contingency plans. Bankers also need help calculating their allowance for loan and lease losses (ALLL). And they will want to know if it makes strategic sense to seize opportunities that may emerge.

One essential tool is stress testing. There is no other way for CEOs and boards to get an inside look at how their banks will handle the potential downturn, while gaining a roadmap for strategic decision-making that will determine the future.

But stress testing models created prior to the pandemic will not help. Only models that have been specifically calibrated to reflect the coronavirus economy will have any use to bank executives. Invictus Group CEO Adam Mustafa recommends that banks repeat their stress tests often to ensure that they are staying on top of an ever-changing situation – and to position their banks to take advantage of opportunities at the right time.

WHAT COVID-19 STRESS TESTING WILL ANSWER

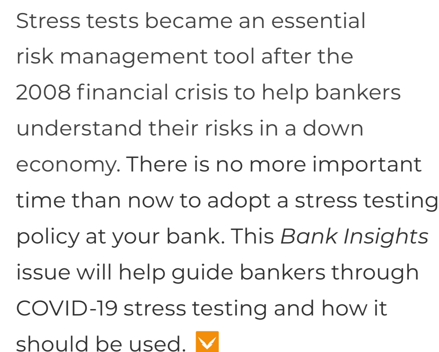
1. "What does my bank look like if we have a deep recession?"
2. "How much exposure do I have to high-risk industries and which loans should we prioritize?"
3. "How should I adjust my strategic and capital plans?"

While no one knows exactly how the economy will change and when, proper stress tests that rely on loan-level data will give a directional guide to bankers. "Precision is a waste of time. You need direction. Speed matters. Repetition wins," Mustafa said.

The concept of stress testing is not new. "Community banks, regardless of size, should have the capacity to analyze the potential impact of adverse outcomes on their financial conditions," the Office of the Comptroller of the Currency declared in **2012 guidance** on using stress testing. The OCC recommended that community banks use stress testing "to identify and quantify risk in loan portfolios and help establish effective strategic and capital planning processes."

While not required for banks under $10 billion, regulators have embraced capital stress testing as a risk management best practice. "If your institution has not yet ventured into this arena, now is the time to begin," advises Cynthia Brzeski, CPA, at Wipfli LLP, in an article about why **COVID-19 increases the need for stress testing**.

Reverse stress tests, which prior to the pandemic were rarely used, can also be helpful. It is essential for tests to be forward-looking, while analyzing the most vulnerable loans in a bank's portfolio.



Stress tests became an essential risk management tool after the 2008 financial crisis to help bankers understand their risks in a down economy. There is no more important time than now to adopt a stress testing policy at your bank. This *Bank Insights* issue will help guide bankers through COVID-19 stress testing and how it should be used.

CEOs Need to Start Prepping for the Worst-Case Scenario

By Adam Mustafa Invictus Group Chief Executive Officer

The coronavirus chaos and its cascading impact on the financial markets has obliterated the existing strategic plan for every community bank virtually overnight. Bank CEOs must now shift gears and focus on getting ready for a broader economic downturn that is increasing with probability by the day. Big strategic initiatives will likely be put on hold until operational challenges can be contained, and the economy, markets and the interest rate environments stabilize. Throw in the fact that it's an election year, and the uncertainty multiplies.

CEOs need to quickly start understanding which segments of their loan portfolio will be the most affected and the impact on capital from potential losses. Clearly, banks with direct exposure to sectors on the front lines such as hospitality, oil and gas, retail, restaurant, health care and manufacturing need to get in front of any problems.

Many of the borrowers in these industries are already having immediate cash flow problems, but there will be a lag between now and when these problems rise to the surface. Many borrowers are not due to submit financials for many months. Some will continue to service their debt despite their cash flow problems, but they will eventually run out of runway. And by the time you find out you have a real problem, either in the form of ugly financial statements or even worse, missed payments, your options are severely limited. You cannot wait for all of this to happen. But what's the next step?

STRESS TESTING NEEDS TO BE AT THE TOP OF THE CEO'S PRIORITY LIST

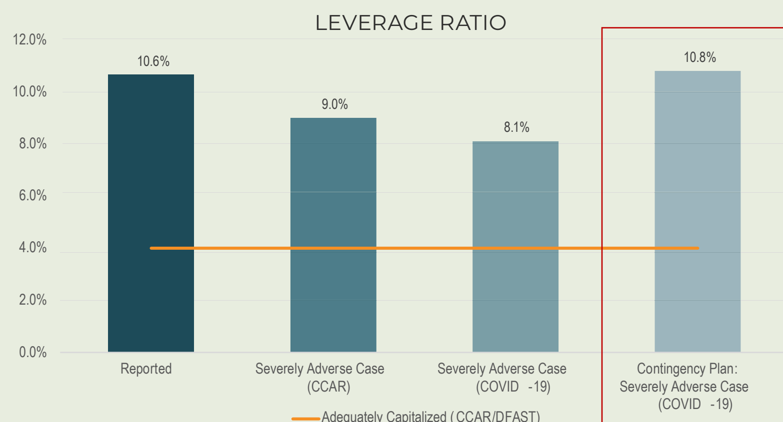
Most community bank CEOs have viewed stress testing as either a check-the-box or a risk management exercise, not a strategic one. CEOs were content knowing that regulators and directors were happy the bank could survive a recession. It was a "no news is good news" mentality.

This mindset must change immediately. The coronavirus chaos has forced stress testing to become a strategic priority, **as it is for the big banks.** CEOs deserve a proper diagnosis of how their bank will handle possible adverse economic scenarios. The proper stress test will help CEOs identify the segments of the portfolio that are most vulnerable so they can focus the attention of their team on the larger credits within that group. It will also help them fully grasp the bank's capital situation to determine if contingency plans such as de-leveraging, cost cutting, or changes to the dividend policy need to be pursued.

CEOs need a strong stress test that will inform them in real time whether their decisions will keep problems contained. And they will certainly need to use the stress test as a communication vehicle to show regulators they are able to recognize, quantify and address any problems they find.

QUESTIONS TO ASK

Most community banks have been doing stress testing, but most of the tests do not give them what they need. Most CEOs don't realize this because they aren't — and shouldn't be — involved in the weeds and details



of every risk management tool at their disposal. But each CEO must now ask the person who is responsible for stress testing the following 5 questions:

1. Can we stress test all our loans and not just our CRE or Ag loans?
2. Is our stress test driven by loan-level risk characteristics as opposed to historical losses?
3. Are we able to properly model the impact of stress on our balance sheet, P&L, and capital?
4. Are we able to overlay what-if strategic scenarios onto our stress tests to measure the impact of plans I am considering?
5. Can you tell me, by using the stress tests, how much of our capital needs to be reserved as a buffer for stress and how much of our capital is excess?

If the answer to ANY of these questions is "NO," then you do not have what you need. However, this is not your team's fault. Clearly what they have been using was perfectly fine for the last few years when it was more of a compliance exercise. But now that the world has clearly changed, you need a much better tool. Think of stress testing as a flashlight. If the answer to some or all the above questions is indeed "NO," then your existing flashlight is not powerful enough. You are actually in the dark and your tests may mislead you on where to go. You need a new and better flashlight.

SPEED MATTERS

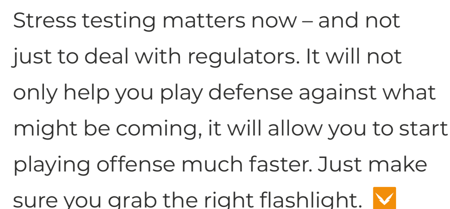
Without the proper stress test, most CEOs will ultimately be okay. Even without the right information, their instincts should take the bank in the right direction.

But with the right flashlight, CEOs can move much faster. Speed matters. The sooner problems are identified, the more flexibility you have in solving them. More importantly, the sooner you escape the darkness, you will see the daylight.

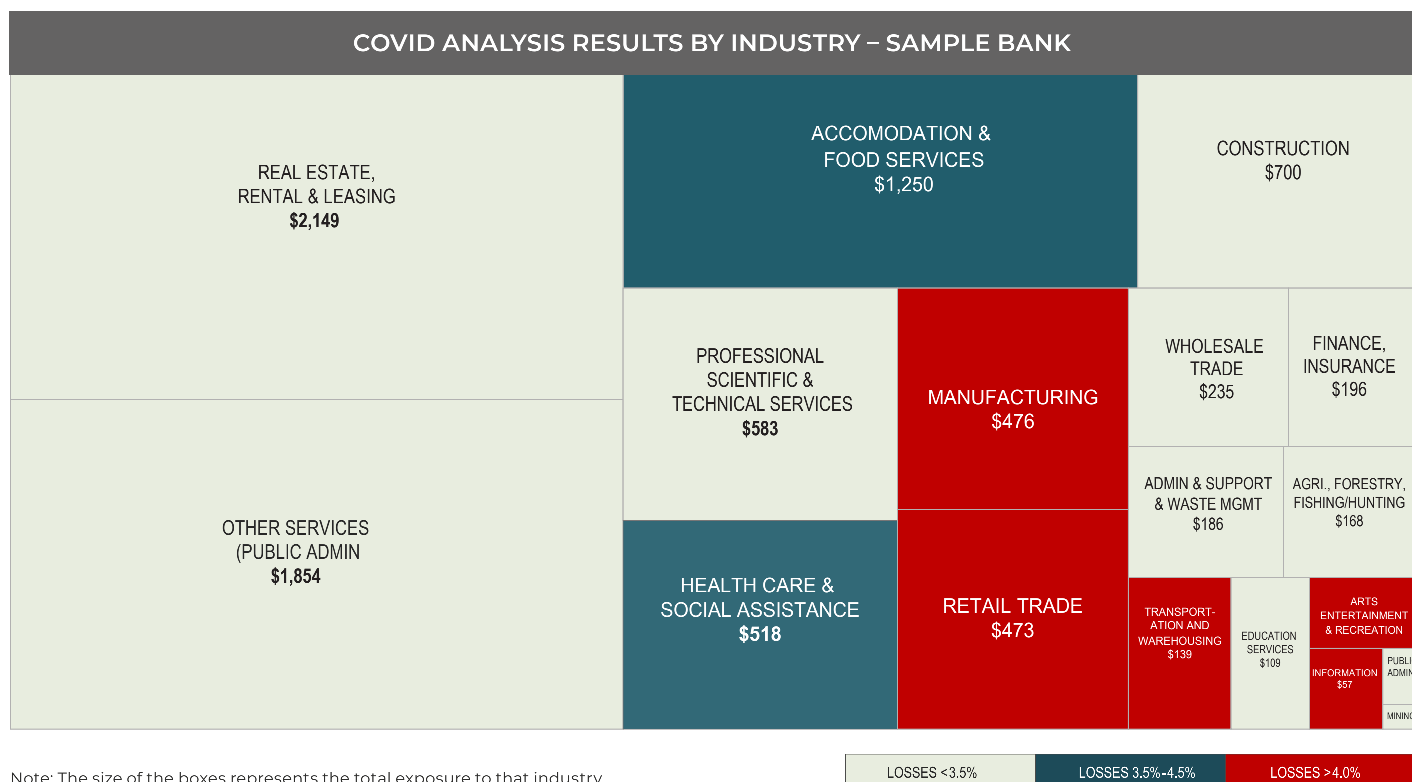
Massive uncertainty also means massive opportunities. Economic downturns create more opportunities for banks to gain or expand their competitive positioning than any other time. Most of today's highest performing and valued community banks took advantage of the fallout from the 2008 Financial Crisis by taking market share, strategically growing when competitors were shrinking, and pursuing mergers and acquisitions that created the platform for rampant growth and profitability. They did this while their competitors were de-leveraging, cutting costs, rolling back capital expenditures, and avoiding acquisitions.

Similar changes in competitive positioning for community banks occurred during previous disruptions. It's these types of environments where the best bankers roll up their sleeves and make moves to position their banks to be the winners in the next cycle. But you can't start taking advantage of opportunities until you shore up your own vulnerabilities first.

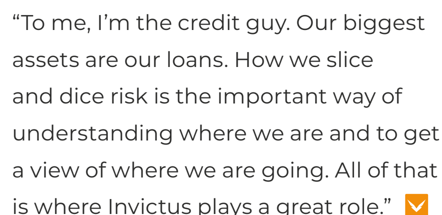
PLAYING DEFENSE – AND OFFENSE



Stress testing matters now – and not just to deal with regulators. It will not only help you play defense against what might be coming, it will allow you to start playing offense much faster. Just make sure you grab the right flashlight.



Note: The size of the boxes represents the total exposure to that industry



How One Bank Uses Invictus Stress Tests

By Lisa Getter Invictus Group Chief Communications Officer

The economic fallout from the coronavirus is keeping many community bank executives awake at night. But some bankers are getting extra sleep, thanks to a tool that helps them understand their risks in real time, while also seeing the capital impact of any strategic moves they might make.

Peapack-Gladstone Bank, a $5.1 billion bank in Bedminster, New Jersey, has been using the Invictus Group's stress testing systems for three years. The bank also signed up for the **Invictus COVID-19 proprietary stress tests**, which include a high-risk watch list of loans that have the most material impact on the bank's capital under stress.

"I lose sleep over these larger exposures," says Peapack-Gladstone Chief Credit Officer and Executive Vice President Timothy Doyle. But armed with the Invictus stress test results, "I can see which ones I need to spend most of my time on right now."

He also used the Invictus COVID-19 tests to **justify the qualitative factors** the bank used in calculating its March allowance for loan and lease losses (ALLL), which the board and the bank's auditors "accepted wholeheartedly."

The Invictus COVID-19 tests are driven by loan-level data, but also include an analysis of a bank's P&L, balance sheet and regulatory capital. The team tailors the tests for each bank, delivering customized reports with key findings and recommendations, as well as a board presentation.

Doyle says the Invictus stress tests "on the capital and liquidity side, have been instrumental in helping us formulate our plans."

Although he has used the Invictus stress tests to help demonstrate to regulators that the bank has adequate capital and liquidity to support its actions, he also views the stress testing as a strategic tool. "Used properly, this can help guide a management team with regard to strategic decisions," he says.

"It helps us understand the vulnerability of certain pools of risks." He says unlike other stress tests, the Invictus tests can show "how parts move" in a bank. "That's what I need to understand risk in this organization."

The board has also welcomed the Invictus stress tests because they give them a window into how risk is managed at the bank, Doyle says.

The Invictus model is relationship driven. "The team really tries to understand. In our case, they came and tried to understand what our structure was, what keeps us awake at night, what goals we are trying to achieve. They are always available. It doesn't matter what the issue is, or what time it is," he says.

"To me, I'm the credit guy. Our biggest assets are our loans. How we slice and dice risk is the important way of understanding where we are and to get a view of where we are going. All of that is where Invictus plays a great role."

ABOUT THE AUTHOR

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Lisa Getter was formerly the director of finance and tax analysis for Bloomberg Government in Washington, D.C. She spent six years as the editorial director of UCG, where she created and published *Bank Safety & Soundness Advisor*. Prior to that, she spent 23 years as an investigative reporter at the Los Angeles Times and the Miami Herald, where she was a member of two Pulitzer Prize-winning teams and was twice a nominated Pulitzer finalist. She is a former board member of Investigative Reporters and Editors. Ms. Getter was a Nieman Fellow at Harvard University and received a BSJ from the Medill School of Journalism at Northwestern University.

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COVID-19 and Your ALLL: Now What?

By Guy LeBlanc Invictus Group Director of Client Analytics

Community banks can no longer estimate their loan loss reserves the way they did before the coronavirus upended the global economy.

Think back to January. Your bank had finished another great year, and you had to calculate your ALLL for year-end financial reports. You had a model, but the results of the model simply weren't large enough. Even if you are an SEC-filer getting ready to comply with CECL, you discovered that CECL didn't really solve this "problem." The losses just weren't there.

You couldn't file a reserve of 15 basis points – your auditors, regulators, shareholders, and board of directors would certainly have something to say if you did. The optics weren't quite right. So, you looked to "Qualitative Factors." Q-factors are a normal, acceptable part of any reserve – and they have their place. No model can know everything. In your case, Q-factors made up 85% of the reasoning behind your reserve (85 basis points of your 100 basis-point-reserve). You filed your numbers and began to get ready for another great year.

But the first quarter is over and we're almost done with the second. It's time to nail down the reserve. COVID-19 has caused certain aspects of the economy to come to a complete halt and more bad news may be on the way. You haven't yet incurred any new losses and your existing ALLL or CECL model is showing you the same 15 basis points it did in 2019Q4. You know your reserve needs to increase, and the Q-factors must do the work. You just don't know how...

DEALING WITH UNCERTAINTY

In March, we wrote about **how Community Bank ALLL reserve rates were going to increase due to the COVID pandemic, even if CECL wasn't in effect.** We don't yet know how much of an increase there will be. But we do know that banks are struggling to find the right adjustment to make and how to quantify and justify it, using either their incurred loss or CECL model. Many of our clients have asked how to approach this conundrum given the current economic situation.

The pandemic has created a situation of massive uncertainty. We will likely see a sharp contraction in GDP and spike in unemployment in the first and second quarters. While it's virtually impossible to know how long this situation will last and how much damage it will ultimately inflict on loan portfolios, there is a logical starting point.

And that gets us to stress testing, a powerful tool to address this problem.

We talk about stress testing quite a bit around here. And the message has been consistent since the early days: A stress test is not a check-the-box exercise. Rather, it is a tool that can be used to inform many facets of critical bank operations, including the ALLL (or ACL if you are using CECL). A proper stress test demonstrates how a period of economic distress would affect your loan portfolio without specifying how that period of economic distress occurs. It could be another housing crisis, the burst of a bubble, or even a global pandemic. Stress tests are used to estimate unexpected losses. But what happens when today's economy resembles today's stress test? Unexpected losses become expected losses.

Let's walk through a simplified example.

The table below presumes that the likelihood of a severely adverse case economic recession has increased as of the end of March versus the end of last December. It is simple example, meant

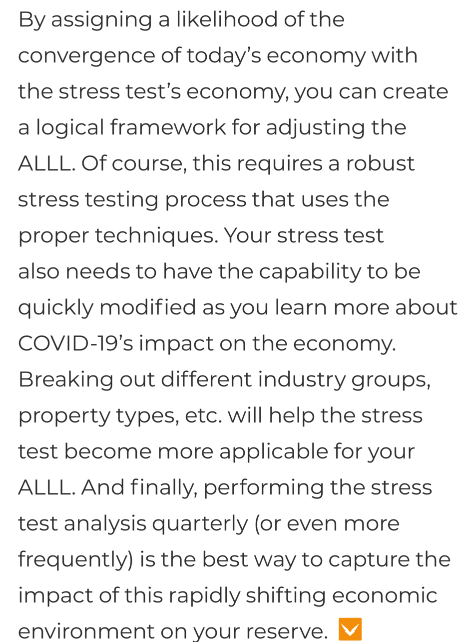
Date	Stress Test Loss Rate (%)	Probability of Stressed Scenario Occurring	Qualitative Increase for "Economic Factors" (%)
12/31/2019*	3.4%	10.0%	0.34%
3/31/2020	3.8%	20.0%	0.76%

to illustrate a point.

Stress Testing is a Powerful Tool

This is a tried and true approach. For years, many of our clients have successfully utilized their stress test results to augment their ALLL calculation by quantifying their economic qualitative factors. This method provides two important things: a starting point, and a direction. Whether CFOs want to admit it, much of the Q-factors in past reserves have lacked those two critical components. With a starting point, you can begin to understand the magnitude such an event may have on your reserve. With a direction, you can fine-tune your stress assumptions to better represent the true risk of the bank's portfolio.

Of course, for those of you thinking about life of loan losses (CECL) versus incurred losses, the table may require a slight modification. In the incurred loss method, the stress test should be calibrated to reflect the appropriate loss emergence period because the estimate should represent "probable but unknown" losses, while in CECL it should consider the remaining life of the loan because the estimate should represent "expected" losses. This can lead you to different results and should be handled with care in any attempt to augment the ALLL (or ACL) with stress testing. However, the concept remains the same in both models.



By assigning a likelihood of the convergence of today's economy with the stress test's economy, you can create a logical framework for adjusting the ALLL. Of course, this requires a robust stress testing process that uses the proper techniques. Your stress test also needs to have the capability to be quickly modified as you learn more about COVID-19's impact on the economy. Breaking out different industry groups, property types, etc. will help the stress test become more applicable for your ALLL. And finally, performing the stress test analysis quarterly (or even more frequently) is the best way to capture the impact of this rapidly shifting economic environment on your reserve.

RESOURCES TO HELP UNDERSTAND STRESS TESTING

View the Invictus Group webinar, **Why Community Banks Needs Stress Testing Now More than Ever**

Listen to Invictus Group CEO Adam Mustafa's recent ElevateTalks podcast, **How Pandemic Stress Testing Can Position your Bank for Success**

Read the OCC 2012 guidance on stress testing for community banks, **Community Bank Stress Testing: Supervisory Guidance**

Read how stress testing affects ongoing M&A deals, **How to Keep Your M&A Deals Alive During COVID-19**

Bankers Should Focus on Five Loan Characteristics to Assess Risk from COVID-19 Economy

By Radhika Gupta Invictus Group Bank Data Analyst

Many community banks have been in touch with their borrowers to assess their financial condition during this precarious economic environment. Bankers are also segmenting their portfolios based on some of the most affected industries, including restaurants, hotels, retail, manufacturing, and others.

But there are other elements in addition to the industry of the borrower that contribute to an elevated level of credit risk during this COVID-19 crisis, and they require banks to take a deeper look into the details of the loan. As someone who works with bank loan data all day long, I can understand how difficult it can be for banks to gather all the specifics for their loan-level information. But it is essential during the COVID-19 crisis for banks to triage their loan portfolios beyond the industry of the borrower by identifying these critical data fields and quantifying their impact using the appropriate stress testing techniques.

The good news is that banks do not need nearly as much data as they think they do and most of everything they need should already exist in their core processing system. Here are five critical loan-level characteristics that banks must consider in addition to borrower industry in their stress tests and in their day-to-day oversight of the loan portfolio that will allow them to get out in front of problems before it's too late:

1. MATURITY DATES AND INTEREST-ONLY EXPIRATIONS

Pay specific attention to those loans of an affected industry that have a maturity date within the next 12 to 24 months, or those structured with a balloon payment at the end. Many businesses might have planned to replace or refinance their loans at the end of the term, but this will be extraordinarily difficult if they are in an environment where banks no longer want to lend. More complications can arise with borrowers if they are having cash flow problems, making it difficult to qualify them for refinancing or new loans if they can't meet underwriting standards. Many banks may be resistant to making such risky loans, with good reason.

Loans with structures such as expiring interest-only periods that would dramatically increase the borrower's debt-service requirements would also represent an elevated level of credit risk in this environment. Many borrowers simply will not be able to afford to see their debt-service triple in size while their cash flows are under pressure from the pandemic's financial fallout.

2. RISK RATING

Banks spend a considerable amount of time assigning risk ratings to each loan. Even if two loans have similar characteristics, with a similar debt service coverage ratio (DSCR), they may still have a different risk rating value for a variety of reasons. One reason for a loan to have a better risk rating can be the borrower's liquidity. If a borrower has a large amount of savings, those savings can potentially subsidize disruptions in cash flow from the underlying businesses or property associated with the loan. In these cases, the personal guarantee actually has value to the bank. This can potentially make their risk rating one level stronger as they may be better equipped for financial changes. The point is that too many banks are focused on the NOI and DSCR of the borrower. While those metrics are critically important, the risk rating will often be highly correlated to (or even trump) those metrics because of examples such as the one in which the borrower has other sources of liquidity that can be relied upon to ensure servicing of the debt.

3. LOAN-TO-VALUE RATIO

The current climate has illuminated a large cash-flow problem within many industries. A loan with a cash flow problem but also a low loan-to-value (LTV) has a greater margin of safety than a similar loan with a high LTV. Let's say there are a group of similar problem loans in an industry that is declining, and the bank needs to sell the collateral. It would be safer to absorb the loss

for a loan with a lower loan-to-value ratio, everything else being equal. The property can be liquidated below the previous appraised value, while still covering the principal balance of the loan. The types of collateral are also important. Receivables and inventory can lose their value far more rapidly than real estate if not managed and overseen by the bank very carefully.

4. DEBT SERVICE COVERAGE RATIO

The higher the debt service coverage ratio, the better. A high debt service coverage reflects a stronger ability to service debt obligations. When income is halted or revenues decline, those with a higher debt service coverage ratio will most likely have more flexibility and a higher cushion to withstand the downturn. Still, don't put too much emphasis on DSCR for two reasons: First, DSCR is more applicable and reasonable when there are about 10% to 15% shocks to revenue for a borrower, but if we are talking 60% to 80% shocks, it won't be as meaningful. Second, it is important to consider the different types of industries with the same DSCR, as they have different cost structures. For instance, compare two types of real estate: a strip mall and a multifamily property. If the anchor tenant in the strip mall decides to move, the rest of the businesses will be negatively affected. However, with multifamily, the revenues are more spread out and diversified across occupants. From a risk perspective, a multifamily loan with a 1.25 DSCR is much better than a strip mall loan with a 1.75 DSCR. Therefore, don't prioritize the DSCR, but it can be a useful indicator and help you stratify risk if your bank has a large concentration in one or two risk ratings within the loan classification system.

5. VINTAGE

Lastly, consider the origination date of the loan, especially in real estate loans. If there are two similar loans, but one originated in 2014 and one was made in 2019, the older loan may have a greater margin of safety because the appraised value of the collateral was based upon 2014 standards. Since then, property values have appreciated, but the bank may not have needed to order a new appraisal since the loan was originated. This means that the LTV in your loan tape is overstated for this loan because you are not recognizing the appreciation in the value of the collateral. This can be estimated though using proper techniques.

The current loan-to-value ratio for the first loan is significantly stronger than the second loan, which means these loans have dramatically different risk profiles despite their similarities at the surface. Considering the current situation, the first loan will have a higher cushion and margin of safety than the second loan. It is important to consider the origination date, as well as the last appraisal date, which in many cases is the origination date. Vintage is far more important for real estate collateral than other types of collateral such as receivables and inventory.

By taking these five characteristics into account, banks will have a better idea of which specific loans to look out for in their portfolios. Even if all these characteristics are in the core of the loan data, it is also important to analyze the intricate relationships among all the loans your bank is holding. These pieces can be brought together in one holistic analysis, such as a stress test, which can bring efficiency and a method to triage the loans for problems. **Pandemic stress testing** is critical to helping **community banks CEOs navigate safely** through this crisis. Segmenting by industry is a good start, but you need to go further to identify those credits that are most vulnerable to the pandemic.

Keep informed with the latest thought leadership on the coronavirus and how it affects community banks.*

invictusgrp.com/intel

* Some of the articles in this issue first appeared on the Invictus blog.

Why Banks Need to Get Ahead of the COVID-19 Economy

By Leonard J. DeRoma Invictus Group Director of Liquidity Analytics

The one thing we know about the future economic impact of COVID-19 is that we do not know what it will be. The internal optimist in all of us hopes that the lockdowns start to unwind, the economy quickly returns to business as usual, and loan losses are modest because the modifications and Paycheck Protection Program (PPP) loans worked.

However, such a scenario is becoming less plausible as time passes. Even a phased approach toward reopening the economy will present significant challenges to community banks, both in the near and longer term. In the near term, deferral periods will end on modified loans and many borrowers are likely to struggle with their normal debt service obligations. Over the longer term, structural changes to the economy will affect the business of community banking.

Using baseball as an analogy, we are now in about the bottom of the second inning and the rest of the game has yet to be played. Those banks that manage the early innings well will put themselves in the best position for the later innings, where the game is almost always won.

Early innings

Luckily banks entered the game in early 2020 in good economic shape. Every depository institution, every credit union, every platform lender, and every non-bank lender will see problems moving forward. More than 36 million had filed for unemployment as of May and the majority of consumer-based businesses are closed. Consider:

- Hardship mortgage modification applications are increasing by the week. Since most real estate companies keep only a few months' worth of operating cash, we expect to see CRE of all types—whether it's hotels, strip malls, or high-end malls—beginning to feel the pressure and push on their banks for relief. REITs will be forced to cut dividends.
- Short-term working capital C&I loans, particularly those against work-in-progress inventories might become worthless if factories don't reopen. Longer-term capital expenditure or structural credits will become underwater quickly if factories and businesses are slow to reopen.
- On the liability side, we've seen cash and deposit buildups from committed facility drawdowns, the Small Business Administration PPP deposits, and other cash saving from corporations and individuals.
- Business closings will put enormous pressure on many state and local governments, particularly in areas where profligate spending and poor fiscal control already contributed to a fragile municipal equilibrium.
- Potential significant credit downgrades for corporations and municipalities could make accessing the capital markets much more difficult, if even possible.
- All banks are coping with learning to operate remotely, even though financial services employees are considered essential workers. Large banks have large IT budgets and experience in remote operations. Most community banks do not.

Before a bank acts, it must understand the potential implications of its actions so management can design tactics that will produce a competent defense. You want to keep every advantage you can. How can you do this? The answer is a well-designed stress test that must have a harsher economic impact than the Federal Reserve's CCAR severely adverse case scenario, published in February.

Just as in baseball, you need to assess what capability you have to defend against your opponent (in this case, the economy). And since there is no equivalent or history to reference, anyone who tells you to run a stress test based on regression or using canned software is providing bad advice. That first stress test needs to be done now, and it should be based on 2019Q4 or latest 2020Q1. This will give you a clearer view into the vulnerability and capital risks for your existing loan book. The information you get out of this will form a baseline. It should tell you where your risks are, what your capital levels will be under severe stress, and hopefully provide information to let you employ some short-term tactics.

What is clear is that you can't let the game get away from you in the early

innings. If you shut down clients, you may lose them if they survive. Conversely if you don't move quickly enough, you can find yourself left with severely marked-down collateral and behind in the later innings. The well-designed stress test will give you that perspective.

The middle innings

This is the heart of the game. Here's what you might expect:

Different states will re-open at different times, attempting to balance public health and economic factors. If there was ever a time that community banks are prisoners of their footprints it will be the result of staggered openings of the commercial entities in their areas and the redeployment of an unemployed workforce.

- The timing of incremental commercial activity will have a greater impact on the quality of the loan portfolio than your underwriting standards.
- Reopening businesses in your state or county may still not happen as quickly as might be thought, particularly if these businesses are dependent on raw material shipments or retail outlets in states that haven't yet opened. Look for rapidly changing conditions.
- Bright spots can quickly dim as some businesses try to get back their markets but fail due to other factors or events (or lack thereof) in other states. As states open at different times, the relative market position of competitors can and will change. If both state A and state B have widget manufacturers and state A opens first, the widget manufacturer in State A will have a competitive advantage. It will try to gain as much market share of the State B widget manufacturer that it can.
- The SBA's PPP program will have been exhausted. This is the time that hard numbers will start to reveal the devastation. The economy may look like the post-Gettysburg battlefield with bodies of dead businesses and bankrupt or near bankrupt individuals as far as the eye can see. Look for significantly increasing defaults.
- Early inning modifications may come back to haunt you. Refinancing consumer loans will reduce their cash outflow, but if the jobs don't come back, even the assistance of lower rates will not be able to offset worsening consumer and commercial credit prospects.
- Deposits will begin to disappear as the loan drawdowns and "rainy day" funds are exhausted.
- Lawsuits will proliferate, whether it's consumers suing businesses for refunds, employees suing for work safety rules, or businesses suing insurers for business interruption claims.

Again, we have no history to see how this might evolve. The only way to look at your position is with a stress test. In the middle innings you're not only stressing what was on the books at the beginning of the crisis, but now you also have to stress loan modifications, committed drawdowns, the cloudy economic recovery picture, and secondary effects such as an open business with a broken supply chain.

A well-designed stress test will give clarity to senior management about whether tactics employed in the early and beginning of the middle innings is working.

Late innings

Structural changes to the environment will start to become more apparent. This is when a community bank's strategy can begin to emerge, though steps taken in the earlier innings will boost its pathways to success.

Crises are often said to accelerate trends that have already been in place.

- Brick-and-mortar retailers have been giving way to online shopping, so future bankruptcies of big chains like Neiman Marcus should come as no surprise.
- Remote work environments have been increasing. This will have massive impacts to geographic dispersion of the workforce, urban flight, transportation, commercial real estate occupancy, leisure pursuits and more.

The incremental opening of states and businesses does not mean these businesses return to profitability immediately. Look at the restaurant business as an example.

- In the best of times, 60 percent of restaurants close within 3 years of opening. If seating is reduced by 50 percent or more, it will be almost impossible for both casual and high-end restaurants to generate profitability. If diners are happier with take-out, then restaurants may lose most of the higher margin alcohol business.
- Supply chain disruptions can cause restaurants to not be able to offer their signature dishes (one in five Wendy's franchises was out of beef in May).

Municipalities will likely see major problems.

- Reduced sales tax revenue.
- Lack of income tax collections
- Most municipalities haven't laid off employees, so they are still spending.
- Lower interest rates and a volatile stock market will put pressure on unfunded pension liabilities.

The economy may come back stronger than before, but it will be different. Winners and losers will become more apparent. Banks that have weathered the early and middle innings may see opportunities. Your customers will be doing things differently. So will you.

Don't forget your own cost structure. Companies will be doing more with less—employees, travel, entertainment,

real estate. Will your branch structure still make sense? How much can move over to technology?

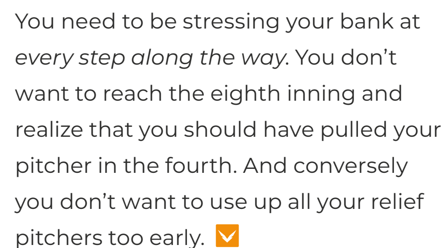
The late innings will determine if you win or lose the game and get to go to the playoffs. Understanding what's happening in your footprint, given your lending and deposit bases, will suggest your ongoing strategy. The structural shift will be unprecedented. The only way to see through it is with stress testing. All this needs to be custom designed for your bank. No off-the-shelf computer software will give you the depth or capability to see the big picture and apply it to your bank's unique situation. Stress testing is not just for your regulators. Most importantly it's for management to define strategy and tactics.

One enormous unknown will be the interest rate environment: both the absolute level and shape/slope of the yield curve. The Federal government is going to have to **borrow massive/ records amount of money** in the 2nd and 3rd quarters of this year—considerably more than in the aftermath of the 2008 crisis. While the Federal Reserve can take in some of this paper through the QE program, the market will have to absorb the rest. This could mean a classical capital market "crowding out" environment in which corporate and municipal borrowers either pay a lot or just don't have capital available. We don't know what that will do to rates, and further we don't know how that will affect inflation in the later years. But for sure, both inflation and rates will have an enormous impact on community banks and their customers.

The well-developed stress test for the late innings is going to be crucial for strategy. It will determine if the tactics employed in the early innings will leave you competitive, or if you need to change course.

The end of the game

To complete our analogy: a baseball game doesn't have a time frame like basketball or football. Innings can be short or long. We don't know how long each of the above phases is going to last or how long it's going to take to complete the game. Be prepared for extra innings.



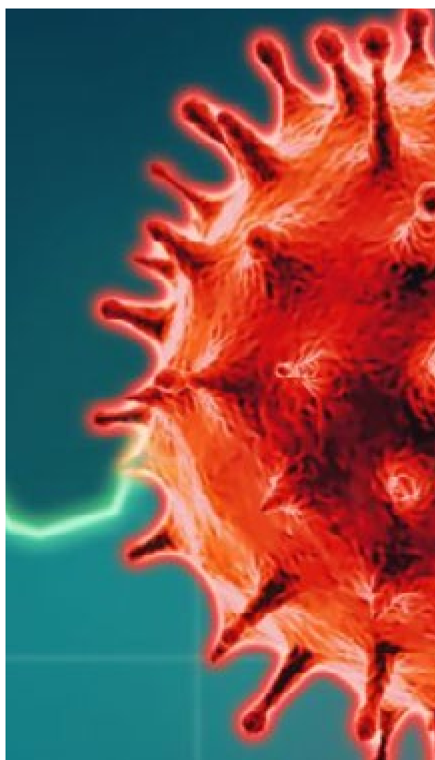
You need to be stressing your bank at *every step along the way*. You don't want to reach the eighth inning and realize that you should have pulled your pitcher in the fourth. And conversely you don't want to use up all your relief pitchers too early.

ABOUT THE AUTHOR

Leonard J. DeRoma

Head of Liability Analytics and Co-Founder

Leonard J. DeRoma began his career at Citibank in corporate finance, then spent the next 20 years in senior positions in fixed-income trading at Lehman Brothers, Barclays Capital and KeyBank. As the President of Barclays U.S. securities business, he was senior advisor to the U.S. ALCO committee and chaired the U.S. Credit and Risk Management Committee. He has a BS from the Massachusetts Institute of Technology and an MBA from the Harvard Business School.



INSIDE THE INVICTUS COVID-19 STRESS TESTS

The Invictus stress scenarios utilize the Federal Reserve's Severely Adverse Case scenario as a starting point but are adjusted to reflect the reality of the coronavirus situation. Features include:

- Enhanced stress on loans associated with selected industries such as hospitality, oil & gas, retail, manufacturing, and restaurants, as well as unfunded lines of credit
- Expected compression of the net interest margin associated with the Fed's recent return to zero-interest-rate policy and quantitative easing
- A second scenario that reflects more of a moderate downturn (formerly known as the Adverse Case Scenario) that is no longer required by the Fed for the large banks
- Additional customizations as necessary and in collaboration with a bank's management team

When the Hypothetical is Now: The Importance of Pandemic Stress Testing

By **Kamal Mustafa** Invictus Group Chairman

After the 2008 Great Recession and prior to the coronavirus pandemic, regulators turned to stress testing to establish bank capital adequacy levels. The Federal Reserve established a program called the Comprehensive Capital Analysis and Review (CCAR) for the largest banks, laying out economic scenarios and parameters for each stress test. Some community banks duplicated aspects of the CCAR approach, while others used loan-level stress testing focused only on the CRE portfolio in an attempt to prove to regulators that their banks would withstand a potential downturn. In all cases, the objective of the stress tests was to subject banks' balance sheets to hypothetical adverse conditions and to evaluate the impact on bank capital under these scenarios.

The pandemic has changed everything. The historical data and credit fundamentals behind stress testing are no longer valid. Stress testing has moved from an exercise in evaluating the impact of future hypothetical economic changes to evaluating existing economic changes, the ongoing evolution of these changes and their delayed impact on the bank's capital adequacy.

These changes are dramatic in both form and substance. The pre-pandemic stress scenarios relied on historical credit and collateral information to evaluate and quantify the degradation of the loan portfolio and its corresponding impact on the bank's capital. There was enough historical data and traditional credit experience to create reasonably realistic scenarios. Statistical correlation techniques had reasonable validity under these scenarios.

> **“Each industry will react differently to the pandemic in regard to its rate, magnitude and timing of degradation.”**

In the pandemic and post-pandemic environments, statistical correlation is an absurdity. Stress testing companies and consultants staffed by "computer jocks" and statisticians with little or no direct credit experience are in no position to assist banks in their stress testing efforts. There are no correlating data points that would allow such an exercise.

I stress credit experience since any reliable stress test must rely on the bank's credit process and its intertwined loan classification system. In a simplistic explanation, adverse economic circumstances cause loans to slide down this loan classification system, creating increasing demands on bank capital as credit degrades.

However, many community banks instead turned to oversimplified models entirely focused on shocking net operating income levels or black-box regression models that were highly dependent on metrics such as net operating income.

In the pre-pandemic world, there was sufficient data on collateral values and credit to allow fairly reasonable assumptions on the rate and nature of this degradation.

The post-pandemic credit environment is radically different. It is critical to understand the differences before even attempting a stress test. Each industry will react differently to the pandemic in regard to its rate, magnitude and timing of degradation. A reasonable knowledge of the credit/operating characteristics of companies within high risk industries such as hotels and restaurants is fundamental to creating a reasonable post-pandemic stress test. I can best explain this by using a simple example of a restaurant undergoing stress in a pre-and post-pandemic environment.

EXAMPLE: PRE-PANDEMIC RESTAURANT UNDER STRESS

A strong restaurant would have strong earnings and a strong debt-service coverage ratio (DSCR). A weak restaurant would have lower earnings and the weaker DSCR. As the market degrades, both restaurants would be in trouble, creating increased strain on the

bank's capital.

At the point of default of the weaker restaurant, the property could still be a going concern with potential sale value. Most likely inventories would be reduced with, hopefully, a corresponding decline in payables. The value of equity in the property could still be significant to the proprietors.

The strong restaurant has a higher probability of successfully absorbing a shock to revenues, in the magnitude of roughly 10-20 percent, which reduces NOI between 20-40 percent based upon the operating leverage of the property. Even with such a reduction to NOI, the DSCR remains strong enough to prevent the loan from defaulting.

"In the post-pandemic world, stress testing must first be used as an essential tool for management in its strategic planning process."

EXAMPLE: POST-PANDEMIC RESTAURANT UNDER STRESS

Both strong and weak restaurants cease normal operations. Now we are talking about revenue shocks somewhere between 60 and 80 percent. Importance of earnings would be replaced by the reserve (generally off-balance-sheet) capital available to the respective proprietors. The property would, at least temporarily, become illiquid. Food inventories would degrade rapidly, and trade payables could reflect seniority to bank obligations. Proprietor's capital would continue to erode under the pressure of existing leases and other fixed asset obligations.

Loan deferrals could delay defaults, but monthly costs would continue to drain the proprietor's capital.

Historically strong operating performance and good classification levels would fall by the wayside, as the owner's capital continues to be leached during the duration of the pandemic. The end of the pandemic would leave the restaurant (if it survives) facing a potential recession whose magnitude and duration is yet to be determined. Changes in consumer patterns further complicate the picture.

The credit degradation of a restaurant and its potential recovery in a general recession is completely different than in the conditions created by this pandemic. Historical data has little relevance and will be misleading. Weak small restaurants owned by wealthier individuals might recover much faster than larger and stronger restaurants where the principals have limited capital. In fact, in many cases it will be the capital held outside the restaurant entity that might ensure its reopening.

Other SIC codes, for example, hotels, will again have their own unique earnings issues. The all-important value of location might change permanently, which would in turn affect its breakeven occupancy rates and more.

WRAP UP

The same characteristics of a restaurant or hotel that make it a salvageable credit in 2008 will not be the same as in 2020. Proper credit analysis, uniquely applied to each relevant SIC code, is of paramount importance and must form the foundation of any post-pandemic stress test/strategic plan. The DSCR is a highly misleading metric because it ignores the strength/weakness of the obligor behind the underlying business. A basic stress test based on NOI shocks doesn't work when revenue shortfalls are of the magnitude demonstrated by the pandemic. A stress testing process that does not work actively with the lending and credit departments to evaluate the new credit criteria necessary to properly classify loans in the post-pandemic environment is doomed to fail.

Stress testing in the pre-pandemic world was generally regarded as a regulatory exercise. In the post-pandemic world, stress testing must first be used as an essential tool for management in its strategic planning process. It can next be used as a way for directors to ensure shareholder protection and finally, to satisfy regulatory needs, but only after bank management teams gain a full understanding of how the results affect their ability to guide their banks through and beyond the crisis.

ABOUT THE AUTHOR

Kamal Mustafa
Invictus Group
Chairman

Kamal Musafa, the founder of the Invictus Group, is a major thought leader in banking and finance. Over the past 40 years, he has served as head of corporate finance/credit at Connecticut Bank and Trust; head of Global Mergers & Acquisitions at Citibank; Managing Director of M&A and Merchant Banking at PaineWebber; Managing Director of KSP, a $1 billion leveraged-buyout fund for John Kluge; founder and chairman of Bluestone Capital Partners and Wildwood Capital. He founded Invictus in 2008. Mr. Mustafa has an MBA from the University of Connecticut, where he has been a trustee, and serves on a number of corporate boards. More than 30 state banking associations have invited him to speak about the state and direction of the community banking market in the last few years.

Frequently Asked Questions about Invictus COVID-19 Stress Testing

Invictus has been inundated with queries from banks about our pandemic stress testing services. Here are some of the top questions we've received.

1. Why can't my bank use the stress tests we already have?

Any stress tests run before the virus began affecting the economy will not have the proper scenarios in place to give meaningful results. **They are obsolete**. Bankers can't rely on legacy stress tests that are not driven by loan-level data and do not account for the economic changes that have taken place since the coronavirus struck the United States.

2. Most of the stress testing systems I've used are boilerplate. How is the Invictus system different?

Our stress test scenarios are continually updated. We customize the tests for your bank using your loan-level data. We assign someone from our data team to work with your bank to make sure we have the right data in place before we even run a test. We also rely on our BankGenome™ intelligence system, which include millions of loans, plus other economic data, to help guide our analysis. Unlike traditional stress testing models that focus on historically generated generic information, our system has been tracking the actual performance of individual loans distributed across different industry segments for more than a decade. We use a PD/LGD methodology, marrying both a bottom-up and a top-down approach. Our consultants will help your management team fine-tune the results and prepare a presentation for your board.

3. How does your process work?

We provide an initial diagnostic analysis, a defensive plan, an offensive plan, and then we repeat the tests, so you are always on top of the changing situation. We can get you results within three weeks of receiving your loan-level data. Our team will work with yours, answering your questions and guiding you through the process. We do not leave you alone with a black box, trying to figure it out. Our hybrid approach ensures that you have the most up-to-date analytics available in the marketplace, along with a team that helps you interpret the findings and explain them to your board, shareholders or regulators.

4. Why do I need a stress test now? I've got enough to handle without spending extra money on something that regulators aren't even requesting.

That's a good question. Our stress tests are intended to guide banks through the pandemic, helping CEOs identify their most vulnerable loans and determining at what point their capital might be at risk. Banks need to know where their capital stands now and what triggers might affect their safety net. The stress test will help banks plan strategically for what might be coming down the road. It also helps smart banks identify opportunities that can help propel their bank forward.

Our stress tests are not intended to be used for regulatory compliance (though regulators have often embraced them). We want our CEOs using them to augment their strategic decision-making. Banks have also used our tests to guide their qualitative factors when calculating their loan loss reserves, to determine whether an M&A target is a good fit for their bank, and as a means test for their strategic plans.

5. What is the Invictus Group's expertise in stress testing?

Invictus got its start after the 2008 financial crisis, working with the regulators and training regional regulators in the concepts of stress testing for capital adequacy. This extensive experience is part of our DNA and allows us to evaluate the impact of national and regional changes across the entire range of SIC codes in the United States. This experience has been gained in a decade of hands-on work with banks and regulators across the country.

6. What are my next steps?

Please reach out to **George Dean Callas** for a customized proposal or presentation. We customize the stress testing for each bank, so we can't give you a cost estimate until we understand your situation. Our system includes the stress tests, the BankGenome™ intelligence system and our consulting, which is available whenever you need it. You pay just one price that doesn't change, even if you need extra assistance.

The Shortfalls of Loan-Level CRE Stress Testing in a COVID-19 World

By Adam Mustafa Invictus Group Chief Executive Officer

The coronavirus has presented the first threat to community banks since the 2008 financial crisis. For the first time, stress testing is a real exercise. What community banks across the country are discovering with dread right now is that their regulator-approved models are useless for the pandemic environment. Community banks need to quickly recognize that stress testing is no longer about satisfying regulators and immediately arm themselves with the right tools to prepare for a severe downturn.

The "Incumbent" Stress Test – An Overview

The most common form of stress testing in the community banking industry is a loan-level approach that is entirely focused on the commercial real estate (CRE) portfolio, mainly because regulators required this in **2006 guidance**. This type of stress test, which we will refer to as "CRE stress testing," is laser-focused on two metrics: the debt-service coverage ratio (DSCR) and the loan-to-value (LTV).

Here is how it generally works, although several variations exist:

1. **The bank needs to gather the latest reported net operating income (NOI) for each borrower.**

   This task often proves to be difficult, time consuming, and prone to human error as it's not naturally stored in the data core. Some ambitious banks try to go further and capture the components of NOI, such as rental rates, occupancy rates, and operating expenses, but this is often quickly abandoned following the trauma associated with going down this data gathering rabbit hole.

2. **NOIs are then shocked with the same level of severity across the portfolio, say 20 percent or 40 percent.**

   The DSCR is re-calculated under these shocked conditions and benchmarked against underwriting standards. Loan balances that are no longer in compliance with these standards are summed and compared to the overall portfolio to provide management with a sense of the bank's exposure under such a scenario.

3. **Collateral values are also shocked, say with a 20 percent to 40 percent severity.**

   Some banks, albeit very few, may also try to incorporate a "cap rate" driven approach into this as well. The LTVs are also recalculated and compared to underwriting standards to give management a sense of exposure. The deficits of loans whose LTVs exceed 100 percent when shocked are summed, which is assumed to be a meaningful proxy of the bank's risk.

> **"Community banks needs to quickly realize that stress testing is no longer about satisfying regulators."**

The above exercise is simple, seems logical, and is so prevalent within the industry that many regulators often assume you have a shortfall in your risk management practices if you are not doing this type of analysis, especially if you are a bank with a CRE concentration as a percentage of capital approaching or exceeding 300 percent.

CRE stress testing can also serve as a prudent analysis to inform underwriting decisions for individual credits at the time of origination, review, and renewal. If a borrower does not perform well under such an analysis, the credit memo should articulate mitigating factors, such as the loan having recourse and being backed by the borrower's liquidity and other assets. But a simple NOI shock of say 40 percent ignores some

important context. If the borrower is not dependent on a small concentration of tenants, and has a high occupancy rate (think multifamily), the likelihood of a NOI shock along these lines is lower than say another borrower (think strip mall) with one anchor tenant and a handful of smaller tenants. The bank should also move quickly to work with the borrower if there is a material decline in NOI upon receipt of the borrower's annual financial statements long after origination.

The Shortfalls in the Current Environment

The stark reality is that the incumbent CRE stress testing models do not work for the unprecedented COVID-19 economy. Several reasons:

1. **The CRE Portfolio is not necessarily where most of the risk lies.**

   If a bank is only stressing the CRE portfolio, it has severe blind spots to the COVID-19 fallout. Yes, hospitality and retail reside in the CRE portfolio, but community banks likely have as much or more risk in their C&I and CRE-owner-occupied loan books with exposures to high risk industries such as manufacturing, oil & gas, and restaurants. Also, when we look across our client base, many of the loan modifications that have been granted during the COVID-19 crisis are associated with residential mortgages to borrowers employed in those industries.

2. **It ignores other critical risk characteristics besides DSCR and LTV.**

   One of the fatal flaws of CRE stress testing method is that it treats the DSCR as the gospel. As previously mentioned, DSCRs are not all created equal. That is because NOI cannot just be measured in quantity, but it also needs to be measured in quality. Also, the CRE Stress Test completely ignores the risk rating assigned to the loan, which is far more important than the DSCR. The risk rating will be highly correlated to DSCR but will also capture other mitigating risk factors not easily seen in loan-level information, such as the ability of the obligor to subsidize shortfalls in the cash flows of the underlying property. (Note that in a pandemic stress test, **the "global" strength of the underlying borrower is more important than the DSCR** of the specific business or property purposed for the loan.) Other risk factors are missed, including **the structure of the loan, maturity date, origination date, unfunded commitment, and cross-collateralization.** Most importantly as it relates to COVID-19, CRE stress testing does not distinguish between loans that have been modified and ones that have not. Even though modified loans for COVID-19 do not have to be treated as troubled debt restructures, let alone be downgraded, they have a higher risk of default than loans not modified, accounting gimmicks aside.

3. **It assumes a single outcome for each loan.**

   In other words, this type of analysis assumes that every loan has either a 0 percent or 100 percent chance of default, if subject to the same amount of stress. The probability of default for every loan is actually neither, but somewhere in between. While it's impossible to estimate with perfect precision, the best models will take the weighted average of multiple possible outcomes for each loan. For example a 4-rated loan has a certain chance of absorbing a downturn and remaining a 4, or it could slip to 5, become a special-mention credit, become a classified, wind up in non-accrual, or flat out default. Before you shrug and think that complex models are required for such an analysis, remember that this is what happens in the real world. Some loans get downgraded. Some of those loans that were downgraded default. But some do not. This type of analysis can be performed without needing a PhD. It can be estimated with a little bit of data (far less than you expect), some effort and qualitative support. And it's worth the effort because otherwise

> **"The stark reality is that the incumbent CRE stress testing models do not work for the unprecedented COVID-19 economy."**

you will leave out loans that are more vulnerable to stress and end up with more false positives.

4. **There is no connection to the loan loss reserve (either ALLL or CECL).**

Provision expenses have an impact on capital, not charge-offs. This is especially critical in a CECL-world, where provisions are driven by expected, not probable losses. The methods typically used by banks to estimate their loan loss reserves are entirely different than the CRE stress test, even for the CRE loans. This makes no sense, and it is no wonder that banks struggle to use their CRE stress test for strategic and capital planning. In fact, the biggest mistake banks are making with CECL is their failure to integrate it with stress testing. In both the incurred loss method and CECL, most of the reserve today is driven by q-factors on pass-rated credits. Many banks struggled to estimate their reserves when the coronavirus emerged as a crisis in March. If stress testing and loan loss reserving are not speaking the same language, you have no chance at making sense of what the CRE stress test means to capital and strategy.

5. **Contingency and strategic plans cannot be properly evaluated.**

CRE stress testing only tells part of the story. Besides the need to stress test the rest of the portfolio, banks need to be able to put the stress test results into context by evaluating the impact on earnings and capital. It is vital in this crisis environment for banks to know their capital adequacy and the margin of safety for remaining sufficiently capitalized. Community banks also need to be able to evaluate strategies such as de-leveraging, dividend revisions, and expense reductions on stressed capital. Some community banks fool themselves into thinking their top-down ALM model is sufficient for this exercise. Unfortunately, those models are estimating loan losses using historical losses, often from other banks (usually weak ones). These models do not even consider the underwriting characteristics of the actual loan portfolio and are therefore useless and irrelevant for COVID-19. This is just another variant of a check-the-box exercise, which may lead to misleading and dangerous results.

> **“It is vital in this crisis environment for banks to know their capital adequacy and the margin of safety for remaining sufficiently capitalized.”**

Why This Matters

Yes, CRE stress testing has a role in the risk management playbook. Frankly, it should be required when underwriting, reviewing, and renewing any CRE loan. It's simple and can easily be understood by management and directors. Regulators have influenced banks to adopt this type of stress testing for good reason.

However, it just doesn't work for strategic and capital planning, and it certainly won't help guide banks through the pandemic. Regulators had good intentions when they recommended CRE stress testing. They did not want community banks to become victims of the cottage industry of stress testing consultants and software pushers that make millions of dollars from the largest banks in the country. They also did not want banks relying on models they do not understand. Coming out of the 2008 Financial Crisis, CRE stress testing was a big step for community banks in the right direction. The regulators deserve a lot of credit as the industry is far better off because of it.

But the coronavirus crisis has unmasked the limitations of the incumbent CRE stress testing models for practical purposes. To get in front of the pandemic economy, banks need to take the next step in their stress testing journey by finding ways to quickly overcome these limitations. If you wait for your regulator to tell you what to do, it may be too late.

ABOUT THE AUTHOR

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Adam Mustafa is President and CEO and co-founder of the Invictus Group. He has been providing strategic analytics, M&A, CECL and capital adequacy advisory services to banks, regulators, bank investors, and bank D&O insurers since the beginning of the financial crisis. Mr. Mustafa has overseen the design and implementation of fully-customized capital stress testing, capital management, CECL, and strategic planning systems for community banks ranging from under $100 million in assets to those with more than $10 billion in assets. He has also been a featured speaker on CECL, M&A and stress testing at conferences across the U.S., including those hosted by regulators. Prior to founding Invictus, he had senior-level experience as a banker, financial services consultant and corporate CFO. He has an MBA from Georgetown University and a BA from Syracuse University.