Stress Testing: An Overview

October 24, 2011

THE FEDERAL RESERVE BANK OF RICHMOND
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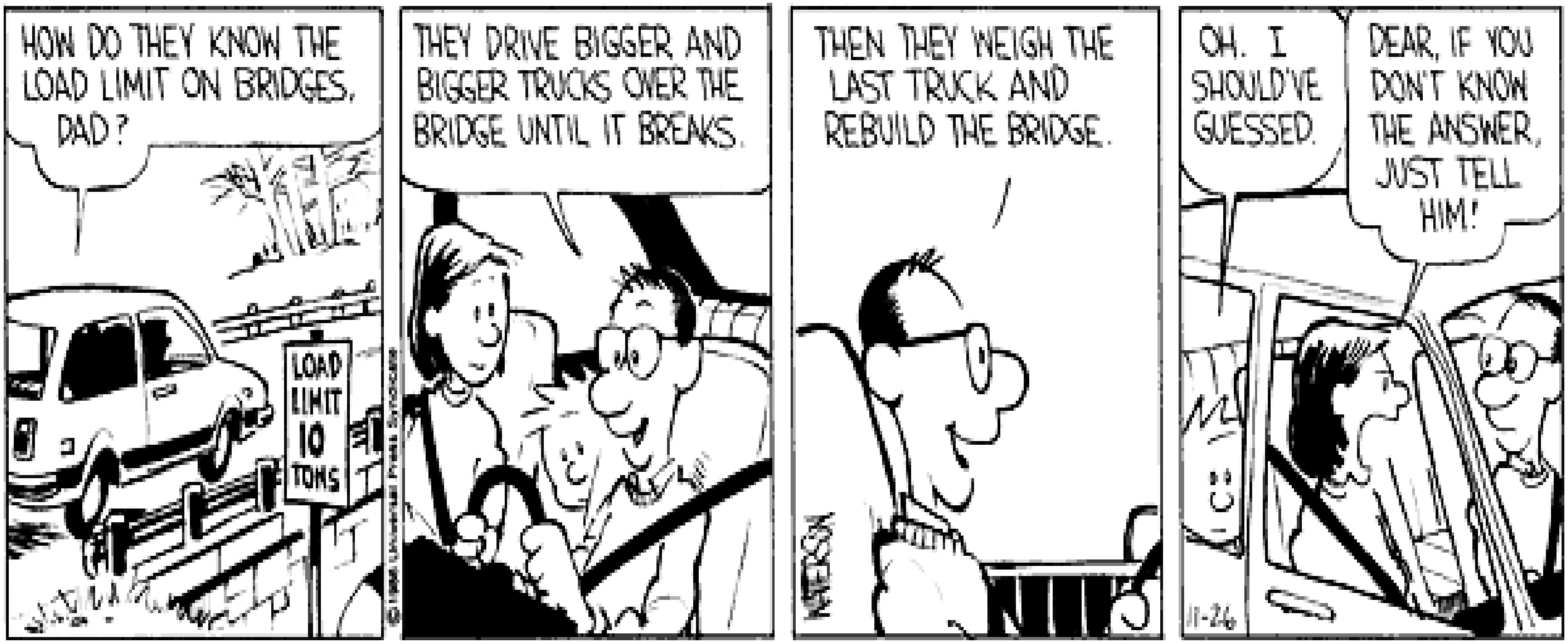
Introduction and Background

- Why we're here:
  - Stress testing is a popular topic these days
  - Lots of discussion about supervisory expectations for stress testing
- Today, we plan to provide you with:
  - Some background on stress testing in general
  - A quick look at some general applications of stress testing fundamentals


HOW DO THEY KNOW THE LOAD LIMIT ON BRIDGES, DAD?
LOAD LIMIT 10 TONS
THEY DRIVE BIGGER AND BIGGER TRUCKS OVER THE BRIDGE UNTIL IT BREAKS.
THEN THEY WEIGH THE LAST TRUCK AND REBUILD THE BRIDGE.
WATTERSON
OH. I SHOULD'VE GUESSED.
DEAR, IF YOU DON'T KNOW THE ANSWER, JUST TELL HIM!
11-26

Shortcomings of traditional financial risk management practices:

- Overly reliant on past experience
- Assumed current economic environment
- Static view of capital
- Ignore “knock-on” effects

What Do We Mean by "Stress Testing"?

- One current definition:
  - Exercises used to conduct a forward-looking assessment of the potential impact of various adverse events and circumstances on a banking organization

- At its core, stress testing asks:
  - What could go wrong, and how might that impact my firm?

What We Mean by Stress Testing (cont)

- Can be as simple as tweaks to some key business, economic, and financial assumptions
- Gives bankers more information to make key business decisions
- Is a tool that has application for risk management, capital planning, and liquidity planning
  - *It is a <u>means</u>, not an <u>end</u>*
- The process of stress testing can be more useful than the specific numbers it produces

Fundamentals and Applications of Stress Testing

Stress Testing is both Art and Science

- Start with the facts
  - Portfolio size, composition, current risks
- Loss estimation methodology
  - How will these characteristics manifest themselves in terms of losses and growth rates
- Interim results
  - What does this approach tell me?
- Add Judgment
  - In my opinion, this over/under estimates risk because …
  - Judgment needs to be applied transparently
- Final Conclusions (but not just one number!)

Portfolio Level Stress Testing

- $200 million community bank with CRE concentrations
  - 28 percent of loans are residential real estate
  - 22 percent of loans are consumer and other

Total Assets	$ 200,000,000
Total Loans	$ 135,000,000
Tier 1 Capital (10)%	$ 20,000,000

Construction to Tier 1	216%
Total CRE to Tier 1	338%

	Residential	Construction	CRE	Consumer	Other	Total
Exposure	37,800,000	43,200,000	24,300,000	18,900,000	10,800,000	135,000,000
Provision (percent)	0.07%	0.10%	0.20%	1.00%	0.50%	
Provision (dollars)	26,460	43,200	48,600	189,000	54,000	361,260
ALLL	378,000	432,000	243,000	189,000	108,000	1,350,000

Consider Three Potential Scenarios:

	Residential	Construction	CRE	Consumer	Other	Total
1) *Housing market slowdown impacts residential and construction loans*						
House prices drop 10%, causing 10% of residential loans to lose 10% each						
Average sales price of new home falls 10%, causing 15% of construction loans to lose 25%						
Slight increase in CRE loans correlated to housing markets						
Losses	378,000	1,620,000	145,800	189,000	54,000	2,386,800
2) *Recession causes across-the-board losses*						
House prices drop 5%, causing 5% to lose 10% each, construction has 5% loss, CRE has 4% loss						
Losses	189,000	648,000	291,600	378,000	108,000	1,614,600
3) *Loss of a few large borrowers*						
Lose 4 large construction lenders at 90% of legal lending limit. Each has 30% loss						
Losses	26,460	14,580,000	48,600	189,000	54,000	14,898,060

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Incorporation into Strategic Decision Making

Uses of Analysis

Stress Testing Conclusions

Strategic Planning

Should earnings and growth forecasts be adjusted given the base scenarios and stress results?

Should our risk tolerances be adjusted?

Capital Planning

How will our capital adequacy be affected under various stress scenarios?

Are contingency plans in place to ensure capital remains appropriate for the level & nature of risk?

Risk Management

Which products and markets are most at risk in a stressed environment?

To what extent will our asset quality be adversely affected?

Individual Lending Decisions

Do we have the ability to strengthen or restructure individual credits that may be at risk?

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Questions?

Appendix

Stress Testing Guidance References

- SR 10-6: Funding and Liquidity Risk Management
- SR 10-1: Interest Rate Risk Management
- SR 09-4: Capital Planning
- SR 09-1: Application of Market Risk Rule (only for banks with assets in excess of $1 billion)
- SR 07-1: Concentrations in Commercial Real Estate
- SR 99-23: Recent Trends in Bank Lending Standards for Commercial Loans

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