

Stress Testing the Credit Portfolio

“We’ve Done it, Now What?”

Prepared for:

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Disclaimer: Views expressed are those of the presenter and are not necessarily those of the Federal Reserve Bank of San Francisco or the Board of Governors.

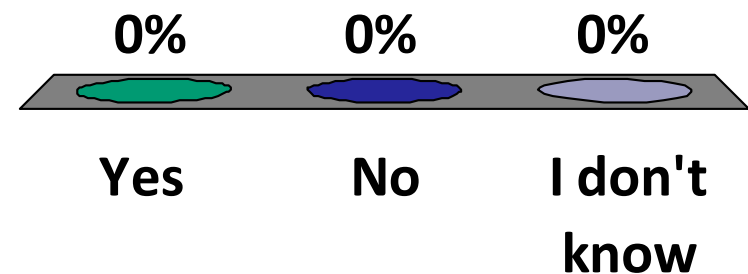


Discussion Outline

1. Benefits of Stress Testing
2. Regulatory Expectations
3. Common Observations
4. Stress Test Process
5. Common Approaches to Stress Tests
6. Reporting Process

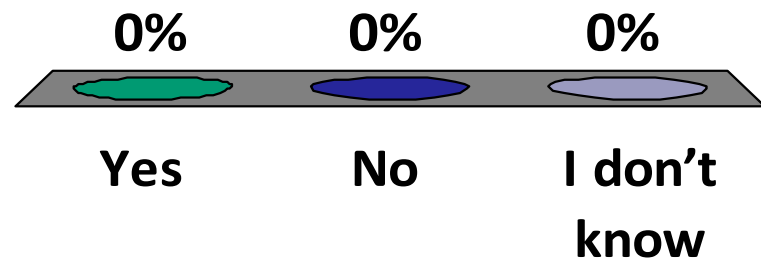
Does your bank now conduct portfolio wide stress testing?

1. Yes
2. No
3. I don't know



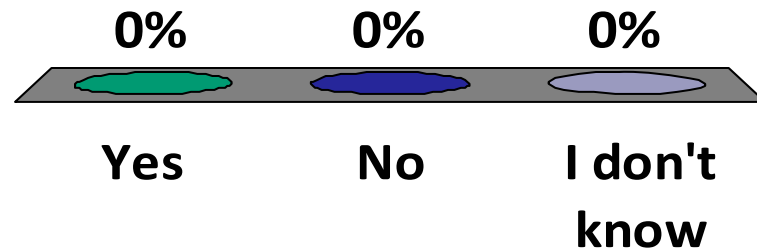
Are you fully comfortable with your bank's stress testing process?

1. Yes
2. No
3. I don't know



Do the results of the stress tests impact your bank's strategic and/or capital plans?

1. Yes
2. No
3. I don't know



1. *Benefits of Stress Testing*

□ Why do it?

- *Quantifies the impact of changing economic conditions on Asset Quality, Earnings, and Capital.*
- *Allows for management to form contingency plans during downside scenarios.*
- *Helps management think more critically about the external environment.*
- *Provides competitive advantages.*

2. *Regulatory Expectations*

- Interagency Guidance on Concentrations in Commercial Real Estate (SR 07-1)
 - *C&LD concentration > 100% of RBC*
 - *Total CRE > 300% of RBC*

Institutions with elevated concentrations of real estate secured loans should have robust portfolio monitoring tools in place.

2. Regulatory Expectations (cont.)

- ❑ Institutions should perform portfolio-level stress tests to quantify the impact of changing economic conditions on asset quality, earnings, and capital.
- ❑ Institutions should consider the sensitivity of portfolio segments with common risk characteristics.
- ❑ The sophistication of stress testing should be consistent with the size, complexity and risk characteristics of the CRE portfolio.

3. *Common Observations*

- ❑ Most community banks have yet to implement portfolio-wide stress tests. Larger banks are further along.
- ❑ Most banks do perform a stress test on individual loans during the underwriting process.
- ❑ Those banks that *do* have portfolio-wide stress tests in place, often do not do anything with the stress test results.

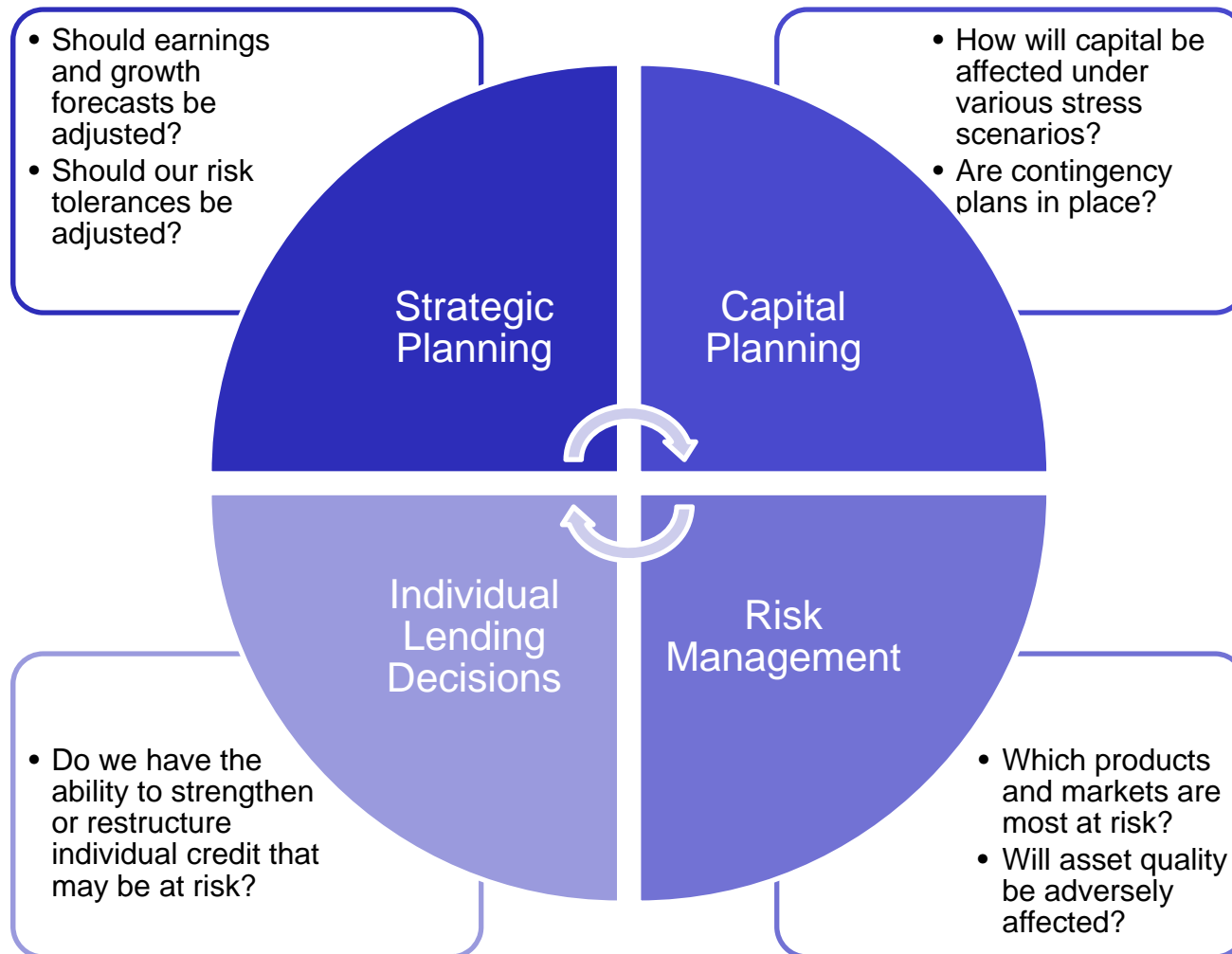
3. Common Observations (cont.)

□ Key Points:


- *Stress tests do not need to be overly complex. The thought process is more important than the models.*
- *“Conservative Underwriting” does not negate the need for stress tests.*
- *The “stressed scenarios” need to be realistic, but they need to be “stressful” (e.g. worst case).*
- *Management and Board must review results and take action (strategic plan, marketing efforts, capital plan).*

The most common issue? Management and Board do nothing with the stress test results, thinking “that will never happen!”


4. Stress Test Process




4. Stress Test Process (cont.)

- 
- Get management buy-in.
 - Management must first determine benefits outweigh costs.

- 
- Segment the portfolio by common factors.
 - LTV, DSC, Geography, Product Type, Fixed or Variable Rate

- 
- Determine the variables to be stressed.
 - LTV, DSC, Rates (interest rate, cap rate, vacancy rate, charge-offs)

- 
- Determine the scenarios.
 - Base case vs. downside scenarios.
 - Worst case assumptions: When is additional capital needed?

5. Common Approaches to Stress Tests

Collateral Based Scenarios

Property cap rates increase causing collateral value to decline and loan level LTV ratios to increase.

▮ If property values decline by 20% or 30%, what is the bank's increased exposure?

Vacancy rates increase causing NOI and DSC to decrease.

▮ How far must vacancy rates rise before a given loan falls below a 1.0x DSC ratio?

5. Common Approaches to Stress Tests

Market Based Scenarios

Interest rates increase causing DSC to decrease on variable rate loans.

▣ How far must rates increase before a given loan falls below a 1.0x DSC ratio?

Sell-out periods for construction loans lengthen threatening the interest reserve.

▣ How far must sales of units slow before the interest reserve is depleted and a restructuring is necessary?

5. Common Approaches to Stress Tests

Capital Based Scenarios

Charge-off rates increase causing Tier 1 Capital and regulatory ratios to decrease.

- ⌘ How much can charge-offs increase before the bank becomes less than adequately capitalized?
- ⌘ How much greater is this level of charge-offs compared to the bank's worst year?
- ⌘ How probable is it that charge-offs will increase to this point?

5. Common Approaches to Stress Tests

- Results of RMA Survey
 - *Change interest rates on debt service coverage*
 - *Change vacancy rates*
 - *Change rental rates*
 - *Change collateral coverage/LTV*

5. Common Approaches to Stress Tests

Sample Portfolio Wide Stress Test
(For Illustrative Purposes Only)

CURRENT DATE		#####		CRE EXPOSURE/CAPITAL		171.00%							
WEIGHTED AVERAGE LTV		80.73%		SINGLE NAME EXPOSURE		1.74%							
WEIGHTED AVERAGE DSC		97.84%		SECTOR CONCENTRATION		21.76%							
WEIGHTED AVERAGE MATURITY (YEAR)		20		MARKET CONCENTRATION		25.50%							
				Annual GDP growth	Unemployment Rate	Change in Occupancy Rate							
				1%	7-8%	-20%							
PROPERTY TYPE	REGION	CURRENT PRINCIPAL OUTSTANDING	NET OPERATING INCOME	INTEREST RATE	CAP RATE	APPRAISED VALUE	NET OPERATING INCOME	INTEREST RATE	CAP RATE	APPRAISED VALUE	LOAN TO VALUE RATIO (LTV)	DEBT SERVICE COVERAGE RATIO (DSC)	Stressed Loss
				Unstressed				Stressed					
Industrial	Southeast	\$1,755,249	\$197,632	7.4%	9.64%	\$2,050,124	\$173,916	7.9%	10.14%	\$1,715,149	102.34%	0.97	\$91,851
Industrial	Northeast	\$2,068,148	\$270,385	7.1%	7.65%	\$3,534,439	\$237,938	7.6%	8.15%	\$2,919,490	70.84%	1.13	\$0
Industrial	Midwest	\$2,577,868	\$355,428	7.2%	9.39%	\$3,785,175	\$312,777	7.7%	9.89%	\$3,162,554	81.51%	1.11	\$0
Industrial	Northeast	\$2,404,134	\$308,172	5.5%	6.02%	\$5,119,131	\$271,191	6.0%	6.52%	\$4,159,372	57.80%	1.26	\$0
Industrial	Southwest	\$1,134,639	\$116,894	7.0%	8.90%	\$1,313,419	\$102,867	7.5%	9.40%	\$1,094,329	103.68%	0.90	\$85,671
Industrial	Southeast	\$2,067,832	\$167,040	7.5%	7.50%	\$2,227,194	\$146,995	8.0%	8.00%	\$1,837,435	112.54%	0.65	\$420,565
Industrial	Northeast	\$1,675,210	\$150,000	5.9%	6.30%	\$2,380,952	\$132,000	6.4%	6.80%	\$1,941,176	86.30%	0.85	\$0
Industrial	Midwest	\$1,814,287	\$149,353	5.7%	8.43%	\$1,771,685	\$131,431	6.2%	8.93%	\$1,471,788	123.27%	0.80	\$403,212

These are the “stress” variables. Each can be changed independently. Changes affect NOI, Interest Rate, Cap Rate, AV, LTV, DSCR



***STRESS TESTING THE CREDIT
PORTFOLIO
“WE’VE DONE IT, NOW WHAT?”***

6. Reporting Process

- Sample Well-Structured Report
 - *Regional Bank with International Presence*
 - *Total CRE Concentration = 343%*
 - *Quarterly Stress Test Reporting Process Implemented in 2008*
 - *Reports Submitted to Board's Risk Oversight Committee*
 - *Report divided into 6 parts (45 pages)*

6. Reporting Process (cont.)

- Part 1 – Executive Summary
 - *Brief Summary of stress test process*

- Part 2 – Stress Test Summary & Results
 - *Description of the 4 stress tests*
 - *Summary of stress test results*

6. Reporting Process (cont.)

□ Part 3 – Compliance with Risk Limits

- *Management demonstrates that bank will remain “well capitalized” in each stress scenario.*
- *Management demonstrates that bank will remain in compliance with internal (board-approved) risk limits:*
 - CRE after-tax losses < 15% of bank’s RBC
 - Total RBC ratio > 10%

□ Part 4 –CRE Concentration Ratios

- *Is bank subject to Interagency Expectations (C&LD > 100%, Total CRE > 300%)?*

6. Reporting Process (cont.)

- Part 5 – Model Methodologies & Assumptions
 - *Detailed description of stress test process*

- Part 6 – Supplemental Exhibits
 - *CRE loan portfolio breakdown by sub-category*
 - *CRE loan portfolio breakdown by region*
 - *CRE loan portfolio breakdown by year of origination*
 - *Statewide CRE price trend by sub-category (price/sq ft per CoStar)*
 - *Statewide SFR Median Price Change (DataQuick)*

Contact Information

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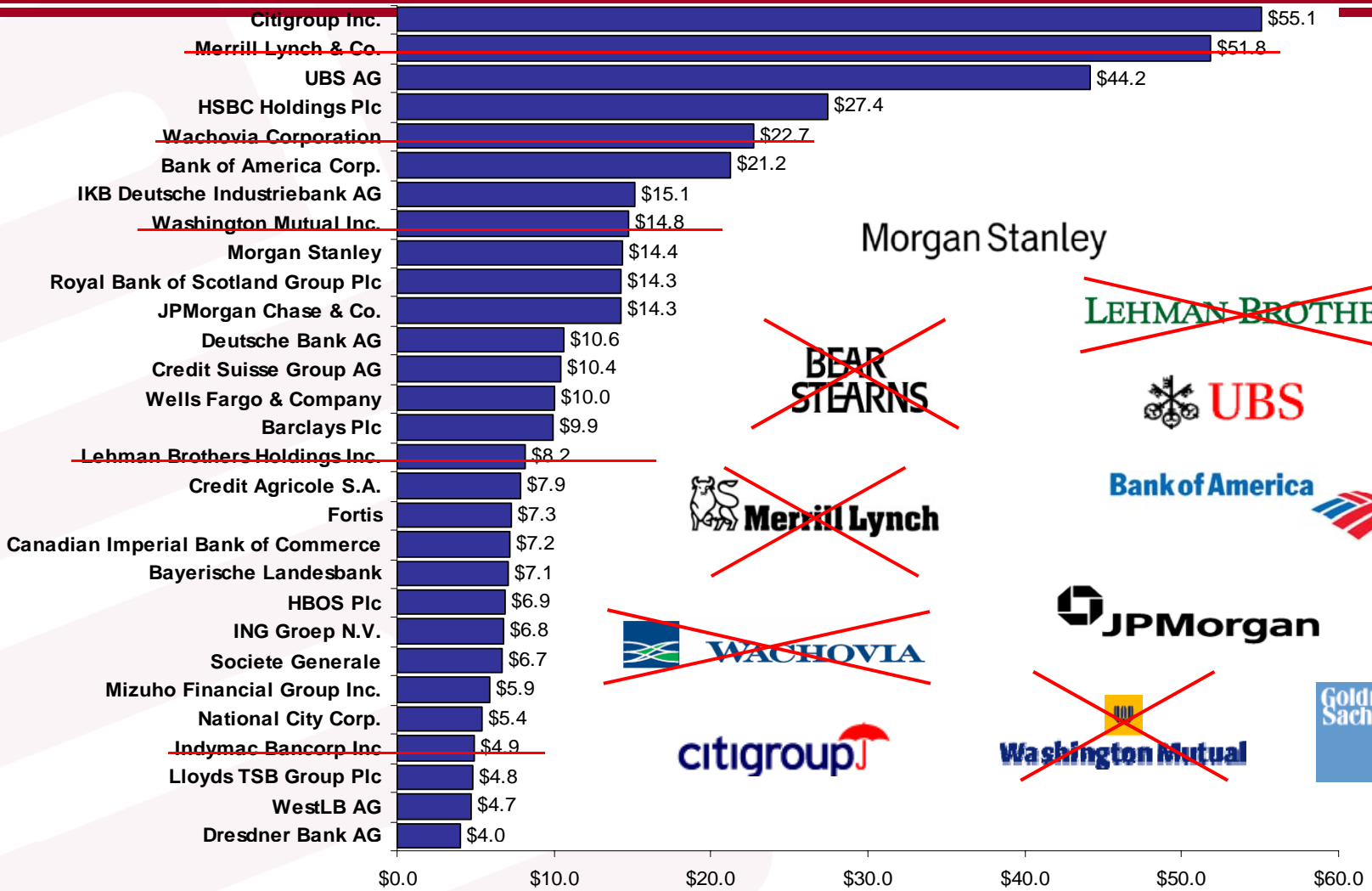




- *WIB/AABD*
- *Directors Conference*
- *November, 2009*

□ *Portfolio Stress Testing:
We've Done It...Now What?*

Global Consolidation and Write Downs Exceed \$500 Billion Worldwide



Source: Bloomberg as of 08/27/08.



Today's Headlines . . .

- SNL: “Bank Failure Audits Find Pattern of Weak Risk Management, Slow Regulatory Response”
- CNBC: “Stress Tests - Ten Banks Need to Raise \$74.6 Billion in Capital”
- Bloomberg: “TARP Panel Says Bank Stress Tests should Be Repeated”
- Reuters: “Study Suggests Systemic-Risk Charge for Small Banks”



A Banker's Perspective . . .

- Appetite for Risk– Identification and Planning
- Risk Management
- Comprehensive Risk Modeling
- Benefits of Risk Modeling
- Lessons Learned
- The Next Step – Enterprise Risk Management



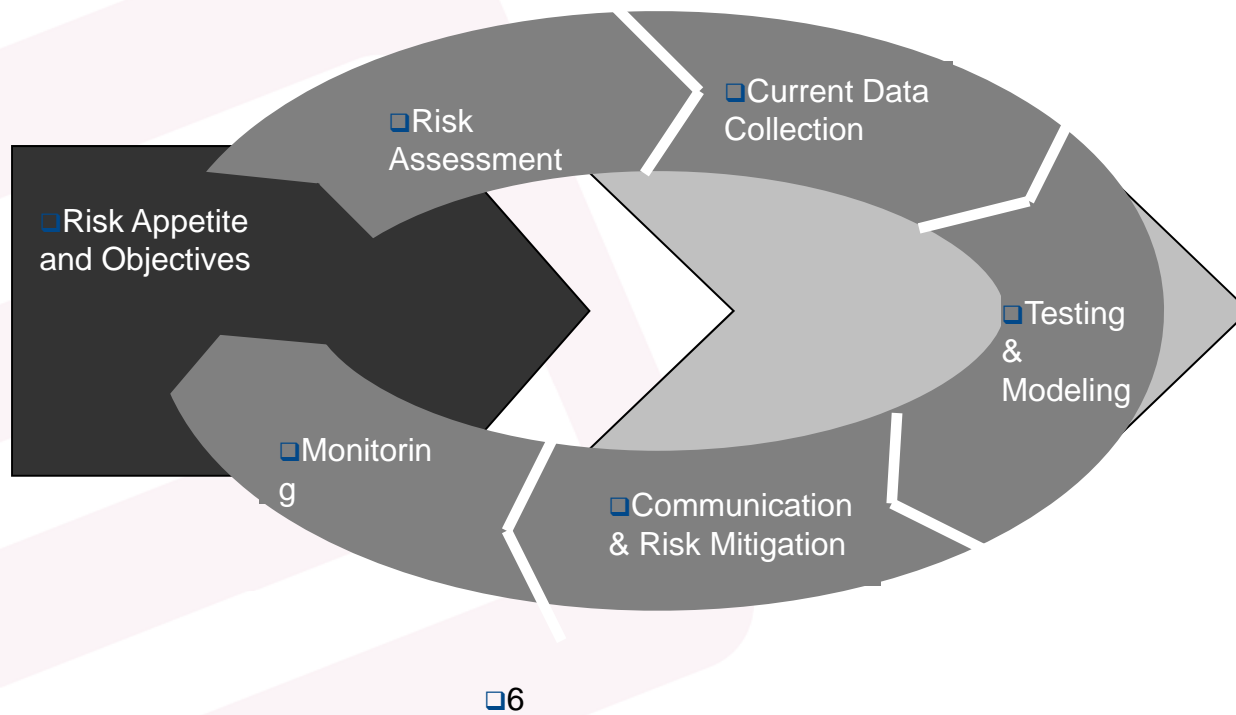
Appetite for Risk

- Document long-term objectives and strategies . . .
 - Balancing priorities, risk culture and controls
 - Incorporate new lines of business
 - Limit deviations from “plan”
- Identify concentrations.
- Identify leading indicators . . .
 - Coincident indicators support model results
 - Lagging indicators provide historical perspective



Risk Management

- Added governance and responsibility focused on processes and controls . . .

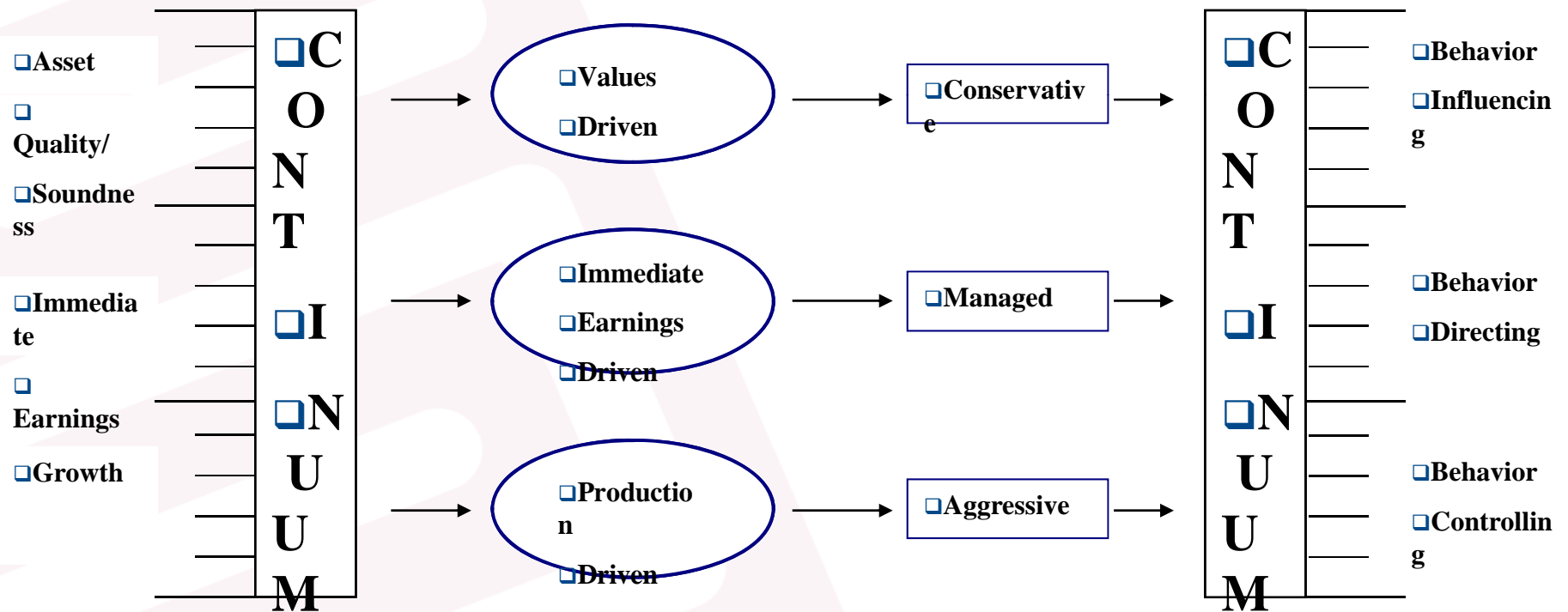
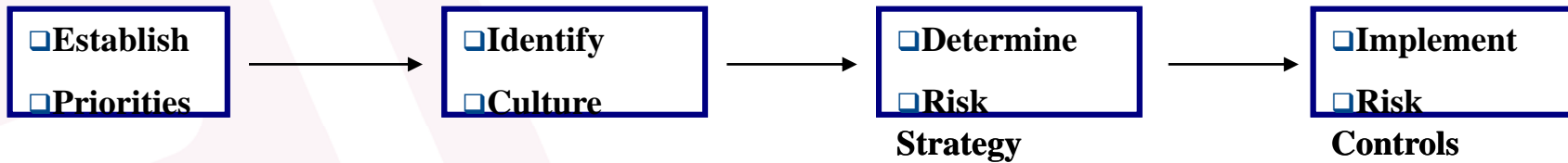


Risk Management

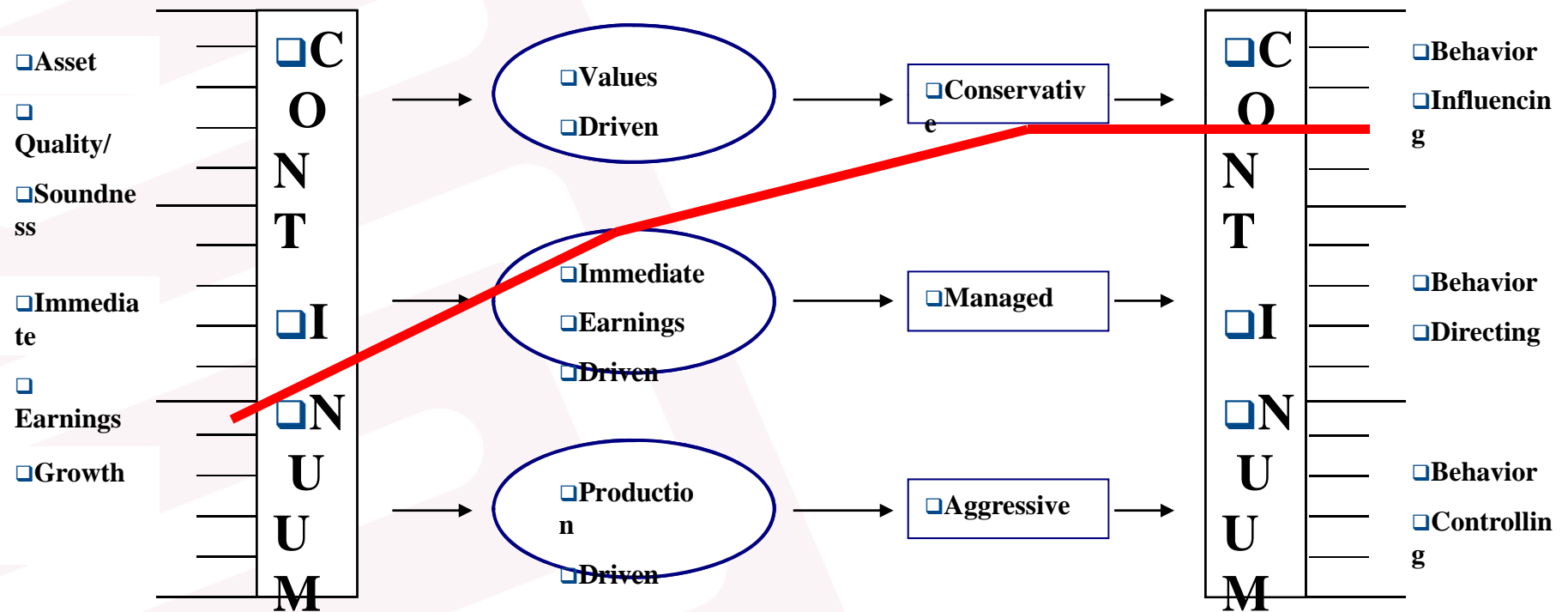
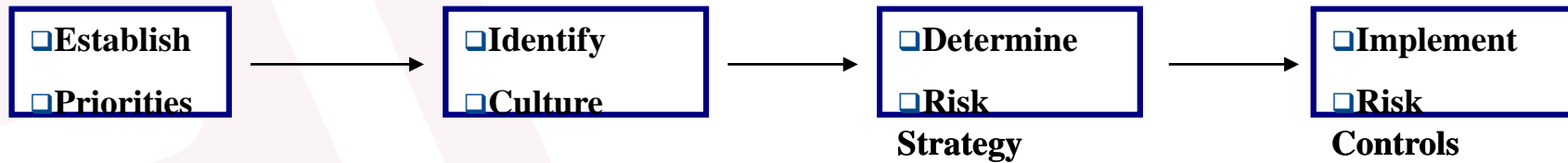
- Renewed regulatory focus on “Risk Management” and “Safety and Soundness” . . .
 - Asset quality / Credit Risk Exposure
 - Earnings / Profitability
 - Capital Adequacy



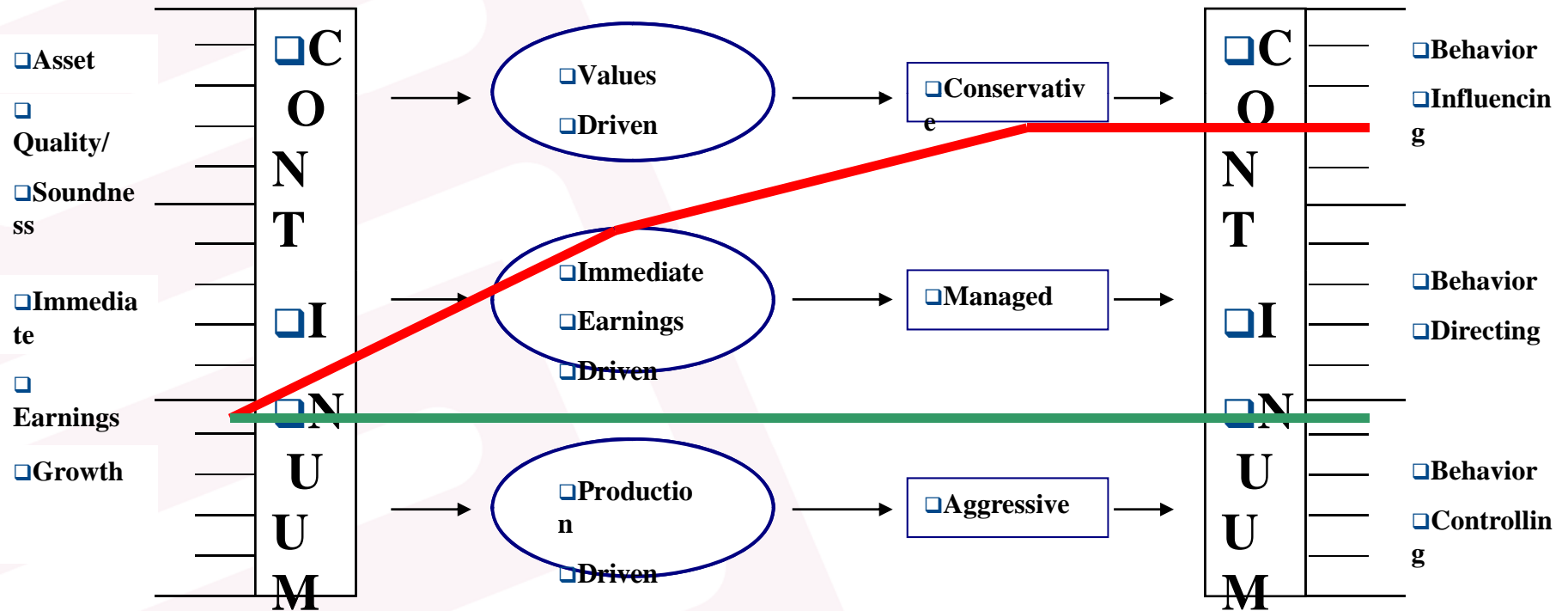
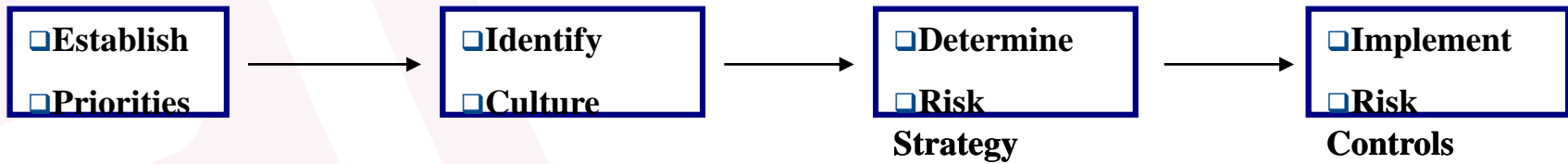
Risk Management



Risk Management



Risk Management



Comprehensive Risk Modeling

- Accumulation of sufficient, relevant and reliable data on which to base sound business decisions.
- Incorporate probability factors . . .
 - Probability of default
 - Probability of loss given default
- Disaggregation of the portfolio . . .
 - Concentrations
 - Geography



Comprehensive Risk Modeling

- Validate existing IT Core Data.
- Establish appropriate data fields . . .
 - Debt Service Coverage Ratio
 - Capitalization (CAP) rates
 - Estimated vacancy rates
 - Appraisal data
 - Market value, As-Is and Liquidation value
 - Appraisal date
- Maintain updated records . . .
 - Borrowing agreements
 - Credit administration procedures



Benefits of Risk Modeling

- Increased understanding of the loan portfolio.
- Detection of concentrations with similar risk susceptibility.
- Enhanced risk understanding and perspective throughout the organization.
- Identification of strategic opportunities.



Lessons Learned

- Trust the process . . . and the results . . .
 - Results should be reported at an actionable level
- Model validation . . . backtesting.
- Commit to action at identified trigger points . . .
 - Maintain flexibility
 - Reduce exposure to identified risks
 - May result in charge-offs or loss of earnings



Lessons Learned

- Make risk identification and management a cultural imperative.
- Incorporate knowledge gained . . .
 - Capital planning
 - Allowance for loan loss methodology
- Run model quarterly.
- Communicate results to the Board of Directors.



Enterprise Risk Management

- Develop a focused business plan . . .
 - Risk management
 - Lines of business (core and diversification)
 - Shareholder returns (risk and reward)
- Resource requirements . . .
 - Leadership at all organizational levels
 - Capital adequacy
- Accountability . . .
 - Board of Directors
 - Management



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