



Velligan-Blaxall Consultants, LLC

Post—Financial Crisis
Market and Liquidity Risk Management
Financial Management Society
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Introduction

- Importance of Asset Liability Management
- Lessons learned from the Financial Crisis
 - Risk governance and communications
 - Monitoring and measuring of exposure
 - Financial complexity undermined risk mitigation
- Regulatory perspectives
- Applying lessons from the crisis
- Key Take-Aways

Importance of AL Management

Importance of AL Management

Interest Rate Risk –IRR

- Some bankers are indifferent
- “It’s for the Regulators”
- “I know my bank and I know our risk”
- “Name me a bank that failed because of IRR”
- “Models are expensive and confusing”

Importance of AL Management

Liquidity Risk

- More of a concern than IRR
- “Plenty of liquidity”
- “Stable deposit base”
- “We have no loan demand”

Importance of AL Management

Asset Liability Management

- Interest Rate Risk
 - Adds franchise value
 - Maximize shareholder value
- Liquidity Risk
 - Institutional liquidity risk
 - Systemic liquidity risk

Lessons Learned from the Financial Crisis

Lessons Learned

DR. BERNANKE EXPLAINS QUANTITATIVE EASING

IF WE FEED THE BANKS ENOUGH DOLLARS, SOMETHING GOOD IS BOUND TO COME OUT THE OTHER END EVENTUALLY...



Lessons Learned

Risk governance and communication

- Strategic planning issues: failure to know the business
 - Risk appetite issues: failure to understand how much risk could be tolerated
 - Oversight and communication issues: inadequate communication among senior management, business lines, and risk management functions
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Lessons Learned

Monitoring and measurement of exposures

- Ineffective risk measures
 - Measures based on weak assumptions
 - Difficult to enhance measurements during the crisis
 - Measures used for compliance, not risk mitigation & balance sheet management
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Lessons Learned

Financial complexity undermined risk mitigation

- Increased structural complexity and optionality
 - Models were inadequate for valuing complex or potentially illiquid assets
 - Complexity required both qualitative and quantitative risk measurement
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Lessons Learned

Financial complexity undermined risk mitigation (cont'd)

- Failure to appreciate the depth of the crisis
 - Failure to recognize inter-relationship of risks
 - Challenge of risk concentrations and correlations
 - Excessive reliance on use of credit ratings
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Regulatory Perspectives

Regulatory Perspectives



Regulatory Perspectives

Environment

- 2010 Regulatory Guidance
 - Inter-Agency Advisory on Interest Rate Risk Management
 - Not much new
 - Inter-Agency Policy Statement on Funding and Liquidity Risk Management
 - Implications of Basel III

Regulatory Perspectives

Dividing Lines

- Economic environment and volatility
- Bank's asset size
- Balance sheet complexity and stability
- Exposures and optionality

Regulatory Perspectives

Dividing Lines (Cont'd)

- CAMELS Ratings and ALM Importance
 - Sensitivity to Market Risk (S) and Liquidity (L)
 - Capital Adequacy (C) and Earnings (E)
 - Asset Quality (A) and Management (M)
- "Raising the bar"

Applying Lessons from the Crisis

Applying Lessons

Risk Governance & Communications

Applying Lessons

Risk Governance & Communications

- Strategy – know your bank
 - Risk appetite and risk tolerance
- Risk oversight
 - Governance - independent review
 - Coordination and communication

Applying Lessons

Monitoring and Measurement of Exposures

Applying Lessons

Monitoring and Measurement of Exposures

- Avoid arbitrary metrics and limits
- Limits should establish clear warnings
- Metrics should be manageable and flexible

Avoid Arbitrary Metrics



Establish Clear Warning Signs



Manageable and Flexible

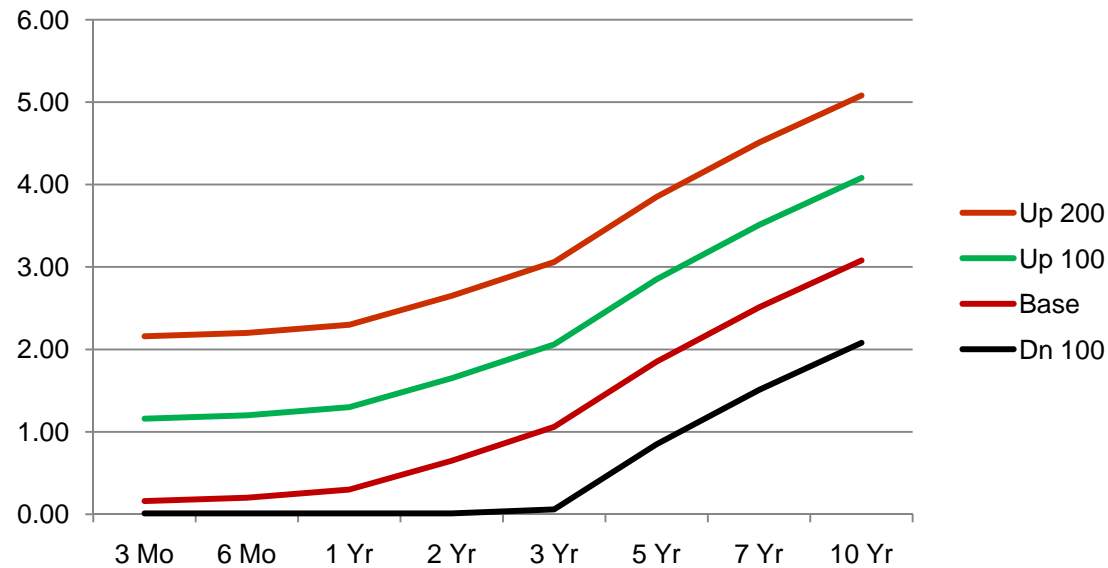


Applying Lessons: IRR Measurement

Measurement	Regulatory	Enhanced Practice
Short -term	Gaps, NII Simulation	Spreads, basis, twist
Long-term	Economic Value of Equity (MVE/NPV)	NII Simulations (>2Yr), Duration
Static (NII)	Run-off analysis	NA
Dynamic (NII)	Business and market assumptions	NA
Deterministic (NII /EVE)	Shocks (instantaneous/prolonged)	Stresses (historical/projected)
Stochastic (EAR/VAR)	NA	Historical/market elements –statistical

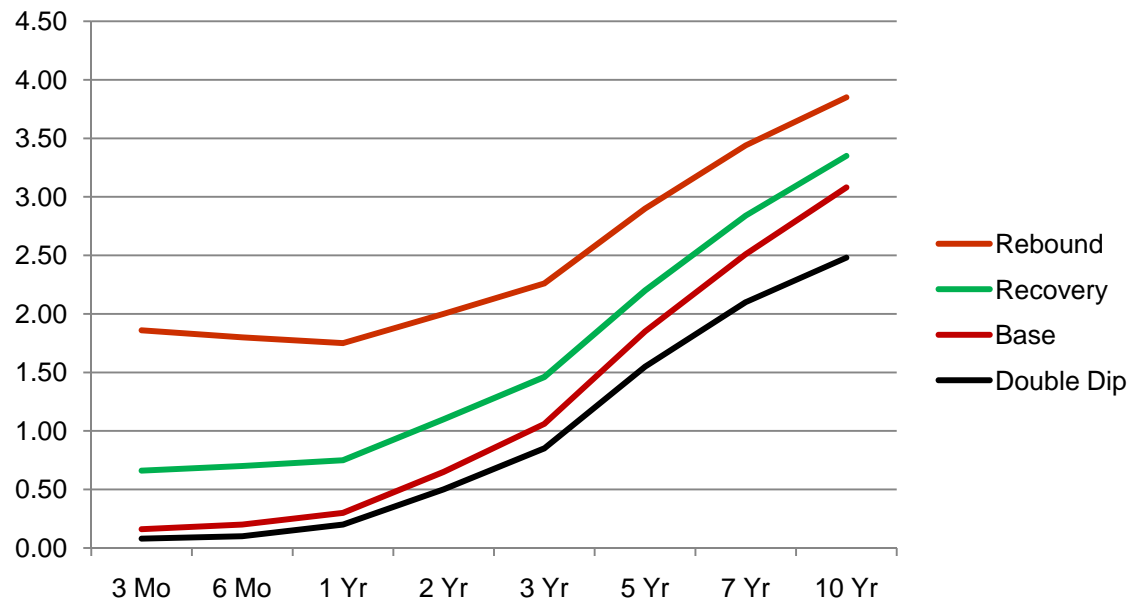
Applying Lessons: Shocks vs Stresses

UST - Shocks	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr
Up 200	2.16	2.20	2.30	2.65	3.06	3.85	4.51	5.08
Up 100	1.16	1.20	1.30	1.65	2.06	2.85	3.51	4.08
Base	0.16	0.20	0.30	0.65	1.06	1.85	2.51	3.08
Dn 100	0.01	0.01	0.01	0.01	0.06	0.85	1.51	2.08



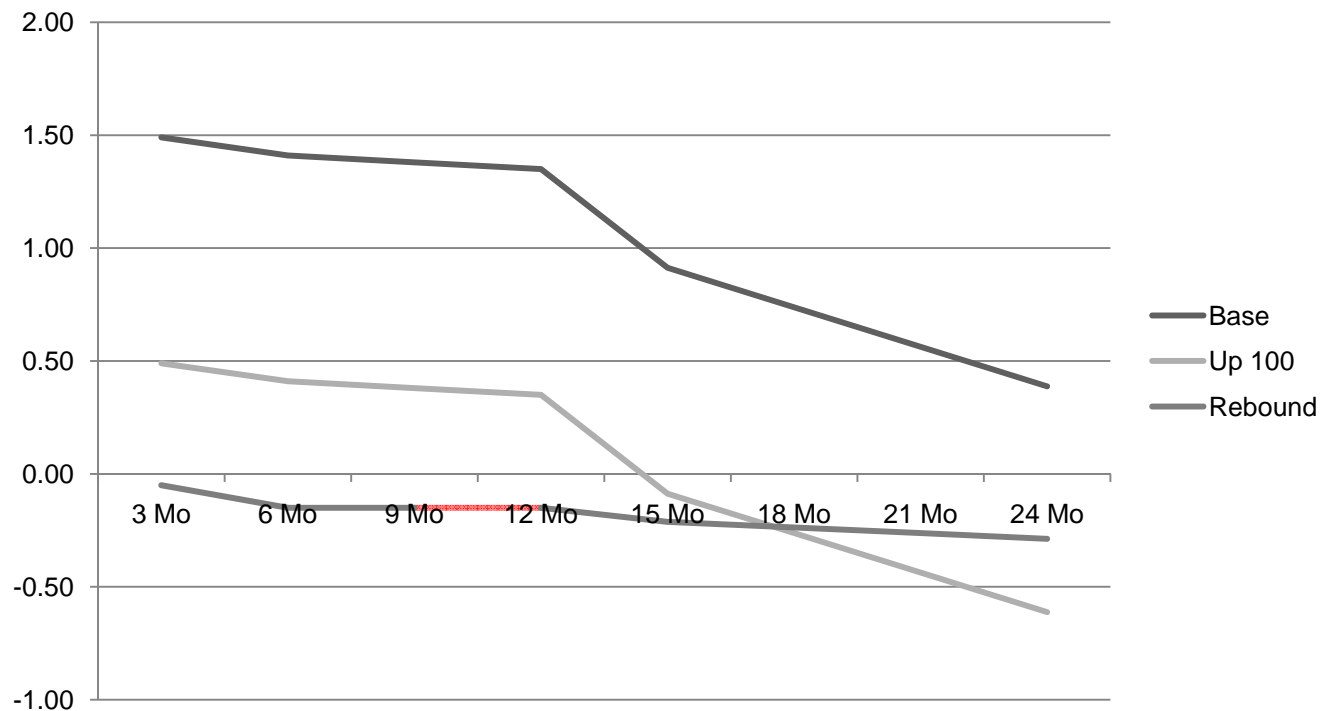
Applying Lessons: Shocks vs Stresses

UST - Stresses	3 Mo	6 Mo	1 Yr	2 Yr	3 Yr	5 Yr	7 Yr	10 Yr
Rebound	1.86	1.80	1.75	2.00	2.26	2.90	3.44	3.85
Recovery	0.66	0.70	0.75	1.10	1.46	2.20	2.84	3.35
Base	0.16	0.20	0.30	0.65	1.06	1.85	2.51	3.08
Double Dip	0.08	0.10	0.20	0.50	0.85	1.55	2.10	2.48



Applying Lessons: Shocks vs Stresses

Basis Point Spread:
Short-funded US Treasury



Applying Lessons: Liquidity Measurement



LOS VEGAS SUN 2008 KING PICTURE'S SYNDICATED

Applying Lessons: Liquidity Measurement

Measurement	Regulatory	Enhanced Practice
Short -term	Intra-day, monthly, quarterly, cash flows	NA
Long-term	Long-term cash flows	NA
Stress analysis	NA	Environmental, hypothetical, AL concentrations
Ratio analysis	NA	Liquidity coverage, net stable funding ratio

Applying Lessons: Liquidity Measurement

Liquidity coverage ratio

- Adequate level of unencumbered assets
- High quality liquid assets/30 day net cash flows >100%

Applying Lessons: Liquidity Measurement

Net stable funding ratio

- Encourages longer funding of assets
- Available stable funding/Required stable funding >100%

Applying Lessons

Financial Complexity Undermined Risk Mitigation

Lessons Learned: Financial Complexity

10 NC 1 Year Callable Asset @ 3.40%

10 NC 1 Year Putable Liability @ .75%

	-100+0	Base	100+0	200+0	300+0
Callable Asset Duration	1.46	5.52	8.48	8.50	8.79
Putable Liability Duration	1.93	1.68	1.16	.98	0.98
AL Duration Gap	(.47)	3.84	7.32	7.52	7.81
Net Interest Spread (%) - Year 1	2.57	2.65	2.89	3.15	3.42
Net Interest Spread (%) - Year 2	(0.48)	2.65	2.43	1.73	1.03
Net Interest Spread (%) - Year 3	(0.72)	1.98	1.18	0.37	(0.45)
Net Interest Spread (%) - Year 4	(0.17)	1.17	0.32	(0.53)	(1.38)
Net Interest Spread (%) - Year 5	-	0.48	(0.41)	(1.30)	(2.18)

Analytics powered by ZM Financial Systems' onlineALM.com model
Chapel Hill, NC



Applying Lessons: Risk Mitigation

Mitigation	Description
Integration of economic expectations	Relate economy to rate environments, credit spreads, strategies
Combine shocks plus stresses	Translates economic expectations into risk measurement
Improved governance	Strengthen oversight and expertise
Enhanced measurement	Improve measurement tools, techniques and information

Applying Lessons: IRR Risk Mitigation

Strategy

Change exposure to interest rates –
Use loans, investments, funding,
derivatives

Balance exposure to shocks with
exposure to high probability
scenarios

Raise additional capital

Applying Lessons: Liquidity Risk Mitigation

Primary/Operating	Secondary/Contingent
Intraday position management	Collateral management
Funding diversification	Contingency funding plan (institutional vs systemic)
Stable funding management	Buffer/Cushion (Liquidity coverage)

Key Take-Aways

Key Take-Aways

- AL Management builds franchise value.
- Regulatory expectations will grow with bank complexity and improvements in technology.
- Stay a step ahead of the curve.
- Know your appetite and tolerance for risk.
- Have the correct risk management tools in your toolbox.

Key Take-Aways (Cont'd)

- Independent risk oversight capability is critical.
- Metrics should not be arbitrary; should provide clear warning signs and be manageable and flexible.
- Metrics should balance short-term and long-term views and include enhanced stress testing.
- Risk mitigation: proactive balance sheet management is superior to management for the sake of compliance.