



Key Risk Indicators: Extracting Value

Session 2




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- SVP & Senior Risk Officer at Newtown Savings Bank (\$950 million in assets)
- Member of RMA’s Operational Risk Council
- Former SVP, Operational Risk Management at People’s United Bank (\$21 billion in assets)
- Prior line experience in retail and commercial banking
- Developed People’s pioneering ORM program -- 97% “approval rate”
- Participant in KRI study and library development sponsored by RMA and RiskBusiness



Agenda

<p><u>Session 1: Practical Issues</u></p> <ul style="list-style-type: none"> > What are KRIs? > Why are KRIs Valuable? > Creating a KRI Program 	<p><u>Session 2: Extracting Value</u></p> <ul style="list-style-type: none"> > KRIs and The Larger Context > KRIs and Reporting > New Frontiers for KRIs
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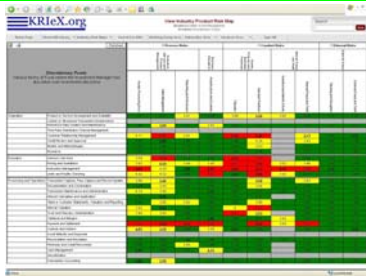
KRIs and the Larger Context

Some Concerns About KRIs

- Are they predictive?
- Are they actionable?
- Do they exist for all risks, some, or just a few?
- Are they duplicative?
- Are they activity traps?
- Are they finite?

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Frameworks and Maps



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Framework Elements: Processes

- Origination
 - Execution
 - Processing Operations
- BCM
 - Technology
 - Finance
 - Oversight
 - Human Resources
 - Corporate Services
- Origination
 - Product or Service Development and Suitability
 - Custom or Structured Transaction Infrastructure
 - Reference Data Creation and Maintenance
 - Third Party Distribution Channel Management
 - Customer Relationship Management
 - Credit Approval and reviews and Approval
 - Models and Methodologies
 - Research



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KRIs and Other Types of Tools

- KRIs: Forward looking; track risk; trigger mitigation; improve communication
- Risk and Control Self Assessments (RCSAs): Forward looking; action oriented; drift away from original standards
- Scenario Analysis: Forward looking; addresses major issues; subjective and hard to QA
- Loss Data Collection: Backward looking; focus: reality check for scenarios and RCSAs; capital estimation; become outdated
- Benchmarking: Very useful for QA, interpretation with loss data, capital, scenarios and KRIs

KRIs help here



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KRIs and Other Types of Risk

- Credit risk
 - Failed due diligence
 - Policy exceptions
 - Documentation errors
 - Staff experience
 - turnover
 - years in position
 - years in industry
 - training
- Credit scores
- Concentration measures
- Ratings
- Volatility
- Smile

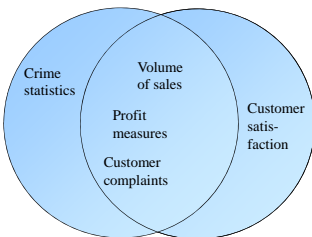
KRIs for operational risks associated with credit processes

KRIs for credit risks

KRIs for market risks



KRIs and KPIs



➤ Key Risk Indicators (KRIs) are objectively measurable quantitative indicators of recent, current or future loss or risk that are useful in managing risk

➤ Key Performance Indicators (KPIs) are objectively measurable quantitative indicators that are useful in managing performance



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Key Criteria for Effective Reporting

- Is the report understandable?
- Is there so much data that users are overloaded?
- Is there so little data that disclosure is inadequate?
- Is it possible to drill down to finer levels of detail?
- Is the report actionable?
- Is the data readily accessible?
- What resources are required to produce the report?
- What is the frequency with which the data is updated?
- What is the lag-time between an event and the availability of data?
- Is the data relatively static, or more volatile?
- Does the data need to be put in context?
- To what extent are unusual results readily apparent?



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It All Boils Down To:

Reports that people will actually use to move the business forward (or keep it from moving backward).

- Any report that fails to accomplish that destroys value (and credibility).



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So How Do We Achieve Effective Reporting?

- Understand the perspectives of all users
- Customize reports for each audience
- Utilize existing data where possible
- Limit detail
- Provide drill-down capabilities
- Use charts, graphs, pictures, stoplights and heat maps
- Seek and utilize user feedback
 - Initially
 - Periodically
- Eliminate information that isn't adding value
- Benchmark with internal and external peers



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Starting with Thresholds

- Thresholds support comparability and objectivity
- Thresholds help articulate risk appetite or risk tolerance
- Thresholds provide a trigger for attention, investigation, action
 - Each indicator has two thresholds – ‘yellow’ and ‘red’
- Thresholds facilitate escalation
 - Let senior management focus on areas of elevated risk
- Thresholds facilitate benchmarking amongst units

Based on Carole Carpenter: RBC Financial: 10/07



Thresholds: How Much is Too Much?

- How much risk is too much risk? A bit too much? A lot too much?
 - Past experience
 - Experience at similar units
 - Industry experience (benchmarking)
 - In relation to revenue, profit, cost base
 - Management and senior management 'gut feel'
 - When would you tell your boss? His/her boss?
 - When would you want your people to tell you?
- What does Risk (the group) know about my business?
 - More than you think!
 - View on all units, external peers (working groups, benchmarking)
 - Own experience base
 - Discussions with management, senior management

Based on Carole Carpenter: RBC Financial: 10/07



Types of Thresholds

- Should a threshold be –
 - Absolute? – e.g. 3 client complaints in one month?
 - Relative? – e.g. 3 complaints per 100 clients in one month?
 - Boundaries of a range? – e.g. 2 > client complaints per month > 10?
 - Comparative? – e.g. ±20% change from previous period?

Based on Carole Carpenter: RBC Financial: 10/07



Types of Thresholds

- Absolute thresholds –
 - Low or zero tolerance situations
 - Stable environments
 - Risk not dependent on volumes or size
- Relative thresholds –
 - Risk dependent on volumes or size
 - Provides scalability for benchmarking amongst units of different sizes
- Boundaries of a range as thresholds –
 - Risk dependent on variable factors
- Comparative thresholds –
 - To capture abrupt positive/negative changes
 - Generally used in tandem with other indicators

Based on Carole Carpenter: RBC Financial: 10/07



Threshold Examples*

(10 KRIs related to staff quality in a business unit – setting thresholds)

	L ₁	L ₀	H ₀	H ₁
Disciplinary Actions (# in past yr)	-	-	5	10
Education Level (av. years)	13	15	-	-
Performance at Last Review (1 – 4)**	-	-	2	3
Vacation Days (days)***	8	10	-	-
Staff Experience in Company (av. years)	2	4	-	-
Staff Experience in Function (av. years)	2	3	-	-
Staff Experience in Industry (av. years)	4	5	-	-
Staff Experience in Unit (av. years)	0.75	1.5	-	-
Staff Turnover (%pa)	1	3	14	20
Training Days (av. # of days pa)	4	8	-	-

** 1 – good; 4 – bad
 *** the minimum # of days continuously away in the past year

* Part of the ARM Methodology: Patent Pending



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Reviewing Thresholds

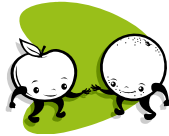
- At regular intervals?
 - Yes - Need to review periodically that the right indicators are being used and that the thresholds remain appropriate
- When an indicator's been 'red' too often?
 - Yes – Why is the indicator always red? Do changes in the unit warrant an adjustment? Is our risk appetite/tolerance different than we originally thought? Is there a problem that's not being addressed?
- At other times?
 - Yes – Change in activities, restructuring, acquisitions, divestitures, change in risk appetite/tolerance
- Who can change thresholds?
 - Central risk group only!

Based on Carole Carpenter: RBC Financial: 10/07



Transformation to T-Value*

- Composite indicators add value to reporting efficiency and effectiveness
- Issue is how to develop composite indicators from disparate KRIs (combine apples and oranges)
- Requires a 2-step approach:
 1. Transform any KRI into a T-value
 2. Combine T-values into a composite



* Part of the ARM Methodology: Patent Pending



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Transformation to T-Value (continued)*

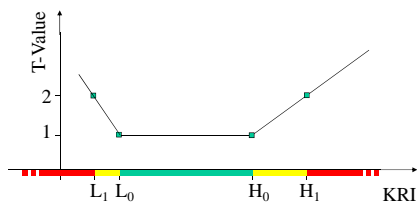
- If the underlying KRI is in the green range, T = 1
 - Doesn't matter where in the green range the KRI is
 - No need to escalate
- T rises from 1 to 2 as the underlying KRI moves from the green/yellow boundary to the yellow/red boundary
 - Belongs on watch list
- T rises above 2 as the underlying KRI moves further into red territory
 - Needs to be escalated

* Part of the ARM Methodology: Patent Pending



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Transformation to T-Value*



* Part of the ARM Methodology: Patent Pending



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Combining T-Values Into a Composite

- Having developed an approach that can relate disparate information, the opportunity exists to combine numerous individual KRIs into a single composite KRI.
 - Reduces the volume of information to be reported
 - Facilitates focus on issues and areas requiring attention



Developing Composite Indicators



Base Value and T-Value Reporting

Disciplinary Actions (# in past year)	7	1.35
Education Level (av. years)	16	1.00
Performance at Last Review (1 - 4)	2.5	1.5
Vacation Days (days)	12	1.00
Staff Experience in Company (av. years)	5	1.00
Staff Experience in Function (av. years)	2.6	1.3
Staff Experience in Industry (av. years)	7	1.00
Staff Experience in Unit (av. years)	1	1.65
Staff Turnover (% pa)	25	2.5
Training Days (av. # days pa)	6	1.5
Averages	8.41	1.32

* Part of the ARM Methodology; Patent Pending



Consolidated Reporting

- Staff Quality ■
- Audit Issue Management ■
- BCP ■
- Failed Customer Interactions ■
- Information Security ■
- Information Technology ■
- AML ■
- Operational Losses ■
- Process Breaks ■
- Profitability ■
- Policy Exceptions ■
- Regulatory Issues ■
- Change Management ■
- Europe ■
- North America ■
- Asia ■
- Trading and Sales ■
- Payments and Settlement ■
- Retail Banking ■
- Brokerage ■

* Part of the ARM Methodology: Patent Pending



Consolidated Reporting

GPB CONSOLIDATED KRI DASHBOARD REPORT - Month x 200x

KRI xx	Had been already improvement; Yellow trigger in month due to ...	KRI xx		KRI xx	
KRI xx	207 in month x, 150 in month x, 150 in month x				
KRI xx	Month x down to lowest since month x but month x "x" was \$467MM of which \$201 MM was attributable to:				

Regional Breakdown

Region	Persistent	Yellow	Red
Americas	0	6	0
Office A	1	2	0
Office B	4	3	0
Europe	0	1	0
Office C	0	0	0
Office D	0	1	0
Asia	1	2	0
Office E	1	1	0
Office F	0	1	0

Details including escalation and management action plans

Americas: Red include ... Persistent Yellow are in ... Management's action plans include ...

Europe: Red include ... Persistent Yellow are in ... Management's action plans include ...

Asia: Red include ... Persistent Yellow are in ... Management's action plans include ...

Based on Carole Carpenter: RBC Financial: 10/07



Reporting at the Unit Level

KRI Program – Monthly Report to Unit Management

GPB Unit Month & Year Office J Month x 200x

All Business Unit KRI Results

KRI	Description	KRI Score	Trigger Rating
Client Retention			
KR101	% of Clients Lost	0.22%	Green
KR102	CAS Dollar Value of Client Assets Lost	CAS 2,650	Green
Human Resources			
KR105	No. of Dismissals with Cause	0	Green
KR106	No. of Authorized Positions (Pending Review)	0	Yellow
Client Service			
KR107	No. of Complaints	1	Green
Client Risk Management			
KR103	% of Held Mail Clients	4.58%	Green
KR104	% of Dormant Accounts	1.69%	Green
KR108	No. of Fraud Attempts	0	Red

Based on Carole Carpenter: RBC Financial: 10/07



Arrows in the Quiver

- Numbers
 - Charts
 - Graphs
 - Tables
 - Heat Maps
 - Stoplights
 - Trend lines
 - Drill-downs
 - Composites
 - T-values
- Comparisons
 - Prior periods
 - Other units
 - Other geographies
 - External benchmarks
 - Thresholds
 - Absolute
 - Boundaries
 - Relative
 - Comparative



Selected Reporting Do's and Don'ts

DO:

- Regularly consider all of the arrows in your quiver
- Provide different reporting for different levels of the organization
- Consolidate multiple indicators into a single index when feasible
- Ensure that issues of concern jump off the page
- Seek regular user feedback

DON'T

- Get locked into a single way of disseminating information
- Over-estimate the attention span of your audience or include more than they can realistically absorb
- Collect information that is already available
- Hesitate to propose the elimination of content lacking a clear value proposition



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Industry Collaboration

- As the field of operational risk management in general and the discipline of KRIs in particular matures, new opportunities exist for institutions to pool knowledge, experience and resources to further learning and accelerate the development of best practices.



Example: RMA/RiskBusiness Top 18 KRIs for Retail Lending

Account Reconciliation Risk

- # open items beyond threshold
- Reconciliation differences

Change Risk

- Volume increase/decrease by product
- # of regulatory changes during period

Compliance Risk

- External audit points open, overdue or raised
- # new products or substantial changes
- # of compliance-related complaints
- Compliance issues raised by external professional bodies
- # of policies and procedures not reviewed within threshold

Disbursement Risk

- # of new loans with loan/security documentation out of order

Fraud Risk

- # of exceptions to lending policy
- % of loans that default early
- % of applications originating from outside (i.e. brokers)
- # of lenders or units that exceed sales target by a predefined percentage

Information Security Risk

- # of 3rd parties dealing with NPI
- # of attacks reported
- % of 3rd parties with exceptions or concerns
- Delays in access right reviews



External Benchmarking

▪ Purpose:

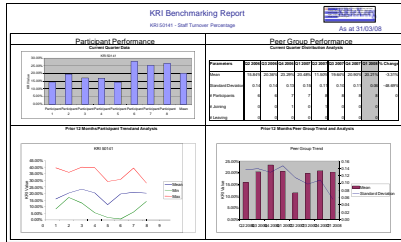
- Another context for interpretation
- Estimating thresholds
- Correlation estimates with loss or exposure
- Refining capital adjustments
- Controlling internal quality
- Improving scenario analysis

▪ Issues:

- Data quality
- Data confidentiality and security
- Finding a relevant peer group
- Data entry and information retrieval



Benchmarking Reports



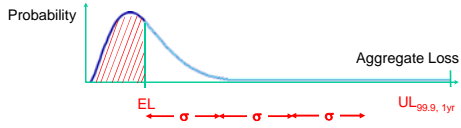
Interpreting External Benchmarking

- Identifying industry trends
- Identifying and evaluating outliers atypical developments
- Identifying internal data problems
- Constructing more realistic scenarios
- Adjusting capital estimates

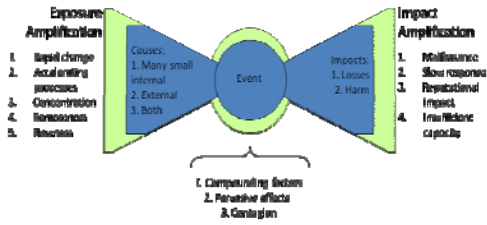
Testing KRI Correlations

- Testing against changes in exposure or loss?
- Testing singly or in groups?
- Testing concurrent and leading?
- ➔ Prioritizing action
- ➔ Better estimation of business environment and control factor adjustments
- ➔ Better reporting

Measuring Exposure



Focusing on Major Events



Revised by the IMA Group Analysis by IMA Club, 2008/2009 International

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Summary

- KRIs help answer the central question of whether things are getting better or worse.
- They create value by helping institutions track risk, trigger mitigation activities, improve communication, and strengthen other elements of the ORM program.
- The creation of a strong KRI program is an evolutionary process, requiring management support, patience, and ongoing fine-tuning.
- The discipline is still relatively new within banking.
- Reporting is tricky and requires a great deal of communication and trial & error.
- Industry collaboration is advancing gradually and suggests that widely-accepted best practices and external benchmarking may be realistic goals in the years to come.



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