

## Key Risk Indicators: Practical Issues

Risk Management Association

*Part One*



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## Facilitator: Ken Weinstein

- 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



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## Agenda

### Part 1: Practical Issues

- What are KRIs?
- Why are KRIs Valuable?
- Creating a KRI Program

### Part 2: Extracting Value

- KRIs and the Larger Context
- KRIs and Reporting
- New Frontiers for KRIs



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What are KRIs?

## KRI #1: Traffic Volume

- Traffic volume is an indicator of how dangerous it is to cross the road
- So are speed, variety of vehicles, illumination levels
- Other circumstances matter – do drivers expect pedestrians?
- What do we do with the knowledge?



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What are KRIs?

## Definitions

Operational Risk	Risk of loss due to a failure of people, processes or systems or due to an external event
Risk	Probability distribution of possible outcomes in the future
Operational Risk Event	Event where an operational risk arises
Operational Risk Loss	Loss caused by an operational risk event
Key Risk Indicator	Indicator that tracks an aspect of a significant risk effectively
Aspect	Frequency, severity (impact), exposure or incidence, by itself or with other indicators
Tracks	Changes as aspect changes predictively, concurrently, or with a lag



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### Definitions

Severity	Used three ways to mean: the value of an individual loss; the distribution of losses from some set of past events; or the probability distribution of severity in the future. Measured in dollars or other currency. When used in the second or third way, it answers the question: "What percent of the time did (will) you see losses of a particular size?"
Frequency	Used two ways to mean: the incidence of losses from some set of past events; or the probability distribution of the incidence of losses in the future. Measured in events per period. It answers the question: "How often did (will) you see a particular number of losses each day (or week, or other period)?"
Risk (again)	Frequency and severity combined. It answers the question: "How often did (will) you see a particular number of losses of a particular size each day (or week, or other period)?"




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### Event #1: Lending Fraud Utah Copper Employees Credit Union

- Case
- > Barbara Coward, 72
  - > Internal fraud: 1963 – 2003; \$2.6mm
  - > Succession of small loans under false names serviced with previous proceeds
- |                                 |                            |
|---------------------------------|----------------------------|
| KRIs                            | Other Policies             |
| > Revenue growth                | > Screening job applicants |
| > Reconciliation differences    | > Rotation of duties       |
| > Loan reviews overdue          | > Separation of duties     |
| > Vacations policy exceptions   |                            |
| > Staff experience (supervisor) |                            |
| > Internal audit scores         |                            |

Source: Algo First Database




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*What are KRIs?*

## Event #2: Losing Records Citigroup


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Case

- UPS and Experian Information Solutions, Weehawken, NJ
- May 2, 2005: reputational damage
- Vendor failed to meet SLA requirements and lost 3.9mm customer records

<p>KRIs</p> <ul style="list-style-type: none"> <li>➢ Due diligence reviews</li> <li>➢ Delayed deliveries</li> <li>➢ Vendor SLA exceptions</li> <li>➢ Vendor performance report scores</li> </ul>	<p>Other Policies</p> <ul style="list-style-type: none"> <li>➢ Data encryption and electronic transmission</li> <li>➢ Penalties for SLA breaches</li> </ul>
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Source: Algo First Database



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*What are KRIs?*

## Event #3: Scrapyard Faxes CIBC


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Case

- CEO John Hunkin; Allstar Sportsline Products Inc., Mr. Peer in WV
- 7/01 – 11/04; reputational
- Retail customer funds transfer instructions fax sent to wrong 800 number

<p>KRIs</p> <ul style="list-style-type: none"> <li>➢ Customers lost</li> <li>➢ Customer complaints</li> <li>➢ Payments disputes</li> <li>➢ Payments delays</li> <li>➢ Amended documentation</li> <li>➢ Process workarounds</li> <li>➢ Audit points</li> </ul>	<p>Other Policies</p> <ul style="list-style-type: none"> <li>➢ Customer complaint escalation</li> <li>➢ Data transmission policies</li> </ul>
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Source: Algo First Database



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*What are KRIs?*

## Event #4: Robbery Blue Ridge Savings


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Case

- Margaret and James Barnes and Sylvia Holzclaw, I-85, SC.
- Workplace safety: May 16, 2003; loss of life, litigation
- Two customers and employee killed during a robbery at a trailer branch

<p>KRIs</p> <ul style="list-style-type: none"> <li>➢ Robberies</li> <li>➢ Branch security score</li> <li>➢ Suspects reported</li> <li>➢ Security system activations</li> <li>➢ Local crime statistics</li> <li>➢ Training days</li> <li>➢ Staff turnover</li> </ul>	<p>Other Policies</p> <ul style="list-style-type: none"> <li>➢ Physical security standards</li> <li>➢ Branch location policy</li> <li>➢ Branch personnel training 16</li> </ul>
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Source: Algo First Database



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### Event #5: Societe Generale (2008)

Case

- January 2008 rogue trading incident (Jerome Kerviel)
- Trading was initially profitable, then resulted in increasing losses
- Loss was 1.9 billion euros when discovered but 4.9 billion euros (\$7 billion) once unwound

KRIs

- Cancelled or modified trades
- Above market returns
- Security processing violations
- Deferred settlement dates
- Intermonth cash flows
- Limit violations

Other Policies

- Segregation of duties
- Supervisory oversight
- Internal audit risk assessment

Source: Algo First Database



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### General Points from Events

- Some KRIs are common or fairly generic; others very specific
- KRIs unlikely to forecast an actual event – ever; but may well indicate an exposure/level of risk
- KRIs are likely to track better collectively than singly
- KRIs do not reduce risks:
  - management reactions to KRIs can
  - other things such as adherence to policies can
- KRIs are sometimes KCIs (Key Control Indicators) and KPIs (Key Performance Indicators) too



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### KRI #2: Audit Points

- Audit points raised and unresolved
- Number, measured quarterly
- where
  - measured quarterly at local business unit level or
  - “raised” is raised during last audit
  - “unresolved” is where remedial actions have not been completed to the satisfaction of the internal audit department



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### KRI #3: Staff Turnover

- Number leaving plus number arriving divided by two times total number
- Percent, measured quarterly and then summed for the last four quarters to give an annual rate
- where
  - measured quarterly at local business unit level
  - "staff" is full time officers and employees (excluding part-time employees and consultants)
  - "number leaving" is the number with effective date of transfer or final day employment during the quarter
  - "number arriving" is the number with effective date of transfer or first day of employment during the quarter
  - "total number" is the number of filled positions at the beginning of the quarter




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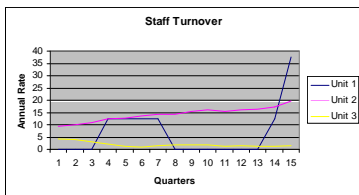
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### KRI #3: Changes in Staff Turnover



- Size
- Location
- Type of unit
- Institution




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### General Points from KRIs

- Some KRIs may be comparable at different scales and in different units while others are not
- Trends and jumps in KRIs can be as revealing as their values in a given period
- Interpreting KRI movements depends on a knowledge of circumstances




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### 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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- New Frontiers for KRIs

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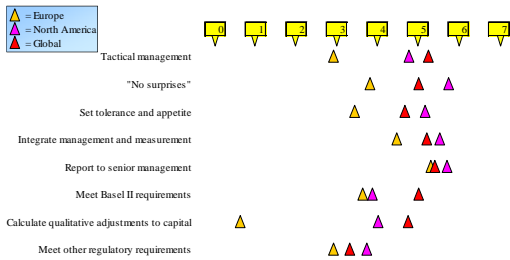
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### The Value of KRI Programs

(0 = unimportant; 7 = very important)



Source: KRIaX: Report on a Survey of KRI Programs

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### Use #1: Track Risk

- Track severity      revenue growth, number of documentation issues, business continuity plan testing
- Track frequency      robberies, frauds
- Reveal atypical situations      system capacity utilization
- Help contain major losses      failure to address audit points, anomalous treasury transfers




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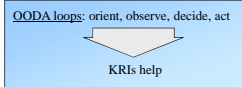
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### Use #2: Trigger Mitigation

- Issue escalation      staff turnover
- Exposure reduction      derivatives documentation delays
- Rapid response      new fraud trends




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### Use #3: Improve Communication

- Reporting      Traffic lights
- External communications      Customer environmental issues
- Amongst units      Trigger lesson sharing
- Define appetite and tolerance      Staff turnover around 5% and below 10%

Appetite and tolerance can also be usefully defined in terms of frequency and cumulative loss; you can't easily act on, or sensibly be held accountable for an operational risk limit or a threshold defined in terms of severity or variance of outcomes.

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### Use #4: Strengthen Other ORM

- Capital estimation
- Risk and Control Self-Assessments
- Business Environment & Control Factors – audit points, mitigation indicators, credit cycle indicators
- Program prioritization, individual assessment, realism checks



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### False and Spurious Arguments Against KRIs

- |                                       |                                      |          |
|---------------------------------------|--------------------------------------|----------|
| • Regulators don't require KRIs       | For capital estimation               | spurious |
|                                       | As part of sound management          | false    |
| • KRIs can't forecast losses          | Statistical proof missing            | spurious |
|                                       | They are not "directionally correct" | false    |
| • There is no consistent "Top 10"     | That works for all time              | spurious |
|                                       | That works currently                 | false    |
| • KRIs are only valuable tactically   | Useful to low level managers         | spurious |
|                                       | Cannot serve senior management       | false    |
| • KRI data matter less than loss data | For capital estimation               | spurious |
|                                       | For reducing future losses           | false    |



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### The Value Propositions Summarized

KRI program objectives are fulfilled when ...

- Tactical Management
- "No surprises"
- Tolerance and appetite
- Measurement :: management
- Reporting



... KRIs to succeed in ...

- Tracking Risk
- Triggering Mitigation
- Improving Communication
- Strengthening Other ORM programs

... are delivered, which requires in turn ...



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## Agenda

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<p><b><i>Part 1: Practical Issues</i></b></p> <ul style="list-style-type: none"> <li>&gt; What are KRIs?</li> <li>&gt; Why are KRIs Valuable?</li> <li style="background-color: #ADD8E6; padding: 2px;">&gt; Creating a KRI Program</li> </ul>	<p><b><i>Part 2: Extracting Value</i></b></p> <ul style="list-style-type: none"> <li>&gt; KRIs and The Larger Context</li> <li>&gt; KRIs and Reporting</li> <li>&gt; New Frontiers for KRIs</li> </ul>
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*Creating a KRI Program*

## Program Components

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- Focus
- Policies
- Selection & specification
- Collection
- Analysis & Reporting
- Lessons



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*Creating a KRI Program*

## Focus

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- Business line champions – identify and support well-respected champions
- High risk points – the street light argument
- High frequency low impact – easier to demonstrate effectiveness
- Existing risk and control indicators – low cost of collection/collation
- Existing performance indicators – use unadjusted or use variance as risk indicators



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## Policies

- Supporting local champions
- A common language and structure
- Consistent definitions
- External data on indicators and losses
- Analysis
- Reporting requirements
- Software selection
- Indicator ownership (collection, consistency, etc.) and risk ownership clear
- Involvement of audit, compliance, finance (for SOX) in selection and specification




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## Selection & Specification

### Indicator Sources

- KRI Services Indicators
- Business Line Management Indicators
- Senior Management Concerns

**Edit an Indicator**

ID	8013 <small>Last changed: 2010-06-23 09:48</small>
KRI number	8013
Name	Customer and Clients - Number with Different Internal to Core
Description	The number of customers and clients whose current external credit rating differs from the equivalent rating of that of external credit rating agencies.
Rationale	Indicator acts as correct feedback on the credit review process.
Type	Frequency: <input type="text" value=""/> <input type="text" value=""/>
KRI nature	Current, Lagged: <input type="text" value=""/> <input type="text" value=""/>
KRI typography	Process: <input type="text" value=""/>
Externally comparable	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="button" value="Remove selection"/>




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## Selection Ideas: the "Top 10" KRIs

	Average Position	Number of appearances	Ranking
Staff turnover	3.8	9	1
Credit quality	1.8	5	2
Losses	6.3	6	3
Cash exceptions	2.3	3	4
System downtime	4.3	4	5
Failed trades	4.5	4	6
Audit Scores and Issues	4.8	4	7
IT system intrusions	4.3	3	8
Internal fraud rates	2.0	2	9
Client complaints	2.5	2	10
External fraud rates	2.5	2	11
Economic indicators	1.0	1	12
New accounts	1.0	1	13
Compliance breaches	5.0	2	14
Market risk limit excesses	7.0	2	15
RCSA program measures	7.5	2	16
Customer attrition	2.0	1	17
Employee complaints	2.0	1	18
Expenses	3.0	1	19
Investigations underway	3.0	1	20

Source: KR&X: Report on a Survey of KRI Programs




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### Selection Ideas: Suggestions from Experience

- Commercial discounts on specific products
- The number of transitory accounts
- Audit reports:
  - remarks on lack of controls
  - lack of expertise
  - aggressive selling
  - evidence of risk of fraud and other data on remote controls
- Clients surveys, complaints, claims, call center reports, inbound e-mail volume, measures of product quality
- Service level measures from SLAs

Source: Alexander Kaserer: Credit Anstalt Unicreditio September 2007



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### Selection Ideas: Suggestions from Experience

- IT system availability and capacity utilization
- Reconciliation and accounts outstanding, ticket adjustment information, purchase procedure derogation data
- Volume and value of litigation and lawsuits
- Performance indicators such as volume of revenues by product, channel and branch, gross income, cost income, employees turnover, number of branches
- GDP, industry data, crime statistics

Source: Alexander Kaserer: Credit Anstalt Unicreditio September 2007



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### Selection Ideas: Sources

- Risk owners (function and business line executives)
- Process analysts
- Auditors – internal and external
- Centers of excellence (such as vendor management)
- Compliance officers
- Legal and personnel departments (about procedure inefficiency, breaches of internal and external rules and inherently risky contracts)

Source: Alexander Kaserer: Credit Anstalt Unicreditio September 2007



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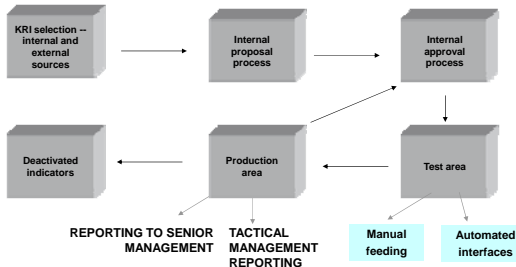
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### Collection Process Workflow



Source: Alexander Kaserer; Credit Anstalt Unicreditio September 2007



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### Analysis

Frequency vs. Severity:

- KRIs are more useful for areas with high frequency and low impact
  - Data availability
  - Back testing possibility
- Low frequency areas are better covered by Risk Assessment and Scenario analysis activities
  - Expert estimation can sometimes not be reflected in numbers

Analysis against

- internal loss data base by Business Lines
- internal loss data base by Risk Category
- internal loss data base by booking amount baskets

Source: Alexander Kaserer; Credit Anstalt Unicreditio September 2007



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### Lessons

- Focus:
  - Collect no more indicators than your bank can analyze
  - Begin with the end in mind – how can KRIs help managers make better decisions?
  - Support emergent champions vigorously
  - Give senior management quality information, not quantity
- Selection:
  - Prioritize products, channels and processes
  - Analyze revenue, risk/return trade-off and organize by IT system before reviewing with other sources
  - Involve the audit department in the selection process



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## Lessons

- Collection:
  - Start collecting – only the time will show you whether your selection was exactly right
  - But, when an indicator doesn't gain any traction, deactivate it
- Analysis:
  - Tolerance and appetite levels must be defined and adjusted by the affected department
  - Don't worry about difficult aggregation issues to start with – just report percent within tolerance
- Reporting:
  - Position reports for maximum attention
  - Understand your audience -- ask senior management what they expect



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## Key Risk Indicators: Practical Issues

Risk Management Association

Part 1



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