Getting Traction with KRIs: Laying the Groundwork

by Charles Taylor and Jonathan Davies

This article summarizes insights on the incidence of operational risk gleaned from Part I of the KRI Framework Study and discusses the direction of future work.

In recent years, a good deal of the focus in operational risk in large banks has been on quantifying risks and losses as precisely as possible. Behind much of this effort has been the Basel II requirement that by 2007 banks should be able to estimate how much capital they need to hold against their operational risks.

More recently, the banking industry has begun to devote attention to improving tools used in hands-on management of risks and, as a part of that effort, more scrutiny has been given to "indicators" of areas of higher risk and loss—*key risk indicators* (KRIs).

Some examples of KRIs are:

- Percentage of transactions that have not settled after five business days by product.
- Percentage of transactions requiring some manual input by product.
- Percentage of payments in compliance with OFAC.
- ATM robberies per 1,000 ATMs.
- Numbers of successful hackings into the production environment per year.
- Customer/client satisfaction by product.

KRIs can be useful even if they are only directionally correct most of the time, rising, falling and staying steady with the risks and losses they track. KRIs come in different flavors: coincident indicators that tell us something about losses as they happen; and lagging indicators that serve a purpose by being easier to observe and measure than the losses themselves. But KRIs tend to be most useful when they predict losses—provided they do it with reasonable accuracy.

However, therein lies the problem. KRIs, especially the more predictive ones, do not always track risks well. Some appear to have been defined at too high a level: For example, staff turnover rates for an entire bank don't track any particular loss that well. Others track operational problems well enough, but their relationship to the pattern of dollars lost is not all that well established.

Today, specific KRIs are defined differently from bank to bank and even among departments performing very similar functions in the same bank. Some institutions can count their indicators in the 1,000s as a result. This makes it very difficult to aggregate or summarize information for senior management on how loss and risk are evolving and how well they are being managed.

Up to now the industry has had considerable trouble telling which KRIs work well and which

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ones don't, and it has been difficult for banks to learn from one another's experience. With so many different definitions out there, it's impossible to know if we are comparing apples to apples.

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The Framework Introduced

To help come to grips with these problems, Risk*Business* approached RMA and suggested it sponsor a study to develop a KRI Framework for the banking industry. The aim is to achieve enough standardization, completeness, and consistency to create comparability and enable aggregation, analysis, and reporting at the corporate level, which in turn will set the stage for real improvements in the effectiveness of KRIs.

Is this quixotic? Do KRIs have to be as different from one another as they are? RMA, Risk*Business*, and the banks participating in Part I believe there is a good chance that the answer is no. Certainly, if standardization of loss event data is anything to go by, which the industry is testing in various consortia, a similar effort around KRIs may well be warranted.

Our approach to the task has been methodical:

- Part I—Define a standard risk point matrix and create risk maps.
- Part II—For a small sample of high-risk points, define and specify standard KRIs.
- Then, with a large sample of financial institutions, confirm the risk map and identify, define, and specify standard KRIs for a larger set of risk points.

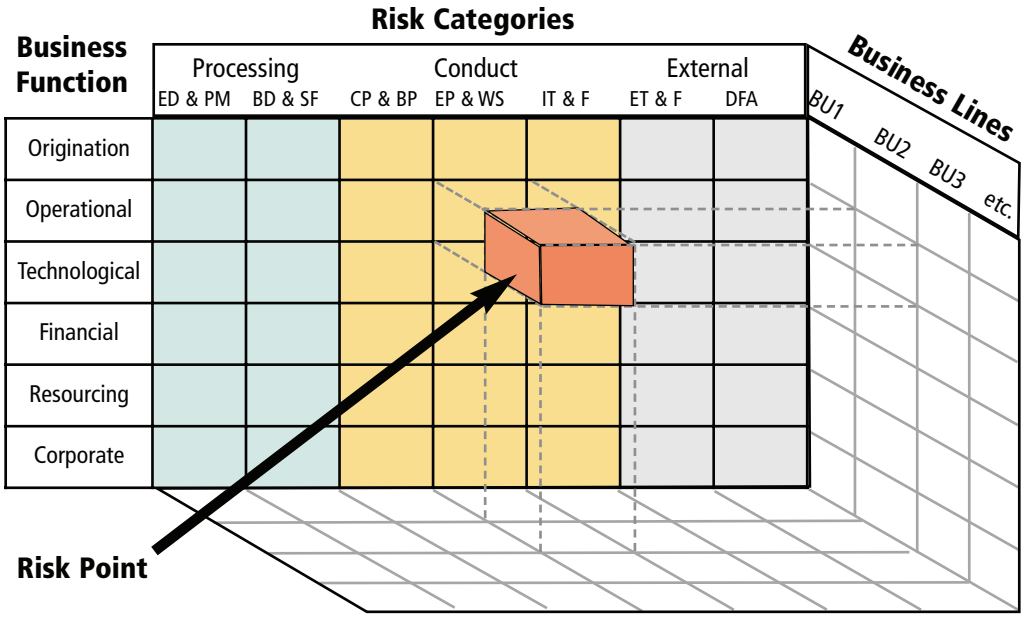
This standardization should have value in and of itself. Beyond that, however, in due course it should form the groundwork for a Part III industry effort to collect data on KRI values, something that would allow individual banks to benchmark against the industry at large.

Part I. Define a risk point matrix and create risk maps.

Risk*Business* took the seven risk and eight business definitions in Basel II and broke them down into a more granular set of definitions—15 risks and 38 products and services. Working with the participating banks, they then defined 45 functions (high-level processes) that between them account for practically every process supporting the delivery of every product and service a bank offers. With some aggregation of risk points shared across business lines, that yields a 3-D matrix with some 10,000 points where risks of a particular type could arise at a particular stage in the provision of a particular product or service.[1]

Figure 1

The 3-D Matrix: Functions, Risks, and Businesses



This 3-D approach—risk type, business type, and function type—is very promising. Up to now, a 2-D approach—just risk type and business type—has dominated thinking in the industry. Bringing in the third dimension to create a risk cube as opposed to a risk square provides the structure to test and improve KRI effectiveness at a practical level of granularity (see Figure 1).

However, there is a need to prioritize the risk points on which to focus. So Risk*Business* and RMA developed a ranking for residual risks, scoring them from 1 (least risky) to 9 (most risky). Through a series of interviews, the Risk*Business* team worked with the participating banks to help them assess their risks. They refined the structure of the risk point matrix—the definitions of the functions, businesses, products, services, and risks. After all of their views had been collected, it was possible to develop several risk maps—for individual businesses and institutions and, through aggregation, for the industry as a whole. The overall industry results were validated with the QIS III survey results and with data from the FitchRisk OpVar database.

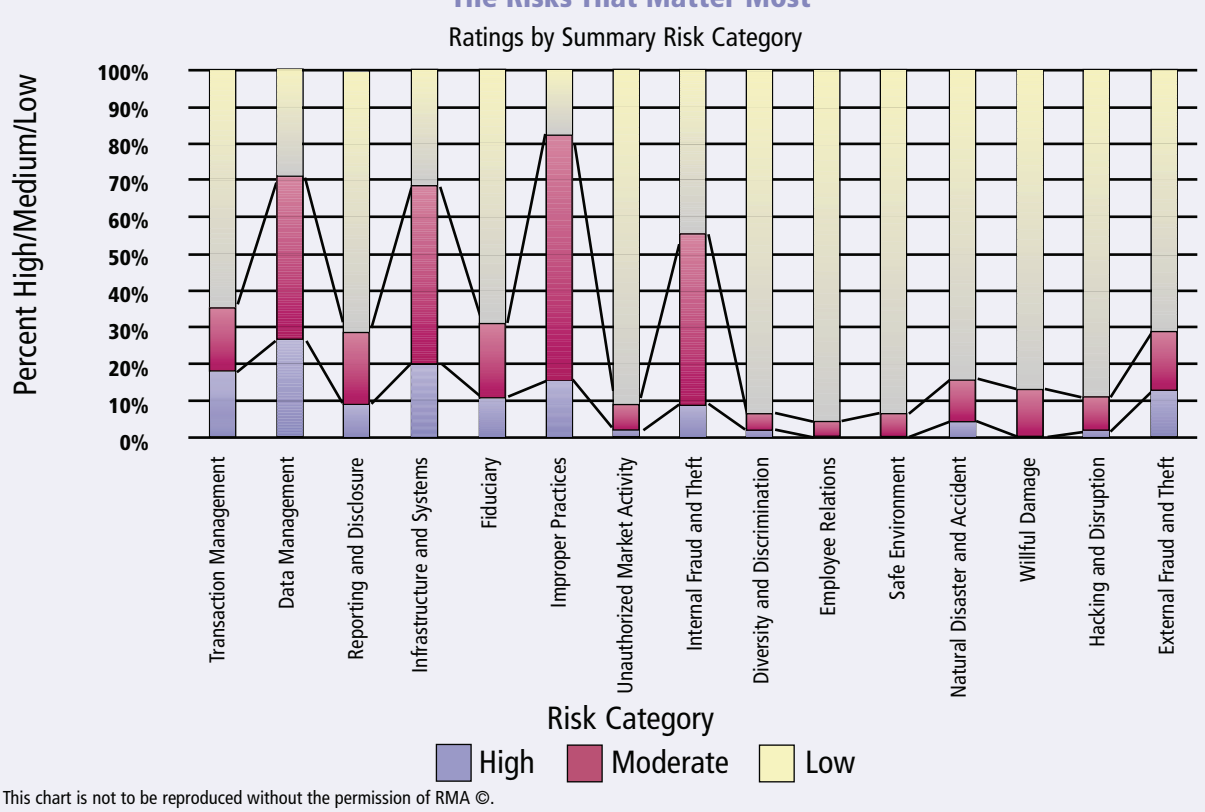
For each major type of risk, Figure 2 summarizes the percent of risk points for which the residual risk was *high* (scoring between 7 and 9 on average), *medium* (scoring between 4 and 6 on average), and *low* (scoring between 1 and 3 on average). Figure 3 does the same thing for each major function or business process in a bank.

Where Are Operational Risks Concentrated?

Perhaps surprisingly, external risks were generally rated lower than process and conduct risks in Part I of the study (see Figure 2). External fraud and theft is the exception to this pattern, but even that doesn't seem to feature as prominently as one might have expected. Perhaps this is a function of the fact that we were dealing with large banks, whose fraud detection and prevention systems may well be better than average. Perhaps this also reflects the fact that process and conduct risks are the areas of loss that most easily impact an institution's reputation for competence and honesty.

Execution, delivery, and process management—especially transaction and data manage-

Figure 2



ment—are high risk. Failing technology, poor procedures, and incorrect data are often the source of ongoing losses that may be quite small individually but add up in surprisingly short periods of time.

Looking at it from a business function viewpoint, we saw time and again that most risk is found in the processes where someone commits the bank (see Figure 3). This was true throughout the process flow—from early-stage judgments about product suitability, to instruction and order management, to payments and settlement, when transactions are actually entered into and assets are moved. Errors in these processes result in immediate and significant operational loss.

When we look at processes that support multiple businesses, it is technology and finance activities that look the most risky. A good deal of the value of a modern financial institution is held in data, systems, and related infrastructure. And, post Enron and Sarbanes-Oxley, financial reporting and disclosure are indeed high-risk areas—for senior management and, inevitably, for institutions as a whole.

Table 1 shows a cut of the data by individual participant. It shows a striking level of agreement in risk rankings.

Part II. For high-risk points, identify, define, and specify standard KRIs. Part II of the study is just beginning, and the first goal will be to identify, define, and specify standard KRIs for a handful of medium- and high-risk points in the

Table 1

How Closely Did Our Experts Agree?

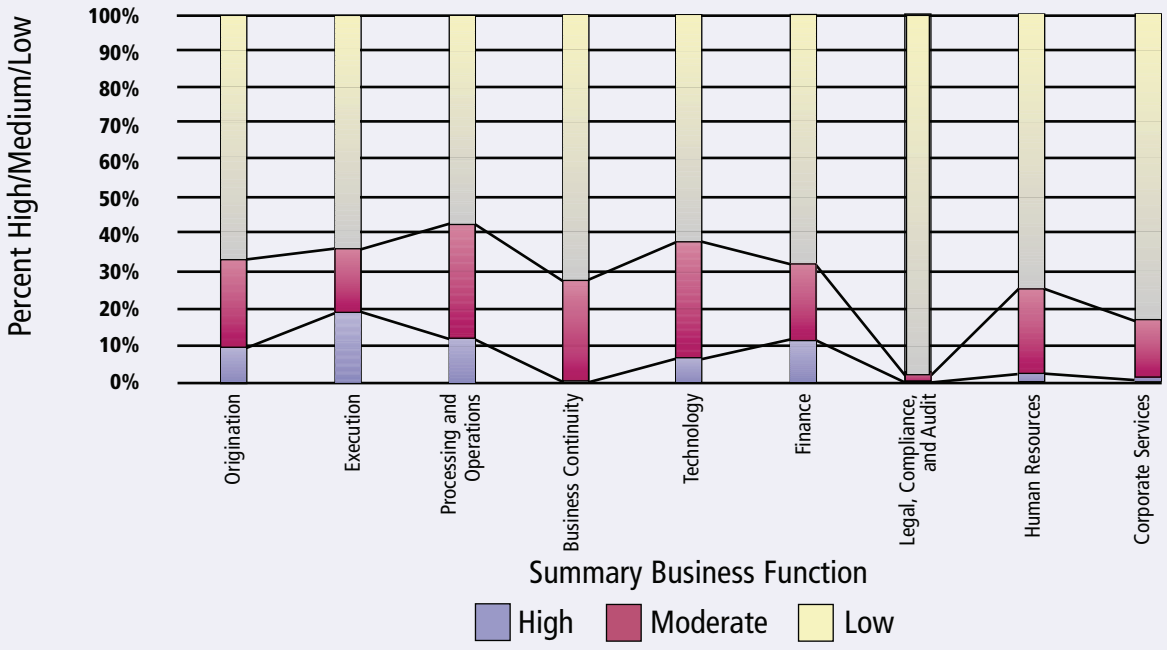
Rankings on the Top Five Risk Categories

Risk Categories	Combined	Bank A	Bank B	Bank C	Bank D	Bank E	Bank F	Bank G	Risk *Business*
Data Management	1	2	5	3	2	1	2	2	3
Improper Practices	2	1	1	1	1	4	1	7	2
Infrastructure & Systems	3	5	7	2	3	2	3	5	1
Transactions Management	4	7	6	6	6	6	5	1	4
Internal Theft & Fraud	5	3	2	5	5	3	4	9	5

Figure 3

The Most Risky Business Functions

Ratings by Summary Business Function



industry risk map to test the feasibility and utility of cataloguing standard industry KRIs. This part of the study will be undertaken with the same group of participating banks as Part I and should be completed quickly.

Then, we hope to attract a larger group of institutions to participate. It should then be possible to refine the risk maps and to identify, define, and specify a more comprehensive set of standard KRIs.

At the present time, the Part I participants, RMA, and Risk*Business* have only a very rough idea of how many standard KRIs will ultimately be identified. We know how many risk points there are, but not how many distinct KRIs exist at each point. Nor do we know how often one KRI may turn out to be standard at several risk points. It is quite possible that the study will end up identifying several hundred KRIs—looking just at the medium- and high-risk points in the industry risk map.

The list of KRIs will almost certainly evolve as more banks join the study and more is learned about individual businesses and processes. Before it is finished, the study will likely run through at least one and perhaps two iterations of the typology of the risk point matrix, the industry risk map, and the KRI definitions and specifications. At that point, we hope the great majority of important KRIs will have been catalogued.

Looking Ahead

What then? Well, even a standard, widely accepted catalogue has great value: Individual banks could benchmark their use and definition of KRIs against the industry list. Beyond that, a catalogue would be the foundation for an industry capability to compare KRI values or indices, benchmarking individual bank values against industry values. Issues of security, confidentiality, reporting, and inquiry strategy must be addressed before such an undertaking can move forward. However, the industry has the experience of sharing loss event data to draw on, and perhaps it will be possible to move faster on KRI data-sharing as a result.

Conclusions

We are at an early stage in developing the KRI framework for the industry to improve KRI effectiveness. Nevertheless, the initial results from Part I of the study are heartening. Participants generally felt they had benefited from their involvement.

- The 3-D risk point matrix has been validated: Adding the business function dimension is a material, necessary step.
- The standard definitions of processes and risks developed for the framework seem flexible enough to support the great majority of banking business lines.
- The relatively close similarity of individual institutions' risk maps was a welcome surprise, which validated their focus on specific areas of risk.

A solid foundation has been laid for exploring development of standard KRIs in Part II of the Study. ❐

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Notes

1 Working with the participant banks, RMA and Risk*Business* developed precise definitions for all of the businesses, products, services, risks, and functions used in the framework.

Comments on Part 1 of the KRI Framework Study

"Stage 1 of the study came at an opportune time for Keycorp. We have taken the KRI study as the formal start for a Keycorp KRI program, and we hope to build upon the momentum generated thus far. The abstraction of a wide variety of financial industry business activities as a sequence of relatively uniform defined atomic processes is an important contribution that the project has made not just to the area of KRIs but to operational risk in general."

—Anupam Sahay, KeyCorp

"The three dimensions proposed in the framework—organization, risk category, and function—are natural ways of viewing risk. We (JPMC) plan to analyze data using these categories, in conjunction with other views, e.g., geographic. A high valued-added benefit of the project will be the capability to benchmark our performance against our peers."

—Robin Philips, JPMorgan Chase