

# THE FUTURE OF RISK MANAGEMENT, AGAIN

How far have the art and science of risk management come today, and where will they lead us tomorrow?

by H. Felix Kloman

**R**ISK MANAGEMENT MUST BEGIN by accepting the futility of predicting the future. At best we can suggest a range of possible changes, and too often even these are tempered by wishful thinking.

Just extrapolating the past into the future – a bit more, a bit less or just the same – denies the probability of major diversions. The unusual and unexpected always happen. Progress comes from employing continuing doubt about what we do and how we do it, coupled with continuing curiosity about improving our lot.

This paper explores possible new goals, new standards, new understandings and new tools.

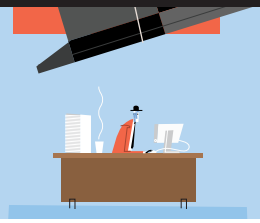
**First, new goals:** Current risk management aims at narrow and tactical objectives: saving money; reducing credit, market or operational losses; improving shareholder value. This approach to risk analysis is too complex and fragmented. Risk responses are seldom linked to broader organizational problems and strategic issues.

To survive and play a constructive organizational role, risk management must adopt more ambitious goals.

- The primary goal must be to build and maintain the confidence of critical stakeholders. Trust and reputation, while difficult to measure, are an organization's principal assets. This means reaching out not only to shareholders, management and employees, but also to customers, suppliers, regulators, the communities where we operate, and the public at large. This also means trying to create value for all stakeholders. While I don't dismiss the legal responsibility of management to

shareholders in a publicly held company, we are responsible to more than investors, and there is more to value than stock prices.

- Risk management must teach an organization how to cope not only with risk that is measurable, but also with the broader and persistent fog of uncertainty and doubt. This means improving organizational resilience to the inevitable unexpected contingencies. The most sophisticated risk assessments can never measure all uncertainties. We must adapt to surprises.
- Risk management must be opportunistic. Even in the throes of disaster, we should seek possible strategic advantage for our stakeholders. This means understanding that risk embodies both favorable as well as unfavorable, unexpected outcomes. Risk management is a technique for improving our risk taking. This idea is hardly new. Jacques Bernouilli, one of the fathers of the art of probability, suggested the same theme in 1713, in his *Art of Conjecture*. Adam Gopnik confirmed this understanding in a recent article in *The New Yorker* ("Read It and Weep," August 28, 2006) when he wrote, "Terror makes fear, and fear stops thinking." If we look only at possible downside results, we create fear. We stop thinking rationally. We become risk averse, crippling initiative. Risk aversion leads to a narrowed focus, then self-assurance, and finally the



absence of doubt and curiosity, the death knell for any organization.

**Second, new standards:** Over the past 15 years, we've developed a variety of local, national and global standards, such as Basel I, COSO I, COSO II, and the Australian/New Zealand Risk Management Standard 4360, revised in 2004. Canada, the UK, Norway, and Japan have similar standards. Basel II is being prepared for adoption worldwide. Most efforts improve the breed, although the COSO II (Committee of Sponsoring Organizations) monster in the United States set us back several years. The Australian/New Zealand effort should be the bellwether, if risk management is to continue to evolve and flourish.

These standard makers need the active input of representatives of all the sub-disciplines, as often their working committees are too parochial. Six current projects and developments will affect the future of risk management standards.

1. The Bank for International Settlements, in Basel, has been working for some years on Basel II, a voluntary set of guidelines for regulators and major banks around the world, with a goal of application by various national regulatory bodies in late 2007 and early 2008. In addition to upgrading approaches for credit and market risk analyses, Basel II now includes operational risks in setting minimum capital requirements. Some observers warn, however, that Basel II may have unintended consequences, such as reducing individual initiative and inducing lemming-like behaviour that could increase systemic problems. (See [www.bis.org](http://www.bis.org).)
2. The International Standards Organization (ISO) is now developing a new global guideline for risk management. Its Technical Committee met in mid-September and meets again

this year to complete a final working draft. Its goals are clarity, consensus and brevity, and, to date, progress is encouraging. This work will add to the earlier excellent ISO glossary of risk-management terms. Those interested can go to its website ([www.iso.org](http://www.iso.org)) or, even better, review an Information Brief on International Risk Management Standards, prepared by Marc Saner of the Institute on Governance, in Ottawa (see [www.iog.ca](http://www.iog.ca)).

3. The Royal Society for the Encouragement of the Arts, Manufactures and Commerce (the RSA) in London ([www.thersa.org](http://www.thersa.org)) is embarked on a three-year Commission on Risk. As one of its objectives is to embolden risk, I anticipate some challenging insights. Three ideas from the early materials of this commission confirm my anticipation:
  - (a) "Risk is rarely given a balanced view."
  - (b) "We cannot eliminate risk; we have to live with it."
  - (c) "Enlightened risk-taking should be the goal."

### ADOPTION OF THE PRECAUTIONARY PRINCIPLE COULD CRIPPLE INNOVATION AND CREATIVITY.

4. In January 2006, the U.S. Office of Management and Budget (OMB) published a Proposed Risk Assessment Bulletin, suggesting regulatory standards for safety, health, and environmental agencies. The OMB hopes these standards will reduce the cost of regulation and accelerate compliance. But according to some critics, they may instead delay prompt action on dangerous materials and practices and, as well, cost taxpayers more.
5. A more ominous development is the growing global application of the precautionary principle to governance and the regulation of new ideas and technology. Simply stated, this principle argues that, if the possible negative results of a new idea, technique or technology are difficult to determine, government should suspend or stop it. This principle is contrary to sound risk management. Unexpected consequences, both favorable and unfavorable, are always a part of progress, but increased adoption of the precautionary principle could cripple innovation and creativity.

6. Another form of standardization is the use of risk management certifications. What is this mania of attaching initials after one's name to confer status? Do they mean the recipient is inherently more intelligent and a better manager? I doubt it. Compare the certifications that abound in the risk-management arena, from such organizations as RIMS, National Alliance for Insurance Education and Research (CRM), the Insurance Institute of America (its ARM designation dates to 1965), GARP (FRM), RMA, PRMIA (PRM), Institute for Risk Management, and Institute of Internal Auditors. Now ERMII (Enterprise Risk Management Institute International Ltd.) proposes yet another one. GARP and PRMIA, however, promise to eclipse all others. (Their exams are financially oriented and tough.) GARP's Financial Risk Manager (FRM) and PRMIA's PRM designations now have been awarded to more than 9,000 individuals, and there were more than 7,000 exam takers in 2006. Given the expansion of job openings

in financial risk management, is there any doubt that these two certifications will become the global standards in the next decade, simply by the weight of numbers?

In the meantime, I have two nagging questions. First, is our future therefore in the hands of the quants? Second, do these written standards and certifications really improve our ability to manage uncertainty or are they in fact regressions that inhibit experimentation and new ideas?

**Third, new understandings:** We should challenge some of the prevailing understanding of what we do, including the ideas that risk is bad, that we should avoid risk, and that risks are separate, each to be approached tactically and with its own solutions.

New understandings will likely evolve in the next decade. One may be the idea that we should enhance risk taking. To do so, we will learn how to make simultaneous analyses of both unexpected upside and downside results. Risks will be addressed strategically, even if we continue to use sepa-

rate tactics for some of them. We cannot predict the future; we can only suggest possible scenarios. (Uncertainty and ambiguity are always with us.) And, foremost, risk management will become an essential part of contingency planning and perhaps be subsumed by it.

Much of the future depends on how we interpret risk itself. Jack Dowie suggested in 1999 that we dispense with the word entirely, as it is already so misinterpreted that it creates instant confusion (see *RMR*, August 2006). Stevyn Gibson, in 2005, correctly noted that “risk has a dual nature” in terms of its perception by different parties and its objective reality as determined by experts. (See *Risk Management: An International Journal*, Vol. 7, No. 4). John Adams expands this thought into three types of risk.

1. The first is directly perceived using a combination of instinct, intuition and experience. It includes much of operational risk and is therefore managed by judgment.

## RISKS WILL BE ADDRESSED STRATEGICALLY, EVEN IF WE USE SEPARATE TACTICS FOR SOME.

2. The second is risk perceived through science, the realm of quantified risk assessment, employing the skills of the market trader, credit analyst and actuary. Econometric models are the flavour of the day. Adams notes that, while this area of risk assessment now dominates risk literature, it may not in the future, as many of these quantitative measures “rest ultimately on subjective assumptions.”

3. The third is that of virtual risk. “When science cannot settle an argument, people feel liberated to argue from their pre-established convictions, beliefs, prejudices and superstitions.” As Adams says, “We are thrown back on judgment.” And so, he concludes, risk management is always a “balancing act.”

**Fourth, new tools:** Most observers agree that we need and will develop new and sophisticated tools and technology to spur our understanding of uncertainty. Crouhy, Galai and Mark, in their latest textbook, *Essentials of Risk Management* (McGraw-Hill, New York 2006), suggest that “today, ERM largely exists in name only.” I agree. They offer 10 possible future extensions, and two are pertinent to this discussion.

The first is that risk transparency will

be expected and even mandated. Stakeholders want, and will get, more disclosure. Telling the world about your risks will be awkward, even painful in many instances, but it is the future.

Second, we will develop new risk-transfer (I prefer the term risk sharing) mechanisms to improve and spread risks globally. Just as credit derivatives have swamped all other forms of credit-risk sharing, including traditional insurance, many other risks may be pooled and securitized. This is a part of the continuing search for more efficient and reliable contingency funding. Pooling among organizations and with government and multi-national groups will be more common.

Beaumont Vance makes an intriguing forecast. Just as today’s stock market analysts use a Bloomberg machine to gain access to minute-to-minute data about trading conditions, tomorrow’s risk analysts will have access to overall risk assessments of individual organizations and even governments, which change instantly whenever inter-

nal or external conditions warrant. In today’s insurance world, we make risk-financing changes annually. In the financial world we obtain daily changes to value at risk (VaR). In the future we’ll obtain instant risk-assessment changes, altering financial arrangements, stock prices, risk responses, and especially stakeholder confidence.

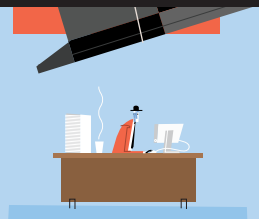
Development of a Risk Bloomberg machine is an intriguing idea, but would it be overly dependent on measurable as compared to the more qualitative risks? How can we input the subjective? Should we?

Here are several additional tools for future use:

- measurement of an entire portfolio of risks and their effects on an organization. ERM proposes this idea but it remains in the future.
- continuous re-evaluation of how risks are modified by the actions, responses and non-action of others. Risk assessments and responses never occur in a vacuum. Leigh Buchanan and Andrew O’Connell, in *A Brief History of Decision Making*, wrote a superb summary of what we have learned about risk, intuition, group decision-making, and thinking machines in the January 2006

issue of the *Harvard Business Review*. We have much to learn about the process of decision-making in rapidly changing conditions, in which new information appears instantaneously.

- improved scenario analyses combining quantitative and qualitative assessments, leading to better strategies. First introduced by Royal Dutch Shell, scenario analyses are the most important tools for the discipline. Intelligently used, they are capable of linking quantitative and qualitative estimates of the alternative futures.
- better measures of the actual benefits of sound risk management. Arguably, in banking, adoption of new risk-management practices may reduce national or regional requirements for minimum capital – a tangible benefit – but are there other quantitative benefits we can use to show the importance of the tools of risk management?
- systems for on-going, two-way dialogues with critical stakeholder groups and interested parties. Few, if any, organizations I know now use intelligent risk-communication mechanisms with key stakeholders, altering their strategies accordingly. The Internet gives us that opportunity. Can we use it wisely?
- larger and more sophisticated financial reserves for contingencies, available for use for a variety of needs and immediately callable. Will instruments of the capital market replace the inefficient, conflicted, volatile, and financially insecure commercial insurance industry? Do pooled contingency reserves make any sense? Will we inevitably rely more on government and NGO funds, as we did in the Indonesian tsunami, the Pakistani earthquake and U.S. hurricanes? Will we move to pooled pension plans for the private sector following the example of TIAA/CREF in the United States, as this country faces its problems with both the public social security system and private corporate plans?
- behavioral economics to predict how humans respond to various contingencies. Neuro-scientists now see “a great overlap between the brain’s reward-seeking and loss-aversion circuits.” (See Gardiner Morse, “Decisions and Desire,” *Harvard Business Review*, January 2006). The desire for reward leads to as



# BLACK HOLES AND TREASURY

Like astronomical black holes that suck up matter and energy, black holes in organizations suck up valuable resources, including human energy, time, space, materials and money.

by Ron Lutka

many bad decisions as the desire to avoid loss, another reason to combine decision-making for favorable and unfavorable contingencies.

- use of genetic signals in human beings for organizational roles. Amy Harmon (in *The New York Times*, June 15, 2006, in "That Wild Streak – Maybe It Runs in the Family") suggests we may use genetic markers to help to find the right jobs for the right people. Should a risk officer be inherently a risk taker or a risk avoider? Rather than select CROs because of their backgrounds in mathematics, market trading, actuarial science or insurance, perhaps we will review their genetic makeup to find the right balance. We will find new tools, but will they be better?

From astrology to phrenology to risk management, we still search for better ways to explore and prepare ourselves for possible futures. Every decision involves uncertainty. Some uncertainty can be translated into risk, based on information and experience. Assessing and responding to that risk more intelligently is the goal of risk management. Doubt and curiosity remain our touchstones.

I conclude with a haiku I quoted in 1982, from the Japanese poet Basho. It is as pertinent now as then.

A thicket of summer grass/Is all that remains/Of the dreams and ambitions/Of ancient warriors.

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**A** BLACK HOLE IN AN ORGANIZATION CAN BE DEFINED AS:

**An area of an organization where, unbeknownst to management, an abundance of undesirable activities occur, or a lack of desirable activities occur in abundance, both of which destroy organizations.**

From the above definition, we can see three criteria must be in play for a black hole to exist:

1. Destruction must be occurring to the organization.
2. There must be an abundance of undesirable activity or a lack of desirable activity in abundance.
3. Management must have an absence of awareness of the root cause of the destruction.

Many undesirable activities can plague an organization. Here are just a few of many examples:

1. running machinery without proper lubrication;
2. misleading customers as to delivery dates;
3. booking an erroneous journal entry, then not making a correction;
4. accepting warranty claims without scrutiny;
5. issuing conflicting policies;
6. extending substantial credit without reviewing creditworthiness of applicants;
7. committing acts that violate environmental regulations;
8. committing acts that violate customer or vendor agreements;
9. issuing false or misleading financial statements, whether for internal or external use;
10. approving expenditures that exceed the approver's limit.

Any number of desirable activities are required for an organization to function smoothly. Remove them, or

conduct them infrequently, and an organization can experience problems in their absence. Examples include:

1. insufficient number of phone calls to prospects;
2. absence of quality inspections;
3. completed work orders not entered into the management information system;
4. phones not answered;
5. annual budget not prepared;
6. monthly or quarterly balance sheet accounts not reconciled;
7. work orders not followed up to ensure completion;
8. metal burrs not removed from products manufactured, such as metal furniture;
9. products not safety tested prior to reaching market;
10. storehouse parts not replenished.

The principle behind the formation of black holes is this: an abundant amount of failings at the lower levels of activity remain hidden from management, and the failings perpetuate and compound. At first, the damage accumulates below the radar. Then, at some point, the damage manifests in management reports, financial statements, within operations, and elsewhere.

In addition to the damage caused, black holes cloud organizations. They reduce badly needed transparency, increase risk, reduce productivity, reduce margins, drain cash, anger customers, impair data integrity, choke flows within an organization, lower employee morale, and generate or



compound difficulties higher up in the organization. Left unhandled long enough, black holes can ruin companies. They have, in fact, caused many companies to go bankrupt, at times without management and analysts knowing the real reason why.

**Accounts Receivable and black holes:** Let's look at where an abundance of undesirable activities or a lack of desirable activities occurring in abundance can affect valuable near-cash accounts receivables that treasurers are counting on to sustain businesses.

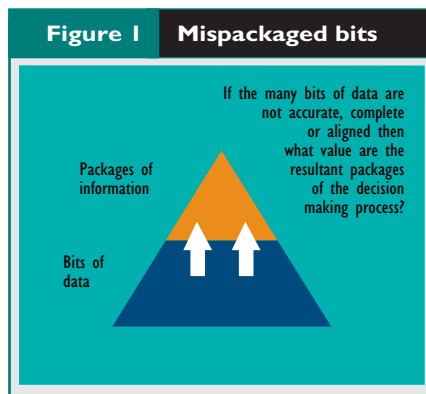
**Credit Notes Not Issued – front end:** Company policies can generate the need to issue credit notes to customers when planned, agreed-upon events occur. If company policies grant price protection to customers, permit co-op advertising arrangements with customers, grant to customers a discount on products to fill their new stores (called new store discounts), or if the company has a volume rebate program, then it should be apparent to management that customers will be entitled to receive credit notes.

However, such procedures are not always in place or diligently followed. These failures are black-hole-creating items. Subsequently, customers short pay their invoices because they are due credits. The unpaid balances erroneously sit on the A/R sub-ledger as a valuable near-cash asset that the treasurer is expecting to turn into cash within days or months. When this does not occur, the A/R sub-ledger balloons, giving a false report of the true receivables position.

**Credit Notes Not Issued – back end:** A similar problem of failing to issue credit notes to customers on a timely basis, if at all, can occur at the back end. Customer returns, for example, can be associated with at least two black-hole-creating items:

- (1) customer accounts not being credited for the return in accordance with company policy, and
- (2) in the case of a distributor, the customer returns not being returned to the vendor in time for full or partial credit.

Customers can also back-charge the company or short-pay invoices because of damages to facilities during delivery or installation, damages to product that



has been installed, late delivery, short shipments, and pricing errors, to name a few of the more common reasons.

As with credit notes not being issued on a timely basis at the front end, when credit notes are not being issued on a timely basis at the back end, the unpaid balances erroneously sit on the A/R sub-ledger as a valuable near-cash asset that the treasurer is expecting to turn into cash.

In addition to the black-hole-creating items discussed above, interest and late fees will not be collected when charged on receivables that cannot be substantiated. When these are recorded in the A/R sub-ledger, they further and falsely inflate the sub-ledger balance.

Misapplied cash is often another significant black-hole-creating item. One fast way to foul the A/R sub-ledger would be to clear different items on the sub-ledger rather than clearing those the customer directed you to clear. The most common form of this potential black-hole-creating item is to simply apply the payments to the oldest items in the customer account. Another is to fail to set up charges the customer is back-charging for reasons stated above. A third is to misunderstand what the customer is communicating and not seek clarification. This often results in unapplied cash sitting in the A/R sub-ledger.

If the A/R sub-ledger is plagued with the failings noted above, then chances are high that it is also plagued with bad debts that have not been properly analysed and accounted for.

These undesirable activities and lack of desirable activities, repeated over and over, can add up to substantial misrepresentation of assets.

In one instance, the misrepresentation and subsequent financial write-off amounted to \$19 million in company A

and \$17 million in company B, plus an additional \$23 million of write-offs because of damage that spilled over into other departments in the case of company B. In both situations the write-offs of accounts receivables alone amounted to approximately 15% of the accounts receivable balances. Company A survived because of an extremely wealthy foreign parent company; company B went bankrupt.

**Derivatives and black holes:** What makes many derivatives black hole-creating items and what makes the global derivatives pyramid a black hole?

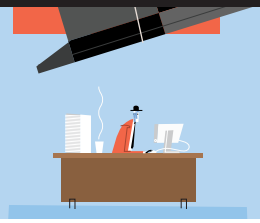
**Unregulated:** There are severe limitations when it comes to governing bodies' mandates to oversee the derivatives pyramid, such as setting and enforcing standards to contain systemic and counterparty risks. Furthermore, unregulated markets tend to attract a disproportionate percentage of unscrupulous characters.

**Questionable integrity:** Non-standardized over-the-counter (OTC) derivatives do not have a reliable quotable market. This allows devious individuals to price their derivatives incorrectly for their own benefit, to cover their losses, for example. Subsequently, credit commitments can be fooled about the risk assumed by a derivatives portfolio.

**Unlisted:** The vast majority of financial derivatives are OTC and, therefore, not subject to the stringent regulations and other safeguards of an exchange.

**Non-standardized:** Standardization of all the variables available to a derivative would greatly facilitate transparency and reduce systemic risk. Without knowing the intricacies of all derivatives worldwide, no credible systemic risk analysis can be undertaken. Complete standardization of all over-the-counter derivatives coupled with a meaningful reporting system would reduce systemic risk dramatically.

**Counterparty risk:** The ability to perform depends on the strength of the balance sheet of the loser in the transaction, with no clearinghouse guarantee. Without knowing the intricacies of the counterparty's derivatives portfolio, no credible counterparty risk analysis can be undertaken. Coupled with lack of transparency (see below), this is a



tremendous risk for a company with a large derivatives position to take.

**Concentration in a few hands:** When a few derivatives dealers account for two-thirds of the derivatives issued and outstanding, the risks posed by derivatives increase exponentially.

**Lack of transparency:** Complex derivatives, often re-packaged and often concealing their true exposure to market conditions, even to the management of the derivative-owning organization, increase the overall risk of a derivatives portfolio. All the arguments that claim risks are effectively managed ring hollow when we consider Long-Term Capital Management, Enron, Ashanti, Barings Bank, Refco . . .

Without strong regulation, enforced globally and soon, the derivatives fuse will ignite. Even global financial systems are not immune to black holes.

In most organizations, margins are tight, cash is thin and markets are volatile. To reduce risk, management might have unknowingly multiplied its risk dramatically. Risk increases as the tails on probability distribution curves related to the organization's derivatives slowly fatten, until one day the possible, but highly unlikely, becomes a reality.

Treasurers would benefit from understanding black holes in organizations, including the loosely defined organization of international finance. By understanding these black holes, they may just save their organizations from material write-offs and possibly from bankruptcy.

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## ON LINE, ON HAND

Online facilities for backup, storage and retrieval can reduce risk of data loss and simplify procedures.

by Steven Rodin

**T**he number-crunching business creates a lot of data once kept on ledgers and in filing cabinets. Although the digital age has made the work of CFOs, financial advisors and accountants a lot more convenient, the loss of the 1s and 0s that make up figures and forecasts can add up to disaster.

Electronic spreadsheets and formulae on a computer have in fact become the lifeblood of the financial world. But despite the growing value and necessity of digital data, many organizations do not have the resources to safeguard all data and may not understand the consequences if that data were lost.

While data protection can be a complex process with multiple steps, online backup can enable any financial organization to reliably protect data within its budget and staff constraints. Online backup:

- optimizes on-site data storage by archiving old data off-site;
- helps to meet regulatory requirements and internal policies;
- enables small branch offices to back up data easily and reliably with no on-site IT support required, and
- enables data to be retrieved and restored quickly and reliably to minimize downtime.

Even when backup processes, systems and technologies are in place, however, they often fail because users forget to perform the necessary steps and fail to monitor the systems properly. For data backup to be effective, it has to be a simple, automated function scheduled to occur regularly without any user involvement.

Backups often work best if scheduled for overnight execution, so the event doesn't interrupt workers or impede computer functions while maintaining clear backup reference points. Alternatively, Continuous Data Protection (CDP) automatically saves a copy of every change made to a file, essentially capturing every version of the data that the user saves.

Effective CDP copies data in minutes or seconds and stores the duplicates in

a safe location well away from the primary server. In the event of an unrecoverable server failure, it allows the user to restore data from any time.

CDP-based solutions can restore in fine detail objects such as files, mailboxes, messages and logs. Traditional backups can restore data only to the point at which the most recent backup was taken. Since CDP runs continuously, there are no backup schedules.

Near Continuous Backup or Near Continuous Data Protection is a derivative of Continuous Data Protection. These options backup data more sporadically, but can be scheduled to minimize data loss in case of disaster.

Backing up data is only half the story. The more pressing issue is data restoration, which is critical when a problem occurs. Restoration may involve something as simple as a single file that was inadvertently deleted by a user from primary disk storage or as complex as a catastrophic site disaster.

Recovery of data should be the ultimate goal of any backup strategy. If backups are done but are subsequently written over, corrupted or unreadable because of a broken tape, or if they're destroyed along with original data when backups are not removed offsite, then it really doesn't matter whether backups were done in the first place.

This importance of data restoration makes the restore window, not the backup window, the primary concern in designing disaster recovery and business continuity architecture. The effectiveness of the restore window determines downtime, which can cripple or kill a business in very short order.

In the case of a hardware failure, the restoration process from the backup device can start only when the faulty hardware has been replaced and the

server is up and running again.

You must factor in the time it takes to notify an IT administrator of the failure, isolate the failed component, acquire and install a replacement, re-boot and re-load system software and set parameters on the server. Only then can file restoration begin.

The longer it takes to regain access to critical data, the less acceptable the solution. Half a day can be an eternity. Online backup addresses this issue. It allows retrieval of a single critical file or multiple files for immediate use, eliminating delays involved in bringing an entire server back online.

Not only is backup convenient, it's also mandatory. SOX and similar regulations now require organizations to be more accountable and transparent with regard to their financial figures.

In compliance, many companies have set internal policies or follow an industry-accepted code of conduct for managing and storing data. Online backup can embed best practices into an organization, automating backup procedures and making them less susceptible to human error.

By moving to an online backup and archiving solution, companies can electronically archive files that aren't required for day-to-day operations and reduce capital expenditures by avoiding additional purchases of data storage hardware.

Electronic archiving also eliminates media corruption, hardware obsolescence and malfunctions associated with backup while maintaining optimal storage conditions.

Managed data archives can be set up for a defined lifetime through policy automation, just like backed-up data. You can quickly and easily retrieve the archived data, control and manage your data and effectively extend your data storage capabilities without the need for more expensive online storage.

A standardized online backup system also makes it easy for regional offices to back up their data at a central point. It requires no special hardware on site and no special skills, since the backup process can be automated. In addition, should a file be lost, it can be easily retrieved by the affected user without contacting a help desk.

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## FACIT EXPERIENTIRA CAUTOS\*

The relatively high volatility of reference interest rates after 1997 encouraged the Czech financial market to \*learn from experience.

by Petr Polak & Kamil Kocurek

**D**URING THE PERIOD of relatively high interest rates in 1997 and 1998, Czech companies scrambled to find alternative sources of financing to avoid expensive short- and long-term bank loans. The range of alternatives included CP programs for short-term and bonds for long-term financing. From 1999 onwards, with lower interest rates, companies with cash surpluses have needed to find much more sophisticated instruments to increase their profit from financial operations, especially as taxes influence the yield.

Until 1997, the Czech economy was among the strongest in Central and Eastern Europe, lending strength to the Czech koruna as well. The country's strong exchange rate, however, was not founded on macro-economic data, but only on currency policy. Short-term investors concentrated on high interest rates in the domestic market, which hovered around 12% per annum.

On May 12, 1997, information was published about a drop in industrial production in the first quarter. The media began to speculate about the resignation of some ministers. Almost immediately foreign speculators led an

attack on the Czech currency.

The Czech National Bank, the country's central bank, immediately began to intervene on behalf of the Czech koruna through operations on the free market and indirectly by increasing interest rates. But it was unsuccessful and, after two weeks, the bank introduced a floating regime for the Czech currency.

As currency policy protected the koruna exchange rate, interest rates rose steadily. Economic activities slowed, hindering investment and deteriorating the financial position of many companies.

Uncertainty in the market became

**Table 1**

Yearly average of the most important rates PRIBOR and PRIBID in 1997 in % p.a.

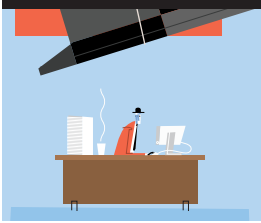
1997	1 month	3M	6 M	12 M
<b>PRIBOR</b>	17.22 %	15.97 %	15.15 %	14.63 %
<b>PRIBID</b>	14.88 %	14.15 %	13.74 %	13.34 %
<b>Spread</b>	2.34 %	1.82 %	1.41 %	1.29 %

**Table 2**

Development of the long-term interest swap rates (IRS) for CZK, monthly averages in % p.a.

IRS	12/1997	12/1998	12/1999	12/2000	12/2001	12/2002
<b>1 year</b>	17.54 %	9.52 %	5.92 %	5.94 %	4.64 %	2.63 %
<b>3Y</b>	15.93 %	9.06 %	6.95 %	6.72 %	4.89 %	3.18 %
<b>5Y</b>	15.25 %	8.93 %	7.26 %	7.15 %	5.19 %	3.70 %
<b>7Y</b>	14.88 %	8.71 %	7.28 %	7.38 %	5.43 %	4.08 %
<b>10Y</b>	14.24 %	8.61 %	7.27 %	7.43 %	5.66 %	4.47 %

Source: Czech National Bank



evident in proportionally wide spreads between the Prague Interbank Offered Rate (PRIBOR) and the Prague Interbank Bid Rate (PRIBID) (see Table One). Banks derived their interest rates for provided credits from the PRIBOR. The impact of high interest rates on the corporate sphere and the quality of bank credit portfolios was negative.

At the beginning of 1998, short-term interest rates began to fall gradually. Despite currency turbulence combined with political and financial uncertainty in the Czech Republic and Russia, the Czech National Bank reduced the two-week repo rate over 1998 to 9.50%, the loan rate to 12.50% and the discount rate to 7.50% p.a.

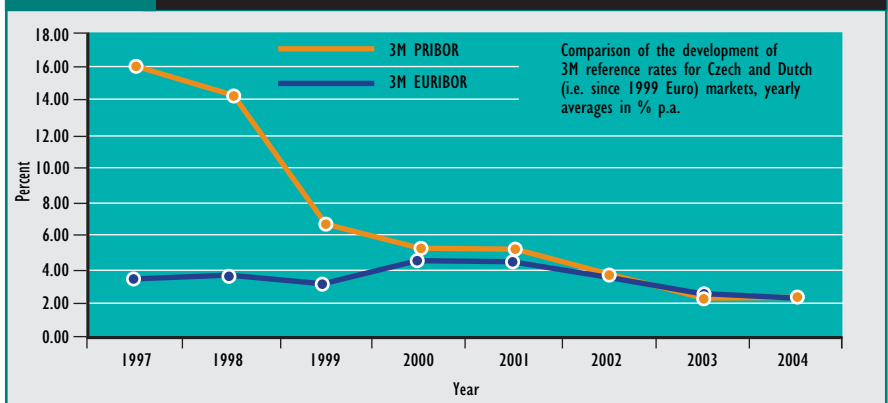
PRIBOR, which had reached 15.30% in January 1998, fell by December to 10.60% as financial markets anticipated lower inflation and further reductions in interest rates.

In 1999, short- and long-term interest rates continued to fall, although the drop in IRS rates for a maturity of 1 year was 3.60 percentage points; for a maturity of 5 years it was 1.70 percent. The yield curve moved downward, but its inclination in the middle of the year changed from negative to positive reflecting expectations that inflation and interest rates would not fall so precipitously in the future.

In 2000, short-term interest rates showed increased stability. Long-term rates showed slightly higher volatility in reaction to the future economic and inflationary trends and the growing indebtedness of the state.

With inflation apparently under control, the Czech National Bank reduced the rate for a two-week repo in early 2001 to an even 5% while setting the discount rate at a constant 1 percentage point lower and the loan rate at 1 percentage point higher than the repo rate. Over the year, these rates rose and fell in step by 0.5%. In the year 2002, basic rates were reduced five times by the Czech National Bank (see Table 4).

Figure 1 3M reference interest rates for Czech and Dutch



Source: Czech Central Bank, De Nederlandsche Bank N.V.

The precipitous decline in PRIBOR contrasted with the relatively stable rates of Eurozone markets.

As Figure 1 illustrates, the reference interest rate in the Czech Republic declined sharply after 1997. As a result, Czech corporations were forced to operate in a relatively unstable interest rate environment until 2000, in comparison with their Eurozone counterparts. During 1997 and 1998, a period of

relatively high interest rates, Czech companies scrambled to find alternative sources of financing to avoid expensive short- and long-term bank loans. The alternatives included Commercial Paper programs for short-term and bonds for long-term financing.

As Tables 5 and 6 show, corporate bond issues are not very widespread, despite the inverted profile of the IRS yield curve in the years 1997 and 1998.

Table 3

Yearly average of PRIBOR and PRIBID in 1999 in % p.a.

1999	1 month	3M	6 M	12 M
PRIBOR	6.83%	6.84%	6.87%	6.96%
PRIBID	6.61%	6.62%	6.65%	6.74%
Spread	0.22%	0.22%	0.22%	0.22%

Table 4

Yearly average of the most important rates PRIBOR and PRIBID in 2002 in % p.a.

2002	1 month	3M	6 M	12 M
PRIBOR	3.59%	3.55%	3.56%	3.62%
PRIBID	3.49%	3.46%	3.46%	3.52%
Spread	0.10%	0.09%	0.10%	0.10%

Table 5

Advancement in volume of loans provided to the clients of Czech based banks, in billions of CZK, as at the end of respective year

	1997	1998	1999	2000	2001	2002
<b>Loans</b>	<b>1 149.6</b>	<b>1 135.4</b>	<b>1 085.7</b>	<b>952.4</b>	<b>974.5</b>	<b>949.8</b>
from that loans provided to corporations in bln. of CZK	986.4	917.4	851.2	720.0	631.5	555.6
in %	85.8%	80.8%	78.4%	75.6%	64.8%	58.5%
from that long term loans provided to corporations in bln. of CZK	327.5	335.8	336.2	316.8	289.2	236.1

Source: Czech National Bank



**Table 6**

Advancement in volume of corporate bonds (in nominal value) registered at the Prague Stock Exchange, in billions of CZK, as at the end of respective year

	1997	1998	1999	2000	2001	2002
Corporate bonds in NV	8.65	17.95	40.00	53.01	53.04	57.04

Source: Reuters, ABN Amro Bank N.V.

**Table 7**

Advancement in volume of main interest rate hedging tools used by clients of Czech banking sector in the years 2000-2003, in billions of CZK

	31.12.2000	31.12.2001	31.12.2002	31.3.2003
Forward rate agreement	487.3	925.7	973.0	1012.6
Interest rate swap	398.6	760.7	1020.6	1067.9
Interest rate futures	4.1	0	0	0
<b>Total of IR hedging tools</b>	<b>890.0</b>	<b>1686.4</b>	<b>1993.6</b>	<b>2080.5</b>

Source: Czech National Bank

Investors lacked confidence while issuers were unwilling to make long-term commitments in an environment of high and volatile interest rates.

Unfortunately, there are no comprehensive statistics about commercial paper because such securities don't need approval by the SEC. In the Czech Republic, only companies with prime credit ratings can issue CP.

The Czech economy depends heavily on foreign trade, mostly with euro-zone countries. (Exports in 2002 amounted to 55% of GDP, with almost 60% going to the euro zone.) Exporters in particular have had to adjust their approach towards hedging instruments because of the reinforced Czech koruna. The most frequently used product in foreign exchange hedging is the currency forward.

The market in currency options in koruna has developed over the past eight to nine years. At first, the main trading was in plain vanilla options, but gradually the range has extended to include barrier and exotic options.

To hedge interest-rate risk, companies tend to use forward rate agreements (FRAs) and interest rate swaps (IRS), in addition to instruments based on interest-rate facilities, such as cap and floor options. The high volatility of reference interest rates has led to enormous progress in using such tools since 1997. As table 7 shows, there has been a marked yearly increase in the use of interest-rate hedging tools in the Czech Republic.

During the periods of high PRIBOR and PRIBID reference rates in 1997 and

1998, when long-term interest rates were lower than short-term rates, businesses tried to take advantage of the negative yield curve. Bonds issued in 1997 were immediately swapped from their original floating PRIBOR + margin p.a. for a fixed rate.

In 1998, just two companies in the utility sector chose different paths. On March 5th, 1998, the Northern Moravian Power Company (NMPC), issued CZK 1 billion in bonds at a floating six-month PRIBOR + 0.40% p.a. In June, under the same conditions, Southern Moravian Gas Company issued CZK 700 million in bonds. Both companies bet on the future decline in the PRIBOR rate, and they were proven right. However, at the time of their issue, they were going against market forecasts. NMPC insured itself against a potential rise in the six-month PRIBOR purchase cap with a strike price of 11.60% p.a. All in all, five caps were purchased on semi-annual coupons, with premium payment requirements. Of these caps, only one was called, the very first coupon, in September 1998, when the six-month

PRIBOR was at 14.51% p.a. and the company actually paid 11.60% p.a.

With the sharp continual decline of the PRIBOR rate since 1999 and a positive yield curve, there has been a noticeable growth in the issuance of corporate bonds, although some companies still hedged against interest rates by issuing IRS bonds. NMPC, for example, exchanged its original floating interest rates from its 1998 issue for a fixed interest rate swap in 2001. In addition, Belgian-owned Glaverbel issued CZK 3 billion in bonds in 2000, and Skoda in the same year issued 50% of its CZK 10 billion with floating coupons. After 1999, corporations feared again that floating coupons would suffer from a reappearance of rising interest rates. This forecast did not come true; interest rates continued their falling trend.

In the environment of volatile interest rates, debtors could select two basic strategies – to fix its paid interest by means of an interest swap after the whole time the long-term credit/ issued bonds lasts or to leave the variable interest rate connected to the PRIBOR. At least, the primary sense in choosing one of these strategies was evidently to minimise interest rates, for reasons of the dramatic drop in interest rates. The variable interest rate has shown to be better in the period following the year 1999. Other costs for short-term and long-term debt financing are comparable.

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