

Building the corporate risk control system with some viewpoints on the risk psychology

Shigeyuki Goto¹

Hiroshi Hayakawa²

August 2003

Abstract

The recent series of corporate scandals in the U.S. and Japan force the corporate management to rebuild the capability to minimize potential losses from such scandals. An effective risk management scheme should be built into the entity's infrastructure and also as part of the essence of the enterprise. In order to have an effective risk management scheme, we should consider the management and other member's psychological aspects of decision-making in both individual and group settings. This is because the corporate process is pursued by the people who make up the organization.

¹ Mitsui Sumitomo Insurance Co., Ltd.

² McKinsey & Company, Inc. Japan

1. Preface

The term “Risk” has become more familiar since the latter half of the 1990s. The terrorism attack on New York City on September 11, 2001, the series of corporate financial scandals such as Enron and WorldCom, and the various corporate scandals in Japan suggest that we should change the society, the economy, and the corporate management dramatically and structurally from a risk management’s point of view.

In such a bewildering society, the corporation should cope with the environmental changes properly and rebuild their capability to minimize potential losses, in order to maximize their profits and maintain their sustainable growth. The corporation, therefore, is expected to assess almost all risks associated with their business practices and improve its risk control capability. It also becomes vital to build up its risk management skills throughout their daily business processes since there would be some risks that couldn’t be predicted precisely. In order to build up the organizational skill, members of the corporation are also expected to brush up their risk sense and individual risk management skill. This is because the organization is consisted of human beings.

We believe that, to develop the corporate risk management capability, it is very important to understand deeply the nature of individual and organizational decision-making biases associated with uncertainty. Our decisions under uncertainty are easily influenced by the

individual's subjective risk image and the particular contexts or biases that lie in a particular organization.

This report will review the past empirical studies on individual and organizational decision-making biases under uncertainty. Then we will discuss the rational risk control system in the context of corporate risk management. Furthermore, we want to draw the necessary factors of an appropriate risk control system, based on the recent corporation cases.

2. Risk psychology: decision-making biases under uncertainty

People often act without being aware of potential risks and sometimes make inconsistent decisions toward uncertain events. Ross (1999, p.5) states as follows:

“Time and again, Americans worry about risks that are insignificant while virtually ignoring truly substantial threats. The same people who succumb to the dangerous behavior known as road rage also pay a lot of money for free-range chickens and organic produce because they fear eating minute quantities of animal growth hormones and antibiotics... Some people avoid ocean swimming because they fear sharks will attack them, but go bungee jumping instead.”

Peter L. Bernstein summarizes the contents of his book titled "Against the Gods" (1996, pp.1-8) as follows :

"This book tells the story of a group of thinkers whose remarkable vision revealed how to put the future at the service of the present...By defining a rational process of risk-taking, these innovators provided the missing ingredient that has propelled



science and enterprise into the world of speed, power, instant communication, and sophisticated finance that marks our own age. Today, we rely less on superstition and tradition than people did in the past, not because we are more rational, but because our understanding of risk enables us to make decisions in a rational mode. . . . We cannot quantify the future, because it is an unknown, but we have learned how to use numbers to scrutinize what happened in the past. But to what degree should we rely on the patterns of the past to tell us what the future will be like? Which matters more when facing a risk, the facts as we see them or our subjective belief in what lies hidden in the void of time? Is risk management a science or an art? Can we even tell for certain precisely where the dividing line between the two approaches lies? The word "risk" derives from the early Italian *risicare*, which means "to dare." In this sense, risk is a choice rather than a fate. The actions we dare to take, which depend on how free we are to make choices, are what the story of risk is all about."

The decision-making process is very complicated: people usually have to understand newly obtained outside information, process them with referring to his or her internally available information (previously obtained or recalled information), and make some kind of decisions. By utilizing such information process capability, we can make various decisions from washing our faces or choosing our partners, that could affect our lives significantly. Thanks to such complicated decision-making capability, we, as human beings, could develop scientific technologies, implement advanced social economic activities, and create and enjoy watching sophisticated arts and sports.

Meanwhile its limit is also clear. Herbert A. Simon who was awarded the Nobel Prize in Economics in 1978 pointed out in his writings “The Sciences of the Artificial” that the world is complex and there is a considerable limit in the human brain and the information processing ability. The walking trace on the seashore by an ant is complex, but it is just reflected by the complexity of the seashore line, and never implies the complexity of the ant’s recognition ability. Human beings have a limit to their recognitions like an ant; therefore they have established an organization as an “information processing machine” by using classification and the division (Simon, 1996). The “complex world” referred by Simon would also be called the “uncertain world.” The information, which we should deal with, is not simple or certain, and moreover it changes from time to time. Furthermore, it may be modified and may contain distorted information.

What kinds of limitations do human beings who are not supported by an organization working like “information processing machine”, have? There are a lot of empirical studies, which draw findings on perceptual biases in individual and group decision-making. The appendix³ shows biases associated with individual and group decision-making under uncertainty. It should be very important for corporations to strengthen their risk management ability by understanding the limitations in decision-making under uncertainty.

³ Innami (1997), Yoshikawa (1999), Mintzberg et al (1998), Borge (2001) and Makridakis (1990) are mainly referred.

3. The corporate risk control system with reflecting findings from risk psychology studies

The risk that corporations have to cope with varies very much. Targets of the corporate risk control are not only pure risks that only have losses but also so-called business risks (or speculation risks⁴) that have both the possibility of losses and profits. As for risks, we take measures like transferring risks financially or retaining them (risk financing) and/or adopt the direct-control technique (risk control).

As Simon (1996) indicates, people have made use of the organization as an “information processing machine” in the way of the classification and the division in order to expand the information processing ability. It can be said that the corporate activities are to pursue maximization of the profit continuously by making full use of the organization as an information-processing machine and by managing business risks properly. As it has been reviewed in the Appendix of this paper, the real decision made by an individual and the organization would not be perfect. It is difficult to navigate people’s mental activity correctly, especially for people who face up with risks if some kind of proper scheme or system is not built in the organizations. It should cover both the hard and soft aspect. The former is systematization of the decision process, where the latter is the philosophy, the values and the culture of the organization.

⁴ We call this as “the business risk” in this report because we focus on the corporate activities.

From now on we would like to consider what is the appropriate corporate risk control system by reviewing the conditions that COSO (The Committee of Sponsoring Organizations of the Treadway Commission)⁵ recommends.

3.1 The necessary condition for the risk control system

The COSO model defines that the chief executive officer is ultimately responsible and should assume “ownership” of the internal control system. Moreover, the internal control system is the process that is pursued by the people belonging to the organization. Such a truth is once again re-recognized through the recent scandals such as Enron and WorldCom.

(1) Control environment

Organizational climate and culture are considered to be the basic factor for implementing the internal control. The philosophy and management style of the top management, and the ethical values and the honesty of the employees are the base for decision-making of the individuals or group of the organization.

The better its environment is, the better we can manage the operational or business

⁵ Several institutions such as the Institute of Management Accountants (IMA) and American Institute Certified Public Accountant (AICPA) established the Committee of Sponsoring Organizations of the Treadway Commission in order to cope with the issues concerning the internal control (especially S&L problem). The COSO model is the internal control framework that the Committee was published in 1992 for the purpose

risk. It is important for the top management to submit a clear message of implementation compliance and to take the lead in setting an example to all employees. Also the top management endeavor to make clear such as responsibility and authority, the flow of the important business process, the organizational structure, the basic concept of reporting, and the human resources management.

(2) Risk assessment

The risk control ability of the organization would be developed by the continuous review and analysis on the risks that exist during pursuing the business. However to what extent we should level up the management ability of the particular risk would be determined by the cost-benefit relations. In this context, the term “cost” means the broad meaning of management resources. Therefore we should make the effective investment of the resources to the particular risks and clarify the reasonable measures to cope with them effectively in order to pursue the business purpose. Especially as the risk profile would be changed by the factors of macro economy, industry environment, regulations, and corporate internal factors etc., the continuous review and analysis of risks have been becoming important.

(3) Control activities

Control activities consist of two elements; policies and procedures that help ensure

where business executives will be positioned to assess control systems as a standard, and strengthen the systems and move their enterprises toward established goals.

management⁶ directives are carried out. The policy states what should we do when we have to cope with risks, while the procedure of the activities state how members of the organization should implement the policy. The people who are involved in this control should be all of the members including the top management, managers, and other employees. Also all activities of the organization are fallen within the scope of this control, like review by the top management, the management directly related with the duty and execution, data processing (the check of correctness and completeness of the transactions etc.), physical control, research and analysis of the data and re-correction of them, and division of the function from the viewpoint of check and balance, etc.

These activities differ from corporation to corporation because of the difference of the organizational structure, history, culture, and environment surrounding each corporation and the industries to which each of them belongs. Therefore we should design and implement the control system applicable to each corporation.

(4) Information and communication

In order to work the internal control properly and to proceed with the day-to-day operation and decision-making, necessary information should be obtained from inside and/or

⁶ The managements are classified in several ways. For example, preventive control (control measures are built in the scheme or system and error and or dishonest are possible to be detected and to be prevented), control by exposing (control measures rely on finding and exposing), control by management, control by computer, or control by manual etc.

outside sources, and be recognized and transmitted inside the corporation. The transmission measures are policy, manual, bulletin board and words, but also action done by the top management. As for the transmission route, besides the official one, the informal one becomes more important.

It is important that the valuable and useful information is transmitted from the lower layer of the organization to the upper management's as well as top down communication. Sometimes the fail-safe-mechanism like a "compliance hot line" etc. should be built into the organization as an open communication network system in order to cope with the situation where the usual information route does not work well. In order to maintain the effective risk control, we should communicate properly with the outside parties like customers, suppliers, governing authorities, and stock holders etc.

All employees should understand the relations between their own operation and the other departments' operation, and their own role within the management system. It is not only the top management's function and duty. It means that all members of the corporation should recognize appropriate information and report it in a timely manner to complete their responsibilities.

(5) Monitoring

The monitoring is accomplished through ongoing monitoring activities, separate evaluations or a combination of the two. Ongoing monitoring occurs in the course of operations

including regular management and supervisory activities, and other actions personnel takes in performing their duties.

The independent monitoring is important, which means an audit whether the usual monitoring works effectively and continuously from the different viewpoints. As the nature of risk always changes, the effect of the control system changes as well. Therefore through such monitoring, the drawback of the system should be reported to the top management and the internal control system would be re-adjusted and improved.

3.2 Implications from recent cases in Japan

Since the year of 2000, we have seen many cases related with illegal business practices that companies were not able to control or correct by themselves. Neither actions nor counter-measures were effectively taken even after someone in a company recognizes the existence of illegal practices. Whistle-blowers typically identified such situations and nationwide news report them sensationally. Such cases include, for example: a nationwide food poisoning incident by a large milk product manufacturer; an organizational hiding of a recall by an automotive manufacturer; illegal modification of production location by a meat provider; and an illegal modification of maintenance records for nuclear reactors by an electricity utility.

Interestingly, we have seen a common phenomenon among these cases; employees

who recognized the existence of illegal practices first (including management who were reported) all tried to hide them even though they clearly understood those were compliance issues. Once such case is uncovered, a company experiences drastic revenue loss and would face a crisis of its existence. It seemed to be very difficult for employees and management to imagine negative impacts, which could be huge and long lasting, since they tend to hide such facts that their company implements illegal practices. We should recall once again the importance of “understandings of risks” that is mentioned in the COSO model. Understanding real impacts of risks, which would exist in ordinary daily business practices, and comparing risk and benefit from longer-term views are not easy tasks.

Communications within an organization also have some issues. In the recent cases in Japan there is the lack of “information and communication” and “monitoring,” which is identified in the COSO model. It would be very difficult to secure and manage the proper information transferring if the organization does not set up a special information rules and system for the risk-related information. Also we should avoid biases of human decision-making when faced with such information. Take “over consideration” for example. It is not difficult for us to imagine that someone modifies all or some of the information in order not to bother his or her boss (even “stop transferring” would be easily imagined). “Group polarization” would be another example. Even though information regarding risk is transferred to the management group, the group would not be able to make a reasonable decision because

of the decision-making biases due to the group. In the electric utility's case, we could hypothesize that the management agreed an opinion that the identified defects were not so significant in terms of the safety and the power plant would be still operable as usual. We could also imagine that the management reached a conclusion that negative impacts for reporting such information to the public would be a much larger impact for the utility.

Responses to the information would be different depending on if they were transferred through an official way or not. We tend to think that the "frame" added to the information would be different if they came along with an official route. For example, in case that information regarding illegal practices is seen as unofficial because of the lack of such a system, employees would not react to such information properly because he or she would not put higher prioritization on it, because it is not official. Information associated with risks and illegal practices would not be processed adequately if there was no systematic way for transferring and sharing them. Obviously, we cannot rely on usual human decision-making for these situations. Actually some advanced companies started to establish some kind of rules about transferring and processing information associated with risks and illegal practices. For these kinds of trials, they typically collect any kind of information at first. Neither processing nor modifying information would be allowed at the lower level of organization. Since they have not had the right solution about a risk-related information handling system, they just started to try and error in order to have proper "monitoring" system.

4. Establishing company-wide risk management scheme

If issues associated with risk appear in daily business practices, it is very important to treat them in accordance with some kind of management scheme. We have to make sure that the following steps are undertaken appropriately: understanding issues and excluding biases as much as possible; transferring and sharing them within appropriate staffs and management; and finally making a decision that is accountable to the stakeholders. We believe that interaction process between tacit knowledge and explicit knowledge and its conversion into organizational skill, pointed out by Nonaka, I and Takeuchi, H. (1995), would be also useful for improving organizational risk management. That is, by trying to share the tacit knowledge kept by staffs who experienced excellent risk management with other staffs (socialization), and by transforming such tacit knowledge that are shared within the organization into explicit knowledge that would be easily transferred and actually utilized explicitly by the organization (externalization). After that, by utilizing the knowledge explicitly identified with some kind of systems or procedures and with combining newly obtained tacit knowledge, it is improving its risk management scheme (combination). Finally, through actual practices guided with procedures or manuals, i.e., the framework of explicit knowledge, we would be able to learn another tacit knowledge related to risk management (internalization).

The COSO model, which was explained in the third section, shows the organizational process which would be implemented by top management and other staff within the

organization and its integrated management scheme. The model is based on integrations among five elements including "control environment," "risk assessment," "control activity," "information and communication," and "monitoring."

The COSO model also considers biases of human being's decision-making and states as follows: "Internal control recognizes that people do not always understand, communicate or perform consistently. Each individual brings to the workplace a unique background and technical ability, and has different needs and priorities. These realities affect, and are affected by, internal control. People must know their responsibilities and limits of authority. Accordingly, a clear and close linkage needs to exist between people's duties and the way in which they are carried out, as well as with the entity's objectives."

In addition, we believe that the COSO model implicitly suggests having procedures and manuals that would be based on tacit and explicit knowledge. Internal controls are most effective when they are built into the entity's infrastructure and are part of the essence of the enterprise. They should be 'built in' rather than 'built on.' 'Built in' controls can directly affect an entity's ability to reach its goal, and supports business' quality initiatives. The quest for quality is directly linked to how businesses are run, and how they are controlled.

In this context, we believe that it is very important to have a risk management system that would consider psychological aspects of decision-making by employees. The following are considerable points for establishing a risk management system for the companies in order

to eliminate decision-making biases:

- Standardize the work process and identify steps and processes where human error might often occur in unusual situations in order to minimize potential biases that would be induced by individual decision-making
- Review periodically whether or not the internal control system works and improve it by strengthening the internal audit through off-site monitoring and on-site examination
- Learn the tendency and pattern of the groupthink of the particular organization and make a tacit knowledge into the manual and or documentation based on the lesson from the past failure
- Introduce the cross functional teamwork for the important project in order to eliminate the decision-making error from a single angle approach
- Set up some kind of information flow where anyone can report implicit and explicit risk-related information to an "official" place
- Establish an organization that collects and processes potential illegal and risk related issues, and reports them appropriately to the top management.
- We need to change our way of thinking so that we could protect potential profit of the company or society from longer term's point of view. Once we have an unusual event,

we need to change priority of things as necessary. Ideally, everyone in the organization has a proper risk sense and reacts appropriately.

According to a survey with more than 3,000 Japanese companies, implemented by a larger accounting firm in the summer of 2002 (Takeda, 2002), 95% of surveyed companies responded that it is very important to have a risk management function in companies. However, there are still a small number of companies that have risk management organizations that primarily control risk related to company business practices (about 30%) and there are even smaller numbers of companies that have risk management manual and/or information system that include contingency plan. In the future, we would be able to examine this issue further with detailed examples as more companies have risk management organization and/or risk management function. It would be very important to consider having risk management scheme that take into account individual and organizational decision-making biases would be accountable for all stakeholders.

References

- Bernstein, P. L. (1998) *Against the Gods: The Remarkable Story of Risk*, John Wiley & Sons
- Borge, D. (2001) *The Book of Risk*, John Wiley & Sons
- COSO (1992) *Internal Control – Integrated Framework*, The Committee of Sponsoring Organizations of the Treadway Commission
- Innami, I. (1997) *Excellent Decision Making (Sugureta Ishi Kettei)*, Chuo-koron (in Japanese)
- Kahneman D. and Tversky A. (1979) *Prospect Theory : an Analysis of Decision Under Risk*, *Econometrica* 67 263-291.
- Kamei, T. (2001) *Crisis Management and Risk Management (Kiki Kanri to Risuku Manejimento)*, Dobunkan (in Japanese)
- Makridakis, S. (1990) *Forecasting, Planning and strategy for the 21st Century*, Free Press.
- Mintzberg, H., Ahlstrand, B., and Lampel, J. (1998) *Strategy Safari: A Guide Tour Through the Wilds of Strategic Management*, The Free Press
- Nonaka, I. and Takeuchi, H. (1995) *Knowledge-Creating Company*, Oxford University Press
- Ross J. F. (1999) *The Polar Bear Strategy Reflections on Risk in Modern Life*, Perseus Book
- Simon, H.A. (1996) *The Sciences of the Artificial (3rd ed.)* Cambridge, MA: The MIT Press
- Takeda, T. (2002) *Japanese companies are still developing risk management system (Imada hatten tojo dankai ni aru nihon kigyo no risuku kanri taisei)*, *Weekly Diamond*, Issue of September 14, 2002
- Yoshikawa, H. (1999) *Risk Communications (Risuku Komyunike-shon)*,” Fukumura-shuppan (in Japanese)

Appendix

1 Biases resulting from individual decision-makings

(1) Framing effect

Facing the same decision-making issues with the same response options, we may choose different options based on the different decision frames applied.

(2) Availability

Kahneman and Tversky (1973) suggested that people inadvertently assume that readily available instances, examples or images represent unbiased estimates of statistical probabilities. Situations in which people assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind.

(3) Anchoring

We tend to make a decision based on the point related to given data and/or recalled information. If the referenced information or data do not have reasonable accuracy, we may make a biased decision due to this tendency.

(4) Conservatism

We tend to neglect information that we do not expect or feel inappropriate. Even if we are told that this is objectively right information, it is not easy to change our opinion for a while since we tend to neglect them.

(5) Difference between causation and correlation

We tend to believe that there are causation between events accidentally happened or changed at the same timing. We tend to misunderstand strong correlations as causation and tend to make a biased decision based on such information.

(6) Over confidence

We tend to underestimate an impact of risks since we tend to believe that our estimation about risks are generally accurate.

(7) Optimism

We tend to have unreasonably optimistic thinking about a particular risk regardless of actual objective evaluation. For example, we tend to believe that we are safer drivers than average even without objective data.

(8) Hindsight

We tend to evaluate events that we actually experienced more important than events we did not experience.

(9) Pattern Seeking

We tend to seek some kind of pattern behind events and might misunderstand actual causality because they put some kind of reasoning inappropriately.

(10) Over compensation

We tend to believe that our countermeasures take place effectively if we see some successful example. We tend to forget overall impacts of the countermeasures. For example, drivers tend to believe they could control cars appropriately even in a high speed if they are with anti lock brake systems. However, they could induce other type of risks.

(11) Myopia

We tend to evaluate risks or issues that happened recently. We underestimate past events. Later risks and accidents tend to be prioritized in our evaluation and reviews.

(12) Inertia

We tend to believe that we should analyze much data before we find the right action toward risks. Therefore, once we have something happened, we tend to be confused and we cannot do anything.

(13) Complacency

People tend to neglect risks embedded in daily life. For example, risks associated with driving tend to be neglected just because driving is a part of daily life.

(14) Simplifying heuristics

People tend to ignore or simplify an issue if we feel that it would not have major impacts. We might have serious events if we ignore or simplify issues inappropriately.

(15) Mental accounting

People tend to consider one element (e.g., economic impact) and ignore the others when we evaluate a decision-making issue. If ignored elements have major impacts, we might suffer a lot because we give insufficient consideration to such situations.

(16) Search for supportive evidence

People tend to collect information that might lead to a specific conclusion and ignore information that might be conflict to the desired conclusion.

(17) Reversibility

We expect opposite information if specific information or similar ones are provided. For example, we tend to think that there might be decreasing trend if we have seen increasing trend for a while even though we do not have special reasons.

(18) Attribution of success and failure

People tend to consider that success is achieved with their own contribution and failure occurred because of an unfortunate happening and/or others' faults.

2 Biases resulting from group decision-makings

In addition to the biases induced with individual decision-making, biases associated with the group decision-making have been also the focus of psychological experiments.

(1) Conformity pressure

Regardless of its objective accuracy, there would be the atmosphere that everybody has to be agreed on an idea that the majority already agreed upon. It is said that such a conformity pressure is generated for the following two reasons. One is that a person tends to consider that information which came from other people is more reliable than his or her information and tend to use such information for his or her base of decision making. The other is that a person tends to agree with information came from others, even though they look not right, in order not to harm their feelings and/or expectations. If the idea everybody agreed is objectively right or accurate, this phenomenon is not so bad. However, if this is not the case, the group decision influenced by the conformity pressure is not successful.

(2) Minority influence

Generally speaking, minority opinion is weaker than majority. However, under certain conditions, the minority could play a major role within the group decision-making. Such conditions include (a) the opinion is consistent during discussion (b) the opinion is regarded as just representing a minority group's thinking, or (c) the group tends to value creative idea and thinking, and so on.

(3) Social loafing

This is also known as "Free riding." Participants may reduce their efforts to make decisions if they are in a group. If they think that there are enough inputs in within the group, they tend not to provide additional inputs in order to make better decisions.

(4) Group polarization

The group discussion could be led to a more risky or more conservative direction with the individual participant's attitude. Although we have not known why this could happen in detail, it is said that one could believe his or her idea to be stronger if the idea were supported by others. It is also said that it is relatively difficult to track the responsibility of group decision, so its decision could be more dramatic in any directions.

(5) Excess consideration

Even though participants did not want to reach a specific conclusion individually, they as a group reached the specific conclusion since they care about each other's feelings or thinking too much. For example, when someone who is not so outstanding all the time expresses an extraordinary opinion in a group in order to get attention from others, even other members do not think it is not understandable, they agree it since he or she could be treated appropriately for this time. In results, the opinion that nobody wants to have is actually agreed on by the groups.