

Crisis and Organization Failure : Framework of Analysis and Case Studies in Financial Crisis and the Fukushima Nuclear Accident

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Crisis and Organization Failure: Framework of Analysis and Case Studies in Financial Crisis and the Fukushima Nuclear Accident¹⁾

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Executive Overview

Organization many times fails when an unforeseeable crisis occurs. Why does organization fail under such circumstance and survive in others? We can learn hints of success from those failures. Much research in organizational studies dealing with organization failures under severe uncertainties has been conducted. In this article I introduce major previous studies and try to identify a framework that can be applied to explain organizational failures particularly during an unforeseeable crisis. The recent Fukushima nuclear power plant accident as well as the financial crisis of 2008 is providing important research opportunities into why organizations are ill prepared and management failures leads to disastrous consequences for the economy. We need to develop new or revised theories to explain organizational failures during a crisis with more comprehensive case studies about the Fukushima nuclear accident.

Key Words: Financial Crisis, Nuclear accident, Organizational failure, Large and Complex Organizations

I Introduction

Although the large corporations developed the capacity to work out measurable risks with the advancement of science and technology and new knowledge in management practices, they are still ill prepared to deal with the unforeseeable crises that confront them at almost regular intervals. The recent world financial crisis is almost a repetition of the great depression of the 1930s and the recent nuclear power plant accident²⁾ in Japan seems to indicate that not much was learned from the Chernobyl nuclear accident in 1986.

1) Part of this paper was presented to the 2011 Conference of Institution, Economics and Law in Fukuoka. I appreciate many comments made by Professor Yasushi Suzuki of Ritsumeikan Asia Pacific University and other participants. I also appreciate the help of Professor Sajit C. Debnath, of Ritsumeikan University in preparing this paper.

2) Because of the depth and width of the accident, I include the Fukushima nuclear power plant accident in the category of crisis.

It is generally said that there were two major reasons³⁾ that the Fukushima nuclear power plant accident occurred.⁴⁾

- (1) The plant was ill equipped for natural disasters, especially an unprecedented large tsunami.
- (2) All parties involved with the nuclear power plant assumed the plant was safely built and a severe accident would not occur.⁵⁾

Severe accidents and crises provide us with a great opportunity to clarify why some organizations fail in such circumstance and how to prevent such failures. There are many scholarly articles and books written on why large corporations often fail. Taking the financial crisis and nuclear accident as case studies, in this paper I tried to work out a framework of understanding the core reasons behind the failures of large corporations in the face of unforeseeable crises and suggest some proposals for further research.

We assume unforeseeable events occur under an uncertain environment where the probabilities cannot be specified. Accordingly, the traditional economic theories that deal with risks⁶⁾ and returns with specified probabilities are not well suited for handling such unforeseeable events. Severe accidents occur because the risks are not foreseen (uncertainty) and lead to severe damage to the organization and economy. When a severe accident influences the economic and social environment, it will lead to a crisis and in some cases to catastrophic events. (See Figure 1)

Theoretical framework of Unexpected crisis

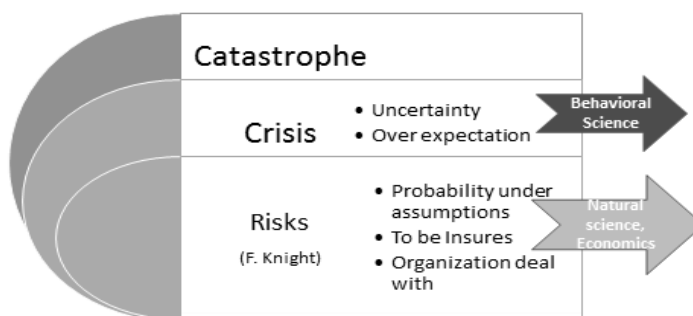


Figure 1

3) The official government investigation committee of the Fukushima nuclear plant accident was established on June 7, 2011, and the factors regarding the incident will be disclosed in the final report due to be released by the end of 2011.

4) Many newspapers reported on these two major factors and claims that there was an area struck by a tsunami of great height during the Joka Earthquake that hit the area in 869. It is also said that some seismologists warned of the risk of a severe earthquake and tsunami occurring offshore of the nuclear plants.

5) As a consequence, both Tokyo Electric Power Company LTD. (TEPCO), the operator of the Fukushima nuclear power plant, and the Japanese government could not properly deal with the accident during the initial stage, which led to catastrophic results.

6) According to Frank Knight (1921), the risks are predictable with a probability distribution and are to be insured accordingly. Knight defined risk and uncertainty depending on whether or not we can predict them with probability.

It will be the behavioral theories, including management and organization theories, that can deal with organizational behavior during such unforeseeable events.

In this paper I summarize a theoretical framework for analyzing organizations in unforeseeable events by reviewing the relevant previous studies in organizational studies, introduce some findings from my previous research on financial crises both in Japan and the US, propose comprehensive case studies on the Fukushima nuclear power plant accident, with some tentative operational hypothesis, and propose further empirical studies to test the hypothesis, which will lead to new and/or revised theory.

I will encourage many researchers in different disciplines, like behavioral economics, behavioral finance, organizational behavior, decision making, and organizational psychology to participate in these empirical studies.

II Different approaches to dealing with an unforeseeable crisis

A crisis reveals the vulnerability of large and complex organizations. These organizations seem to have difficulty in decision making in very uncertain environments. In addition, regulated industries like banking, public utilities, and quasi-government organizations often have made very bad decisions and risk judgments, which in some cases have led to a severe accident or crisis turning into a catastrophic event. In most of these cases, the problem behind making a bad decision lies in the organizational and institutional design of the corporation as well as the behavioral characteristics of these organizations and individuals in the organizations.

Here I selected the explanations of three famous scholars regarding the affect of severe accidents and or crises on organization failure.

Dr. Richard P. Feynman⁷⁾, as a member of the Rogers Commission on the Space Shuttle Challenger Accident⁸⁾ revealed that the major cause of accidents was NASA's organizational problem. NASA has been a government organization but has been subject to pressure to be privatized. He explains about the organizational problem by stating:

“If a reasonable launch schedule is to be maintained, engineering often cannot be done fast enough to keep up with the expectations of originally conservative certification criteria designed to guarantee a very safe vehicle. In this situation, subtly, and often with apparently logical arguments, the criteria are altered so that flight may still be certified in time. They therefore fly in a relatively unsafe condition,

7) Feynman was born in 1918 and died in 1988. He was Professor of Theoretical Physics at Princeton and the California Institute of Technology. He was awarded the Nobel Prize in Physics in 1965.

8) Vaughan (1996) developed more comprehensive studies on this accident and showed how history, power, and politics combined in NASA to create disastrous human mistakes and institutional causes.

with a chance of the order of a percent. Official management, on the other, claims to believe the probability of failure is a thousand times less. One reason for this may be an attempt to assure the government of NASA perfection and success in order to ensure the supply of funds, the other may be that they sincerely believed it to be true, demonstrating an almost incredible lack of communication between themselves and their working engineers. ... For a successful technology, reality must take precedence over public relations, for nature cannot be fooled.”

(Feynman; 1988)

The industries that are behind the 2008 US financial crisis and 2011 Fukushima nuclear power plant accident are highly regulated by the regulatory authority of the respective countries, making the argument of Feynman more relevant. There are even greater similarities in the causes of these disasters as both the banking and electric power industry are a kind of public utility and the management of both was not concerned enough about the scope of potential risks in the beginning, which ultimately led to both crises becoming catastrophic.

Very recently, Professor Joseph E. Stiglitz⁹⁾ wrote about the commonality of the US financial crisis of 2008 and the Fukushima nuclear accident of 2011 and mentioned that the moral hazard of banks and nuclear plant operators are the major cause of those disasters. He mentions:

“The American financial crash and Fukushima nuclear meltdown provide stark lessons about risks, and about how badly markets and societies can manage them. ... Experts in both assured us that technology had all but eliminated the risk of catastrophe. ... These consequences were so enormous that they easily erased all the supported benefits of the system that industry leaders promoted. ... We have little empirical basis for judging rare events with huge consequences, sometimes called “black swans”. ... A system that socializes losses and privatizes gains is doomed to mismanage risk. ... Too-big-to fail banks now know that they can expect to be bailed out if they get into trouble. As a result of this “moral hazard” these banks can borrow on favorite terms, giving them a competitive advantage based not on superior performance but on political strength. ... So, too, the nuclear industry’s very existence is dependent on hidden public subsidies. ... cost borne by society in the event of nuclear disaster, as well as the still-unmanaged disposal of nuclear wastes.”

(Stiglitz; 2011)

These two cases of the US financial crisis in 2008 and the Fukushima Daiichi nuclear accident in 2011

9) Stiglitz is a Professor of Economics at Columbia Business School. He was awarded The Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel 2001.

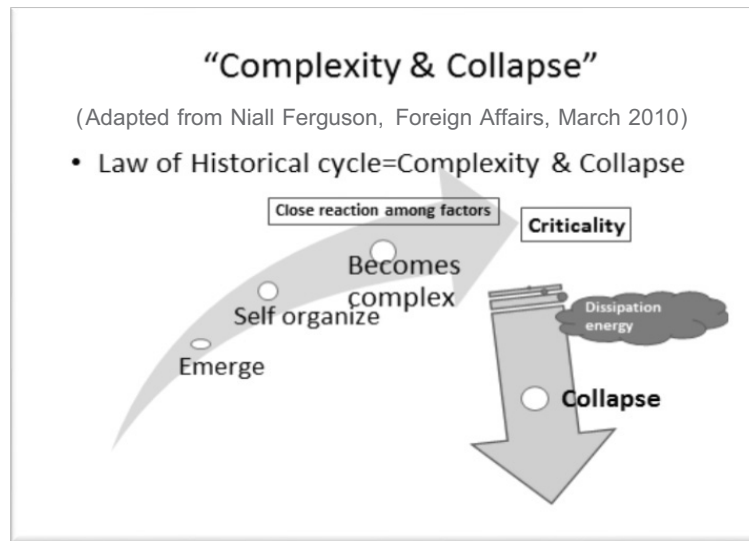


Figure 2

have been chosen to be studied for this article because of the great similarities between them that we discussed earlier in this section. In most of such failure cases, I found that the large and complex organizations have problems in their organizational and institutional design as well as organization behaviors that create obstacles in making quick and correct decisions in the time of crisis.

British historian Dr. Niall Ferguson¹⁰⁾ showed us the law of historical cycle of empire. Every empire from the Roman Empire to modern empires emerged as a small organization. They trade and organize government and self-develop. Their organization becomes very complex and their various actors closely react together. This leads to the criticality of organization. The empire suddenly collapses when their energy dissipates. This is the historical cycle and he implies even the American empire follows this cycle.¹¹⁾ This can be applied to any very large and complex organization. Some sudden crisis will be the major cause of their collapse. Complex organizations are doomed to collapse. (See Figure 2)

III Overview of previous research from an organizational perspective

The organization of firms has attracted the most fundamental interest from researchers both in economics and sociology. However, economic theory¹²⁾ and social theory approach organizations differently.

10) Ferguson was born in 1964. He is a British historian who specializes in financial and economic history. He is the Professor of History at Harvard University and also currently the Philippe Roman Chair in History and International Affairs at the London School of Economics.

11) Ferguson (2010)

Sociology has a tradition of taking the subjective view of the account.¹³⁾ As mentioned above, economics deals with risks for which the probabilities are specified.¹⁴⁾ On the other hand, behavioral sciences, such as sociology, deal with organizations facing uncertainties for which the probabilities are not specified. Many unforeseeable events are associated with uncertainty. In this section I introduced the sociological view of an organization facing uncertainties.

(1) *Sociology model of organization and crisis; Complexity and tight coupling*

Yale sociology professor Charles Perrow revealed that the complex and tightly coupled organization of a high-risk technology industry can make disastrous accidents a normal occurrence by looking into the cases of nuclear power plants, space missions, chemical plant, etc.¹⁵⁾ His analytical framework fits very well to both the complex financial institutions and nuclear power plants crises. Perrow, in his analytical framework mentions:

“Most high risk systems have some special characteristics, beyond their toxic or generic dangers, that make accidents in them inevitable, even “normal”. This has to do with the way failures can interact and the way systems tied together. It is possible to analyze these special characteristics and in doing so gain a much better understanding of why accidents occur in these systems.”

(Perrow; 1999 : 4)

Perrow analyzed the case of the Three Mile Island nuclear plant accident and found many very complex components that were tightly connected caused the accident. Those accidents were inevitable no matter how the human designers prepared safeguards against such accidents because various components sometimes mutually interact in an unexpected manner. System accidents are uncommon, even rare; yet this is not all that reassuring, if they can produce catastrophes.¹⁶⁾ Accordingly, he suggests interactive complexity and tight coupling will produce an accident and calls them normal accidents:

“We start with a plant, airplane, ship, biology laboratory, or other setting with a lot of components, then we need two or more failures among components that interact in some unexpected way. No one dreamed that when X failed, Y would also be out of order and the two failures would interact so as to

12) Agency theory and transaction cost theory are two important economic theories dealing with the interaction of organizations.

13) Swedberg (2003) page 383-384

14) Recently, behavioral economics and behavioral finance research has been developed by focusing on the biases of the decision making process.

15) Perrow (1999) page 4

16) Please see Perrow (1999) page 5

both start a fire and silence the fire alarm.

Furthermore, no one can figure out the interaction at the time and thus know what to do. The problem is just something that never occurred to the designers. Next time they will put in an extra alarm system and a fire suppressor, but who knows, that might just allow three more unexpected interactions among inevitable failures. This interesting tendency is a characteristic of systems, not a part of the operator; we will call it the “interactive complexity” of the system.” (Perrow; 1999 : 4)

Richard Bookstaver¹⁷⁾ applied Perrow’s analysis to investment banking derivative transactions. Large and complex financial institutions are tightly connected globally through recently developed derivative market. This was the cause of the very quick US financial crisis contagion. Bookstaver, in his book, points out that:

“Complexity is a byproduct of today’s interrelated markets. It is not always benevolent; it is at times catastrophic and is always helped along by the organizational jumble of firms like Citigroup.”

(Bookstaver; 2007 : 143)

“The point is simply this: Risk controls, putting on layers of regulation and organizational oversight, cannot always fix the problems that arise from the complexity and tight coupling we have designed into the market. Indeed it might just make matters worse. A better approach for regulation is to reduce the complexity in the first place, rather than try to control it after the fact.”

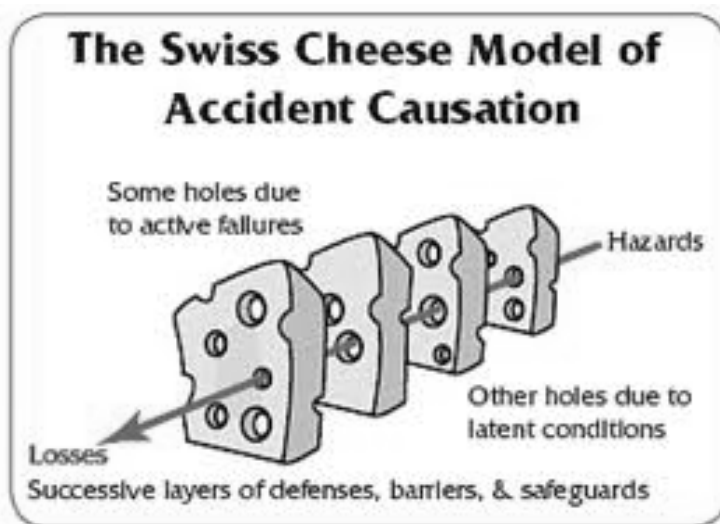
(Bookstaver; 2007 : 164)

Complexity and tight coupling are the typical characteristics of modern organizations. Advances in technology and science made corporations larger and more complex. Outsourcing made various corporations more tightly coupled even without knowing each other. The East Japan earthquake disrupted a very complex web of supply chains in the auto industry because many important automobile parts manufacturers are located in the eastern part of Japan.¹⁸⁾

Sociology Professor James Reason proposed a Swiss Cheese Model of accident causation and that model has been used widely by scholars looking at human error in accidents. According to his model, a major accident will occur while bypassing multiple prevention systems. In this model he showed the causes

17) Bookstaver is a famous financial engineer and risk manager on Wall Street and formerly was a senior risk officer at Solomon Brothers

18) For example the Renesas Electronics Corporation in Tohoku was providing a substantial portion of the micro-computers used in various automobile components and the damage to this company caused a sudden decline in auto production.



(Originally appeared in Reason (1997), Retrieved from http://www.google.co.jp/imgres?q=swiss+cheese+model&um=1&hl=ja&sa=N&rlz=1W1TSJH_jaJP365&biw=918&bih=591&tbm=isch&tbnid=bSHOfoxyEhs8NM:&imgrefurl=http://thereliabilityroadmap.com/html/articles_pg_2.html&docid=y8scAG0vAxi4_M&imgurl=http://thereliabilityroadmap.com/assets/images/swiss_cheese_model.png&w=475&h=343&ei=q2WIToQBHuvJmAW9jYmeCQ&zoom=1&iact=rc&dur=437&sig=106839871277526269627&page=1&tbnh=123&tbnw=172&start=0&ndsp=12&ved=1t:429,r:4,s:0&tx=101&ty=77)²²⁾

Figure 3

of systematic failures or accidents. Accident causation is a series of events which must occur in a specific order and manner comparable to the holes of several unique pieces of Swiss cheese lining up. His concepts commonly applied to the area where individual risk is small but possible consequence is large like airlines, large plants, and hospitals. Human error operating complex systems relates to all the organizational accidents.¹⁹⁾ His theory explains why the Fukushima Daiichi accident happened despite the multiple layers of safeguards for preventing power failures. Professor Hatanaka²⁰⁾ applies the Swiss Cheese Model to various rare accidents mainly caused by human error and established the Japan Academy of Failure.²¹⁾

19) Please see Reason (1997). In addition, Reason (2008) using many examples introduced a more current view on safety and explores the human contribution to both the reliability and resilience of complex well-defined systems.

20) He was appointed as the head of the official government investigation committee of the Fukushima nuclear accident on June 6, 2011.

21) Hatanaka (2011) page 114-115

22) Retrieved September 17, 2011 from http://www.google.co.jp/imgres?q=The+Swiss+cheese+model+is+a+organizational+model,+proposed+by+James+Reason+of+the+University+of&hl=ja&sa=X&rlz=1T4TSJH_jaJP365JP375&tbm=isch&prmd=imvns&tbnid=Flz63iOaztIAyM:&imgrefurl=http://www.tc.gc.ca/eng/civilaviation/publications/tp185-2-06-pre-flight-3656.htm&docid=NChsF9RIeFX1IM&w=310&h=223&ei=Xe9zTtuMFsiwiQem_ci8DQ&zoom=1&biw=936&bih=591&iact=rc&dur=140&page=1&tbnh=117&tbnw=163&start=0&ndsp=13&ved=1t:429,r:0,s:0&tx=95&ty=41

(2) *Environmental Uncertainty and Organization Design*

When we analyze the unpredicted crises and organization failures, various research in organization theory about decision making under uncertainty is helpful. Decision makers do not have sufficient information about environmental factors, and they have a difficult time predicting external changes. For a large organization, it becomes necessary to delegate decision making at the various levels, which allows for dealing with such environmental factors directly, encourages cross divisional teamwork, and flexible and unofficial decision making.²³⁾

Mechanistic organizations can deal well with ordinal uncertainties, but organic organizations compared to mechanistic organizations are more suitable to very severe uncertainties. Tokyo Electric Power Company LTD. (TEPCO) is an example of a mechanistic organization and the US investment banks are examples of an organic organization. Table 1 shows some of the characteristics of mechanistic and organic organizations.

Table 1

Organic versus Mechanistic Management Processes	
Mechanistic	Organic
Tasks are broken down into specialized, separate parts	Employees contribute to the common tasks of the department
Tasks are rigidly defined	Tasks are adjusted and redefined through employee teamwork
There is a strict hierarchy of authority	There is less hierarchy of authority and control, and there are few rules
Knowledge and control of tasks are centralized at the top of the organization	Knowledge and control of tasks are located anywhere in the organization
Communication is vertical	Communication is horizontal
J. Bank, TEPCO	U. Investment Bank, J. Auto

(Adapted from Daft (2005), p.152)

Richard I. Daft explains how the organization adapts to overcome environmental uncertainty by saying that:

“As environmental uncertainty increases, organizations tend to become more organized, which means decentralizing authority and responsibility to lower levels, encouraging employees to take care of

23) Please see Burns & Stalker (1961)

problems by working directly with one another, inspiring teamwork, and taking an informal approach to assigning tasks and responsibility. Thus, the organization is more fluid and is able to adapt continually to changes in the external environment.”

(Daft; 2007 : 152)

According to Frances J Miliken,²⁴⁾ there are three types of uncertainties:

State uncertainty–uncertainty about the state of the environment

Effect uncertainty–what are the impact of environmental events on the organization

Response uncertainty–what response options are available to the organization

Uncertainty increases the risk of failure for organization responses and makes it difficult to compute the costs and probabilities associated with decision alternatives. To face uncertainty, manager should have the ability to scan and predict the environment and have means and resources to control it.²⁵⁾

Organizations should cope with and manage uncertainty effectively. Decision errors happen in the condition of great uncertainty. Under these circumstances managers cannot determine or predict which alternative will solve a problem. Organization should make decisions and take the risks in the spirit of trial and error. If an alternative fails, the organization can learn from it and try another alternative. Each failure provides new information and insight. Only by making mistakes can managers and organizations go through the process of decision learning and acquire experience and knowledge.²⁶⁾

Organizations commonly face a steady stream of interruptions and recoveries. Weick established the theory of impermanent organizations by looking into the sense making of the organization. The seeming permanence of organizations conceals an endless cycle of interruptions, recoveries, and reorganizing. Weick explored this cycle of organization.²⁷⁾

(3) *The Escalation of Commitment*

Organizations often continue to invest time and money in a solution despite strong evidence that it is not working. Managers block or distort negative information when they are personally responsible for negative decisions. Consistent managers are considered better leaders than those who switch around

24) Miliken (1987)

25) Please see Koberg & Ungson (1987)

26) Daft (2007) page 472

27) Please see Weick (2009) for latest version of his essays.

28) Brockner (1992)

29) Please see Staw (2005) This article summarizes the development of his theory well.

decisions. Decision makers' unwillingness to admit that their prior allocation of resources to the chosen course of action was in vain often times causes the failure of the organization during a time of crisis.²⁸⁾

The escalation of commitment is one of the theories established by Barry M. Staw and other researchers through many case studies and experimental studies.²⁹⁾ For any organization once it is committed to an important commitment, it becomes difficult to withdraw from that commitment and that commitment will escalate. Many large projects will fail and the organization leading the project will lose all the way until bankruptcy. The U.S. involvement in Vietnam was as a series of commitments that were hard to break. Even though we learned that from history, the U.S. commitment to Iraq and Afghanistan escalated.

This issue relates to the cost and return discussion (including sunk costs) in economics because the cost invested influences the decision making. It is very interesting that even after people found out the consequences of money term investment are negative and these investments do not pay off in the long term, people may invest further. Escalation may be due to an effort to justify or rationalize the course of action. Those escalations are often bound to the culture's stereotyping of leadership. It is clearly both an economic and behavioral question. Motivation to justify a course of action, both to oneself and others, may lead decision making to discount economic warnings or to assume that success is just around the corner.³⁰⁾

“When losses come early and are highly negative, they will generally swamp any behavioral variables. In contrast, more dangerous cycles of escalation are created when results are initially clouded by extenuating circumstances and when prospects for the future worsen slowly overtime. In such cases behavioral sources of commitment can build up to the point where they will outweigh the influence of negative economic data. Also, especially prone to escalation are projects in which nearly all the economic costs are committed up-front.”
(Staw, 2005, p.227)

Accordingly, these commitments are a joint function of both economic and behavioral forces. Behavioral factors surpassed economic factors when feedback was ambiguous, power of commitment was strong (strong top decision maker who cares more about his reputation), external political groups are related to the commitment (nuclear policy makers), and the commitment was in a later stage.

Staw strongly pointed out that the escalation situation occurs in a state of uncertainty rather than in a risk and reward situation, where the facts are vague and the observation of events can be colored by prior

30) Staw (2005)

31) Staw (2005) page 233

commitment to a course of action.³¹⁾

As a case study, Jerry Ross and Barry M. Staw analyzed the organizational escalation case of the Long Island Lightning Company LTD. (LILCO) Nuclear power plant, the cost of which increased from the original estimated cost of \$75 million in 1966 to over \$5 billion over 23 years and never operated. Avoiding and postponing the crucial decision making was the major cause of this. The managers of LILCO took the option not to choose risky decisions, and they avoided or postponed crucial decision making that led to the huge increase in cost and ultimately the plant was never operated.³²⁾

This theory relates to Richard S. Tedlow's management failure theory mentioned hereafter.

(4) *Management failure: the problem of decision making*

The decision makers many times make wrong decisions that lead to organizational failures. Both the management of large financial institutions and TEPCO underestimated the actual risks and neglected many warnings, advice, and unrevealed problems both within and from outside. Once problems were revealed they only dealt with the symptoms on the surface and have not implemented meaningful preventions. Herbert Simon clarified the concept of bounded rationality of human behavior and decision making.³³⁾ Top leaders of large corporations have made irrational decisions often. Humans rely on holistic decision making. They pick up available information for decision making because they are accustomed to repeated phenomena. They rely on representative information rather than rare but important information.

Harvard Business School management history professor Richard S. Tedlow revealed the management failure of large US companies caused by their leaders denying failures. He says:

“You ignore the obvious. Why? Because you simply don't want to confront it. You know the consequences, but you don't know. ... What is striking about the dozens of companies and CEOs I have studied is the large number of them who have made mistakes that could or should have been avoided, not just with the benefit of hindsight, but on the basis of information available to decision makers right then and there in the real time. Most of us cleave to the conventional even when it is wrong.”

(Tedlow; 2010 : 2)

He draws seven lessons from his research.³⁴⁾

The time to deal with denial is right now, this very day. Don't wait for a crisis. It will be too late.

32) Ross & Staw (1993)

33) Simon (1957)

34) Tedlow (2010) page 205-211

It is vital to acknowledge and confront whatever facts are facing you.

Importance of encouraging straight talk in an organization.

The necessity of the top decision maker in the company to be able to listen.

Adopt a long term perspective. Denial goes hand in hand with short term thinking.

Trash talking can be a tip-off to denial. If you find yourself trash-talking your competition, take a moment to think about what you are doing.

Tell the truth

By analyzing US foreign policy failures in Vietnam during the 1960's and 70's Irving N. Janis identified in "Victim of Groupthink (foreign policy fiascos)" the following as the major cause of problems:³⁵⁾

The illusion of invulnerability,

Rejection or rationalization of data that might cause the group to reconsider its assumptions

The stifling of dissenting views that undermine shared illusions

Self-censorship by group members of dissenting views

Self-appointed "mudguards" who protect the group from adverse information that might shatter shared assumptions

Stereotyped, demeaning view of competitors

Managers who are assumed to judge decisions rationally actually rely on a more complex and psychological process of decision making. Various heuristics and over confidences lead managers to wrong decision making.

IV Case studies of financial crisis and organizational failures

In this section I will introduce my previous research results on management failures in the 2008 financial crisis and Japan's 1997-98 financial crisis.

(1) *2008 financial crisis and investment banking organizations*

Kuhara analyzed the 2008 financial crisis and success and failure of large US financial institutions. Financial crises happen periodically and the causes of crisis are common in these crises. The major cause of the crisis was the moral hazard of financial institutions under the deregulated market conditions. Those who came to that particular market late were mostly overly diversified and decentralized organizations. This allowed for too much risk taking at the decentralized level causing the ultimate failure of the

35) Janis (1972)

36) Please see Kuhara (2010)

institutions. Especially those institutions usually led by the top that have had a success experience in the past and had kept more centralized decision making relying on numbers neglecting what is going on in each business were apt to fail. Not all large and complex organizations have failed. There are some organizations which have seasoned hands in top management (e.g. JP Morgan Chase) or have a team work culture (e.g. Goldman Sachs) that could cut through this crisis.³⁶⁾

In addition to these findings, we have the recent conclusions of the Financial Crisis Inquiry Commission of the US which revealed several important implications to organizational design (FCIC; 2011: xvii-xix):

Conclusion 1 *“this financial crisis was avoidable. The crisis was the result of human action and inaction,”*

Conclusion 2 *“dramatic failures of corporate governance and risk management at many systemically important financial institutions were a key cause of this crisis. Many of these institutions grew aggressively through poorly executed acquisitions and integration strategies that made effective management more challenging.”*

Conclusion 4 *“the government was ill prepared for the crisis, and its inconsistent response added to the uncertainty and panic in the financial markets.”*

(2) 1997-98 financial crises in Japan and Japanese large banking organizations

The author interviewed and sent questionnaires to Japanese bank executives about their managerial behavior during the bubble in the late 1980's and when the bubble burst in the 1990's. The author found that “Yokonarabi” (keeping up with the Joneses behavior)³⁷⁾ was the typical behavior of Japanese bank management during this period. This was a unique aspect of Japanese bank management during the late 1970s to 1980s under the drastic environmental changes. Reference is made to the success and failure of Japanese style bank management although it seemed that every Japanese bank had followed similar strategies and that there had been no differentiation among them. However, by closely observing management behavior, culture, and leadership, differences were observed among them in their strategy implementations. The Japanese bank failure was a system wise failure of all the large institutions as well as of the regulator. It was a matter of degree but almost all of the large banks had nearly failed during this crisis.³⁸⁾

37) This relates to a discussion of the financial village and nuclear village in Japan where all the dwellers of the village share the same purpose of protecting the village from a common enemy.

38) Please see Kuhara (1997) page 141-155

39) Please see Kuhara (2006)

After this crisis the regulator was separated from the Ministry of Finance and more than 10 large banks were merged into three mega banks. This was the biggest institutional change in Japanese banking. However, after these so called reforms in the banking industry those large Japanese banks lost their international competitiveness and have not been performing well since then.³⁹⁾

There seems to be two issues from this case. First, among large banks there are those that failed and those that survived. The causes of the failures seem to be more related to the management capabilities. Second, there is another important main issue of the institution design of the regulator and the regulated in financial crisis cases.

I assume the institution design of the regulator after the crisis would be one of the major reasons behind the loss of competitiveness of the Japanese banking industry. The newly established independent regulator called the Financial Service Agency has been discouraging Japanese banks from taking risks and consequently, they became reluctant to lend money for economic recovery. Without risk taking, innovation would cease, productivity would decline, and the growth of industry would stall. These have been occurring in the Japanese economy for the last 15 years since the 1997-98 financial crisis. Surprisingly, without any greater positive output, the reorganization of Japanese financial institutions also continued during the same period.

V Proposal of a case study of the Fukushima nuclear crisis and Tokyo Electric Power Company LTD. (TEPCO)

Because of the depth of the problems of the Fukushima Nuclear plant accident and the problems are still on going, in this section my focus is summarizing the problems that occurred at Fukushima related to TEPCO from the organizational aspect and proposing further case studies for better comprehension.

To comprehend the Fukushima nuclear crisis from the organizational and institutional perspectives, we need to understand the organizational characteristics of TEPCO and the government response towards crises, respectively. This unique Fukushima crisis brought into light both the organizational design problem of TEPCO along with the institutional design failure of the regulatory authority. In the following I summarize a tentative hypothesis of the characteristics of TEPCO based on the information published thus far.

40) Unless specified, the sources of information are from Asahi Shimbun News, Bloomberg, and the New York Times. Our team is conducting an ongoing detailed case study.

(1) *Characteristics of organization of TEPCO*

By reviewing a number of newspaper reports, articles, and various reports that are available thus far, it appears we can summarize the characteristics of the organization of TEPCO as follows:⁴⁰⁾

Strong engineers and workers at the site

The brave works were on duty at the site immediately after the severe earthquake and Tsunami.

Decentralization of nuclear plant operation decisions

The plant site manager and other people there did their best to deal with these difficulties given the extreme circumstances of this accident; the local management of the accident has been conducted in the best way possible and following fundamental principles.

Organization wide underestimation of the danger of a natural disaster with safety myopia

There appears to be a tendency for human subjects to assume that extremely unlikely events will never occur. As a regulated industry, an organization wide culture of following the idea of promoting nuclear power was prevalent. No one in TEPCO doubts the safety of their nuclear plant operations and those who questioned the safety were kicked out of the organization. The organization assumed those professionals who claimed doubts regarding the safeness of the plant are the enemies of the company.

Corporate culture of hiding problems

TEPCO has a culture of neglecting issues that are unfavorable to the company. The company has a notorious history of hiding various problems with its nuclear plants. The three nuclear containers melted down immediately after the Tsunami on March 11 but the company did not reveal this matter until after the middle of May when the melt down became obvious to other people based on the available data. The company has an attitude to hide unfavorable information. When it is difficult to keep it hidden, TEPCO just glosses over the unfavorable news by saying it was unpredictable.

Failure to ensure adequate safety levels at the plant

TEPCO also failed to ensure adequate safety levels at the plant.

Slow decision making that worsened the plant's problems

Important data collected for decision making was lacking or not revealed until now. One of the major objectives of this study is to find what really happened to cause the slow decision making that worsened the plant's problems, and we are continuing to research this.

Communication problems between headquarters and the plant

There was confusion in the decision making between headquarters and the plant.

Lack of responsiveness and quick decisions by headquarters

Clearly there was a lack of responsiveness and quick decisions by headquarters when they were needed most to mitigate the damage from the crisis. This happened because TEPCO initially

underestimated the scope of the damage.

No leadership and sense of responsibility from top managers

Another revealing fact about TEPCO is that the Company could not show great leadership during the time of crisis, which questioned the responsibility of the top managers. During the entire crisis, the top management of TEPCO was at a loss as each day brings new disclosures about how the company doctored safety reports and underestimated risks, all without holding the management responsible.

Collusive ties with the regulators

Under the nuclear accident related law it is specified that the government will take responsibility if an unpredictable natural disaster is the cause of an accident. Accordingly, TEPCO was assuming the cause of the entire electrical power source blackout was the tsunami and thus they did not take responsibility for quickly responding to the problem.

Most senior positions at the Nuclear Industrial Safety Agency (NISA) are rotated within the Ministry of Economy, Trade and Industry (METI) every two years and there were very few nuclear specialists in NISA. Onishi and Belson (2011) pointed out that the Agency had the legal authority to regulate the utility, but significantly lacked the technical capability to independently evaluate what they propose. After a mission team inspection in May-June, IAEA urged to Japanese government to reform the regulatory structure.⁴¹⁾

VI Discussion and some suggestions for further research

(1) *There are common organizational characteristics in companies that fail in a crisis*

By looking into the US financial crisis, Japan's financial crisis, and the Fukushima nuclear accident we can find many common organizational characteristics of entities that cannot deal with a severe crisis, which leads to management failure. Large and complex organizations are vulnerable to these crises as mentioned in the previous organization studies. We summarize these traits as follows.

- Too much decentralization
- Complication from uncertainty leads to erratic management
- Lack of communication between top management and the site
- Tendency to hide undesirable but crucial information
- Deny organizational failure
- Groupthink
- Delaying important decisions
- Escalation of commitment

41) IAEA (2011)

- Culture to believe organization capabilities and undermine problem identification

(2) *Institutional reform of the relationship between the regulator and the industry*

After the Fukushima accident the government is considering separating the regulatory body of the nuclear industry from METI, but it is very clear that this will not be the solution for building a sound electric power industry in Japan. Designing a suitable institution is a very difficult task and there is no common ideal regulatory institution in the US or in Japan.

A regulated industry cannot properly deal with severe accidents. They will fail in managing these accidents no matter how well the organizations and institutions are designed. Tight coupling of organizations in the industry itself and between the industry and regulators make the matter worse. Balancing of centralization and decentralization is necessary for organization design. The systematic risky part of the industry should be heavily regulated or nationalized but the private risk part of the business should be more independent and allowed to die when it fails a risk management.

(3) *Future research topics and research methods*

This research should be expanded to the interdisciplinary disciplines of economics, sociology, management, law, and technology among others to lay out an appropriate organizational and institutional design for large corporations that can make the corporations sustainable against unforeseeable crises.

The research method used will be case studies of severe accidents both from organizational and institutional aspects. Many interviews will be conducted with senior management of these organizations as well as the people in operations. As we continue to study more about this recent nuclear crisis and other financial crises, we need to adopt new methodologies if deemed necessary to supplement this research to make this study more comprehensive.

In this paper, I focused on introducing previous research, especially in organizational studies, and then introduced my own case analysis of financial crises. I reviewed discussions about the decision making process of organizations under severe uncertainties from an organization theory point of view including cases about the characteristics of organizational failure in large banks during the US financial crisis in 2008 and Japan's financial crisis in 1997 and 1998. I added the preliminary analysis on the crucial decision making process and organization of Tokyo Electric Power Company (TEPCO) in the Fukushima Daiichi nuclear accident. Financial crisis lead to damage of the most important industry, i.e. banking, and leads to economic recession. The nuclear accident caused uncertainty about the future stable supply of electricity in Japan, which will accelerate the hollowing out of important industries from the country. Accordingly, this

research is very important for the sustainable economy of Japan and organizations.

In the future, we would like to carry out further case studies about the Japanese financial crisis in 1997-1998, the US financial crisis in 2008, and TEPCO's nuclear crisis and discuss the important research questions related to organizational and institutional designs that are sustainable in an uncertain environment to expand our studies illustrated in this paper. In that sense, this paper is basically about the problem statement of our proposed future study to explore comprehensive organizational and institutional designs that are sustainable in an uncertain environment for large and complex corporations.

In summary, the future research agenda will be as follows.

Common organizational characteristics of companies that failed during the crisis

The institutional design of the regulator and regulated

Accumulation of descriptive cases of the organization behaviors of government, TEPCO, and related parties in the Fukushima nuclear accident

Communication between prescriptive theory and descriptive cases and building a new and/or combined theory to explain organizational behaviors in a crisis

There will be more new knowledge if we can learn from the failures as well as the successes.

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