INSURING AGAINST COUNTRY RISKS: DESCRIPTIVE AND PRESCRIPTIVE ASPECTS

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ABSTRACT

Today multinational firms face grave uncertainties with respect to their investment strategies in other countries. This paper stresses the importance of integrating the descriptive aspects of this problem with prescriptive recommendations. It does so by raising two interrelated questions:

(1) How do multinational firms and insurers deal with the problems of international risk in making their decisions on what investments to undertake?

(2) What role can analytic approaches, including insurance mechanisms, play in better managing risk and uncertainty in international transactions?

These questions are addressed by developing a conceptual framework which emphasizes the importance of problem formulation, institutional arrangements and decision processes as a basis for prescriptive recommendations. The problem is characterized by lack of a detailed statistical data base to estimate probabilities and consequences of different types of political, economic, and social risks. Corporate planners and risk managers who have responsibility for these investment decisions would like concreteness. Hence, their actions appear to be greatly influenced by past experience and personal contacts.

Our prescriptive recommendations are designed to widen the statistical data base by the use of experts and Bayesian analysis as well as to broaden the responsibility for investment decisions within the organization. We also propose a jointly operated US private-federal insurance program which maintains features of current government operated systems

but has private firms marketing policies and settling claims.

The above theoretical concepts are illustrated with a case study of Indonesia's investment evaluation problem pursuant to their decision to provide the United States with liquefied natural gas in the early 1970's. This case study illustrates the political risks of firms investing even in highly developed economies such as the United States.

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INSURING AGAINST COUNTRY RISKS: DESCRIPTIVE AND PRESCRIPTIVE ASPECTS[1,2]

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I. INTRODUCTION

Multinational firms face grave uncertainties today with respect to their investment strategies which involve other countries. In particular, there has been an increasing awareness by international managers of the difficulty of predicting the future political and economic climate which is likely to exist in a foreign country. One only has to look at the following headlines from *The Economist* during the first few months of 1981 to see graphically the types of uncertainties which exist in different parts of the world:

[1]The research reported in this paper is partially supported by the Bundesministerium für Forschung und Technologie, F.R.G., contract no. 321/7591/RGB 8001. While support for this work is gratefully acknowledged, the views expressed are the authors' own and are not necessarily shared by the sponsor.
[2]Our thanks to Harold Barnett, Eric Burke, David Bell, Richard Herring, Joanne Linnerooth, and Jim Vaupel for helpful discussions during the preparation of this paper. The constructive comments of John Cox on the original version of this paper are gratefully acknowledged.

Iran and Iraq: A New Front in a Slow War? (January 3, 1981)

El Salvador: Final Offensive to the Next? (January 17, 1981)

Ecuador and Peru: The Oil War (February 7, 1981)

Poland: A Shaky Kind of Peace (March 21, 1981)
Arab-Israel Conflict: Steam from the Middle East's Back Burner (March 28, 1981)

The above illustrative examples on the unstable world situation coupled with the continuing interest by multinational firms in investing abroad have motivated two broad questions which this paper addresses:

(1) How do multinational firms and insurers deal with the problems of international risk in making their decisions on what investments to undertake in foreign countries?

(2) What role can analytic approaches, including insurance mechanisms, play in better managing risk and uncertainty in international transactions?

The first question is of a descriptive nature, while the second one has a prescriptive flavor. A basic theme of this paper is the importance of undertaking descriptive analysis before making prescriptive recommendations. In the next section we develop a conceptual framework which highlights the importance of integrating these two components of the analysis. Sections III and IV probe into the actual decision processes utilized by investors and insurers in coping with international risk (Question 1). The concluding section addresses ways to improve the process through prescriptive analysis (Question 2).

In order to make the analysis more concrete we will illustrate the theoretical concepts with an actual problem facing Indonesia: whether to invest in facilities which will provide the United States with liquefied natural gas. This case illustrates that companies planning to invest in projects which rely on actions by the United States may face similar types of political and economic risks as do American-based firms contemplating projects in less-developed areas of the world.

II. A CONCEPTUAL FRAMEWORK

The problems we will be focusing on in this paper are associated with insurance decisions of multinational firms undertaken to protect their foreign investments against so-called "country risks." In order to discuss this problem in a real world context, there is a need to understand the nature of country risk, the relevant institutional arrangements and the decision processes of the interested parties. These three elements form the descriptive component of the conceptual framework. Prescriptive analysis can then be undertaken with a clearer understanding of the relevant information and constraints facing multinational firms and insurers. Figure 1 depicts these four elements of the conceptual framework, each of which will now be described in turn.

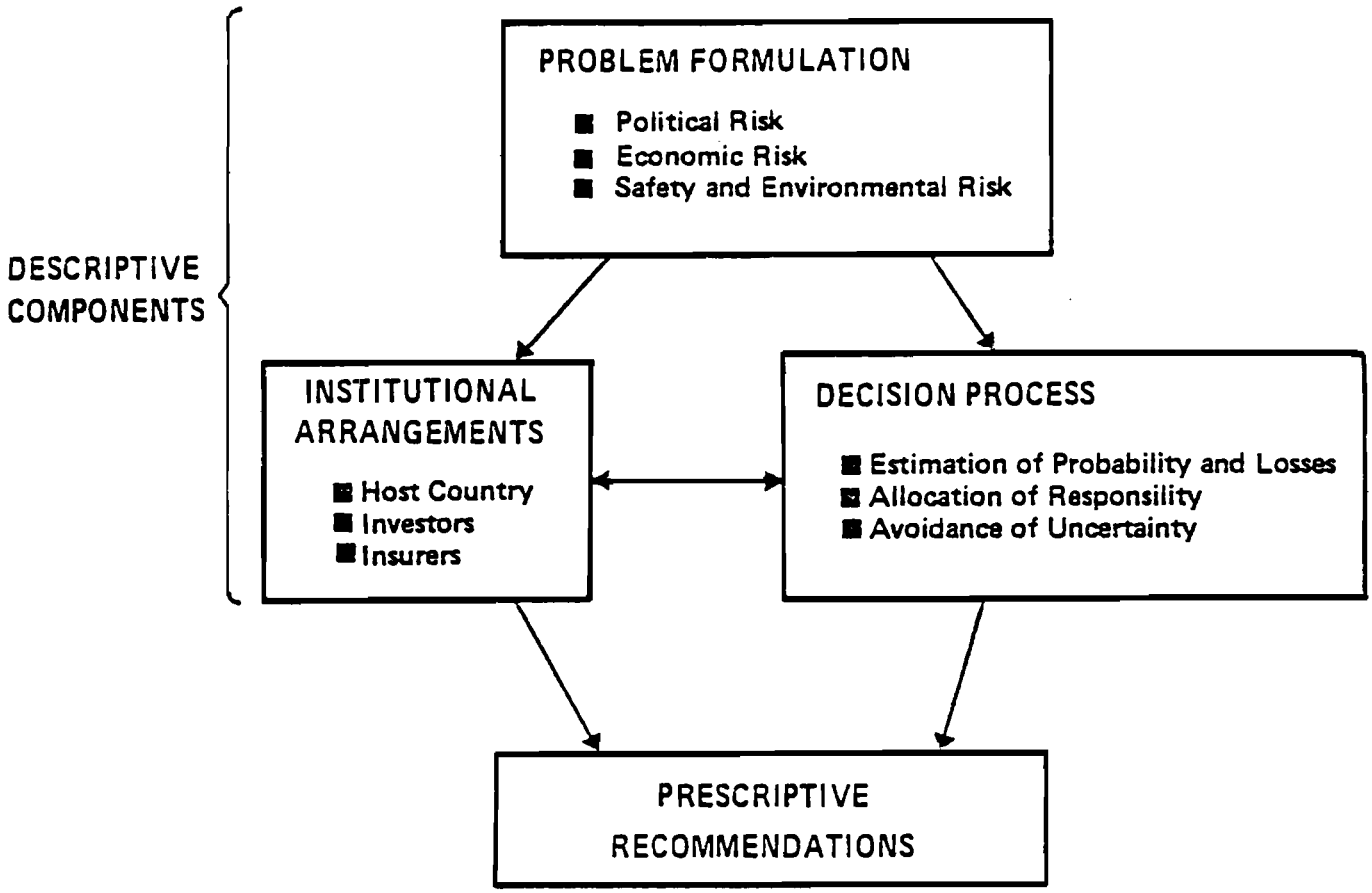


Figure 1. Elements of Conceptual Framework

NATURE OF COUNTRY RISK

Raymond Vernon (1971), in his classic study *Sovereignty at Bay* described the remarkable development of multinational enterprises and their potential conflicts with national governments. Ten years later in a retrospective view of his book, Vernon (1981) pointed out that the central question facing multinational firms is "How do the sovereign states pro-

pose to deal with the fact that so many of their enterprises are conduits through which other sovereigns exert their influence?" This question implies that any multinational firm must seriously consider the possible reactions that countries will have to their investments. Insurers must similarly focus on the probability of specific losses and the likely consequences to the investor firms. Other papers by Dunn, Shubik, and Vernon, in this volume, discuss the nature of these country risks facing firms and insurers so we will only briefly allude to them here. There are several categories of country risk which need to be considered.

Political Element

Risks under this heading are connected with actions taken by a country in response to political and social developments. Some of the possible developments which are likely to have adverse consequences on specific investments are:

- incovertability of currency
- repudiation, default or rescheduling of loans
- expropriation of facilities
- war, revolution or insurrection
- sabotage of facilities

The social climate within the country must also be taken into account by firms who require formal approval for their proposed investment at the local, municipal, and state governmental level. One only has to witness the changing history of nuclear power to recognize that what appeared to be an investment which would be tacitly approved by the

public in the 1950s and 1960s has been viewed very differently in recent years (Hohenemser *et al.* 1977).

Economic Risk

Here one has to distinguish between external and internal risks. By ***external risks*** we are referring to the adverse effects caused by events outside of the control of the host country. For example, one must consider the likelihood and consequences of changing prices and uncertain future demand for goods which are produced by a proposed project. The degree of uncertainty on the returns from an investment will influence the final decision on whether or not it should be undertaken.

Internal risks refer to direct actions taken by the host country which have an impact on the project. For example, the government of a country can subsidize an internal producer of a competing product in order to threaten the profitability of a foreign investment. Changes in labor laws and working conditions can raise production costs so the investment is less competitive on world markets.

Safety and Environmental Risk

Here we are referring to direct losses to the investment itself and the indirect consequences to others. Natural disasters, such as floods, earthquakes, or fire, can cause severe damage to a facility or plant. There can also be man-made disasters such as explosions which can damage the facility and may also kill or severely injure employees or individuals residing nearby. A set of other harmful effects such as pollution, noise, environmental degradation may also be created by a particular

project. Both the investing firm and potential insurers will want to know the extent of their liability from any of these negative impacts.

INSTITUTIONAL ARRANGEMENTS

Figure 1 identifies the four interested parties who are involved in the decision process with respect to the problem of managing international risk.

Host Country

We assume there is an expressed interest in having funds invested in a particular country. In many cases the host country will not be able to give credible assurances that such an investment, if approved, will be immune to the effects of political risks.

Investor

Multinational firms often can invest in a number of different projects, each of which will be viewed differently by them. Funds can be allocated for modernization or expansion of an existing enterprise in a host country, for a new facility, or for exploration of natural resources (e.g., gas, oil, minerals). The project can be jointly owned by the investor and a firm in the host country or it can be controlled entirely by the investing firm. With respect to the organizational structure, corporate investment planners have the responsibility for collecting data and judging the relative attractiveness of specific projects. They are frequently assisted by outside experts who have specialized knowledge of the host countries

(Rummel and Heenan 1978).

Insurer

Today governmental and private insurers provide various forms of political risk insurance. Within the private sector Lloyd's has written protection against war damage to sea shipments since the early 1800's but only within the last ten years have they begun to write insurance against other political risks. In 1978 the private market was broadened when the American International Group began offering different types of political risk coverage (Ralston 1981). In addition, other large companies such as the Insurance Company of North America (INA), have recently also offered coverage against selected political risks.[3]

Another form of insurance coverage is through the Federal Credit Insurance Association (FCIA) which represents approximately 50 private insurance companies and has the backing of the Export-Import Bank. This insurance is available only for goods and services exported from the US. At the governmental level the Overseas Private Investment Corporation (OPIC) was formed in 1969 to encourage US companies to invest in less-developed countries by offering insurance against political hazards such as expropriation and war. Before providing coverage, OPIC must be assured through bilateral agreements between the US and the host country that its rights are recognized (West 1980).

[3]INA wrote its first policy in 1792 on a merchant sea captain's life and then went on to insure international cargo (Cathey 1981).

In most other Western countries similar governmental agencies provide insurance against expropriation, inconvertibility, war, revolution and insurrection.[4] The Central Banks of other developing countries frequently provide loan guarantees which enable investors to obtain funds from the eurocurrency market in currencies not native to their country.

Affected Public

The local populace may have little say regarding the investment decision itself even though they are the ones most directly affected by the negative environmental consequences such as noise and pollution. Once the project is in place this group may be the primary cause of government actions to expropriate a facility, if the perceived economic returns to them are overwhelmed by social and environmental costs. Predicting the attitudes and decision processes of the affected public is a difficult task given the diversity in cultural and social values within a country and between countries. These aspects are discussed in more detail in Dunn and Shubik (this volume).

[4]For example, in 1971, France set up two systems to protect the foreign investments of their companies, one managed by its foreign trade bank BFCE (Banque Francaise pour le Commerce Exteriur) and the other by the COFACE (Compagnie Francaise d'Assurance a l'Exportation) (Chavlier and Hirsch 1981).

DECISION PROCESSES

To explain and predict the responses by multinational firms and insurance companies to international hazards requires a closer look at their decision processes. By *decision processes* we mean the way each of these parties structure their perceived alternatives, the data they have collected, the evaluation of the alternatives and their final choice.

Before the investor and insurer can evaluate the relative attractiveness of a particular alternative there needs to be a clear understanding of the elements comprising risk. We will utilize the language of decision analysis to formulate the problem, although we recognize that in practice firms may not undertake such a formal approach.

Consider a particular project which has been proposed by a host country to a multinational firm. In Figure 2 we consider a specific

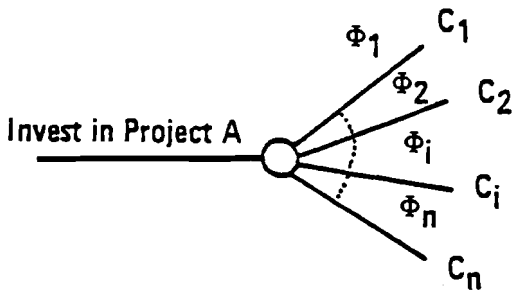


Figure 2. Events and Consequences of Firm's Investment Decision

investment, Project A, where there are n possible events, each of which has a certain likelihood of occurring and an associated outcome. The investor assigns probability Φ_i to the occurrence of each event i; C_i represents the consequence to the project if this event occurs. Some events by the host country (e.g., political or economic stability) will yield

positive profits while others (e.g., social conflict) may produce losses. The insurer may have a different representation of the tree but the formal structure will be the same as shown in Figure 2.

In practice, constructing a decision tree is difficult for problems such as international risk since there is an extremely sparse data base on which to specify events or estimate probabilities and consequences of different outcomes with any statistical precision. It is also difficult for the relevant parties to formulate a causal model on which to base a contingent structure of probabilities and consequences.

Investor Concerns

The decision process of the key individuals or groups in the multinational firm specifying investment priorities will be influenced by the institutional structure of the organization. Two elements play an important role in influencing the collection and processing of data for choosing between proposed projects: the allocation of responsibility for the consequences of decisions and the use of simplified decision rules by organizations.

Allocation of Responsibility. In their classic study of the behavioral theory of the firm, Cyert and March (1963) theorized that each part of the organization has a set of independent goals and constraints which guide its actions. We hypothesize that this feature of the organizational structure plays a key role in the foreign investment decision by many firms. Corporate investment planners are held responsible for the outcomes of their decisions with respect to particular projects. For this reason they try to share responsibility for uncertain outcomes with others and to

avoid negative outcomes. There is thus a reliance on experts for advice, as well as a tendency to favor projects in foreign countries where investment planners feel they understand the situation very well.

Simplified Decision Rules. Organizations prefer to develop simple decision rules which enable them to avoid collecting information on future events (Cyert and March 1963). For this reason investors are likely to utilize threshold models of choice, whereby projects are approved only if the corporate risk manager perceives the chances of a given event to be below an acceptable risk level. Acceptable risk levels themselves might vary according to the country, the nature of the risk, and the economic stakes involved.

If the problem is structured in this way, firms can avoid undertaking a detailed analysis of the consequences of different events. If Φ_i^* is the acceptable risk level for a project of (type) i, then the decision rule under a threshold model is simply: accept i if its assessed risk level $\Phi_i \leq \Phi_i^*$; otherwise reject the project. One can justify this heuristic in terms of the attention which needs to be devoted to each investment decision. By specifying a cutoff point for examining specific projects, the investment planner is using a simple heuristic for comparing and pooling decision outcomes across projects of the same type and for reducing the time spent on collecting data and examining alternatives (Borkan and Kunreuther 1979).

Insurer Concerns

Insurance firms face additional problems of uncertainty which revolve around information asymmetries. Specifically the insurer has limited information regarding the risk characteristics of firms' investment decisions now as well as in the future. This asymmetric information between the insurer and the insured creates problems of adverse selection and moral hazard. These problems are likely to be greater in the international hazard area due to the lack of published information on which to base estimates of probabilities and future expected losses from a foreign investment.

Adverse selection. This is caused by the inability of insurance firms to fully discriminate among different types of risks in specifying premiums. The insurance industry may thus attract a portfolio of investors whose risk exposure is worse than average. In order to cover costs, premiums would have to be raised above the average costs of all investors facing the risk in question, possibly excluding some of the better risks because of high premiums. Eventually, rates may be so high that only the poorest risks, if any, are willing to insure and the market fails. This spiral effect has been discussed widely in the economics and insurance literature (see Arrow 1971). For adverse selection to occur, investors must have better information on the nature of their risks than private insurance firms.

Moral Hazard. This refers to the limited ability of the insurer to predict changes in the investor's behavior after they are insured. Multinational firms may then be less concerned with a project's success than if they had to bear the entire risk themselves. If insurers do not anticipate these behavioral shifts, then premiums will be inadequate to cover their

expected losses.

Government Regulations. Insurers are very concerned with the role of governmental regulations on their operations and on market structure. For example, US based insurance firms have become increasingly concerned over barriers to entry in marketing insurance in other countries.[5] Such regulations can strongly affect efficiency of risk pooling by insurance firms. They also adversely affect the competitive process by restricting market entry.

PRESCRIPTIVE ANALYSIS

An understanding of the institutional arrangements and decision processes of investors and insurers toward country risk provides insights on ways of improving the management of risk and uncertainty in international transactions. Our interest in this paper will be on two areas of prescriptive analysis. In Section V below, we will consider how political risk assessment can be improved within the multinational firm itself. In the concluding portion of the paper, we consider cooperative institutional arrangements between the private insurance industry and the government in providing wider insurance coverage against international risks.

[5]Personal conversation with John Cox, President of Insurance Company of North America.

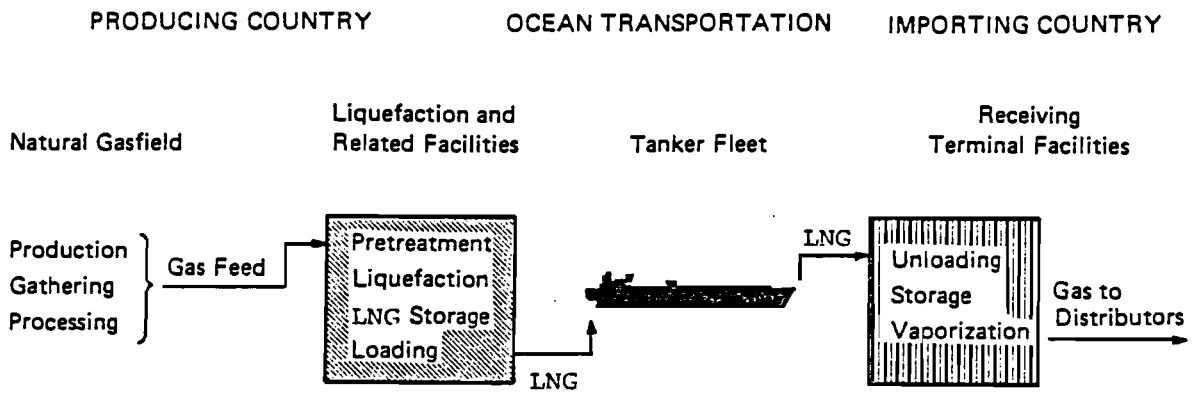
III. HOW INVESTORS DEAL WITH INTERNATIONAL RISK

In this section we utilize our conceptual framework to provide more detail on the decision processes that multinational firms are likely to utilize in coping with the problems of international risk. We motivate our discussion with a real world example: the problem faced by Indonesia as to whether they should invest financial resources into constructing facilities for shipping liquefied natural gas (LNG) abroad. In particular, we focus on the question "Should Indonesia enter into a formal contract with United States firms to supply a specific quantity of LNG over the next 20 years?" Simplified models of the choice process based on this particular problem are constructed, even though we are aware that the actual decision making process is far more complicated than our treatment implies. The exercise is thus designed to stimulate ideas as to ways one can describe investor behavior in a more realistic manner.

PROBLEM FORMULATION

Liquefied natural gas (LNG) is a potential source of energy which requires a fairly complicated technological process for transportation and storage that has the potential, albeit with low probability, of creating severe losses. For purposes of transportation and storage, natural gas is liquefied to reduce their volume hundreds of times. It is then shipped in specially constructed tankers and received at a terminal where it undergoes regasification and is then distributed to different parts of the country mostly by pipelines with the remainder carried by trucks or railcars.

Due to the volatile nature of these liquids, there are potential catastrophic losses associated with explosions of a tanker or from a fire at a receiving terminal. Figure 3 depicts the major segments of an LNG project.



Adopted from Jensen Associates, Inc.

Figure 3. Major Segments of a Liquefied Natural Gas Project.

Indonesia became a logical source of gas supply to other countries after Mobil Oil Indonesia announced in late 1971 that they had discovered large reserves of natural gas in northern Sumatra (i.e., the Arun field). The United States then expressed interest in buying Indonesian LNG. In 1972, the principal decision facing Pertamina, the Indonesia state-owned oil company, was whether they wanted to construct a liquefaction and loading facility for shipping LNG abroad.

Although they were not investing money in facilities in other countries, Pertamina faced the possibility that the United States would not construct a site for receiving the LNG. In this sense, the US plays the role of the host country with the associated set of political and social risks

facing Pertamina re the approval process of the receiving and regasification terminals in California.[6] Since the proposed contract was for 20 years there were also economic risks associated with the project. Given the large investment costs required for constructing the Indonesian facilities, all of which are borne by Pertamina, there was some concern over the stability of future markets for LNG due to the uncertainty of future world energy prices.

INSTITUTIONAL ARRANGEMENTS

Each real world problem involving foreign investments has a special set of institutional arrangements which reflect the regulatory and political structure of the involved countries. In our specific example the investor, Pertamina, could only enter into any contract on shipping LNG abroad after it was approved by the Indonesian government. With respect to the host country, the United States, two gas utilities in California (Pacific Lighting Corporation and Pacific Gas and Electric) formed a partnership to import LNG from Indonesia through a subsidiary PacIndonesia. Any contract signed between PacIndonesia and Pertamina was subject to approval by the Federal Power Commission.

Other parties also had a stake in the final decision. For large scale investments, such as LNG facilities, a substantial portion of the required funds are provided by long-term loans. The lenders, who include banks and insurance companies, utilize other people's money and thus are

[6]California was proposed as the state where LNG would be received from Indonesia.

obliged to repay in full. Hence before undertaking the financing of such projects, they will try to obtain some form of insurance against possible losses from the risks listed above. In the case of Indonesia, lenders to Pertamina, which included the eurocurrency market, were guaranteed repayment of any financial loss by the Indonesia Central Bank (Office of Technology Assessment 1980). Hence the risk from the proposed investment was assumed by the government directly rather than by the state-owned company.

DECISION PROCESSES

Use of Decision Trees

Let us first turn to the question of how the investor is likely to evaluate whether to commit funds to a particular project. In the case of Pertamina their decision was undoubtedly influenced by their estimate of the probability that California would approve the siting of an LNG terminal. Pertamina was entirely at risk with respect to the investment costs of their liquefaction and loading facilities.[7] To keep the analysis simple suppose that in 1972 Pertamina feels the United States is their only potential customer of the LNG[8] and that the company estimates the probability of California not siting a facility to be $\Phi_1 = .05$. Should this scenario develop we assume that the cost of converting the Indonesian facility to other uses would involve a net loss of $900 million. If California did construct a

[7] A force majeure clause in that contract absolved the United States from any obligation to pay for gas should California not site a facility.

[8] In reality, Japan also expressed interest in possibly purchasing LNG, although negotiations on a contract did not begin until 1973.

receiving terminal, then Pertamina anticipates that their total discounted profit on the investment would be $270 million. The Indonesian firm knows that if it does not invest in liquefaction facilities it could invest its resources in government securities which are known to yield $180 million with certainty.

The relevant branches and outcomes for the decisions "Invest in LNG facilities" and "Do not Invest in LNG Facilities" are depicted in Figure 4. If

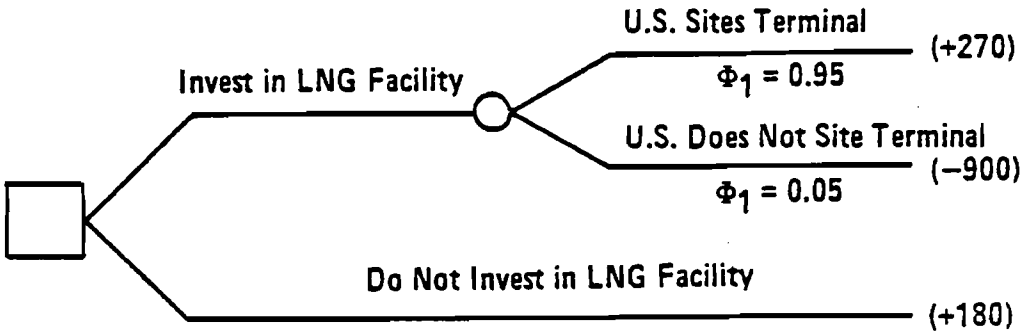


Figure 4. Decision Tree for Evaluating Pertamina's Options

one were using the criterion of maximizing expected or average return on investment then the LNG facilities would be deemed attractive.[9] In reality the actual situation is much more complicated than the simple tree of Figure 4. There are questions with respect to the final terms of the contract, the future prices of different forms of energy, the costs in constructing the liquefaction and loading facility, and various social and political factors which may affect the probabilities, consequences and causal

[9]The expected return for investing in the LNG facilities is simply the sum of probabilities times consequences, i.e., Pertamina would prefer to invest rather than not (211.5 vs 180). If, however, Pertamina's management were strongly risk averse so there was a high disutility assigned to the large loss then the reverse preference might hold. See Raiffa (1968) for a discussion of how utilities and disutilities can be introduced into this analysis.

links between events. Each of these uncertainties could be represented in a more complicated decision tree and Pertamina would then be faced with the difficult task of providing estimates of these additional parameters.

As we pointed out in the previous section, the lack of a good statistical data base makes it unlikely that Pertamina actually followed this formal analysis process. We do not know exactly how the company went about making its decision but we can suggest factors which may have influenced their data collection and processing activities. Our conjectures are derived from related research on how firms behave with respect to country risk (see Vernon this volume) coupled with empirical data on individual and organizational behavior toward low probability events.

Systematic Biases

Due to the lack of a good statistical data base, past experience with the host country is likely to be an important element in determining whether to invest in a particular project. Most firms feel they do not have a good understanding of the relationship between events and managerial contingencies from historical data to estimate the probabilities and consequences of future events on particular investments. Kobrin (1981) points out that impacts of political risks on firms are rarely documented with the exception of expropriation. As a result firms frequently focus on recent events to the exclusion of others in making their judgments. Undue importance may be placed on dramatic events, such as a student riot or a palace coup, which suggest that the country is unstable when, in

fact, it is not (Rummel and Heenan 1978). Economists who have studied corporate risk management feel that too much time is devoted by multinationals to worrying about these headline-grabbing events and not enough attention is given to studying erratic shifts in foreign laws and regulations which steadily erode corporate profits *(Business Week* 1981).

Kelley (1981) provides empirical evidence on the role of past experience in the foreign investment decision making process through a study of 105 multinational firms, all in the Fortune 500. She points out that if a firm has suffered recent losses from political risks, it tends to use a finer screen and undertakes a more detailed and sophisticated analysis of this factor before making future decisions.

This type of biased behavior on the part of firms has been well documented in field survey and controlled laboratory experiments. Tversky and Kahneman (1974) have labeled this phenomenon availability, whereby one judges the probability of future events by the ease with which one can remember past ones. An example of the availability bias from the field of financial investment is provided by Guttentag and Herring (1981). They indicate that several European banks (e.g., the Fugger Bank, the Bardi, and the Peruzzi) became insolvent during the Middle Ages because of default on large loans by sovereign borrowers. These rulers had a past history of paying back small loans. By focusing only on the number of times loans were repaid it appeared as if the sovereign had a favorable record when, in fact, he was a very risky customer.

Nisbett and Ross (1980) provide anecdotal and case history evidence which suggest that individuals give more weight to evidence which is vivid, i.e., concrete and easily recalled. The authors point out that the

availability heuristic is a prime determinant of the effect of vividness on causal inference, since graphic information is more likely to be remembered than bland data.

Empirical studies on consumer decision-making with respect to low probability events reveal similar behavior. For example, few individuals voluntarily protect themselves against the financial consequences of natural hazards until after a disaster occurs. Kunreuther, *et al.* (1978) have documented the importance of past experience as a critical variable in the insurance purchase decision against flood and earthquakes by statistically analyzing data from face to face interviews with 3000 homeowners, half of them insured and the other half uninsured. A comment from a homeowner in a flood prone area illustrates the importance of past experience in determining his attitude toward future coverage:

> I've talked to the different ones that have been bombed out. This was their feelings: the $60 in premiums they could use for something else. but now they don't care if the figure was $600. They're going to take insurance because they have been through it twice and learned a lesson from it. (Kunreuther, *et al.* p.112)

Similar behavior was observed in earthquake areas of California. Following the Santa Barbara quake of 1978, insurance agents noted that there was a sharp increase in demand for coverage (MacDougall 1981).

The media can play a key role in highlighting certain events which then increases their salience as perceived by the public. As a result there is often a tendency to estimate the probability of a particular event to be much higher than it actually is. Combs and Slovic (1978) undertook a study of the frequency with which two newspapers reported various

causes of death. They found that violent deaths such as homicides, accidents, and natural disasters were over-reported, while diseases were under-reported. These biases in coverage corresponded closely to biases found in a previous study (Lichtenstein, *et al.* 1978) in which people were asked to judge the frequency of these same causes of death. Their findings suggest that there may be similar biases with respect to political risk if firms focus on headlines as a basis for judging the magnitude of the risks facing a particular investment.

Role of Regret

The absence of both a detailed statistical data base and a causal model of political and economic risk places an enormous responsibility on the shoulders of the corporate investment planner. He is likely to be highly sensitive to the potential losses when committing funds to a project. We hypothesize that one of the important factors influencing the decision on whether or not to invest in a particular project is how much the responsible individual will regret each choice on the basis of possible outcomes. Savage (1954) has defined the concept of regret as the difference between the level of assets that the decision maker obtains when a given event occurs and the best that one could have done had one known that this particular event would actually happen. Bell (1982) has used this concept in a similar manner.

Figure 5 illustrates regret for the simplified problem treated earlier. The choice between investing and not investing is characterized by two attributes, the first one being the actual consequence C_i, and the second one indicating the amount of money that would have been earned had the

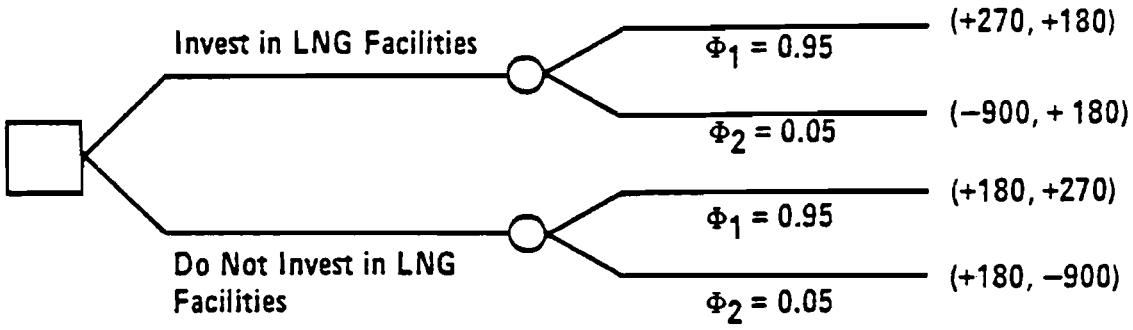


Figure 5. Regret as Part of Pertamina's Decision Tree.

other action been taken.

Before recommending that Pertamina invest in LNG facilities the planner would compare the outcomes under both branches of the tree "Invest in LNG facility," with the return from a certain investment should it not "Invest in LNG Facilities" (i.e., +180). If the event represented by Φ_1 occurs, then there is no regret. If the event associated with Φ_2 is realized, then the planner would be subject to a regret of 1080 (i.e., 900 + 180). This represents the difference between the actual consequence and the best outcome that could have been obtained had the planner known in advance that Φ_2 would occur, and hence would have opted not to Invest in LNG Facilities. A similar analysis would be undertaken in evaluating the regret in the decision "Not to invest in LNG Facilities."

If regret is an important factor in the decision making process, then the investment planner will base his decision partly on potential returns and partly on foregone returns. If the foregone returns are sufficiently large and regret is weighed heavily in his process, then the manager may prefer not to take the responsibility for having made a "bad" decision

even if the probability of this outcome is relatively small.

Regret can be avoided by partly shifting the responsibility for taking actions to others. Hopple and Kuhlman (1981) point out that firms are increasingly relying on country and area specialists in making their decisions. Investment planners can also utilize personal contacts in the host country where an investment is planned. These sources of information provide firms with a more detailed rationale for justifying investment actions.

The principal disadvantage of this strategy, when there is no insurance, is that it frequently leads to a lack of diversification across countries because of large transaction costs associated with finding experts and personal contacts from many different nations. Guttentag and Herring (1981) have noted a tendency of some banks to concentrate most of their foreign investments in a few countries. This opens them up to the possibility of large losses should these governments refuse to honor foreign debts. The bank's strategy of not diversifying their portfolio widely may appear to be economically sound given the advantages of specialization. On the other hand, the lack of perfect capital markets increases their probability of going bankrupt should foreign investments be threatened by events such as expropriation or inconvertibility of currency.

Threshold Models

An additional way to reduce the possibility of regret is not to undertake any actions unless the probability of a failure is below a given threshold level. To illustrate, suppose Pertamina used a threshold model for screening out projects. It would then specify an acceptable risk level Φ^* which would be used as a criterion for approving and disapproving a project. If the risk associated with failure Φ_2 was less than Φ^* then the project would be approved, subject to the additional condition that the expected rate of return for success was above an acceptable level. If $\Phi_2 > \Phi^*$, then the project would be rejected no matter how high the rate of return would be. Looking at the data in Figure 4, the LNG liquefaction and loading facility would be approved if $\Phi^* > .05$ and $270 million was considered an acceptable return on the proposed investment.

In a study of 38 companies considering foreign investments, Aharoni (1966) provides empirical evidence on the importance of threshold models for initially screening out projects which have a sufficiently high risk. Kelley (1981) finds similar behavior on the part of the 105 firms she investigated. Investment planners made decisions on the basis of acceptable rates of return and acceptable risk levels. Each situation was looked at on its own merits without any attempt to undertake any type of portfolio or covariance analysis across projects, as would be implied by an optimization model. This type of decision rule reduced the costs of collecting and processing large amounts of data and avoided uncertainty. It thus conforms to the hypotheses advanced by Cyert and March (1963) in their behavioral theory of the firm.

The use of threshold models to avoid having to focus on the consequences of extremely low probability events is utilized by consumers and government agencies as well as business organizations. In making their insurance decisions, an individual frequently concludes that if the probability of a flood or earthquake is below some given level Φ^* then it won't happen to me; hence it is not worth worrying about the potential consequences. In such a case insurance protection is not even considered (Slovic, *et al.* 1977; Kunreuther, *et al.* 1978). Government regulatory agencies such as the Nuclear Regulatory Commission, use threshold rules on which to evaluate the licensing decision of plants. If they deem the probability of a severe accident to be below Φ^* then they don't worry about the consequences and may overlook design features of a plant which could produce a very serious accident (Jackson and Kunreuther 1981).

Summary

Taken together, the empirical evidence supports the hypothesis that multinational firms behave in a manner consistent with concepts from the behavioral theory of the firm. The lack of a rich statistical data base and causal model of risk creates special burdens on the investment planner. Actions are justified and regret is avoided through the use of experts and personal contacts. Threshold models and acceptable levels of performance are also used as a guide to selecting projects. Finally there is little effort made to deal with the portfolio of risks--rather each project is evaluated on its own merits without comparisons made between other potential investments.

PERTAMINA'S DECISION PROBLEM

Let us now return to the specific uncertainty facing Pertamina: determining the probability that the United States will actually site an LNG receiving terminal in California. There are great difficulties in providing an estimate of this probability because of the complex nature of the decision making process in the U.S. with respect to the siting of large-scale technologies such as nuclear power plants or LNG terminals.

The Siting Process in the US

For one thing, the decision affects many different individuals and groups in society rather than being confined to the normal relationship of a private market transaction such as when a consumer purchases food or an appliance from a store or firm. In the siting decision, each of these groups has its own objectives, attributes, data base and constraints (Kunreuther, Linnerooth, *et al.* 1982).

In the case of the LNG terminal in California there were several different parties who were concerned with the siting decision: first, the applicant for the terminal (Western LNG Terminal Associates).[10] Second, government agencies at the federal state and local level: the Federal Energy Regulatory Commission (FERC) determines whether a proposed LNG project is in the public interest and should be allowed, the California Coastal Commission has the responsibility of protecting the California coastline, the California Public Utilities Commission (CPUC) is the

[10] This was a special company set up to represent the LNG siting interests of the three gas distribution utilities: Southern California Gas Company, Pacific Gas and Electric and El Paso Natural Gas Company.

principal state body involved in power plant issues, and the State Legislature sets up the rules of the siting process. Finally there are public interest groups, such as the Sierra Club, and local citizens groups. Each of these different parties interacted with each other at different stages of the decision process with respect to the siting of a terminal. Their concerns centered around three different classes of attributes: economic aspects, environmental aspects and risk aspects.

A second feature of the siting problem is the absence of a statistical data base on which to base reliable estimates of the different economic, environmental and safety risks associated with a proposed project. Experts are likely to differ on their estimates of the consequences of an LNG terminal and each of the different parties will use those quantitative figures which best suit their purposes (Lathrop and Linnerooth 1982).

As a result of conflicts between the parties involved in the LNG siting debate, today (eight years after initial applications were filed for three terminals in California), no final decision has been made as to whether one will actually be built. The Los Angeles facility was ruled out because of seismic risk and Oxnard was rejected because the risk to the population of a catastrophic accident was perceived to be too high. Only Point Conception still remains a possibility. In 1978 this site was approved, conditional on it being a seismically safe harbor. The final report on the

[11] A detailed description of the California siting decision appears in Kunreuther and Lathrop (1982) and Linnerooth (1980). A descriptive model of choice indicating the nature of the political and social risks and how they play a role in siting decisions can be found in Kunreuther, Linnerooth, *et al.* (1982).

safety of the facility has not yet been issued by the FERC and CPUC.[11]

Pertamina's Investment Strategy

Despite these uncertainties with respect to the resolution of political and social forces affecting the siting decision in California, Pertamina decided to invest in a liquefaction and loading facility. In taking this action Pertamina protected its investment in two ways. First, they negotiated and signed a contract with Japan in 1973 to ship LNG from its new facility. By diversifying their portfolio, Pertamina was not locked into one potential customer. They actually began shipping LNG to Japan in August 1977 from their new plant (Wood, 1979). Second, given their concern with increasing demand for LNG by Japan, Pertamina has renegotiated their contract on a month to month basis with PacIndonesia (the US firm) since October 1977. Pertamina has the right to cancel at any time without any attached penalty. With the recent expansion of the Japanese market for LNG there is now no guarantee that the United States will receive liquefied gas from Indonesia even if a terminal in California is eventually approved.

The other uncertainty that Pertamina faced with respect to the profitability of their LNG facility is the future of world energy prices. They resolved this problem through contract negotiations. Soon after the initial contract between PacIndonesia and Pertamina was signed in 1973 the world price of oil rose sharply. Since this contract was not tied to an increase in energy prices, the Indonesian government refused to approve it. A final version was eventually approved in 1978. It includes an escalation clause reflecting changes in the Indonesian crude oil export prices.[12]

[12]Further information on this is contained in Office of Technology Assessment (1980).

In the case of Japan, the initial contract was tied to the price of world oil and automatically reflected the increase so it did not have to be renegotiated (Western LNG Terminal Associates 1978).[13]

IV. HOW INSURERS DEAL WITH INTERNATIONAL RISK

In this section we will investigate the role played by private and government insurers against political risk. Our object is to provide some perspective on current institutional arrangements and decision processes before discussing proposals for change.

PROBLEM FORMULATION

If a multinational firm could entice private insurance firms to protect its foreign investments against political and economic risk then the responsibility for a loss would be effectively shifted to another party. As pointed out above there has been a reluctance on the part of private insurance firms to offer coverage because of the absence of accurate data on which to base actuarially fair rates. In fact, political risk is at the opposite end of the spectrum from the risk of dying where there are highly sophisticated mortality tables upon which life insurance premiums are based. An additional problem facing private firms is that there are large amounts of money at stake. Insurance contracts for political risks can involve coverage and premiums in the millions of dollars.[14] Should

[13] Vernon (this volume) provides insights into the usefulness of long-term contracts when there are economic risks.

the company be expropriated by the host country then the resulting loss to the insurance firm could represent a sizeable proportion of its assets unless it can engage in reinsurance contracts.

INSTITUTIONAL ARRANGEMENTS

The only private firms who are now marketing insurance coverage are large companies, such as the Insurance Company of North America, or consortiums such as the American International Group or the Chubb Group of Insurance Companies (Cathey 1981). We hypothesize that the reason for this type of concentration is because of the different degrees of risk aversion between large and small firms. Figure 6 illustrates this point with a simple diagram relating the premium charged to the amount of coverage offered. For small amounts of coverage (until $A) both large and small firms are assumed to be risk neutral as indicated by the straight line. For amounts in excess of $A the small firms become more risk averse relative to the larger companies or consortiums. If $B of protection were demanded by a multinational firm then the large company would want to charge a premium of $x while the small firm would require a larger premium of $y in order to be willing to undertake this insurance. After market adjustment, only the large firms would provide insurance for risks of type B to multinational investors and these large insurers will make monopoly profits, because there are only a limited number of suppliers of coverage. If both insurance firms and multinational corpora-

[14] Personal conversation with Hugh Sinclair, President of Insurance Company of North America Multinational Insurance Corporation (INAMIC). See also *Business Week* (1981).

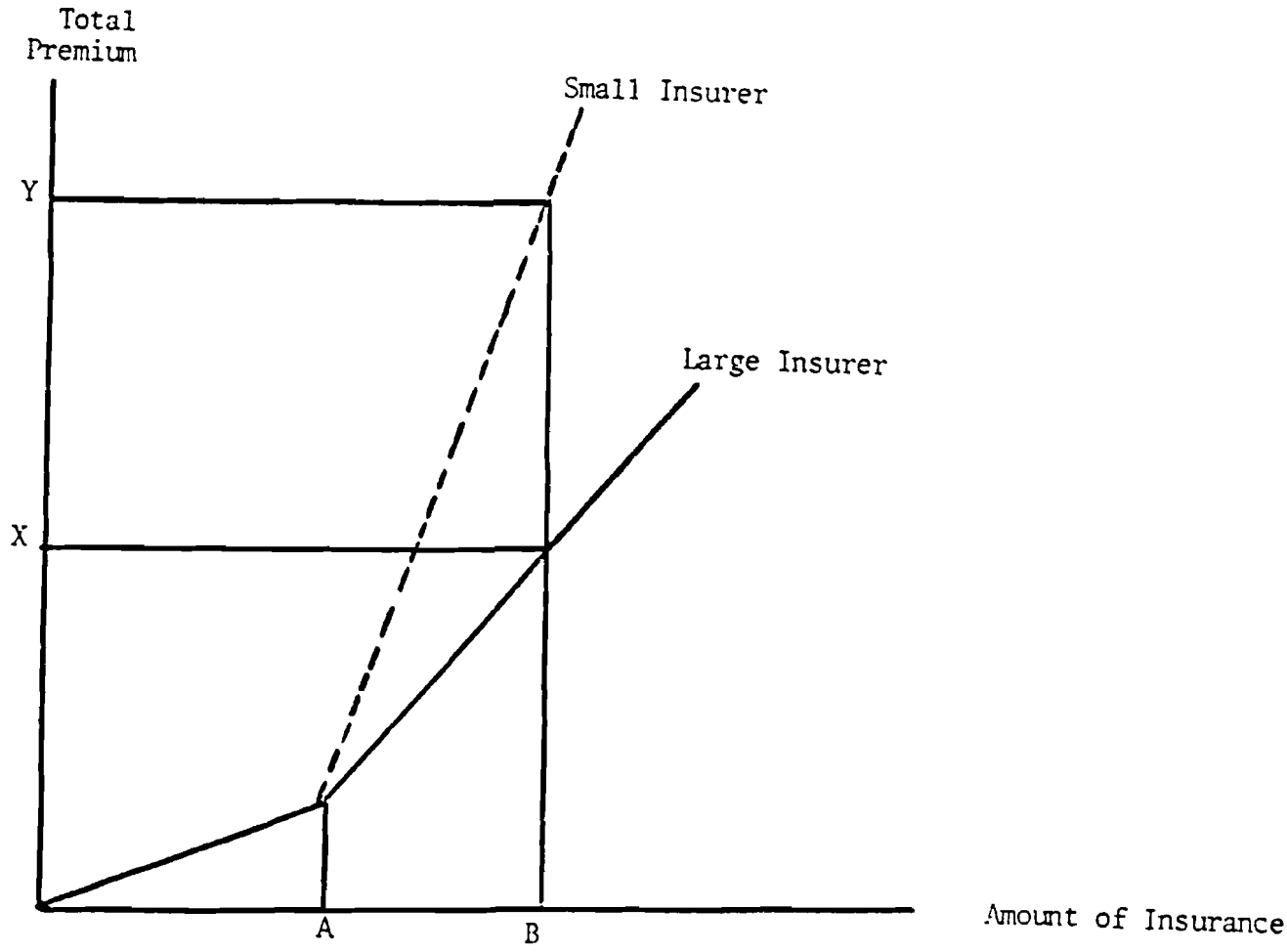


Figure 6. Premiums as a Function of Amount of Insurance for Small and Large Insurers.

tions overestimate the probability of a potential loss, the prices for a given amount of coverage will be even higher, thus increasing monopoly profits.

What impact will this type of equilibrium have on changes on the supply side? We anticipate that as more insurance firms become knowledgeable about political risk, they will enter the market and compete away

monopoly profits through lower premiums. This is consistent with the recent article in *Business Week* (1981) predicting that current high levels of profits in the political risk area would soon be eroded by the entry of new private insurance companies into the market.

Multinational firms also rely heavily on OPIC for insurance coverage against political risks in developing countries. Since this governmental program was established in 1969 it has come under close scrutiny by Congressional committees. One of the most controversial issues associated with OPIC is whether it is likely to involve the United States in the foreign affairs of other countries than would otherwise be the case.

In the Senate Foreign Relations Hearings of 1974, the US Ambassador to Jamaica testified that additional guarantees by OPIC related to $500 million of investments in Jamaican alumina/bauxite facilities would have been interpreted by the Jamaican government as an indication of lack of confidence by the US Government in the Jamaican economy and political leadership. Hence, he refused to concur in OPICs proposal (Griffin 1976). Based on this testimony and other evidence presented at the hearings, the Senate committee concluded that some involvement in host country politics was inherent in the nature of the OPIC program. On the other hand, the House subcommittee disagreed with these criticisms. It claimed "that OPIC provides an institutional framework which can help insure that US private corporate activities in the LDCs do not unnecessarily precipitate conflicts directly involving the US government" (Griffin p.639).

In the fall of 1981 Congress extended the life of OPIC for four more years. The only major change in OPIC's new charter is to slightly broaden the scope of countries where they are allowed to write political risk insurance. Previously, their mandate restricted them, except in unusual circumstances or when dealing with mineral and energy projects, to countries with per capita of less than $1000 (in 1975 dollars). Their new charter has increased this to $2950 (in 1979 dollars).[15]

DECISION PROCESS

Both private firms and OPIC face potential problems of adverse selection and moral hazard in issuing insurance to multinational firms.

Adverse Selection

To illustrate adverse selection consider the simplified case where there are an equal number of each of two types of projects, low and high risk, but the insurer cannot distinguish between them. Low risk projects have a probability Φ_L of a loss of X dollars while high risk projects face a probability $\Phi_H > \Phi_L$ of a loss of Xdollars.[16] The insurer assumes that the probability of a loss is the average of the above two probabilities $\Phi = (\Phi_L + \Phi_H)/2$. He bases his premium P per dollar coverage on this estimate.

[15]Private conversation with Robert L. Jordan of OPIC.
[16]We are assuming that there are only two states of nature: loss of X dollars or no loss.

Figure 7 depicts the phenomenon of adverse selection due to this imperfect information by the insurer. Investment planners are assumed to be

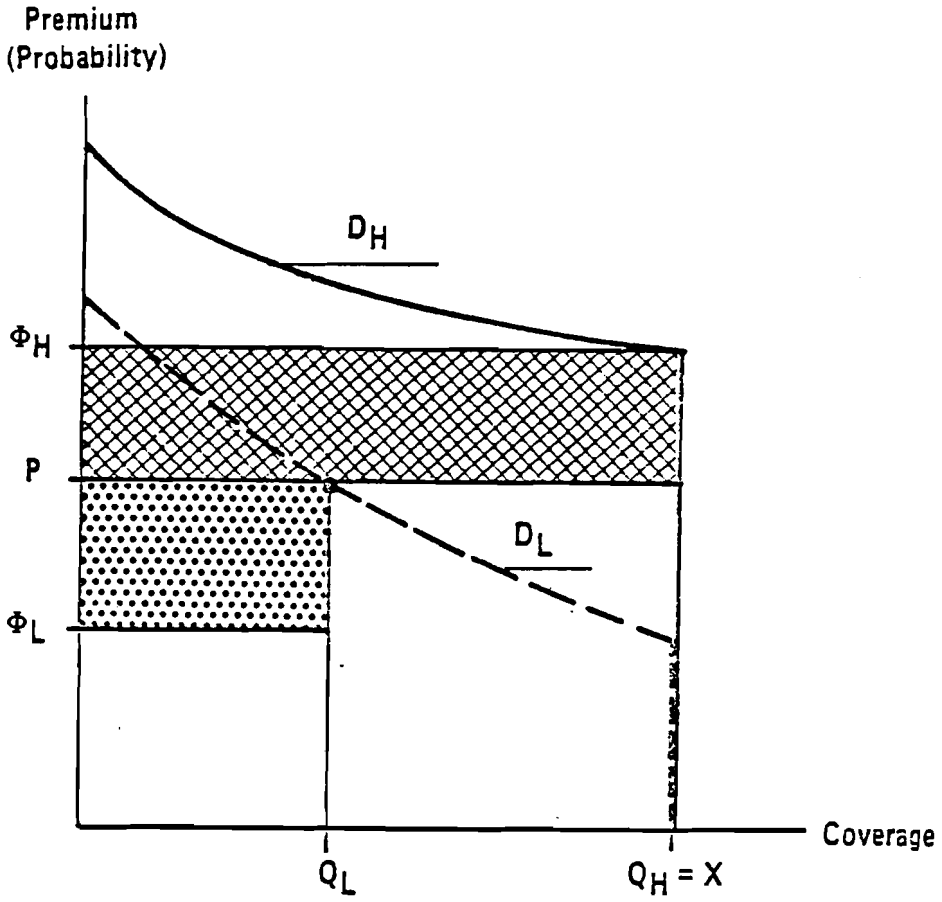


Figure 7. The Adverse Selection Problem.

risk averse, estimate the probability of a loss correctly, and choose an amount of insurance which maximizes some objective function (e.g., expected utility). The demand curves for high and low risk projects are then given by D_H and D_L respectively with full coverage purchased if $P \leq \Phi_i$, $i = L,H$.[17] Q_L units of coverage will be purchased for low risks

[17]Risk averse customers will always demand full protection if the premium per data coverage is below the probability of a loss and they do not have a budget constraint.

projects and Q_H units for high risk investments. The expected loss to the insurer on high risk projects (shown by the hatched area in Figure 7) exceeds the expected gain from low risk ones (the dotted region).

One way for the insurer to counteract the adverse selection problem, when he does not have good information on the respective risks, is to market price-quantity policies. Under this system, the insurer attaches a premium P_i to a specified amount of coverage Q_i. Let $< P_i \ Q_i > \ i = L,H$ represent the price-quantity policies offered as protection against low and high risk projects respectively. As one would expect, the premium and amount of coverage are both less for low risk projects than high risk ones. The analytic properties of this system have been investigated by Rothschild and Stiglitz (1976). For such a set of policies to function effectively there must be some monitoring system instituted by insurance firms to ensure that no one attempts to protect itself against a large loss by purchasing multiple low premium-low coverage policies from several different insurers.[18]

Moral Hazard

The moral hazard problem is illustrated in Figure 8 for a set of low risk projects. The multinational firm and the insurer both assume at the time the investment is made that there is a probability Φ_L that it will fail. Based on the demand curve D_L, the investment planners purchase Q_L units of insurance at P dollars per unit. Once coverage is bought, the

[18] Kleindorfer and Kunreuther (1982) have investigated the robustness of these types of price-quantity policies for the case where potential insured individuals misperceive the probabilities of a loss.

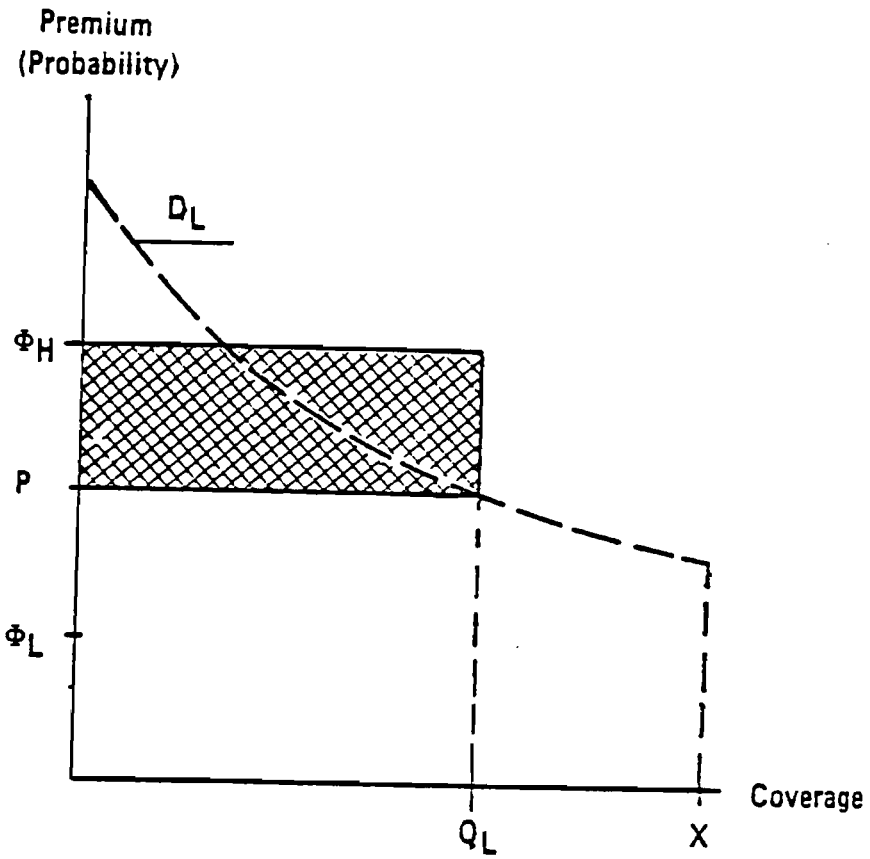


Figure 8. The Moral Hazard Problem

investor is less vigilant than anticipated (and than he would have been in the absence of coverage) so that the actual probability of a project failure increases to Φ_H. As a result the insurer faces an expected loss for each project shown by the cross hatched area in Figure 8 instead of an expected gain indicated by the dotted rectangle.

The possibility of moral hazard as a result of a firm purchasing insurance from OPIC was suggested by the Senate Foreign Relations Committee following its 1974 hearings. It felt that insurance purchased from a US government sponsored program like OPIC

> may lull the companies into a false sense of security and induce them not to make the necessary adjustments to changing local conditions when a healthy relationship between host country and companies would require it.
>
> Moreover, it is the belief of the Committee that government insurance may at times increase the likelihood of expropriation. Expropriation is viewed by some radical governments as a means of striking a blow at the United States Government (Griffin 1976, p.638).

V. PRESCRIPTIVE ANALYSIS

The above descriptive analysis and case study make clear that there are several impediments to a feasible or workable sharing of political risks between multinational firms involved in direct foreign investments and insurers. Concerning firms, the complexities involved in assessing such risks give rise to organizational reactions characterized by single project-single country myopia, by organizational diffusion of responsibility and regret, and by uncertainty avoidance. Such organizational behavior can result in various inefficiencies, including improperly diversified investments, problems of organizational monitoring and control, and inappropriate protective reaction to unfolding events.

These reactions at the firm level only compound the normal problems that insurers face in providing coverage against large risks. It is not surprising, therefore, that the role of insuring political risks has been assumed for the most part by government agencies such as OPIC.[19] One may argue, of course, that some governmental involvement in insuring these risks is desirable given their strategic ramifications. Nonetheless,

[19] *Business Week* (1981) estimated that multinationals worldwide paid some $600-700 million in political risk premiums in 1980, with about $500 million going to government agencies.

private industry has demonstrated significant efficiency advantages over governmental operations in other areas,[20] so reliance on private market mechanisms has prima facie desirable characteristics.

Our discussion of prescriptive analysis is divided into two parts. We first focus on ways that corporations might improve their assessment procedures, so that they have a better understanding of the hazards for which they seek insurance. We then conclude the paper by proposing an alternative insurance program with which private industry can play a more prominent role in providing coverage against international hazards.

IMPROVING RISK ASSESSMENTS BY INVESTORS

The descriptive analysis above suggests several areas where political risk assessment might be improved. We briefly review here recent research of interest under two headings: process improvements and organizational design.

Process Improvements

It should be recognized that the problem of political risk assessment is a special case of the general problem of risk assessment. In recent times, the increasing technical and social complexity of industrial society has given rise to a concerted research effort to develop publicly and scientifically defensible methods for assessing social and technological

[20] See Blankart (1980) for a survey of comparative results on public versus private provision of goods and services. These empirical results strongly support the view that private industry has cost advantages relative to governmental provision of goods.

hazards. It would take us too far a field to review this literature here but some of its major conclusions deserve stress in the present context.[21]

First, one may broadly describe the process of risk assessment as containing two interrelated tasks:

(1) Determining the structure of the contingent events and decisions relating to the risk in question. Figure 4 is a very simple example of such a structure. This representation in so-called "decision-tree" fashion depicts the possible events and consequences resulting from different scenarios.

(2) Estimating the probabilities and consequences of each scenario.

Concerning the second task, recent research has provided a variety of subjective and analytical methods of assessment. However, the more fundamental problem in the political risk assessment area is the first task, determining the "right" decision tree (i.e., a decision tree whose causal links to the risks in question are not just specious). The above Indonesian case study indicates how difficult this task is, as it calls for an intricate knowledge of the events or scenarios in another country that may condition or cause significant political change. Although it would be foolish to expect a perfect understanding in advance of such scenarios, recent research on corporate planning and risk assessment has shown that the use of new corporate planning methodologies can be of help here.[22] By a formal analysis of alternative assumptions and their conse-

[21] Recent research on the role of risk assessment in an institutional context can be found in Conrad (1980).

[22] See Ackoff (1974) and Kleindorfer (1982) for a review of recent research on planning methods and risk assessment. Zeleny (1979) and Hogarth and Madriakis (1981) discuss recent field and experimental results on group processes and forecasting.

quences, these methods enlarge the set of scenarios considered and lend added plausibility and understanding to the chains of events which may produce negative outcomes. In the end, of course, nothing substitutes for wisdom and intuition of the participants in such planning processes. Nonetheless, this research suggests that although political risk assessment is intrinsically subjective, one can substantially improve even wise intuition by instituting explicit and formal procedures.

One of the most promising assessment procedures for evaluating the political risks is SPAIR, an acronym for Subjective Probabilities Assigned to Investment Risks. This approach, developed at Shell Oil Company (see Meisner 1976 and Gebelein, *et al.* 1978) requires experts to evaluate different global scenarios (some of which they may generate themselves). Each expert provides qualitative judgement on the likelihood that certain events such as civil disorder, war, expropriation, price controls, taxation changes and export or production restrictions will occur.

These assessments are then converted into probability estimates on the basis of how strongly a particular proposition is supported or refuted by the expert. The elicitation technique is similar to the Delphi procedure because it uses opinion solicited through a questionnaire. Unlike the Delphi method the SPAIR procedure does not force a panel consensus.

The approach also incorporates a Bayesian updating procedure if new information becomes available. For example, suppose that Pertamina brought in a group of experts to estimate the probability that California would site an LNG terminal. One individual might have estimated the probability that a terminal would *not* be sited as $\Phi_1 = .05$. After learning that two of the three proposed sites were rejected, he might revise his

estimate downwards using data on previous real world scenarios as a basis for updating of the probability.[23]

Organizational Design Issues

Many of the problems of country and project myopia observed in multinational corporations are due to the necessity of organizing corporate activities around specific (large) projects and geographic regions. Oftentimes such specialization represents the appropriate tradeoff between responsibility and control in disaggregating corporate world-wide activities into manageable chunks. Moreover, political risks form only one piece of the more complicated puzzle of business and foreign exchange risks for a given geographic region or group of investment projects.

These considerations can be evaluated operationally by considering the costs and benefits of alternative organizational designs, e.g., organizing by region, by project, or by functional area. Each of these organizational forms has certain corporation-specific benefits for the planning and control of activities. The final choice of organizational structure is then dictated by those dimensions of corporate performance which are most critical for responsibility and control.

Kelley's (1981) analysis of the organizational structure of international operations reveals considerable diversity in the ways in which firms organize, including structuring corporate activities by geographic divisions (19%), by global product divisions (34%), having international

[23] A more detailed discussion on how Bayesian techniques can be used to revise political risk estimates appears in Hopple and Kuhlman (1981).

operations organized under an international division (22%), or by matrix organizations (23%). This variety reflects the absence of general truths regarding efficient organizational design. For example, organizing by product groups may make sense from an operational viewpoint, whereas assessing and monitoring political and foreign exchange risks would be much simpler under a regional organization. Combining these two criteria can be accomplished, through additional managerial resources, by forming a matrix organization with primary operational control vested in the product group while simultaneously giving a regional coordinator the authority to collect and monitor information on all corporate activities in a given region.

Compromise solutions such as matrix organizations have begun to prove their worth in coping with a variety of informational and control tradeoffs in organizational design.[24] Indeed, one may view organizational design generally as the evaluation of how different organizational forms fare with respect to competing long- and short-run planning and control dimensions. Here, just as with decision process problems, the key to improvement is an explicit analysis of alternatives and their consequences.

In reviewing the above discussion on prescriptive measures for the firm, the fundamental problem of dealing with the risks of international hazards appears to be the cost and/or unavailability of accurate information concerning probabilities and consequences of different events, and the organizational responses that such uncertainty evokes. In part, these

[24]See Galbraith (1973) for a detailed discussion of matrix organizations and their relationship to other organizational design issues.

problems are a generic feature of the complexity of doing business in the international arena. However, these informational issues do suggest benefits from sharing data across insurers. In the next section, we consider such an "information partnership" in more detail, as we investigate appropriate informational and insurance roles for government and private insurers in the political risk area.

ALTERNATIVE INSURANCE PROGRAMS

The above discussion points out that there are currently only a few large private insurers willing to enter the political risk area in the US market. Outside of the United States, the situation is even more skewed, with political risk insurance almost entirely in the hands of governmental agencies. Considering only the US market, we have hypothesized that smaller insurers are unwilling to enter this market because of the large uncertainties involved and because their small asset base would not allow them to provide coverage against the catastrophic loss potential of many political risks. To encourage more private firms to enter the political risk market, thus promoting competition and innovation, the following steps could be pursued:

1. Facilitate the pooling and sharing of information between the federal government and private industry.
2. Expand the current OPIC-backed political risk reinsurance program.

The first of the above measures is designed to increase the quality and ease of obtaining information concerning country risks. The second measure is designed to decrease maximum exposure of firms in given areas through excess-loss reinsurance. Taken together, these measures could increase the quality of risk assessment procedures by insurers and promote competition.

Pooling and Sharing of Information

Concerning the pooling of information, governmental agencies now serve as the major source of information for political risk assessment for private insurers. However, such information is located in many different agencies. Our proposal, simply, is to further facilitate the exchange of information on risks and claims by setting up a coordinating agency, possibly through OPIC.[25]

In setting up or expanding any agency to deal with information pooling, it would be very important to have private industry's involvement in determining what data, both in form and content, would be useful. Currently, some private insurers are using a project-region-maximum coverage grid to classify risks (and claims history). One would hope that a classification scheme of this sort would be devised in cooperation with private insurers and the government. The pooling arrangements should be sufficiently attractive to motivate private insurers to provide their company data on claims settlements for inclusion into the statistical data base. All private member insurance firms in such an information sharing

[25]West (1980) argues that OPIC already has considerable informational advantages and is better informed than its typical multinational investor client.

consortium would then have access to this data base and related backup material and could learn from the experience of others in making future underwriting decisions.

In addition to the historical data base described above, one would also expect certain future-oriented studies (e.g., information on relevant country risk factors and expert prognoses) to be archived in the coordinating agency. Much of this material is now available only in an *ad hoc* fashion through the respective country desks in the Departments of State and Commerce. In the end, of course, political risk assessment is a highly uncertain enterprise, even after all possible sources have been examined. The point we are making here is that US suppliers of political risk insurance, both private and government, should realize the immense importance of sharing relevant information on risk assessment.

Government Reinsurance

Another reason that private industry has been reluctant to insure large foreign investments against political risk is the possibility of their incurring severe losses which may threaten their solvency. Private reinsurance companies have also been reluctant to share this risk. Government reinsurance may therefore be desirable. By agreeing to share the risk in this way, the government also has an implied responsibility to protect US investments. This involvement will most likely be taken into account by governments who are considering acts which might imperil foreign investments.

Currently, OPIC, through the Overseas Investment Reinsurance Group (OIRG), does reinsure private insurers writing policies for developing countries and for mineral and energy exploration projects. What we are suggesting is an expansion of these reinsurance activities to provide excess loss insurance, with long time horizons, in the political risk area generally. By continuing OPIC's past premium policies (which have provided a self-sustaining margin of profit and reserves), such an expanded reinsurance program would provide incentives for additional private insurers to enter the political risk insurance market.

A prototype example of the type of reinsurance program we have in mind is provided by the Federal Riot Reinsurance Program, currently administered by the Federal Insurance Administration under the Federal Emergency Management Agency (FEMA). This program provides excess-loss reinsurance to private insurers against urban disorders of various sorts. The government's only role here is to provide protection against very large losses. The program has had no major financial nor administrative problems since its inception in the late '60s. Indeed, the Riot Reinsurance Program may be phased out during the current Administration on the grounds that private reinsurance markets have now grown to the point where this program is superfluous. This changing institutional structure suggests the importance of federally backed riot (and crime) reinsurance in stimulating the growth of private (re-) insurance. In the same spirit, the proposed expansion of current OPIC activities to broader reinsurance coverage for political risk may be viewed as encouraging the further development of private insurance firms involvement in this area. Moreover, one may expect that the strategic and informational

advantages of OPIC would ensure a continuing important role for this agency in the reinsurance market for political risk coverage offered by private US firms.

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